

ADDENDUM No. 2

**Walnut Street Bridge Repair and Rehabilitation
TDOT PIN: 128099.00
Federal Project Number: STP-M-9202(134)
State Project Number: 33LPLM-F3-229
Chattanooga Department of Public Works**

This Addendum #2, is being issued to provide:

1. Pre-Bid Meeting sign in sheet
2. Contractor's Identification form
3. Revised Bid Item Form
4. Renamed Special Provision SP920EPT to SP-6 and revised associated pay items
5. Added Special Provision SP-7 (Project Schedule)
6. Added TDOT Special Provision SP202ACM
7. Revised Plan sheets – 2, 2A, 4, 4A, E-0.2, and E-0.3
8. Existing Repair Plans from 1990
9. Partial list of Questions and Answers (more answers to questions to come in Addendum 3)

Should you require additional clarification or need additional information please contact City of Chattanooga Purchasing (423. 643.7230), or by emailing bidinfo@chattanooga.gov. Please include the title 'Walnut Street Bridge Repair and Rehabilitation' with your request for information.

Bidder Must Acknowledge Receipt of this Addendum on Bid Form

July 8, 2024

/s/ William C. Payne, P.E., City Engineer

Walnut Street Bridge Repair and Rehabilitation

Pre-Bid Meeting, TDOT PIN: 128099.00

Federal Project Number: STP-M-9202(134)

State Project Number: 33LPLM-F3-229

Chattanooga Department of Public Works

Friday, June 14, 2024, 2:00 PM

Philip Grymes Outdoor Chattanooga Center located at 200 River Street, Chattanooga, TN 37405.

Attendance: _____

Name	Representing/Phone Number	Email Address
1.) Eric Booker	423 290-5707	ebooker@chattanooga.gov
2.) Keith Pruett	423-802-5709	wpruett@chattanooga.gov
3.) Jay Hankens	423-999-3967	j.hankins@chattanooga.gov
4.) Bonnie Dodson	423-643-6031	bmumpower@chattanooga.gov
5.) Gina Reed	423-643-6031	greed@chattanooga.gov
6.) John Allen	615-406-9263	John.Allen@VolkerT.com
7.) Greg Cook	217-649-7054	GREG.COOK@VOLKERT.COM
8.) Randy Brown	423-421-2144	rbrown@thompsonengineering.com
9.) Cory Hollinghead	423-260-6213	chollinghead@thompsonengineering.com
10.) Melanie Understin	859-536-9139	melenia@adamscontractingky.com
11.) Tony Satterthwaite	423-305-3196	tonys@youngelctric.net
12.) Gary Moffett's	931-544-3762	gary@moffett-loftis.com
13.) Drew Gates	931-265-5140	drew@moffett-loftis.com
14.) Debbie Tolley	423-643-7230	dtolley@chattanooga.gov
15.) Corey Lipford	618-697-9725	Corey.lipford@shimmick.com
16.) Louie Goepf	423.653.8891	Louie.Goepf@shimmick.com
17.) FS Cooper	931.952.8695	fcooper@bellconstructioncompany.com
18.) Jacob Hunter	423-241-9960	jhunter@wbcci.com
19.) Jonathan Fowler	615-428-3794	j.fowler@stansellelectrical.com
20.) Chris Tarr	615-347-2002	CRANT1045@GMAIL.COM

Name	Representing/Phone Number	Email Address
21.) Jason Hosea	731-607-2937	jfhosea@gmail.com
22.) Chris Davis	613-6042?	cdavis1@chattanooga.gov
23.) MARK ROSS	850-503-0139	mross@sescollighting.com
24.)		
25.)		
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ESTIMATED ROADWAY QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE (EACH)	TOTAL
201-07.01	REMOVAL AND DISPOSAL OF BRUSH & TREES	LS	1		
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	C.Y.	175		
203-07	FURNISHING & SPREADING TOPSOIL	C.Y.	375		
209-05	SEDIMENT REMOVAL	C.Y.	30		
303-10.01	MINERAL AGGREGATE (SIZE 57)	TON	22		
601-10.10	TREATED TIMBER LAMINATED DECKING	MBFM	104		
601-10.11	TREATED TIMBER (SIDEWALK PLANKS AND CURBS)	MBFM	125		
602-02.10	STRUCTURAL STEEL (NORTH VIADUCT - FLOOR BEAM MODIFICATIONS)	LS	1		
602-10.20	BOLTS	EACH	176		
602-10.51	STRUCTURAL STEEL REPAIR (DECK CLIPS)	EACH	500		
602-10.52	STRUCTURAL STEEL REPAIR (WOOD STRINGER KEEPER ANGLES)	EACH	1,180		
602-10.53	STRUCTURAL STEEL REPAIR (STRINGER PACK RUST REMOVAL)	EACH	19		
602-10.54	STRUCTURAL STEEL REPAIR (BEARING GUSSET PACK RUST REMOVAL)	EACH	3		
602-10.55	STRUCTURAL STEEL REPAIR (EYEBAR PACK RUST REMOVAL)	EACH	66		
602-10.57	STRUCTURAL STEEL REPAIR (NUT REPLACEMENT)	EACH	1		
602-10.58	STRUCTURAL STEEL REPAIR (KNEE BRACE REPLACEMENT)	EACH	3		
602-10.59	STRUCTURAL STEEL REPAIR (DIAPHRAGM REPLACEMENT)	EACH	2		
602-10.70	STRUCTURAL STEEL CRACK REPAIR	EACH	2		
603-02.01	REPAINTING EXISTING STEEL STRUCTURES (WALNUT ST BRIDGE)	LS	1		
603-02.15	REPAINT EXISTING BEARINGS	LS	1		
603-05.20	CONTAINMENT & DISPOSAL OF WASTE (WALNUT ST BRIDGE)	LS	1		
604-01.01	CLASS A CONCRETE (ROADWAY)	C.Y.	9		
604-01.02	STEEL BAR REINFORCEMENT (ROADWAY)	LB.	926		
604-04.01	APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	40		
604-10.89	MISCELLANEOUS BRIDGE ITEMS (DISPOSE EXISTING DECK BOARDS)	LS	1		
707-08.10	TEMPORARY CONSTRUCTION FENCE	L.F.	2,500		
709-05.05	MACHINED RIP-RAP (CLASS A-3)	TON	220		
712-01	TRAFFIC CONTROL	LS	1		
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	10		
712-06	SIGNS (CONSTRUCTION)	S.F.	722		
SUB TOTAL OF BID (SHEET 1)					

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ESTIMATED ROADWAY QUANTITIES (CONTINUED)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE (EACH)	TOTAL
712-07.01	TEMPORARY BARRICADES (TYPE I)	L.F.	39		
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	96		
713-16.01	CHANGEABLE MESSAGE SIGN	EACH	2		
714-01.37	LIGHT STANDARDS (PEDESTRIAN/STREET LIGHT)	EACH	16		
714-01.64	ELECTRICAL SYSTEM	LS	1		
714-03.03	DIRECT BURIAL CONDUIT (SCHED. 40 PVC, UTILITY TRANSFORMER SECONDARY)	L.F.	135		
714-03.04	DIRECT BURIAL CONDUIT (SCHED. 40 PVC, UNDERGROUND BRANCH CIRCUIT CONDUITS)	L.F.	100		
714-04.03	CONDUIT (3/4" CONDUIT)	L.F.	8,000		
714-04.04	CONDUIT (1-1/4" CONDUIT)	L.F.	4,500		
714-04.05	CONDUIT (1-1/2" CONDUIT)	L.F.	13,750		
714-04.06	CONDUIT (2" CONDUIT)	L.F.	15,000		
714-04.07	CONDUIT (2-1/2" CONDUIT)	L.F.	3,000		
714-04.08	CONDUIT (4" CONDUIT)	L.F.	4,000		
714-05.05	PULL BOXES (BRANCH CIRCUIT PULL BOXES)	EACH	40		
714-05.06	PULL BOXES (BRANCH CIRCUIT JUNCTION BOXES)	EACH	150		
714-05.07	PULL BOXES (COMMUNICATIONS PULL BOXES)	EACH	20		
714-06.03	CABLE (1/C #10 AWG)	L.F.	38,000		
714-06.04	CABLE (1/C #8 AWG)	L.F.	105,000		
714-06.06	CABLE (1/C #4 AWG)	L.F.	126,000		
714-06.07	CABLE (1/C #2 AWG)	L.F.	28,000		
714-06.08	CABLE (1/C #1/0 AWG)	L.F.	20,000		
714-09.09	LUMINAIRES (BRIDGE MOUNTED, TYPES VARY)	EACH	482		
714-12.01	CONTROL CENTER (NO. 1)	LS	1		
714-12.02	CONTROL CENTER (NO. 2)	LS	1		
714-16.01	NAVIGATIONAL LIGHTING	LS	1		
714-25.02	ELECTRICAL CONNECTION (ELECTRIC POWER BOARD - EPB - ELECTRICT SERVICE #1)	LS	1		
714-25.03	ELECTRICAL CONNECTION (ELECTRIC POWER BOARD - EPB - ELECTRICT SERVICE #2)	LS	1		
714-40	LOCATING UTILITIES	LS	1		
717-01	MOBILIZATION	LS	1		
722-01.01	FIELD OFFICE (TYPE 1)	LS	1		
SUB TOTAL OF BID (SHEET 2)					

SUB TOTAL OF BID (SHEET 2)

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ESTIMATED ROADWAY QUANTITIES (CONTINUED)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE (EACH)	TOTAL
725-02.16	CONDUIT (STRUCTURES - CCTV CAMERAS)	L.F.	10,000		
725-03.80	CCTV CAMERA SYSTEM	EACH	11		
725-05.02	FIBER OPTIC CABLE (60 STRAND SINGLE MODE)	L.F.	2,300		
725-20.75	COMMUNICATION CONNECTION (ELECTRIC POWER BOARD - EPB - FIBER TO CAMERAS)	LS	1		
725-23.29	FIBER OPTIC TERMINATION CABINET	EACH	4		
740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL)	S.Y.	425		
740-11.03	TEMPORARY SEDIMENT TUBE 18IN	L.F.	1,850		
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	205		
801-01.65	TEMPORARY MULCH	UNIT	50		
801-03	WATER (SEEDING & SODDING)	M.G.	65		
803-01	SODDING (NEW SOD)	S.Y.	6,000		
920-10.04	STRUCTURAL STEEL REPAIR (BEARING PLATE WELD REPAIR)	EACH	18		
920-10.05	BRIDGE DECK AND SIDEWALK POWER WASHING AND SEALING	LS	1		
920-11.04	STRUCTURAL STEEL REPAIR (SPACER PLATE WELD REPAIR)	EACH	2		
920-11.05	BIRD NETTING SYSTEM	LS	1		
920-12.04	STRUCTURAL STEEL REPAIR (STRINGER PLATE WELD REPAIR)	EACH	2		
920-12.05	REMOVE NAME PLATES AND PROVIDE TO OWNER	LS	1		
920-13.04	STRUCTURAL STEEL REPAIR (TRUSS VERTICAL WELD REPAIR)	EACH	1		
920-13.05	REMOVE & REPLACE BENCHES, TRASH CANS, & PLANTERS	LS	1		
920-14.04	STRUCTURAL STEEL REPAIR (PAD WELDING)	EACH	7		
920-14.05	RELOCATION OF EXISTING UTILITIES	LS	1		
920-15.04	STRUCTURAL STEEL REPAIR (STRINGER SUPPORT PLATE)	EACH	2		
920-16.04	TREATED TIMBER (RISER BLOCKS)	EACH	195		
920-16.05	UTILITY LINE CLEANING AND PAINTING	LS	1		
920-17.04	TREATED TIMBER (SIDEWALK STRINGERS)	EACH	78		
920-17.05	PERMITS - CITY OF CHATTANOOGA	LS	1		
920-18.05	PVC WATER LINE REPLACEMENT	LS	1		
920-19.04	UTILITY CONDUIT AND HARDWARE	EACH	3		
920-20.04	IN-KIND STRUCTURAL STEEL REPLACEMENT (MISCELLANEOUS)	EACH	2		
920-20.05	REMOVAL AND DISPOSAL OF ELECTRICAL SYSTEM	LS	1		

SUB TOTAL OF BID (SHEET 3)

ESTIMATED ROADWAY QUANTITIES (CONTINUED)

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE (EACH)	TOTAL
920-20.12	REMOVE, CLEAN, AND RESET EXISTING DECK JOINTS	EACH	17		
920-20.13	HISTORICAL SIGN CLEANING AND PAINTING	LS	1		
920-20.20	STRUCTURAL STEEL REPAIR (STRINGER SECTION REPLACEMENT)	EACH	2		
920-20.21	REMOVE & REPLACE EDUCATIONAL SIGNS	LS	1		
920-20.28	DECK DRAIN SCUPPERS	EACH	316		
920-20.29	IRRIGATION SYSTEM (REPAIR)	LS	1		
920-20.37	ADDITIONAL FASTENERS	LS	1		
920-20.40	STRAND REPLACEMENT	L.F.	4,000		
920-20.44	STRAND ADJUSTMENT	EACH	33		
920-20.45	WORK PLAN AND ANALYSIS	LS	1		
920-20.53	MONITORING SYSTEMS	LS	1		

SUB TOTAL OF BID (SHEET 4)

GRAND TOTAL (FIGURE)	
GRAND TOTAL (WORD)	

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July 3, 2024

SPECIAL PROVISION 6

REGARDING

EXISTING EXTERNAL POST-TENSIONING STRANDS AND WORK PLAN

General

A. Scope of Work

This work consists of measuring the stress in the existing post-tensioning strands and developing a work plan for the removal and replacement of timber decking and other repairs per the construction drawings. Additionally, this work includes engineering analysis of the bridge to determine the effects on the bridge because of the timber deck removal and replacement, and any deficiencies that may be found in the measurements of the stresses in the existing strands. This work includes adjustments or replacement of the post-tensioning strands as required by the engineering analysis. The work plan shall include a post-tensioning strand monitoring system that will measure the stress in the strands during and after the repair work to the bridge.

B. Qualifications of the Work Plan and Analysis Engineer

The work plan and analysis engineer to be a licensed professional engineer in the state of Tennessee with experience in developing bridge repair work plans that include external post-tensioning systems. Show evidence of experience and expertise by furnishing a list containing a description of at least three projects either on-going or completed in the last ten years on which the work plan and analysis engineer performed similar tasks. This list of projects shall contain and brief description of the project as well as names and phone numbers of the project owner's representatives who can verify their participation on the project.

C. Field Verification and Existing Plans

Previous repair plans for the bridge are available and can be utilized in determining the existing bridge's general overall measurements and materials but all measurements must be field verified.

The following information is provided based on conversations with the engineer that prepared the 1990 bridge repair plans and is to be verified if utilized in the analysis: The existing plans show a Post-Tensioning Force per Strand and these forces per strand were designed to carry fifty percent of the dead load of the bridge. The existing post-tensioning was completed after the timber deck was installed.

D. Measuring Stress in Existing Post Tensioned Strands

Existing stress in the strands is to be measured by mechanical methods using a Dillon Quick-Check Tension Meter or similar that is rated for the expected loads. Measurements are to be taken on each section of strand on either side of the saddles for all strands on the bridge. A report of findings is to be submitted to the Engineer.

E. Work Plan and Analysis

Utilizing the information gathered from the Measuring Stress in Existing Post-Tensioned Strands work, existing bridge plans, and direct measurements develop a work plan and submit the plan for review and acceptance by the Engineer 30 days prior to working on the bridge. The work plan is to be coordinated with the other repair work on the bridge and work schedule restrictions described in the contract documents.

The work plan and analysis shall show the methodologies, schedule, construction phasing, and analysis to remove and replace the timber decking, perform all other repairs as outlined in the repair plans and to remedy deficiencies that may be found in the measurements of the stress in the existing strands. The work plan shall include plans and specifications for adjustments to or replacement of strands as required by analysis. Additionally, the work plan is to describe a load monitoring system for all the post-tensioned strands. The work plan analysis drawings and supporting documentation to be sealed by a professional engineer licensed in the state of Tennessee.

F. Post-Tensioning Preconstruction Conference

After the work plan has been reviewed by the Engineer a post-tensioning preconstruction conference shall be scheduled with the contractor to discuss the removal and replacement of the timber decking and the forces in the post-tensioning strands shown in the work plan. At a minimum, the attendees should include the General Contractor's Superintendent, the Work Plan and Analysis Engineer, Post-Tensioning Contractor's representative, Monitoring System Installer representatives, The City's representatives, the Engineer, and members of the Construction Inspection Team. No work shall be performed on the bridge until the Post-Tensioning Preconstruction Conference is completed and work plan approved.

G. Strand adjustments and replacements

Any post-tensioning strand that is deficient as determined by the work plan and analysis engineer and cannot be adjusted is to be replaced in-kind or improved and stressed to a force determined by the work plan and analysis engineer. Strand replacement to include all labor and materials required to replace a strand.

Strand adjustments to change the force in the strand is to be completed with care as not to damage the existing strand. Strand adjustments to include all labor and materials required to adjust the strand force.

H. Monitoring System

A load monitoring system is to be installed on the bridge to measure the change in the tensile force in each post-tensioning strand. For strands that are required to be replaced or adjusted, the DYWIDAG DYNA Force Monitoring System or similar is to be installed. For existing strands that are to remain in place and not required to be replaced or adjusted shall be fitted with strain gauges and a monitoring system. The monitoring system or systems shall be capable of monitoring the forces in the strands for at least 25 years. The work plan and analysis engineer is to develop and submit with the work plan a complete description of the monitoring systems including but not limited to plans, equipment, and a schedule for taking readings from the monitoring system. A Maintenance and Operation manual for the system or systems is to be provided to the Engineer. The monitoring system or systems are to be installed prior to any bridge repair work that would change the forces in the strands.

Sequence Contract Submittals

Submittals described in this Special Provision to be submitted in the following order.

1	Report of Findings from the Measurements of Stress in the Post-Tensioning Strands
2	Work Plan
3	PT-Preconstruction Conference
4	Shop Drawings
5	Monitoring System Maintenance and Operation Manual.

Basis of Payment

The Owner will pay for accepted quantities, complete in place, at the contract prices as follows:

Item	Description	Pay Unit
920-20.40	Strand Replacement	LINEAR FEET
920-20.44	Strand Adjustment	EACH
920-20.45	Work Plan and Analysis	LUMP SUM
920-20.53	Monitoring Systems	LUMP SUM

Such payment is full compensation for all described work, including all material, equipment, tools, labor, and any other incidentals necessary to complete the work. These items may be increased or decreased as directed by the Engineer.

July 3, 2024

SPECIAL PROVISION 7

REGARDING SCHEDULE

General

A. Schedule

The project schedule is as follows.

<u>Task</u>	<u>Completion Date</u>
City advertises project	Sunday, May 26, 2024
Pre-bid meeting	Friday, June 14, 2024
Deadline for questions	Friday, July 12, 2024
Last addendum issued	Friday, July 19, 2024
Bid Opening	Thursday, July 25, 2024
Bid review & analysis	Thursday, August 1, 2024
TDOT concurs with the intent to award, City Council awards contract	Thursday, August 29, 2024
City executes contract	Friday, October 11, 2024
Limited Notice to proceed / Pre-Construction Meeting /Meeting with the Public about Bridge Closure	Friday, October 18, 2024
Contractor provide shop drawing/ long lead times for needed materials (4 months 27 days Time Buffer)	Monday, March 17, 2025
Begin Construction (Bridge Closure)	Monday, March 17, 2025
Construction completion November 15, 2025 to March 15, 2026 **	Monday, September 14, 2026
Final Records	Monday, November 9, 2026

STATE

OF

TENNESSEE

Rev. 07-07-14

January 1, 2021

SPECIAL PROVISION

REGARDING

REMOVAL OF ASBESTOS CONTAINING MATERIAL (ACM)

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TECHNICAL PROCEDURES

Division 1 - General Requirements:

011100 Summary of the Work 011100-1

013300 Submittals 013300-1

014529 Testing Laboratory Services 014529-1

Division 2 - Site Work:

028200 Asbestos-Containing Material Abatement 028200-1

SPECIAL FORMS:

Notification of Demolition/Renovation CN-1055

Respirator Training Certification Form SF-2

Certificate of Worker’s Release Form SF-3

Certificate of Involvement in Medical Surveillance Program Form SF-4

END OF TABLE OF CONTENTS

SECTION 011100**SUMMARY OF WORK****1.0. PART 1 - GENERAL****1.1 WORK COVERED BY CONTRACT DOCUMENTS****A. Description**

This Special Provision addresses the abatement of Asbestos-Containing Materials (ACM) in various structures on TDOT projects. The location and type of ACM will be defined in the contract plans. TDOT may provide estimated quantities based on an inspection for ACM by a licensed Tennessee Asbestos Inspector. The contractor is required to verify ACM quantities and confirm location.

Engineering controls which include, but are not limited to, negative pressure enclosures, amended water, and wet-cleaning methods, shall be utilized to prevent airborne asbestos fibers from migrating to other areas within or surrounding the work area(s) during all removal activities.

B. Location

The work is located as shown on contract plans.

C. Method of Measurement

The work shall be completed on a lump sum for completion of all work or measurement shall be square foot area and/or linear foot of pipe insulation, as follows:

1. Work Area A, Floor Tile and Mastic, Sq. Ft.
2. Work Area B, Roofing and Roof Flashing, Sq. Ft.
3. Work Area C, Thermal System Insulation, Linear Feet.
4. Work Area D, Cementitious Deck Drains (located in situ on existing bridge), Linear Feet.
5. Work Area E, Cementitious Deck Drains (located in rubble), Linear Feet.
6. Work Area F, Guardrail Caulking, Linear Feet.
7. Work Area G, Beam Bearing Pads, Sq. Ft.

8. Work Area H, Bridge Coatings and/or Concrete Bridge Components, Sq. Ft.

D. Basis of Payment

ACM abatement, complete, in accordance with this document, shall be paid for on a lump sum basis or by the unit described in the contract plans.

1.2 EXISTING FINISHES AND FACILITIES

Perform all work in such a manner as to prevent injury or damage to any portions of existing finishes, or any other portions of the building structure, which are to remain. Repair or replace portions of existing finishes which have been damaged or altered during construction operations to match existing or adjoining work, as approved by the Engineer. At the completion of operations, existing finishes shall be in a condition equal to or better than that which existed before new work started, unless otherwise specified in the contract documents.

1.3 DEFINITION OF WORK AREAS

A. Asbestos-Containing Materials

9. Work Area A is defined as the removal of all asbestos-containing Floor Tile and Mastic.
10. Work Area B is defined as the removal of all asbestos-containing Roofing and Roof Flashing.
11. Work Area C is defined as the removal of all asbestos-containing Thermal System Insulation.
12. Work Area D is defined as the removal of all asbestos-containing Cementitious Deck Drains (located in situ on existing bridge).
13. Work Area E is defined as the removal of all asbestos-containing Cementitious Deck Drains (located in rubble).
14. Work Area F is defined as the removal of all asbestos-containing Guardrail Caulking.
15. Work Area G is defined as the removal of all asbestos-containing Beam Bearing Pads.
16. Work Area H is defined as the removal of all asbestos-containing Bridge Coatings and/or Concrete Bridge Components.

END OF SECTION

SECTION 013300**SUBMITTALS****1.0. PART 1 - GENERAL****1.1. WORK INCLUDED**

Make submittals required by the Contract Documents in a timely manner and at approximate times in the execution of the Work to allow for sufficient and prompt review by the Engineer and distribution to the TDOT Environmental Division. Revise and resubmit as necessary to establish compliance with the specified requirements.

A. Related Work

1. Section 014529 – Testing Laboratory Services
2. Section 028200 – Asbestos-Containing Materials Abatement

1.2. DESCRIPTION**A. Submittals**

1. At the Pre-construction Conference, the successful bidder(s) shall submit three three-ring bound sets of "Pre-Job Submittals" to the Engineer for review.
2. Submit three, three-ring bound sets of any new or additional Pre-Job Submittals to the Engineer for his review prior to mobilization at the project site. The Work may not proceed until the complete Pre-Job Submittal package has been reviewed and approved in writing by the Engineer.
3. Submit three, three-ring bound sets of "Post-Job Submittals" to the Engineer for his review following the final completion of the Work.
4. Identify individual submittals by name and include a table of contents in each submittal package.

1.3. NUMBER OF COPIES

Provide three, three-ring bound sets of each submittal package to the Engineer for his review and distribution. Contractor shall also maintain one full set of pre-job submittals at each job site for the duration of the work.

1.4. QUALITY ASSURANCE

A. Coordination of Submittals

1. Carefully review all aspects of each item being submitted.
2. Verify that each item and its appropriate submittal conform in all respects with the specified requirements.
3. Certify, by affixing signature of Contractor's authorized representative to the cover sheet of each submittal package, that this coordination has taken place.

1.5. SUMMARY OF WORK

A. Pre-Job Submittals

1. Submit complete information relative to the following:

NOTIFICATIONS
PERMITS
SAMPLE DAILY LOG

As detailed below:

- a. Notice of impending commencement of asbestos removal work, where required, in writing to the appropriate regulatory agency:

Using SF – 1 of these specifications, not fewer than thirty days before work commences on the Project. Include copy of notification in submittal package.

- b. All required permits and arrangements for transport and disposal of asbestos-containing or contaminated materials, supplies, etc.
- c. A sample copy of daily in/out log form to be used.

2. Submit complete information relative to the following:

DECONTAMINATION UNIT
SECURITY PROCEDURES
WORK PROCEDURES
NEGATIVE EXPOSURE ASSESSMENT
MATERIALS CERTIFICATIONS
EQUIPMENT CERTIFICATIONS

As detailed below:

- a. Written description and/or sketch of the plans for construction of a worker and barrel/equipment decontamination enclosure system and for isolation of the work areas.
- b. Written description and/or sketch of the security procedures plan to be utilized. Work procedures or practices to be utilized on the Project.
- c. Submit a written, detailed plan of how the Contractor intends to remove asbestos-containing material from each work area. Details are to include wetting methods, visible emission minimization methods, segregation criteria, any cutting, abrading or physical methods, and all transport and disposal methods.
- d. Negative Exposure Assessment (NEA): Provide a negative exposure assessment (NEA) as described in 29 CFR 1926.1101 for each work activity, including, but not limited to, work area preparation, removal of ACM, work area cleaning(s) and disposal at the landfill. In order to generate the NEA, obtain both PEL and excursion limit air sampling results from either prior asbestos projects within the last 12 months or from initial exposure monitoring from this project.

Note that air sample data must include documentation indicating that the data was obtained during activities which closely resemble the processes, type of ACM, control methods, work practices and environmental conditions associated with this project. Also, include documentation that the training and experience of the workers on the prior asbestos projects was no more extensive than that of the workers to be used on this project. Documentation shall be sufficient to determine that the prevailing conditions on this project will, with a high degree of certainty, not result in employee exposures above the PEL or excursion limit.

- e. Manufacturer's certification or independent test reports confirming that materials to be utilized on this Project meet or exceed all performance criteria specified in the Contract Documents. Contractor's and Manufacturer's affidavits stating that all materials replaced on the project do not contain asbestos or lead.
- f. Certification that the diminished air filtration system to be utilized meets the requirements of the Contract Documents.
- g. All special equipment, techniques, etc. to be used on the Project.

3. Submit complete information relative to the following:

SUPERVISOR NAMES AND TRAINING
WORKER TRAINING
WORKER'S RELEASE
RESPIRATORY TRAINING
MEDICAL SURVEILLANCE

As detailed below:

- a. Names of supervisory personnel and their qualifications and training. Refer to Sections 028200 for additional details.
- b. Alphabetized list of workers and their training. Refer to Sections 028200 for additional details.
- c. Individually signed Worker's Release forms for each and every worker to be utilized on the project by the Contractor or subcontractor (Form SF-3).
- d. Individually signed forms by each and every worker to be utilized on the Project by the Contractor or subcontractor documenting that each is actively involved in a company employee respiratory protection program and has had appropriate training in respiratory protection (Form SF-2).
- e. Individually signed forms by each and every worker to be utilized on the Project by the Contractor or subcontractor documenting that each is actively involved in a company employee medical surveillance program for asbestos (Form SF-4). Include copies of medical examination records (Doctor's respirator opinion, spirometry, radiograph, interpretation, etc.).
- f. Copies of each individual's (working on the project) training certificate(s) with accompanying update certificates in accordance with state and federal statutes.

It shall be the responsibility of the Contractor to translate in writing all special forms requiring an individual signature (Special Forms SF-2, SF-3, SF-4) into a language that the individual worker can understand, if other than English, and to make sure that the individual worker fully understands the contents of the special form prior to signing.

B. Post-Job Submittals

Submit complete information relative to the following:

1. All submittals required by the General Requirements.
2. Waste shipment record as required by state and federal regulations. In addition, submit landfill receipts.
3. Copies of daily logs showing the following: date, entering and leaving time, company or agency represented, and reason for entry for all persons entering the work area.
4. Copies of employee air monitoring results relative to OSHA respiratory protection level compliance.
5. An alphabetized list of all employees utilized on the project.
6. Copies of pressure differential recordings the negative pressure abatement work areas. These recordings shall be clearly marked with location, pressure levels and dates and time of day, on an hourly basis, from start of removal until acceptance of clearance air testing by Testing Laboratory.

C. "Or Equivalent," "Approved Equivalent," "Other As Approved," etc.

1. Where the phrases "or equivalent," or "equivalent as approved by the Engineer," or similar wording occurs in the Contract Documents, specific materials, equipment, or methods will not be considered as equivalent unless the item has been specifically so approved for this Work by the Engineer.
2. Wherever a particular item is listed by manufacturer's name, model number or other identifying information, it shall be interpreted to include equivalent products of other manufacturers whether "approved equivalent," etc. is stated or not.
3. Whenever a manufacturer's product is specified to the exclusion of all other products, it shall be so identified and declared.
4. Decision of the Engineer shall be final.

2.0. PART 2 - PRODUCTS

2.1. SAMPLES

If requested by the Engineer, provide samples of all materials or articles proposed to be installed as a part of the Work. Identify as described under "Identification of Submittals" below.

2.2. MANUFACTURER'S LITERATURE

Where contents of submitted literature from manufacturers include data not pertinent to the submittal, clearly show which portions of the contents is being submitted for review. Submit a minimum of three copies to the Engineer for his review and file.

3.0 PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

Number consecutively and clearly identify all submittals. Show on at least the first page of each submittal and elsewhere as necessary for positive identification of the submittal. Accompany each submittal package with a letter of transmittal showing all information required for identification and checking.

3.2 GROUPING OF SUBMITTALS

Group submittals into packages identified as "Pre-Job Submittals" and "Post-Job Submittals". Partial submittals may be rejected for noncompliance with the Contract Documents.

3.3 TIMING OF SUBMITTALS

Make submittals not less than 14 days prior to scheduled dates for commencement, execution or installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. Allow in scheduling, at least five working days for review by the Engineer following his receipt of pre-job submittals. Contractor will be held responsible for delays occasioned by incomplete submittal packages.

3.4 ENGINEER'S REVIEW

Review by the Engineer does not relieve the Contractor from responsibility for errors which may exist in the submitted data. Make revisions if required by the Engineer and resubmit for approval.

END OF SECTION

SECTION 014529**TESTING LABORATORY SERVICES****1.0. PART 1 - GENERAL****1.1 DESCRIPTION**

Contractor will provide a qualified Testing Laboratory to perform routine and special testing of the Work performed under the Contract Documents and to monitor general compliance therewith. The Testing Laboratory employed by the Contractor shall perform testing for compliance with applicable codes, regulations, and requirements as specified in this Section and elsewhere in the Contract Documents. The Testing Laboratory employed by the Contractor shall be responsible for employee air monitoring relative to OSHA respiratory protection level compliance, daily area air monitoring to determine effectiveness of engineering controls, and negative pressure enclosure readings and documentation, and final clearance sampling, if required by these specifications.

The Contractor shall cooperate with the Testing Laboratory in all aspects of the testing in order to expedite testing and results. Provide Testing Laboratory access to the Work at all times and in all locations requested as necessary to perform testing.

The Engineer reserves the right to hire, direct, and compensate his own Testing Laboratory, separate and distinct from the Contractor. The Engineer's test results may be made available to Contractor at the Engineer's sole discretion.

A. Related Work

1. Section 013300 – Submittals
2. Section 028200 – Asbestos-Containing Material Abatement

1.2 QUALITY ASSURANCE

All asbestos air testing shall be performed in general accordance with the procedures outlined in the National Institute for Occupational Safety and Health (NIOSH) methods 7400 for samples analyzed by Phase Contrast Microscopy (PCM) and in general accordance with the EPA AHERA protocols for samples analyzed by Transmission Electron Microscopy (TEM) and also guidelines issued by EPA for detection limits. Consider work areas clean and ready for reoccupancy when air testing shows 0.01 or less fibers per cubic centimeter of air (f/cc), for each sample obtained using standard NIOSH Method No. 7400 for PCM. This standard must be met for the work area to pass clearance.

A. Payment for Testing

Testing Services shall be paid for as follows:

1. Initial Services: Contractor will pay for initial air clearance testing services required by Contract Documents.
2. Retesting: When initial air clearance tests indicate noncompliance with the Contract Documents, subsequent retesting shall be performed by the same testing agency, and costs will be absorbed by the Contractor.

B. Scheduling

1. Testing by the Testing Laboratory shall be performed in areas and at times during the Work as deemed necessary by the Engineer or as specified in the Contract Documents.
2. Contractor shall schedule, and make the Engineer aware of, air clearance testing at least 24 hours prior to desired time of testing.
3. Coordinate scheduling with Testing Laboratory as necessary.

C. Results

1. All testing and analysis will be performed promptly and results issued expeditiously in order to minimize any possible delay in the progress of the Work.
2. Test results will be made available to the Engineer as follows:
 - a. Air sample results for Asbestos (Phase Contrast Microscopy) - as quickly as possible but not later than 24 hours following conclusion of sampling event.
 - b. Results of other tests deemed necessary - as quickly as possible but not later than 24 hours following completion of test(s).

END OF SECTION

SECTION 028200**ASBESTOS-CONTAINING MATERIAL ABATEMENT****1.0. PART 1 - GENERAL****1.1 DESCRIPTION****A. Responsibilities of the Contractor**

1. Perform all planning, administrative, execution, and cleaning requirements necessary to safely remove all asbestos-containing materials from all Work Areas indicated in the Contract Documents. Approval of or acceptance by the Engineer of various construction activities or methods proposed by the Contractor does not constitute an assumption of liability by the Engineer for inadequacy or adverse consequences of said activities or methods.
2. Contractor (or subcontractor engaged to perform the Work of this Section) shall:
 - a. Be a licensed asbestos abatement contractor in accordance with State of Tennessee Statutes. Submit documentation confirming current licensure.
 - b. Have a record of not less than five years successful experience in asbestos removal and related work similar in scope and magnitude to this Project. Submit list of successfully completed projects for verification.
3. Maintain on site a Superintendent and one Head Foreman, each on permanent staff and each having no less than two years of full-time experience in responsible charge of asbestos removal operations similar in scope and magnitude to this Project within the three year period preceding start of Project. Adequate evidence of experience and skill of the Superintendent and Head Foreman must be demonstrated prior to the start of the Work and shall not be changed. Head Foreman shall remain inside of the work area at all times the Work is in progress. Submit experience of Superintendent and Head Foreman in the pre-job submittal package.
4. Provide one experienced Job Foreman with a minimum of two years successful experience in asbestos removal operations similar in scope and magnitude to this Project for every ten asbestos removal workers (laborers) utilized on the Project. Foreman shall remain inside of work area(s) at all times that the Work is in progress. Submit notarized experience of each Job Foreman in the pre-job submittal package.

5. Submit certification for each and every worker to be utilized on the project by the Contractor or subcontractor(s) documenting that each has successfully completed (including examinations and applicable refresher courses) a training course for asbestos abatement workers approved by the State of Tennessee. Contractor shall also submit documentation confirming federal approval for each training center represented in the submittals.
6. Submit certification for each and every supervisor to be utilized on the project by the Contractor or subcontractor(s) documenting that each has successfully completed (including examinations and applicable refresher courses) a training course approved by EPA and State of Tennessee for asbestos abatement supervisors.

B. Reference Standards

1. Acknowledge, by the executing of the Contract, awareness and familiarity with the contents and requirements of the following regulations, codes, and standards, and assume responsibility for the performance of the Work in strict compliance therewith and for every instance of failure to comply therewith.
2. The current issue of each document shall govern. Where conflict among requirements or with the Contract Documents exists, the more stringent requirements shall apply.
 - a. U.S. Environmental Protection Agency (EPA) Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61, Subparts A and B).
 - b. U.S. EPA Regulations for Asbestos in Schools, Asbestos Hazard Emergency Response Act (AHERA), (Code of Federal Regulations Title 40, part 763, Subpart E).
 - c. U.S. EPA Regional National Emissions Standards for Hazardous Air Pollutants (NESHAPS).
 - d. U.S. Occupational and Safety and Health Administration (OSHA) Asbestos Regulations (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101).
 - e. U.S. EPA Office of Pesticide and Toxic Substances Guidance Document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings", EPA 56015-85-024, June, 1985.
 - f. U.S. Department of Transportation, Hazardous Substances: Final Rule (Code of Federal Regulations Title 49 Parts 171 and 172), Federal Register November 21, 1986 and corrected February 17, 1987.
 - g. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable State, County, and City Regulations governing the Work.
 - h. U.S. Environmental Protection Agency – 40 CFR, Part 763, Subpart G – Asbestos Worker Protection
 - i. U.S. Environmental Protection Agency – 40 CFR, Part 61, Subpart M – National Emission Standards for Hazardous Air Pollutants

- j. U.S. Occupational Safety and Health Administration – 29 CFR, Part 1910.1001 – Asbestos Standard for Industry
- k. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Air Pollution Control – Chapter 1200-03-11, Hazardous Air Contaminants.
- l. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Air Pollution Control – Chapter 1200-01-20, Asbestos Accreditation Requirements.
- m. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Solid and Hazardous Waste Management – Chapter 1200-01-07, Solid Waste Processing and Disposal
- n. Tennessee Department of Labor and Workforce Development, Division of Occupational Safety and Health (TOSHA) – Chapter 0800-01-01, Occupational Safety and Health Standards for General Industry.
- o. Tennessee Department of Labor and Workforce Development, Division of Occupational Safety and Health (TOSHA) – Chapter 0800-01-06, Occupational Safety and Health Standards for Construction.

C. Patent/Copyright Compliance

The Contractor shall fully comply with patent and copyright requirements associated with this Contract. The Contractor shall defend all suits for or claims of infringement of said patent rights and shall save the Engineer and Testing Laboratory harmless from loss on account thereof, fully indemnifying the Engineer and Testing Laboratory from same and any and all associated claims without exception or limitation.

D. Test Reports

- 1. Results of tests of asbestos-containing materials (which are specifically excluded as a part of this Contract) taken from surfaces within the scope of this Project are available for review at the office of the Engineer.

However, the Contractor or subcontractor is cautioned that, should interpretations be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and

conclusions will be those made, formed, and drawn solely by the Contractor or subcontractor.

2. In as much as randomly and/or arbitrarily selected areas were sampled, the Department makes no representation, warranty, nor guarantee that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from, those indicated may not exist.

1.2. SUMMARY OF WORK

A. Work Covered by Contract Documents

The Contractor shall inform himself of the conditions for the project, and is responsible for verifying the quantities and locations of all work to be performed as outlined in this section. Failure to do so shall not relieve the Contractor of his obligation to furnish all materials and labor necessary to carry out the provisions of the Contract.

1. **SCOPE OF WORK**: The scope of work to be performed is the removal and disposal of asbestos-containing materials as defined and quantified in the Drawings. The work of the contract shall be performed in compliance with the specifications.
2. **START OF WORK**: Work shall be started no earlier than the date indicated on written authorization from the Engineer and shall be performed only during the hours as stated below.
3. **WORKING HOURS**: All work by the abatement contractor shall be performed during the days and hour as defined in the contract documents.

B. Definitions

1. Abatement - procedures to decrease or eliminate fiber release from asbestos- containing building materials. Includes encapsulation, enclosure and removal.
2. AHERA - Asbestos Hazard Emergency Response Act (40CFR763).
3. Airlock - system for permitting ingress and egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least three feet apart.
4. Amended water - water to which a surfactant is added.

5. Air Monitoring - the process of measuring the fiber content of a specific volume of air in a stated period of time.
6. Clean Room - an uncontaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment. Also known as the "Change Room".
7. Curtained Doorway - a device to allow ingress and egress from one room to another while minimizing air movement between the rooms. Typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway and securing each along the top of the doorway, with the vertical edge of one along one vertical side of the doorway, and the vertical edge of the other along the opposite vertical side. Two curtained doorways spaced a minimum of three feet apart form an airlock.
8. Decontamination Enclosure System - a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains an airlock.
9. Encapsulation - the sealing of asbestos surfaces involving application of a material (encapsulant/sealant) that will envelop or coat the fiber matrix and minimize fiber fallout and protect against contact damage.
10. Enclosure - procedures necessary to completely enclose material containing asbestos behind airtight, impermeable, permanent barriers.
11. Engineer – where the word Engineer is used, the word Architect shall be interchangeable.
12. EPA - United States Environmental Protection Agency.
13. Equipment Decontamination Enclosure System - a decontamination enclosure system for materials and equipment, typically consisting of a designated area of the work area, a washroom, and an uncontaminated area.
14. Equipment Room - a contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

15. Fixed Object (immovable object) - a unit of equipment or furniture in the work area which cannot be removed from the work area.
16. Glove Bag - A relatively small, clear plastic enclosure which can completely encompass short sections of pipe. It shall be capable of allowing the removal of asbestos- containing materials without any of the materials escaping from the enclosure.
17. HEPA Filter - a High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of asbestos thermally generated DOP particles 0.3 microns in diameter.
18. HEPA Vacuum Equipment - High Efficiency Particulate Air filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be 99.97 percent efficient for retaining thermally generated DOP particles 0.3 microns in diameter.
19. Holding Area - a chamber between the washroom and uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an airlock.
20. Movable Object - a unit of equipment or furniture in the work area which can be removed from the work area.
21. NIOSH - National Institute for Occupational Safety and Health.
22. OSHA - Occupational Safety & Health Administration.
23. Plastic Sheeting - plastic sheet material used for protection of walls, floors, etc. and used to seal openings into work areas. The thickness of the material shall be as specified.
24. Asbestos Containing Material (ACM) Removal - the act of removing asbestos-containing or contaminated materials from a structure and depositing in a suitable disposal site.
25. Scaffolding - self-supporting and load bearing temporary structure.
26. Shower Room - a room constituting an airlock, between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water suitably arranged for complete showering during decontamination.

27. Surfactant - a chemical wetting agent added to water to improve its penetrating ability, thus reducing the quantity of water required to saturate asbestos- containing materials.
28. Waste Generator - a source covered by EPA NESHAP regulations whose act or process produces asbestos-containing waste.
29. Wet Cleaning - the process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.
30. Washroom - a room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.
31. Work Area - area or areas of project which undergo "abatement" or are contaminated.
32. Worker Decontamination Enclosure System - a decontamination enclosure system for workers, typically consisting of a clean room, a shower room, and an equipment room.

1.3. WORKSITE CONDITIONS

Worker and Visitor Procedures: The Contractor is hereby advised that asbestos has been determined by the U.S. Government to be a CANCER-CAUSING AGENT and Contractor shall provide workers and visitors with respirators which as a minimum shall meet the requirements of OSHA 29CFR 1926.1101, and protective clothing during preparation of system of enclosures, prior to commencing, during actual asbestos removal, and until final clean-up is completed.

1.4 PERSONNEL PROTECTION

Prior to commencement of work, all workers shall be instructed by the Contractor and shall be knowledgeable, in the appropriate procedures of personnel protection and asbestos removal. Contractor acknowledges and agrees that he is solely responsible for enforcing worker protection requirements at least equal to those required by federal regulations.

A. Respiratory Protection

1. Contractor shall provide workers with personally issued and marked respiratory equipment approved by NIOSH and OSHA and as a minimum

suitable for the asbestos exposure level in the work areas according to OSHA Standard 29 CFR 1926.1101.

2. Where respirators with disposable filters are used, provide sufficient filters for replacement as necessary by the workers, or as required by applicable regulations.
3. Provide respiratory protection from the time the first operations involved in the Project require contact with asbestos-containing materials (including construction of airtight barriers/barricades, and placing of plastic sheeting on walls) until acceptance of final air test results by Testing Laboratory. Should conditions be encountered where the exposure level, after application of the appropriate protection factor of the respiratory equipment in use, exceeds 0.01 fibers per cubic centimeter of air (f/cc), substitute respiratory equipment with protection factors which reduce worker exposure levels below 0.01 f/cc. As a minimum, Contractor shall use respirators as follows:

<u>ACTIVITY</u>	<u>MIN. RESPIRATORY PROTECTION</u>
a. Construction of Airtight Barriers/Barricades	Half-Mask Air Purifying
b. Placing of Plastic Sheeting	Half-Mask Air Purifying
c. Pre-cleaning	Half-Mask Air Purifying
d. Removal Using Glovebag Procedures	Half-Mask Air Purifying
e. Removal of Non-Friable Materials	Half-Mask Air Purifying
f. Removal of Friable Materials	Powered Air Purifying (PAPR)
g. Second Phase Cleaning	Half-Mask Air Purifying
h. Anytime fiber concentrations reach or exceed 0.10 f/cc by NIOSH Method #7400 regardless of activity being performed.	Type C, Supplied Air, Pressure Demand

4. Provide emergency backup air supply for each worker in work area at all times when "Type C" (supplied air) respirators are required. Provide emergency backup equipment with air supply of sufficient duration for all workers to safely exit work area. Locate emergency equipment so that it is readily accessible to each worker in work area following interruption of normal air supply.

5. All supplied air (Type C) respiratory equipment shall supply as a minimum, Grade D air. Contractor shall maintain on- site documentation and submit certified test results that air supplied to work area is Grade D or better. Documentation will include, as a minimum, equipment serial numbers, or panel numbers, and shall have been certified within the six months prior to project startup date.
6. Ambient air pumps shall not be used for Type C supplied air systems.

B. Additional Protective Measures

1. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Engineer, in the work areas after commencement of asbestos disturbance or removal. Provide authorized visitors with suitable respirators.
2. Provide workers with sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers; of sizes to properly fit individual workers.
3. Provide authorized visitors with a set of suitable protective disposable clothing, headgear, eye protection, and footwear of sizes to properly fit visitors whenever they are required to enter the work area, to a maximum of six sets per day.
4. Provide, in addition to respirators and protective clothing provided for authorized visitors, protective clothing and respirators for use by Testing Laboratory's representative. Furnish protective clothing in as many sets as required for full-time monitoring by Testing Laboratory.
5. Provide and post in the Equipment Room and the Clean Room the asbestos removal decontamination and work procedures to be followed by workers.

2.0. PRODUCTS

2.1 MATERIALS

A. Material Requirements

Materials to be used by the Contractor shall meet the following requirements:

1. Plastic sheeting - shall be of the thicknesses specified, in sizes to minimize the frequency of joints. Opaque plastic sheeting shall be utilized, in thicknesses specified, where work areas are adjacent to public access areas.
2. Tape - shall be glass fiber or other type capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials under both dry and wet conditions.
3. Surfactant (wetting agent) - Shall consist of resin materials in water base which have been tested to indicate material is nontoxic and nonirritating to skin and eyes, and noncarcinogenic. Approved Materials and Manufacturers:
 - a. "Dust-Set Amended Water Base" and its sprayer mixing head amended water generator manufactured by Matheson Chemical Corporation, 1025 East Montgomery Avenue, Philadelphia, PA, 19125, telephone (215) 423-3200.
 - b. Equivalent products by other manufacturers will be considered for approval if submitted with appropriate information not later than five days prior to the scheduled time for the material to be used. Minimum information shall include Material Safety Data Sheet, OSHA Form No. 20; toxicological reports, and installation recommendations for use on asbestos- containing materials.
4. Tile Adhesive Removal Solvent: - Provide a water based slow drying solvent intended to remove tile adhesive. The chemical shall, at a minimum, have a closed cup flash point of greater than 140 degrees F., contain no chlorinated compounds, and contain no compounds which could render the waste as a hazardous waste for disposal. Specifically, the mastic removal chemical shall not contain any ingredient which is subject to the reporting requirements of Section 313 Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) or 40 CFR 372. Contractor shall, whenever feasible, use "low odor" products in an effort to minimize complaints during the project and following demobilization. Approved materials and manufacturers:

- a. "De-Solv-It", manufactured by Orange Sol, Inc., P.O. Box 306, Chandler, Arizona 85244, Telephone (602) 497-8822. "De-Solv-It" is formulated for the removal of asphaltic and multi-purpose adhesives.
 - b. "ADL-1" manufactured by Orange Sol, Inc., P.O. Box 306, Chandler, Arizona 85244, Telephone (602) 497-8822. "ADL-1" is formulated for latex adhesive removal.
 - c. Equivalent products by other manufacturers will be considered for approval if submitted with appropriate information not later than five days prior to the scheduled time for the material to be used. Minimum information shall include Material Safety Data Sheet, OSHA Form No. 20; toxicological reports, and installation recommendations for use on asbestos-containing materials.
5. Sealant (encapsulant) - Shall be manufactured by reputable, established manufacturer of encapsulant/sealant materials and be approved specifically for use in asbestos-contaminated environments. Shall be compatible with the temperature conditions on surfaces to which sealant is to be applied. It is the responsibility of the Contractor to determine compatibility of the sealant with materials and conditions.
 6. Impermeable containers - Shall be suitable to receive and retain asbestos-containing or contaminated materials until disposal at an approved site and shall be labeled in accordance with OSHA Regulation 29 CFR 1926.1101, and U.S. DOT 49 CFR 171 and 172, containers shall be both air and water- tight. Use a minimum of two types of impermeable containers: 1) six mil plastic bags sized to fit within the drum 2) metal or fiber drums with tightly fitting lids.
 7. Warning labels and signs - Shall be as required by OSHA regulation 29 CFR 1926.1101 (and U.S. DOT 49CFR 171 and 172 for impermeable containers).
 8. Other materials - Provide all other materials, such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area(s).
 9. Caulking - Shall be non-shrinking caulk to be used where insulated pipes continue through walls, ceilings, etc. Contractor shall determine and submit proof that caulk proposed for use is compatible with the temperature conditions and fire ratings of the surfaces to which it is to be applied. Caulking shall be certified as not containing asbestos in any amounts.

2.2 PRODUCT HANDLING

A. Product Delivery and Storage

1. Deliver all materials as described in Part 2 in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
2. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
3. Remove from the premises all damaged or deteriorating materials. Dispose of materials that become contaminated with asbestos in accordance with applicable regulatory standards.

2.3 TOOLS AND EQUIPMENT

A. Suitable tools for asbestos removal

1. Water sprayer - Use airless or other low pressure sprayer for amended water application.
2. Air purifying equipment (for internal recirculation in the work area) - Shall be HEPA Filtration Systems or Electronic Precipitators. Ensure that no internal air movement system or purification equipment exhausts contaminated air from the work area(s) outside the work area.
3. Diminished air pressure equipment - comply with ANSI 29.2-7, local exhaust ventilation.
4. Scaffolding - Shall be as required to accomplish the specified work and shall meet all applicable safety regulations.
5. Transportation - As required for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.
6. Communication equipment - Shall be suitable for interroom communications, such as "walkie-talkies".
7. First Aid Supplies - Comply with governing regulations and recognized recommendations within the construction industry.
8. Fire Extinguishers - Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or

grease-oil-flammable liquid fires. In other locations provide type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.

9. Water Hoses - Employ either rigid copper tubing or heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each Decontamination Unit.
10. Water Heater - Provide UL rated electric water heater to supply hot water for the Decontamination Unit shower. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip on floor. Wiring of the water heater shall be in compliance with NEMA, NEC, and UL standards.
11. Electrical Distribution Equipment - Provide circuit and branch wiring, with area distribution boxes located as necessary to perform the Work. Wiring shall be in compliance with NEMA, NEC and UL standards. All branch circuits shall originate from a ground fault circuit interrupter located outside the containment(s).
12. Lighting - Provide adequate artificial lighting for all areas of the Work.
13. Extension Cords - Use only grounded extension cords. Use "hard-service" cords where exposed to abrasion or traffic. Use single lengths or water proof connectors to connect separate lengths when single lengths do not suffice.
14. Temporary Cooling and Heating - Provide temporary cooling and heating as necessary to maintain adequate environmental conditions to facilitate the progress of the work, to meet specified minimum conditions for material installation, and to protect materials and finishes from damage due to temperature or humidity.

3.0. EXECUTION

3.1. PREPARATION AND WORK AREA ENCLOSURE

A. Preparation Procedure A - For use with the full enclosure, gross removal of the following asbestos-containing materials:

- Floor Tile and Mastic (Contractor shall remove all floor tile and mastic from work area(s). Non-asbestos tile and multiple layers of tile may be present in some areas. All floor tile and mastic shall be treated as asbestos-containing.)

1. Coordinate with the Engineer to disable heating, ventilating and air conditioning (HVAC) systems or any other systems bringing air into or out of the work area(s). These systems shall remain disabled for the duration of abatement activities.
2. Temporary electrical power must be obtained from outside the work area(s) and shall be equipped with ground fault circuit interrupt protection. The Contractor is to provide generators for temporary electrical power and all water required by the job. All costs associated with providing temporary power and water shall be the responsibility of the Contractor.
3. Completely segregate the work area(s) from all other portions of the complex with temporary partitions. Partitions shall be of softwall construction as explained further in this section:
 - a. Softwall partitions shall be constructed of a 6 mil minimum thickness plastic sheeting attached to a 2" x 4" enclosure framework using 2" x 4" supports where necessary to prevent collapse of the enclosure system.
 - b. All partitions shall be removed at the conclusion of the work and all surfaces shall be restored to original condition, unless otherwise approved by the Engineer. All locations and configurations of softwall partitions shall be reviewed by the Engineer prior to installation.
 - c. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for the duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods to test the effectiveness of barriers when directed by the Engineer.
4. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work area(s) not previously removed by the Department.
5. Identify location and amount of all asbestos-containing materials to be removed.
6. Isolate the work areas until clearance testing is accepted by the Contractor's Testing Laboratory, by completely sealing off with critical barriers all openings such as doorways, skylights, crawlspace openings, ducts, grills, diffusers, plenum areas and any other penetrations of the work areas with two layers of six mil plastic sheeting sealed with tape.

7. Seal wall-mounted electrical panels, switchboxes, etc. with minimum two layers of six mil plastic sheeting prior to placement of wall plastic.
8. Clean, prior to placing plastic sheeting on walls, the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
9. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal all immovable items with two layers of six mil plastic sheeting.
10. Construct worker and barrel/equipment decontamination units in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including plastic sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow continuous diminished pressure to be maintained in work areas. Supply sufficient number of lockers, in worker decontamination unit change or "clean" room, for workers' clothing. Reserve one locker for Testing Laboratory personnel. Post OSHA decontamination procedures in change room for duration of Project.
11. Plastic Enclosures
 - a. In work areas where asbestos-containing floor coverings are to be removed, Contractor shall place six mil plastic "splash guards" on walls at perimeter of work area(s). Plastic sheeting "splash guards" shall extend, from floor level, a minimum of four feet up wall areas.
 - b. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning of each work period. Use smoke methods to test effectiveness of barriers when directed by the Engineer.
12. Diminished Pressure
 - a. Place each work area under diminished air pressure utilizing HEPA filtration systems which comply with 028200, Part 2.02, A,3.

Allow no air movement system or air filtering equipment to discharge unfiltered air outside the work area. Maintain a diminished air pressure on the work area continuously (24 hours per day) from the start of asbestos removal and until the area has been decontaminated and certified as such by the required air testing. Accomplish a minimum of eight air changes per hour in the work area and maintain a minimum of 0.02 inches of water diminished pressure. Demonstrate diminished air pressure compliance during the removal of friable materials by monitoring and recording the pressure differential with a continuous read-out, strip-chart differential pressure recorder. Exhaust all filtered and discharged air outside the building away from any air intake devices.

- b. Exhaust ducts from diminished air machines shall be flexible polyethylene ducts manufactured for this purpose and sized to fit the outlet of the machines. Ducts field fabricated from plastic sheeting will not be permitted. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction.
 - c. Supplemental Make-Up Air Inlets: Where required for proper air flow through the work area(s), install HEPA-filtered make-up air inlet(s) at the perimeter of the enclosure(s) that allows air from outside into the work area. Locate make-up air inlets as far as possible from the exhaust unit(s). Air inlets shall be designed to reseal automatically if the diminished pressure system should shut down for any reason. Location of make-up air inlets must be approved by the Project Engineer.
- 13. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 - 14. Provide temporary power, lighting and heating, utilizing ground fault protection devices, to maintain a comfortable work environment and to keep utilities from freezing. Normal water and electric utilities to be supplied by the Engineer.
 - 15. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification, complete plasticizing of work area(s) and construction of worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
 - 16. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the

immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

17. Trap, filter using filters having a pore size of not larger than five microns, and drain shower wastewater into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third day. Dispose of filters as contaminated waste. Contractor may dispose of as contaminated material, at his option, rather than filtering and draining into sanitary sewer.

B. Preparation Procedure B - For use with the following asbestos-containing materials:

- Roofing and Roof Flashing
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Preclean exhaust vents, fan hoods, etc. in the vicinity of the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal in plastic.
 4. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 5. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 6. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification complete plasticizing of work area(s) and construction of remote worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.

7. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

C. Preparation Procedure C - For use with the following asbestos-containing materials:

- Thermal Systems Insulation (TSI) – Using Glovebag Procedure:
 1. Disable and lock out applicable utility services to and through the work area(s) (if present) for the duration of abatement activities. Temporary electrical power shall be obtained from outside the work area(s) and shall be equipped with ground fault circuit interrupt protection.
 2. Identify location and amount of all asbestos-containing materials to be removed. Confirm with the Engineer that the materials to be removed are suitably located so as to facilitate glovebag removal.
 3. Isolate the work area(s) until clearance testing is accepted by the Contractor's Testing Laboratory, by completely sealing off work area(s) with one layer of six mil plastic sheeting sealed with tape.
 4. Clean, prior to placing plastic sheeting on floors and walls (if applicable), the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
 5. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal in plastic all immovable items with one layer of six mil plastic sheeting.
 6. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually

inspect perimeter of the work area at the beginning and end of each work period.

- c. Place one layer of six mil plastic sheeting on ground areas beneath work area(s). Width shall not be less than material height from ground or ten feet, whichever is greater.
7. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
8. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification complete plasticizing of work area(s) and construction of remote worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
9. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

D. Preparation Procedure D - For use with the following asbestos-containing materials:

- Cementitious Deck Drains (located in situ on existing bridge)
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

E. Preparation Procedure E - For use with the following asbestos-containing materials:

- Cementitious Deck Drains (located in rubble)
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure

- a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

F. Preparation Procedure F - For use with the following asbestos-containing materials:

- Guardrail Caulking
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.

5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

G. Preparation Procedure G - For use with the following asbestos-containing materials:

- Beam Bearing Pads
1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

H. Preparation Procedure H - For use with the following asbestos-containing materials:

- Bridge Coatings and/or Concrete Bridge Components

1. Completely segregate the work area(s) from all other portions of the complex with temporary partitions. Partitions shall be of softwall construction as explained further in this section:
 - a. Softwall partitions shall be constructed of a 6 mil minimum thickness plastic sheeting attached to a 2" x 4" enclosure framework using 2" x 4" supports where necessary to prevent collapse of the enclosure system.
 - b. All partitions shall be removed at the conclusion of the work and all surfaces shall be restored to original condition. All locations and configurations of softwall partitions shall be reviewed by the Engineer prior to installation.
 - c. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for the duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods to test the effectiveness of barriers when directed by the Engineer.
2. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work area(s) not previously removed by the Department.
3. Identify location and amount of all asbestos-containing materials to be removed.
4. Isolate the work areas until final air clearance testing conducted by the Contractor's Testing Laboratory, by completely sealing off the work area(s) with two layers of six mil plastic sheeting sealed with tape.
5. Seal all active wall-mounted electrical panels, switchboxes, etc. with minimum two layers of six mil plastic sheeting prior to placement of wall plastic.
6. Clean the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
7. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following

cleaning, completely seal all immovable items with two layers of six mil plastic sheeting.

8. Construct worker and barrel/equipment decontamination units in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including plastic sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow continuous diminished pressure to be maintained in work areas. Supply sufficient number of lockers, in worker decontamination unit change or "clean" room, for workers' clothing. Reserve one locker for Testing Laboratory personnel. Post OSHA decontamination procedures in change room for duration of Project.
9. Plastic Enclosures
 - a. In work areas where asbestos-containing floor coverings are to be removed, Contractor shall place six mil plastic "splash guards" on walls at perimeter of work area(s). Plastic sheeting "splash guards" shall extend, from floor level, a minimum of four feet up wall areas.
 - b. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning of each work period. Use smoke methods to test effectiveness of barriers when directed by the Engineer.
10. Diminished Pressure
 - a. Place each work area under diminished air pressure utilizing HEPA filtration systems which comply with 028200, Part 2.02, A,3. Allow no air movement system or air filtering equipment to discharge unfiltered air outside the work area. Maintain a diminished air pressure on the work area continuously (24 hours per day) from the start of asbestos removal and until the area has been decontaminated and certified as such by the required air testing. Accomplish a minimum of eight air changes per hour in the work area and maintain a minimum of 0.02 inches of water diminished pressure. Demonstrate diminished air pressure compliance during the removal of friable materials by monitoring and recording the pressure differential with a continuous read-out, strip-chart differential pressure recorder. Exhaust all filtered and

discharged air outside the building away from any air intake devices.

- b. Exhaust ducts from diminished air machines shall be flexible polyethylene ducts manufactured for this purpose and sized to fit the outlet of the machines. Ducts field fabricated from plastic sheeting will not be permitted. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction.
 - c. Supplemental Make-Up Air Inlets: Where required for proper air flow through the work area(s), install HEPA-filtered make-up air inlet(s) at the perimeter of the enclosure(s) that allows air from outside into the work area. Locate make-up air inlets as far as possible from the exhaust unit(s). Air inlets shall be designed to reseal automatically if the diminished pressure system should shut down for any reason. Location of make-up air inlets must be approved by the Engineer.
11. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 12. Provide temporary power, lighting and heating, utilizing ground fault protection devices, to maintain a comfortable work environment and to keep utilities from freezing. Normal water and electric utility service to be supplied by the Department.
 13. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification, complete plasticizing of work area(s) and construction of worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
 14. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.
 15. Trap, filter using filters having a pore size of not larger than five microns, and drain shower wastewater into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third day. Dispose of filters as contaminated waste. Contractor may dispose of as contaminated material, at his option, rather than filtering and draining into sanitary sewer.

3.2. REMOVAL OF ASBESTOS-CONTAINING MATERIAL

Properly remove and dispose of all asbestos-containing materials indicated to be removed as described in the Contract Documents in accordance with the methods and procedures outlined in the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulation (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101) or as more stringently specified herein.

If asbestos-containing materials are made to become friable during removal activities, or additional friable materials are encountered during removal activities, the Contractor will be required to stop work and contact the Engineer immediately. Removal work shall resume only after approval is given by the Engineer.

A. Removal Procedure A - For use with the removal of the following asbestos-containing materials:

- Floor Tile and Mastic
 1. Prepare Work Areas as previously specified.
 2. Spray areas of resilient floor covering material and/or adhesive backing with amended water, using spray equipment recommended by surfactant manufacturer capable of providing a "mist" application to reduce the release of fibers. Wet the material sufficiently to saturate it but do not allow water to accumulate or travel on floor. Spray the asbestos material repeatedly during removal to maintain wet condition but do not use excessive amounts of water.
 3. Where carpeting is present in floor tile and, or adhesive backing work area(s), remove and properly dispose of carpeting as contaminated material. Following carpet removal, or in areas containing no carpet, remove individual tiles by wedging a scraper under one edge of the tile and exerting a prying, twisting force as it is moved under the tile until the tile releases from the floor. Do not break tiles. If tiles do not release easily, a mallet or hammer may be used to strike the scraper and force it under the tile. Place tiles immediately in disposal containers as they are removed. Ensure that containers are not subject to penetration by sharp edges of floor tile.
 4. As small areas are cleared of tile, scrape up remaining adhesive backing and deposit scrapings in disposal bags. Clean floor of all adhesive residue by repeated wet mopping with an approved solvent.

B. Removal Procedure B - For use with the removal of the following asbestos-containing materials:

- Roofing and Roof Flashing
 1. Prepare Work Areas as previously specified.
 2. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
 3. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out. Material drop will not exceed 8 feet. For heights up to 15 feet provide inclined chutes or scaffolding to intercept drop. For heights exceeding 15 feet provide enclosed dust-proof chutes.
 4. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.

C. Removal Procedure C - For use with the removal of the following asbestos-containing materials:

- Thermal Systems Insulation (TSI) – Using Glovebag Procedure
 1. Wrap any damaged areas of pipe insulation in one layer of 6-mil plastic. Seal seams and ends with duct tape.
 2. Place one layer of duct tape around pipe insulation at points where glovebag will be attached.
 3. Attach and use glovebag in accordance with manufacturer's instructions, unless more stringently specified herein.
 4. Insert wand from garden sprayer through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.
 5. Use smoke tube and aspirator bulb to test seal. Gently squeeze glovebag and look for smoke leaks. Seal leaks and retest. Perform test in presence of the Engineer.

6. Wet the asbestos-containing material within the glovebag with amended water prior to removal. Utilize two (2) asbestos workers per glovebag.
7. Carefully cut and remove asbestos-containing materials within the glove bag. Exercise care while cutting asbestos-containing materials from piping.
8. Thoroughly wet removed material, bag and piping with amended water. Scrub exposed piping with a bristle or nylon brush. Remove visual accumulations of debris from piping. Allow mist to settle.
9. Seal exposed ends of pipe insulation not removed and exposed piping in glove bag with encapsulant.
10. Remove tools, through gloves or tool pouch by inverting, twisting glove, taping at twist to seal, and severing glove at midpoint of tape.
11. Collapse glove bag by inserting HEPA-vacuum. Twist bag several times at the top of bag. Twist and tape to secure.
12. Place appropriately labeled 6-mil bag around glove bag. Score glovebag above taped seal to remove from pipe and place inside 6-mil bag. Seal 6-mil bag around disassembled glove bag.

D. Removal Procedure D - For use with the removal of the following asbestos-containing materials:

- Cementitious Deck Drains (located in situ on existing bridge)
 1. Saw cut full depth concrete sections a minimum of twelve inches away from ACM so as to separate deck drains from non-ACM without contacting ACM. Separate saw cut pieces from bridge.
 2. Do not allow material to fall. Handle carefully and continuously wet.
 3. Continually spray all debris matrix created by saw cutting activities with water as needed to minimize dust.
 4. A designated, trained worker (minimum OSHA Class I, 40-hour worker training) shall continuously observe the matrix for readily identifiable fragments of asbestos-containing deck drain.
 5. The designated worker will remove any identifiable fragments from the matrix and separate them safely away from the existing bridge decking.

6. Wrap all pieces of ACM encased in concrete after saw cutting with two layers of polyethylene sheeting. Contractor shall load these wrapped pieces directly into dump trucks. The designated worker will observe continuously for other fragments and remove any that are found.
7. In areas in which the matrix or large, intact pieces of concrete have been freed of the bridge decking, similar steps will be taken to segregate pieces containing ACM from those that do not. Segregating shall be done by a trained worker, as described above.
8. Contractor shall load pieces (not already bagged or in a drum) of concrete or other debris matrix, visually verified to contain asbestos-containing deck drain, directly into a dump truck for transport. All such trucks must be prepared for such use by pre-lining the bed and all four sides of the truck with two layers of six mil poly. All seams and overlaps (minimum 12 inches) shall be sealed with duct tape so as to prevent contaminated water migration. Once loaded, poly is to be folded over and a leak-tight seal created over all the debris matrix. This poly "cocoon", created for transport, is to be deposited in its entirety in the landfill, without being breached.

E. Removal Procedure E - For use with the removal of the following asbestos-containing materials:

- Cementitious Deck Drains (located in rubble)

Before being transported off site for any use or purpose, concrete decking debris known to contain or suspected of containing fragments of asbestos-containing deck drain pipe will be sorted to remove visibly identifiable fragments of the pipe from the matrix. The procedure to be followed is generally as follows:

1. Handle carefully and continuously wet. Continually spray all debris matrix created by saw cutting activities with water as needed to minimize dust.
2. A designated, trained worker (minimum OSHA Class I, 40-hour worker training) shall observe the debris field for readily identifiable fragments of asbestos-containing deck drain.
3. The designated worker will remove any identifiable fragments from the matrix and separate them safely away from the existing bridge decking.
4. Identify, segregate, and wrap all pieces of ACM encased in concrete with two layers of polyethylene sheeting. Contractor shall load these wrapped pieces directly into dump trucks. The designated worker will observe continuously for other fragments and remove any that are found.

5. In areas in which the matrix or large, intact pieces of concrete have been freed of the bridge decking, similar steps will be taken to segregate pieces containing ACM from those that do not. Segregating shall be done by a trained worker, as described above.
6. Contractor shall load pieces (not already bagged or in a drum) of concrete or other debris matrix, visually verified to contain asbestos-containing deck drain, directly into a dump truck for transport. All such trucks must be prepared for such use by pre-lining the bed and all four sides of the truck with two layers of six mil poly. All seams and overlaps (minimum 12 inches) shall be sealed with duct tape so as to prevent contaminated water migration. Once loaded, poly is to be folded over and a leak-tight seal created over all the debris matrix. This poly "cocoon", created for transport, is to be deposited in its entirety in the landfill, without being breached.

F. Removal Procedure F - For use with the removal of the following asbestos-containing materials:

- Guardrail Caulking
 1. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
 2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections.
 3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.
 4. Wrap all pieces of removed ACM with two layers of polyethylene sheeting.

G. Removal Procedure G - For use with the removal of the following asbestos-containing materials:

- Beam Bearing Pads

1. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out.
3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.
4. Wrap all pieces of removed ACM with two layers of polyethylene sheeting.

H. Removal Procedure H - For use with the removal of the following asbestos-containing materials:

- Bridge Coatings and/or Concrete Bridge Components
 1. Spray areas of asbestos-containing material with amended water, using spray equipment recommended by surfactant manufacturer capable of providing a "mist" application to reduce the release of fibers. Wet the material sufficiently to saturate it but do not allow water to accumulate or travel on floor. Spray the asbestos material repeatedly during removal to maintain wet condition but do not use excessive amounts of water.
 2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out.
 3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.

3.3 CLEAN-UP AND CLEARANCE TESTING

Aggressive clearance air testing will be conducted in accordance with EPA Guide Document (EPA 600/4-85-049) "Measuring Airborne Asbestos Following An Abatement Action." for all Work Areas for which an enclosure has been erected and negative air pressure has been established. Before sampling pumps are started, the Contractor's Testing Laboratory representative will sweep the exhaust from forced air equipment (leaf blower with at least 1 horsepower electric motor) against walls, ceilings, floors, ledges and

other surfaces (temporary or permanent) in the work area(s). This procedure will be continued for approximately 5 minutes per 5,000 cubic feet of work area volume. In addition, the use of 20 inch diameter box fans will be placed one per 5,000 cubic feet of work area volume. The Contractor shall provide all forced air equipment required to facilitate aggressive clearance air testing.

A. Equipment

The Contractor shall supply the following equipment for his Testing Laboratory's use during the Work:

1. Electric Leaf Blowers; Minimum one horsepower, 110 mile per hour air velocity, 280 cubic feet per minute.
2. Ground Fault Interrupter (GFI) Protected Extension Cords: In lengths and locations sufficient for clearance testing.
3. Fans; 20-inch standard window box fans. All other test equipment and supplies.

Clearance testing for work areas shall be conducted using phase contrast microscopy (PCM) in general accordance with NIOSH 7400 method. Consider enclosed work areas placed under negative air pressure and all other decontaminated and cleaned areas clean and ready for reoccupancy when air testing performed by the Contractor's Testing Laboratory, shows 0.01 or less fibers per cubic centimeter of air (f/cc), for each sample obtained using standard NIOSH Method No. 7400 for PCM.

B. Clean Up Sequence A - For use with enclosed Work Areas for which negative air pressure has been established.

1. Remove all visible accumulations of asbestos material and debris.
2. Wet clean and/or HEPA vacuum all surfaces in the work area(s). Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.
3. Clean all sealed impermeable containers and all equipment (excluding that which will be needed for further cleaning) used in the work area(s) and remove from work area(s) via the equipment decontamination enclosure system.
4. After determining that the area is free of standing water and that surfaces are dry to the touch, notify the Engineer. This step may be waived if non-friable materials were removed and were not rendered friable during the removal process.

5. Following cleaning and acceptance of cleanliness by Contractor's Testing Laboratory, all surfaces shall receive one coat of sealant to seal existing surfaces as follows:
 - a. Misting, spraying and pumping equipment, as recommended by the encapsulant material's manufacturer, shall be used.
 - b. Encapsulant, compatible with finish material and conditions specified in other Divisions, shall be installed in procedures as recommended by the manufacturer's written instructions if found to be compatible with temperature conditions.
6. Contractor shall not use sealant sprayed into the air as a means of reducing fiber levels after plastic sheeting is removed.
7. Allow sealant sufficient time to dry prior to proceeding with clearance air testing.
8. Clearance Air Testing
 - a. Contractor's Testing Laboratory will test for Air Quality Clearance in the Work Area(s) upon notice from Contractor that the Work Areas and all other decontaminated and cleaned areas are ready. The standard for Clearance will be as is set forth in paragraph 3.3.A of this section.
 - b. Reclean at Contractor's expense all areas which do not comply with the standard of cleaning for Clearance. Continue cleaning until the specified final air quality clearance level is achieved by the Contractor's Testing Laboratory. Contractor shall bear cost of all follow-up tests necessitated by failure to meet the specified standard of cleaning for clearance.
9. Following acceptance of the Air Quality Clearance test results and after Contractor finds areas to be visually decontaminated:
 - a. Dismantle and remove sturdy barriers and plastic seals on all openings and wet clean immediate areas.
 - b. Dismantle decontamination enclosure systems and thoroughly wet clean immediate areas.
 - c. Dispose of debris, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials.

- C. Clean Up Sequence B** - For use in Work Areas for which no enclosure has been built, nor any negative air pressure established.
1. Remove all visible accumulations of asbestos material and debris.
 2. Following acceptance of visual inspection of removal by the Contractor's Testing Laboratory, and the Contractor's Testing Laboratory finds areas to be visually decontaminated:
 - a. Wet clean immediate areas.
 - b. Dispose of debris, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials.
 3. Acceptance of Work Area to be documented by Contractor's Testing Laboratory. Acceptance of removal practices and results to be based on visual observation only.

3.4. STORAGE AND DISPOSAL OF CONTAMINATED WASTE

A. Waste Storage and Disposal Requirements

1. No less frequently than at the end of each work day, the designated worker(s) shall place all collected ACM into an appropriate container (6-mil poly bags, drums, or closed roll-off box), which shall be stored in a secure location pending disposal. Periodically, the container or containers of collected ACM shall be transported to and disposed in a licensed landfill that is authorized to receive such materials. The contractor shall submit a copy of each waste disposal manifest to TDOT.
2. In handling, transporting and disposing of ACM waste, the contractor shall segregate friable ACM waste from non-friable ACM waste and manage each waste type as required by applicable regulations. Remove sealed and labeled containers of contaminated material and wastes and dispose of in approved sanitary landfill as follows:
3. Notify the Engineer not less than 48 hours prior to the proposed time of removing and delivery of contaminated waste to the landfill. The Engineer may elect to observe this operation.
4. Provide completed Asbestos Waste Shipment Record (as required by 40 CFR 61, Subpart M) including, but not limited to, the following information:
 - The name, address, and telephone number of the waste generator.

- The name and address of the local, state, or EPA Regional office responsible for administering the asbestos NESHAP program.
- The approximate quantity in cubic yards.
- The name and telephone number of the disposal site operator.
- The name and physical site location of the disposal site.
- The date transported.
- The name, address, and telephone number of the transporter(s).
- A certification that the contents of the consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

5. Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled as follows:

a.

DANGER
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH
OR

b.

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

and, in addition to fulfilling the above labeling requirements, the Contractor shall also fulfill all applicable Department of Transportation requirements and label each waste disposal bag/container with the name of the waste generator and the location at which the waste was generated.

6. Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following:

- Two 6 mil thick disposal bags, or
- One 6 mil thick disposal bags and a fiberboard drum, or

- Sealed steel drum with no bag.
- 7. Protect interior of truck or dumpster with Critical and Primary Barriers.
- 8. Do not store bagged waste material adjacent to the Work Area. Take bags from the Work Area directly to a sealed truck or storage container.
- 9. No material, other than properly packaged ACM waste, shall be placed in the waste storage container.
- 10. Transport bagged ACM waste from the Work site to the transportation vehicle or storage container in a covered cart or vehicle. Mark vehicles during loading and unloading of waste so that the signs are visible. The markings must conform to the requirements Section 61.149(d) of the appropriate NESHAP section for asbestos.
- 11. All ACM waste storage containers, including transportation vehicles, shall remain secure or guarded at all times while containing ACM waste.
- 12. Exercise care during storage and transport, to insure that no unauthorized persons have access to the material.
- 13. Do not transport waste in open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification
- 14. Provide a completed copy of the waste shipment record to the disposal site Manager at the same time as the asbestos-containing waste material is delivered to the disposal site. A copy of this waste shipment record, signed by the Manager of the designated disposal site will then, within 35 days of the initial transport date, be returned to the waste generator.
- 15. At the disposal site, sealed plastic bags and other containerized waste may be carefully unloaded from the truck. Rebag broken or damaged bags. Do not throw bags.
- 16. Retain receipts from landfill or processor for materials disposed of.

3.5. FIELD QUALITY CONTROL

A. Quality Control Requirements

- 1. A Testing Laboratory shall be provided by the Contractor to perform final clearance air monitoring and visual observations to document completion.

The Contractor will supply his own testing agency for personnel air monitoring.

2. The Testing Laboratory will conduct area final clearance air monitoring following removal and cleaning operations.
3. The Testing Laboratory will perform air sampling in general accordance with methods prescribed by Section 1926.1101 of OSHA CFR Title 29 and analyze the samples in general accordance with the procedures outlined by NIOSH Method #7400 for Phase Contrast Microscopy (PCM).
4. The Testing Laboratory employed by the Contractor will perform Final Air Clearance testing only following removal activities. Such testing does not relieve the Contractor of providing necessary testing required by other regulations, codes, and standards for the protection of his workers, or for any other purposes.
5. The Testing Laboratory will conduct Final Air Clearance Tests inside of work areas following removal activities, and test results will be made available to the Engineer or other designated entities. The Contractor will be responsible for performing air tests required for his evaluation of the safety of his employees.
6. A preliminary visual observation will be performed in the work areas by the Contractor when said areas have been properly cleaned. Areas will be observed for the presence of visible dust, dirt and debris.
7. Tests will be performed inside work areas after clean up, execution of final clearance monitoring and visual observation to document compliance with specifications.
8. Test results will be reported in terms of total fiber count per cubic centimeter of air (f/cc) for air samples analyzed by Phase Contrast Microscopy (PCM).
9. All air samples collected during final clean-up operations will be collected within 48 hours after completion of the final cleaning when possible.
10. A visual observation may be performed by the Engineer after cleanup to inspect for visible dust, dirt, debris and areas of damage.
11. Contractor shall perform additional cleaning of area(s) if, in the sole opinion of the Engineer, previous clean-up operations were determined to be inadequate.

12. Any area whose air test results fail will be retested following recleaning of the area(s). Contractor shall pay all costs associated with retesting.

END OF SECTION



State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243-1531

NOTIFICATION OF DEMOLITION AND/OR ASBESTOS RENOVATION

SUBMIT 10 WORKING DAYS PRIOR TO ACTIVITY

Email to Asbestos.NESHAP.Program@tn.gov

Operator Project #	Postmark	Date Received	Notification #				
I. TYPE OF NOTIFICATION <input type="checkbox"/> Original <input type="checkbox"/> Revision <input type="checkbox"/> Courtesy <input type="checkbox"/> Annual <input type="checkbox"/> Cancellation							
II. FACILITY INFORMATION Owner Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____ Asbestos Removal Contractor: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____ Other Contractor/Operator: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____							
III. TYPE OF OPERATION <input type="checkbox"/> Demolition <input type="checkbox"/> Renovation <input type="checkbox"/> Ordered Demolition <input type="checkbox"/> Emergency Renovation							
IV. IS ASBESTOS PRESENT? <input type="checkbox"/> Yes <input type="checkbox"/> No Please provide a copy of inspection report.							
V. FACILITY DESCRIPTION Building Name: _____ Address: _____ City: _____ State: TN Zip Code: _____ County: _____ Site Location: _____ Building Size (square feet) _____ # of Floors: _____ Age in years: _____ Present Use: _____ Prior Use: _____							
VI. PROCEDURE AND ANALYTICAL METHOD USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL (Identify any consultant or inspector involved in building inspection)							
VII. AMOUNT OF ASBESTOS MATERIALS:							
	RACM to be Removed	Nonfriable Asbestos Material					
		To be Removed		<u>NOT</u> to be removed			
		Category I	Category II	Category I	Category II		
Pipes (linear feet)							
Surface Area (square feet)							
Facility Components (cubic feet)							
Other							
VIII. SCHEDULED DATES FOR PREPARATION		Start: _____		Complete: _____			
SCHEDULED DATES FOR ASBESTOS REMOVAL		Start: _____		Complete: _____			
Days of the Week:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of Operation:							
IX. SCHEDULED DATES FOR DEMOLITION OR RENOVATION		Start: _____		Complete: _____			

Failure to notify the Division of a change in the start date (sections VIII and IX above) prior to activity may result in enforcement action.

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION ACTIVITIES:
XI. DESCRIPTION OF WORK PRACTICES & ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS:
XII. WASTE TRANSPORTER #1 Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (_____)
WASTE TRANSPORTER #2 Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (_____)
XIII. TEMPORARY WASTE STORAGE LOCATION: _____ WASTE DISPOSAL SITE Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (_____)
XIV. ORDERED DEMOLITION 1. Attach a copy of the government issued order. 2. Name of authority issuing order: _____ Title: _____ 3. Date of Order: _____ Date Ordered to Begin: _____
XV. EMERGENCY RENOVATION (Attach a separate sheet with the following information.) 1. Date and Hour of the emergency. 2. Description of the Sudden, Unexpected Event 3. Explanation of how the event caused unsafe conditions, equipment damage, and/or an unreasonable financial burden.
XVI. DESCRIBE THE PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED RACM IS FOUND. EXPLAIN HOW NONFRIABLE ACM WILL BE REMOVED WITHOUT RENDERING IT FRIABLE (CRUMBLED, PULVERIZED, OR REDUCED TO POWDER).
XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN ACCORDANCE WITH 40 CFR PART 61, SUBPART M WILL BE ONSITE DURING THE STRIPPING AND REMOVAL DESCRIBED BY THIS NOTIFICATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN COMPLETED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION. Printed Name of Owner or Operator: _____ Signed Name of Owner or Operator: _____ Date: _____
XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT. AS SPECIFIED IN TENNESSEE CODE ANNOTATED SECTION 39-16-702(a)(4), THIS DECLARATION IS MADE UNDER PENALTY OF PERJURY. Printed Name of Owner or Operator: _____ Signed Name of Owner or Operator: _____ Date: _____

Submit completed form to Asbestos.NESHAP.Program@tn.gov. Call (615) 532-0554 with any questions.

INSTRUCTIONS

NOTIFICATION OF DEMOLITION OR ASBESTOS RENOVATION ACTIVITY (FORM CN-1055)

This form serves as a written notification of a facility demolition and/or an asbestos renovation as defined and required by 40 CFR 61.145 and Tennessee Division of Air Pollution Control Regulation 1200-03-11-.02(2)(d). This notification form is required for the following activities:

1. All demolition projects (including intentional burning). Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations. **This form is required for a demolition project even if no asbestos is present at the site.**
2. All renovation projects that include the removal of regulated asbestos containing material (RACM) equaling or exceeding 260 linear feet on pipes, 160 square feet on facility components, or 35 cubic feet where the amount of RACM could not be measured prior to the renovation.

All demolition and renovation projects are subject to the regulations insofar as owners and operators must determine if and how much asbestos is present at the site. All information pertinent to the removal, renovation and/or demolition must be completed by the building owner/operator or designee and mailed electronically to Asbestos.NESHAP.Program@tn.gov or delivered to the following address by at least 10 working days prior to commencement of activity:

**Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243-1531**

Holidays that fall between Monday and Friday count as "working days." Saturday and Sunday does not count as a working day.

If information contained in the original notice has changed, a notification must be revised as soon as possible after it is realized a revision is necessary. For example, you must revise the notification if you change the start date of an operation. If the change relates to the amount of material involved, you need only revise the notification if the amount changes by more than 20 percent. If you revise the start date of a project, the revised notification must be postmarked or delivered no later than the original start date, and at least 10 working days before the revised start date.

Include the following in the notice:

(I) TYPE OF NOTIFICATION: Indicate original, revision, courtesy, annual, or cancellation.

(II) FACILITY INFORMATION: Identify the owner of the facility, address, telephone number, and contact person.

ASBESTOS REMOVAL CONTRACTOR: If RACM is to be removed, identify the name, address and telephone number of the asbestos removal contractor.

OTHER CONTRACTOR/OPERATOR: Where demolition of the facility immediately follows the removal of RACM, or when no asbestos removal is required prior to demolition, identify the demolition contractor's name, address and telephone number.

(III) TYPE OF OPERATION: Demolition, Ordered Demolition, Renovation, or Emergency Renovation.

(IV) Indicate whether or not asbestos is present in the building. **Provide a copy of the inspection report.**

(V) FACILITY DESCRIPTION: Identify the building name of the facility to be renovated or demolished, the physical address including street number, street name, city, state, and county. Asbestos removal site location should include the building number, floor and room number(s). Include the building size in square feet, number of floors, age, and present and prior use of the facility.

(VI) Describe the procedure, including analytical methods, used to detect the presence of RACM, category I and category II nonfriable ACM. **If an asbestos survey was conducted, please submit a copy of it with the notification form.** Materials may be assumed to be RACM and therefore handled as such.

(VII) AMOUNT OF ASBESTOS IN WORK AREA: Indicate the approximate amount of RACM to be removed from the facility in terms of linear feet for pipes, square feet for surface area, or cubic feet if otherwise not measurable. Also, estimate the amount of Category I and Category II nonfriable ACM in the affected part of the facility that will or will not be removed during renovation or before demolition.

(VIII) SCHEDULED DATES - ASBESTOS REMOVAL: Indicate the scheduled starting and completion dates of asbestos removal work. Include dates for any other activity, such as site preparation, that would break up, dislodge, or similarly disturb asbestos material in a demolition or renovation. Planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period. **This notification is required to be submitted at least 10 working days prior to the start date.** Circle all days when asbestos removal activities are to occur. Indicate the working hours that asbestos removal activities will be conducted (i.e., 7:00 AM – 5:00 PM).

(IX) SCHEDULED DATES – DEMOLITION: Indicate the scheduled starting and completion dates of demolition or renovation. **This notification is required to be submitted at least 10 working days prior to the start date.**

(X) Describe the planned work methods to be performed and types of machinery to be used during demolition or renovation.

(XI) Describe the work practices and engineering controls to be used to prevent emissions of asbestos during asbestos removal and waste-handling at the demolition/renovation site.

(XII) ASBESTOS WASTE TRANSPORTER: Identify the name, address, phone number and contact of the firm who will transport the asbestos material to the waste disposal site. If a second transporter is involved, also list this firm.

(XIII) ASBESTOS WASTE DISPOSAL SITE: Identify the name, location, and telephone number of the waste disposal site where the asbestos-containing waste material will be deposited.

(XIV) IF DEMOLITION ORDERED BY GOVERNMENT AGENCY: Identify the name, title, and authority of the state or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(XV) EMERGENCY RENOVATIONS: Attach a separate sheet that indicates the date and hour that the emergency occurred. Describe the sudden, unexpected event resulting in the emergency. Explain how the event caused an unsafe condition or would cause equipment damage or an unreasonable financial burden.

(XVI) Describe the procedures to be followed in the event that unexpected RACM is found. Explain how nonfriable ACM will be removed without rendering it friable (crumbled, pulverized, or reduced to powder) during a renovation or demolition operation.

(XVII) A certification that only a person trained as required by Division Rule 1200-3-11-.02(2)(d)3(viii) will supervise the stripping and removal described by this notification.

(XVIII) The signature of the Owner/Operator and the date certifying that the notification information is correct.

RESPIRATOR TRAINING CERTIFICATION

I hereby certify that I have been trained in the use each type of respiratory protection equipment required for use on this Project. The training included the following:

1. Explanation of dangers related to misuse.
2. Instruction on putting on, fitting, testing and wearing the respirator.
3. Instruction on inspection, cleaning and maintaining respirator.
4. Instruction on emergency situations.

I further certify that I understand the use, care and inspection of the respirator and have tested and worn the unit.

Name: _____
(Please Type or Print)

Signed: _____

Date: _____

Notary: _____
(Signature)

(Submit one copy for each employee prior to starting work)

CERTIFICATE OF WORKER'S RELEASE (ASBESTOS)

DATE: _____

TO:

RE: _____
(Insert Project Name and Address)

1. In consideration of my employment by _____ in connection with the removal

(Contractor)

and disposal of asbestos, or other work in asbestos-contaminated and lead-contaminated work areas, and in consideration of the sum of ONE AND NO/100 (\$1.00) DOLLAR and other good and valuable consideration in hand paid, at and before the sealing and delivery of these presents, the receipt, sufficiency, and adequacy of which are hereby acknowledged, the undersigned does hereby acknowledge, warrant, represent, covenant, and agree as follows:

(a) I acknowledge and understand that I have been or will be employed in connection with the removal of, disposal of, or other work in asbestos-contaminated and lead-contaminated work areas, and I acknowledge that I have been advised of and I understand the dangers inherent in handling asbestos and breathing asbestos dust, including, but not limited to, THE FACT THAT ASBESTOS CAN CAUSE ASBESTOSIS AND IS A KNOWN CARCINOGEN AND CAN, THEREFORE, CAUSE VARIOUS TYPES OF CANCER.

(b) I acknowledge and understand that ANY CONTACT WITH ASBESTOS, WHETHER IT CAN BE SEEN OR NOT, MAY CAUSE ASBESTOSIS AND VARIOUS FORMS OF CANCER, WHICH MAY NOT SHOW UP FOR MANY YEARS, and I covenant and agree faithfully to take all precautions required of me.

Signature of Worker
(as acknowledgement of reading this
Page 1 of this two-page Certificate)

- (c) I knowingly assume all risks in connection with potential exposure to asbestos and I do hereby covenant not to sue, and to release and forever discharge the Engineer, Testing Laboratory or Architects and Engineers employed by the Project Engineer or Testing Laboratory and all of their directors, officers, employees, nominees, personal representatives, affiliates, successors, and assigns for, from and against any and all liability whatsoever, at common law or otherwise, except any rights which the undersigned may have under the provision of the applicable workmen's compensation laws. Except as specifically set forth herein I hereby waive and relinquish any and all claims of every nature which I now have or may have or claim to have which are in any way, directly or indirectly, related to exposure to asbestos and asbestos-containing materials.
- (d) I hereby warrant and represent that I have not been disabled, laid-off, or compensated in damages or otherwise, because of the disease of asbestosis.
- (e) I represent that I can read the English language, or that I have had someone read this instrument to me, and that I understand the meaning of all the provisions contained herein.

Name/SS#: _____
(Please Type or Print)

Signature _____

Signed in presence of _____

Notary _____
(Signature)

**CERTIFICATE OF INVOLVEMENT IN
MEDICAL SURVEILLANCE PROGRAM (ASBESTOS)**

I hereby certify that I am actively involved in the employee medical surveillance program in conformity with U. S. Department of Labor, Occupation Safety and Health Administration, Title 29 CFR Part 1926.1101.

By my signature below, I acknowledge receipt of the following documents pertaining to my physical examination(s):

- 1. Physicians' Written Opinion Form
- 2. Physical Examination Record
- 3. Roentgenographic Interpretation
- 4. Asbestos Initial Medical Questionnaire
- 5. Spirometer Data Record

Name of Contracting Firm: (Please Print) _____

Employee Name: (Please Print) _____

Employee Signature

Notary

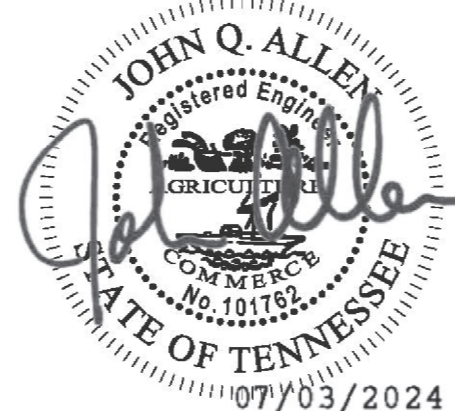
Date: _____

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	AS-BUILT QUANTITY
(1)	201-07.01	REMOVAL AND DISPOSAL OF BRUSH & TREES	LS	1
(E1)	203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	C.Y.	175
(E2)	203-07	FURNISHING & SPREADING TOPSOIL	CY	375
(E3)	209-05	SEDIMENT REMOVAL	C.Y.	30
(2)	303-10.01	MINERAL AGGREGATE (SIZE 57)	TON	22
(3)	601-10.10	TREATED TIMBER LAMINATED DECKING	MBFM	104
(4)	601-10.11	TREATED TIMBER (SIDEWALK PLANKS AND CURBS)	MBFM	125
(5)	602-02.10	STRUCTURAL STEEL (NORTH VIADUCT - FLOOR BEAM MODIFICATIONS)	LS	1
(6)	602-10.20	BOLTS	EACH	200
(7)	602-10.51	STRUCTURAL STEEL REPAIR (DECK CLIPS)	EACH	7,110
(8)	602-10.52	STRUCTURAL STEEL REPAIR (WOOD STRINGER KEEPER ANGLES)	EACH	1,180
(9)	602-10.53	STRUCTURAL STEEL REPAIR (STRINGER PACK RUST REMOVAL)	EACH	19
(10)	602-10.54	STRUCTURAL STEEL REPAIR (BEARING GUSSET PACK RUST REMOVAL)	EACH	3
(11)	602-10.55	STRUCTURAL STEEL REPAIR (EYEBAR PACK RUST REMOVAL)	EACH	218
(12)	602-10.57	STRUCTURAL STEEL REPAIR (NUT REPLACEMENT)	EACH	1
(13)	602-10.58	STRUCTURAL STEEL REPAIR (KNEE BRACE REPLACEMENT)	EACH	50
(14)	602-10.59	STRUCTURAL STEEL REPAIR (DIAPHRAGM REPLACEMENT)	EACH	2
(15)	602-10.70	STRUCTURAL STEEL CRACK REPAIR	EACH	2
(16)	603-02.01	REPAINTING EXISTING STEEL STRUCTURES (WALNUT ST BRIDGE)	LS	1
(17)	603-02.15	REPAINT EXISTING BEARINGS	LS	1
(18)	603-05.20	CONTAINMENT & DISPOSAL OF WASTE (WALNUT ST BRIDGE)	LS	1
(19)	604-01.01	CLASS A CONCRETE (ROADWAY)	C.Y.	9
(20)	604-01.02	STEEL BAR REINFORCEMENT (ROADWAY)	LB.	926
(21)	604-04.01	APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	
(22)	604-10.89	MISCELLANEOUS BRIDGE ITEMS (DISPOSE EXISTING DECK BOARDS)	LS	1
(23)	707-08.10	TEMPORARY CONSTRUCTION FENCE	L.F.	2,500
(E1)	709-05.05	MACHINED RIP-RAP (CLASS A-3)	TON	220
(24)	712-01	TRAFFIC CONTROL	LS	1
(23)	712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	10
(25)	712-06	SIGNS (CONSTRUCTION)	S.F.	737
(23)	712-07.01	TEMPORARY BARRICADES (TYPE I)	L.F.	39
(23)	712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	96
	714-01.37	LIGHT STANDARDS (PEDESTRIAN/STREET LIGHT)	EACH	16
	714-01.64	ELECTRICAL SYSTEM	LS	1
	714-03.03	DIRECT BURIAL CONDUIT (SCHED. 40 PVC, UTILITY TRANSFORMER SECONDARY)	L.F.	135
	714-03.04	DIRECT BURIAL CONDUIT (SCHED. 40 PVC, UNDERGROUND BRANCH CIRCUIT CONDUITS)	L.F.	100
	714-04.03	CONDUIT (3/4" CONDUIT)	L.F.	8,000
	714-04.04	CONDUIT (1-1/4" CONDUIT)	L.F.	4,500
	714-04.05	CONDUIT (1-1/2" CONDUIT)	L.F.	13,750
	714-04.06	CONDUIT (2" CONDUIT)	L.F.	15,000
	714-04.07	CONDUIT (2-1/2" CONDUIT)	L.F.	3,000
	714-04.08	CONDUIT (4" CONDUIT)	L.F.	4,000
	714-05.05	PULL BOXES (BRANCH CIRCUIT PULL BOXES)	EACH	40
	714-05.06	PULL BOXES (BRANCH CIRCUIT JUNCTION BOXES)	EACH	150
	714-05.07	PULL BOXES (COMMUNICATIONS PULL BOXES)	EACH	20
	714-06.03	CABLE (1/C #10 AWG)	L.F.	38,000
	714-06.04	CABLE (1/C #8 AWG)	L.F.	105,000
	714-06.06	CABLE (1/C #4 AWG)	L.F.	126,000
	714-06.07	CABLE (1/C #2 AWG)	L.F.	28,000
	714-06.08	CABLE (1/C #1/0 AWG)	L.F.	20,000
	714-09.09	LUMINAIRES (BRIDGE MOUNTED, TYPES VARY)	EACH	482
	714-12.01	CONTROL CENTER (NO. 1)	LS	1
	714-12.02	CONTROL CENTER (NO. 2)	LS	1
	714-16.01	NAVIGATIONAL LIGHTING	LS	1
	714-25.02	ELECTRICAL CONNECTION (ELECTRIC POWER BOARD - EPB - ELECTRICT SERVICE #1)	LS	1
	714-25.03	ELECTRICAL CONNECTION (ELECTRIC POWER BOARD - EPB - ELECTRICT SERVICE #2)	LS	1
	714-40	LOCATING UTILITIES	LS	1
	717-01	MOBILIZATION	LS	1
	722-01.01	FIELD OFFICE (TYPE 1)	LS	1
	725-02.16	CONDUIT (STRUCTURES - CCTV CAMERAS)	L.F.	10,000

SEE SHEET 2A for ITEM NUMBER FOOTNOTES, SEE SHEET E-0.3 for LIGHTING FOOTNOTES

REVISION 1 SEALED BY:



ESTIMATED QUANTITIES (CONTINUED)

ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	AS-BUILT QUANTITY
	725-03.80	CCTV CAMERA SYSTEM	EACH	11
	725-05.02	FIBER OPTIC CABLE (60 STRAND SINGLE MODE)	L.F.	2,300
	725-20.75	COMMUNICATION CONNECTION (ELECTRIC POWER BOARD - EPB - FIBER TO CAMERAS)	LS	1
	725-23.29	FIBER OPTIC TERMINATION CABINET	EACH	4
(E1)	740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL)	S.Y.	425
	740-11.03	TEMPORARY SEDIMENT TUBE 18IN	L.F.	1,850
	801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	205
(E4)	801-01.65	TEMPORARY MULCH	UNIT	50
(E5)	801-03	WATER (SEEDING & SODDING)	M.G.	65
(E6)	803-01	SODDING (NEW SOD)	S.Y.	6,000
(26)	920-10.04	STRUCTURAL STEEL REPAIR (BEARING PLATE WELD REPAIR)	EACH	18
(27)	920-10.05	BRIDGE DECK AND SIDEWALK POWER WASHING AND SEALING	LS	1
(28)	920-11.04	STRUCTURAL STEEL REPAIR (SPACER PLATE WELD REPAIR)	EACH	2
(29)	920-11.05	BIRD NETTING SYSTEM	LS	1
(30)	920-12.04	STRUCTURAL STEEL REPAIR (STRINGER PLATE WELD REPAIR)	EACH	2
(31)	920-12.05	REMOVE AND RESET NAME PLATES	LS	1
(32)	920-13.04	STRUCTURAL STEEL REPAIR (TRUSS VERTICAL WELD REPAIR)	EACH	1
(33)	920-13.05	REMOVE & REPLACE BENCHES, TRASH CANS, & PLANTERS	LS	1
(34)	920-14.04	STRUCTURAL STEEL REPAIR (PAD WELDING)	EACH	7
	920-14.05	RELOCATION OF EXISTING UTILITIES	LS	1
(35)	920-15.04	STRUCTURAL STEEL REPAIR (STRINGER SUPPORT PLATE)	EACH	2
(36)	920-16.04	TREATED TIMBER (RISER BLOCKS)	EACH	195
(37)	920-16.05	UTILITY LINE CLEANING AND PAINTING	LS	1
(38)	920-17.04	TREATED TIMBER (SIDEWALK STRINGERS)	EACH	78
(39)	920-17.05	PERMITS - CITY OF CHATTANOOGA	LS	1
(40)	920-18.05	PVC WATER LINE REPLACEMENT	LS	1
(41)	920-19.04	UTILITY CONDUIT AND HARDWARE	EACH	3
(42)	920-19.05	REMOVE & REPLACE PET WASTE DISPENSERS	LS	1
(43)	920-20.04	IN-KIND STRUCTURAL STEEL REPLACEMENT (MISCELLANEOUS)	EACH	2
	920-20.05	REMOVAL AND DISPOSAL OF ELECTRICAL SYSTEM	LS	1
(44)	920-20.12	REMOVE, CLEAN, AND RESET EXISTING DECK JOINTS	EACH	17
(45)	920-20.13	HISTORICAL SIGN CLEANING AND PAINTING	LS	1
(46)	920-20.20	STRUCTURAL STEEL REPAIR (STRINGER SECTION REPLACEMENT)	EACH	2
(47)	920-20.21	REMOVE & REPLACE EDUCATIONAL SIGNS	LS	1
(48)	920-20.28	DECK DRAIN SCUPPERS	EACH	16
(E7)	920-20.29	IRRIGATION SYSTEM (REPAIR)	LS	1
(49)	920-20.37	ADDITIONAL FASTENERS	LS	1
(50)	920-20.40	STRAND REPLACEMENT	L.F.	4,000
(51)	920-20.44	STRAND ADJUSTMENT	EACH	33
(52)	920-20.45	WORK PLAN AND ANALYSIS	LS	1
(53)	920-20.53	MONITORING SYSTEMS	LS	1

QUANTITIES NOTES

- ANY DAMAGE THAT OCCURS TO THE EXISTING STRUCTURE DURING THE DURATION OF THE PROJECT SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
- PRIOR TO CONSTRUCTION, ALL DIMENSIONS OF THE EXISTING STRUCTURE THAT WILL AFFECT THE WORK ITEMS DESCRIBED HEREIN SHALL BE FIELD VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT VERIFICATION OF THE EXISTING BRIDGE ELEMENTS TO THE OWNER FOR APPROVAL. AS PART OF THE SUBMITTAL, THE CONTRACTOR SHALL PROVIDE A SIGNED STATEMENT CITING THAT THE FIELD VERIFICATION WAS PERFORMED. THE SUBMITTAL SHALL ALSO INCLUDE A DETAILED SUMMARY OF ANY MODIFICATIONS REQUIRED. IF NO MODIFICATIONS ARE REQUIRED, THIS SHALL BE IDENTIFIED IN THE SIGNED STATEMENT FROM THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE ELEMENTS OF THE NEW CONSTRUCTION TO ENSURE PROPER FIT WITH THE EXISTING STRUCTURE.

EPSC FOOTNOTES

- 125 CY FOR TEMPORARY CONSTRUCTION EXITS. 50 CY FOR RE-GRADING TO EXPOSE STEEL THAT HAS BEEN COVERED WITH VEGETATION AND DIRT TO ACHIEVE POSITIVE DRAINAGE AWAY FROM THE FOUNDATION.
- THREE INCHES OF TOPSOIL IS REQUIRED BENEATH REPLACEMENT OF PERMANENT SOD.
- SEE SUBSECTION 209.07 OF THE TDOT STANDARD SPECIFICATIONS FOR MAINTENANCE REPLACEMENT. ALL QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER.
- INCLUDES 6 UNITS TO BE USED DURING MOON RIVER FESTIVAL AS DESCRIBED IN NOTE 4 ON SHEET 4. INCLUDES 44 UNITS TO BE USED IN THE DISTURBED AREA WITHIN COOLIDGE PARK AS NEEDED TO PREVENT MUDDY CONDITIONS. EACH UNIT IS DESCRIBED AS 1,000 SQUARE FEET AT EIGHT (8) INCHES DEPTH.
- INCLUDES 20 THOUSAND GALLONS FOR EROSION PREVENTION AND SEDIMENT CONTROL. INCLUDES 45 THOUSAND GALLONS FOR PLACEMENT OF PERMANENT SOD.
- INCLUDES 5,915 S.Y. IN COOLIDGE PARK. INCLUDES 85 S.Y. AT THE SOUTHEAST CORNER OF THE BRIDGE ADJACENT TO THE EXISTING ABUTMENT CONCRETE SLOPE PAVING. CONTRACTOR IS TO CONSULT WITH THE CITY OF CHATTANOOGA AS TO THE TYPE AND VARIETY REQUIRED.
- THIS BID ITEM COVERS THE REPAIR OF EXISTING IRRIGATION BENEATH THE WALNUT STREET BRIDGE WITHIN COOLIDGE PARK PRIOR TO THE PLACEMENT OF NEW SOD. THIS BID ITEM ALSO COVERS REPAIR OR REPLACEMENT OF IRRIGATION AT THE SOUTHEAST CORNER OF THE WALNUT STREET BRIDGE WITHIN THE HATCHED AREA SEEN ON SHEET 22F, AS WELL AS CONNECTION TO EXISTING RAINBIRD. INCLUDES ALL LABOR AND MATERIALS REQUIRED FOR THIS WORK.



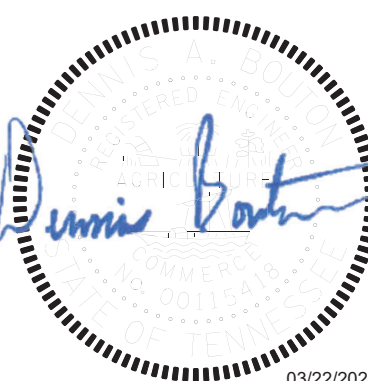
CITY OF CHATTANOOGA
 DIVISION OF TRANSPORTATION
CONTRACT #E-13-002-103
 WALNUT STREET PEDESTRIAN BRIDGE
 BRIDGE REPAIRS - PHASES 2, 3, & 4
 WILLIAM C. PAYNE, P.E., CITY ENGINEER

ESTIMATED QUANTITIES

NO.	REV.	ITEMS	1/3/24	JOA
NO.	REVISION	DATE	SIG.	

SCALE	NO SCALE
DRAWN	N. RUSSELL
DESIGN	A. CAGLE
CHECKED	J. ECKEL

VOLKERT



APPROVED

JOB NO.	457003.17
DATE	03/22/2024
SHEET	2
FILE NO.	

BRIDGE GENERAL NOTES

THIRD-PARTY INSPECTION

IT SHOULD BE NOTED THAT NEAR COMPLETION OF THE WORK ITEMS OUTLINED IN THESE PLANS, THE OWNER SHALL CONTRACT WITH A THIRD PARTY OF THEIR CHOOSING TO PERFORM AN IN-DEPTH INSPECTION OF THE BRIDGE THAT WILL SERVE AS AN UPDATE TO THE MOST RECENT BRIDGE INSPECTION REPORT. ANY ELEMENTS DETERMINED TO REQUIRE FURTHER REPAIR MAY BE REQUESTED BY THE OWNER AS ADDITIONAL ITEMS OF WORK.

WEIGHT RESTRICTIONS, SHORING, & STOCKPILING MATERIALS

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE ADEQUATE BRACING AND SHORING AS REQUIRED TO PERFORM VARIOUS ITEMS OF WORK WHERE STABILITY IS A CONCERN. ALL TEMPORARY BRACING AND SHORING SHALL COMPLY WITH THE REQUIREMENTS SET FORTH BELOW. THIS SHALL BE CONSIDERED AS AN INCIDENTAL ITEM.

THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING AS REQUIRED TO PERFORM VARIOUS ITEMS OF WORK WHERE STABILITY IS A CONCERN AND WHERE DISASSEMBLY OF THE COMPONENT OR STRUCTURAL SYSTEM IS REQUIRED. THE CONTRACTOR SHALL EMPLOY THE SERVICE OF A TENNESSEE REGISTERED PROFESSIONAL ENGINEER WHO IS KNOWLEDGEABLE IN THE FIELD OF BRIDGE DESIGN. A COMPLETE SET OF BRACING AND SHORING PLANS ALONG WITH DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK. THE PLANS AND DESIGN CALCULATIONS SHALL BEAR THE DESIGN ENGINEER'S SEAL. STOCKPILING OF REMOVAL ITEMS ON THE BRIDGE IS PROHIBITED AND THE EQUIPMENT USED FOR TRANSPORTING THESE ITEMS OFF OF THE BRIDGE SHALL BE LIMITED TO RUBBER TRACKED, RUBBER Tired COMPACT EQUIPMENT. REMOVAL ITEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO DEBRIS, OLD STEEL, TIMBER ELEMENTS, TRASH CANS, AND PARK BENCHES. SPECIFICATIONS FOR THE COMPACT EQUIPMENT SELECTED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE OWNER. THESE SPECIFICATIONS SHALL INCLUDE THE OPERATING WEIGHT, AXLE WEIGHTS, AND SPACINGS.

SPECIFICATIONS & LOADING

- (1) **SPECIFICATIONS:** STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (JANUARY 1, 2021 EDITION), AND THE 4TH EDITION (2017) AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS WITH INTERIMS.
- (2) **DESIGN SPECIFICATIONS:** AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, 2002 WITH ADDENDA.
- (3) **LOADING:** AASHTO SECTION 3.14.1 PEDESTRIAN LOADING FOR EVERYDAY USE; 90 PSF PEDESTRIAN LOADING WITH ROADWAY WIDTH RESTRICTED TO NINE (9) FEET ON THE TRUSS SPANS FOR FESTIVAL USE.

MISCELLANEOUS GENERAL NOTES

- (4) **SPECIAL EVENTS REQUIRING THE BRIDGE TO BE OPEN:** IT SHOULD BE NOTED THAT SPECIFIC EVENTS DURING THE LIFE OF THE CONTRACT SHALL REQUIRE THAT THE BRIDGE BE OPEN TO PEDESTRIAN ACCESS FROM CURB TO CURB IN A CONDITION THAT IS CONSIDERED BY THE OWNER TO BE FULLY OPERATIONAL. WHILE THE BRIDGE IS OPEN TO PEDESTRIANS, THE CONTRACTOR SHALL PROVIDE A LIGHTING SCHEME THAT ENSURES SAFE ACCESS FOR THE DURATION OF EACH EVENT. SIDEWALKS MAY REMAIN CLOSED DURING EVENTS GIVEN THAT THE CONTRACTOR PROVIDE AND MAINTAIN CONSTRUCTION FENCING TO PROTECT AND RESTRICT PEDESTRIANS FROM ENTERING WORK AREAS. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LIGHTING SCHEME AND CONSTRUCTION FENCING FOR APPROVAL BY THE OWNER A MINIMUM OF **14 CALENDAR DAYS BEFORE EACH EVENT**. ACCESS SHALL BE FREE OF TRIPPING HAZARDS AND AVAILABLE FOR RUNNERS. ACCESS TO OUTDOOR CHATTANOOGA, LOCATED IN THE NORTHEAST CORNER OF COOLIDGE PARK, SHALL BE AVAILABLE AT ALL TIMES, AND THE CONTRACTOR SHOULD TAKE CARE SO AS NOT TO BLOCK ENTRANCES AND EXITS IN THE CASE OF AN EMERGENCY.
- (5) IT SHOULD BE NOTED THAT THE DATES IDENTIFIED IN THE CONSTRUCTION PLANS AND BID DOCUMENTS ARE CONSIDERED TENTATIVE AND MAY BE SUBJECT TO CHANGE. THE CONTRACTOR SHALL HAVE THE BRIDGE OPEN TO PEDESTRIAN ACCESS AND RIVER ACCESS AND IN A CONDITION CONSIDERED BY THE OWNER TO BE FULLY OPERATIONAL INCLUDING PROVIDING RAILINGS AND ALL SAFETY MEASURES REQUIRED FOR THE EVENTS BY **7:00 AM ON THE THURSDAY PRIOR TO EACH EVENT**. AT THIS TIME, THE OWNER SHALL CONDUCT AN INSPECTION OF THE BRIDGE, AND ADJUSTMENTS SHALL BE MADE BY THE CONTRACTOR AT THE



OWNER'S DISCRETION UNTIL A FINAL APPROVAL IS REACHED. THE CONTRACTOR MAY COMMENCE WORK AGAIN **AT 9:00 AM THE MONDAY FOLLOWING EACH EVENT** UPON APPROVAL BY THE OWNER. BELOW ARE THE EVENTS THAT WILL OCCUR IN 2024 AND 2025 FOR WHICH THE WALNUT STREET BRIDGE SHALL BE OPEN TO PEDESTRIAN ACCESS. ANY EVENT SPECIFIC REQUIREMENTS ARE ALSO LISTED BELOW.

- 1. CHATTANOOGA MARATHON - MARCH
- 2. EASTER - APRIL
 - I. THE BRIDGE IS NOT REQUIRED TO BE OPEN
 - II. BOTH RIVER STREET AND ALL SIDEWALKS WITHIN COOLIDGE PARK SHALL REMAIN OPEN FOR THIS EVENT
 - III. THE CONTRACTOR SHALL INSTALL AN 8 INCH THICK LAYER OF WOOD MULCH WITHIN THE TWO OPENINGS SHOWN ON FIGURE ONE ON THIS SHEET.
- 3. IRONMAN 70.3 - MAY
- 4. RIVERBEND & RIVERBEND RUN - MAY/JUNE
- 5. CHATTANOOGA WATERFRONT TRIATHLON - JUNE
- 6. MOON RIVER FESTIVAL - SEPTEMBER
 - I. ITEMS II AND III FOR EASTER SHALL ALSO APPLY FOR THE MOON RIVER FESTIVAL
- 7. IRONMAN - SEPTEMBER
- 8. 7 BRIDGES MARATHON - OCTOBER
- 9. HEAD OF THE HOOC - NOVEMBER

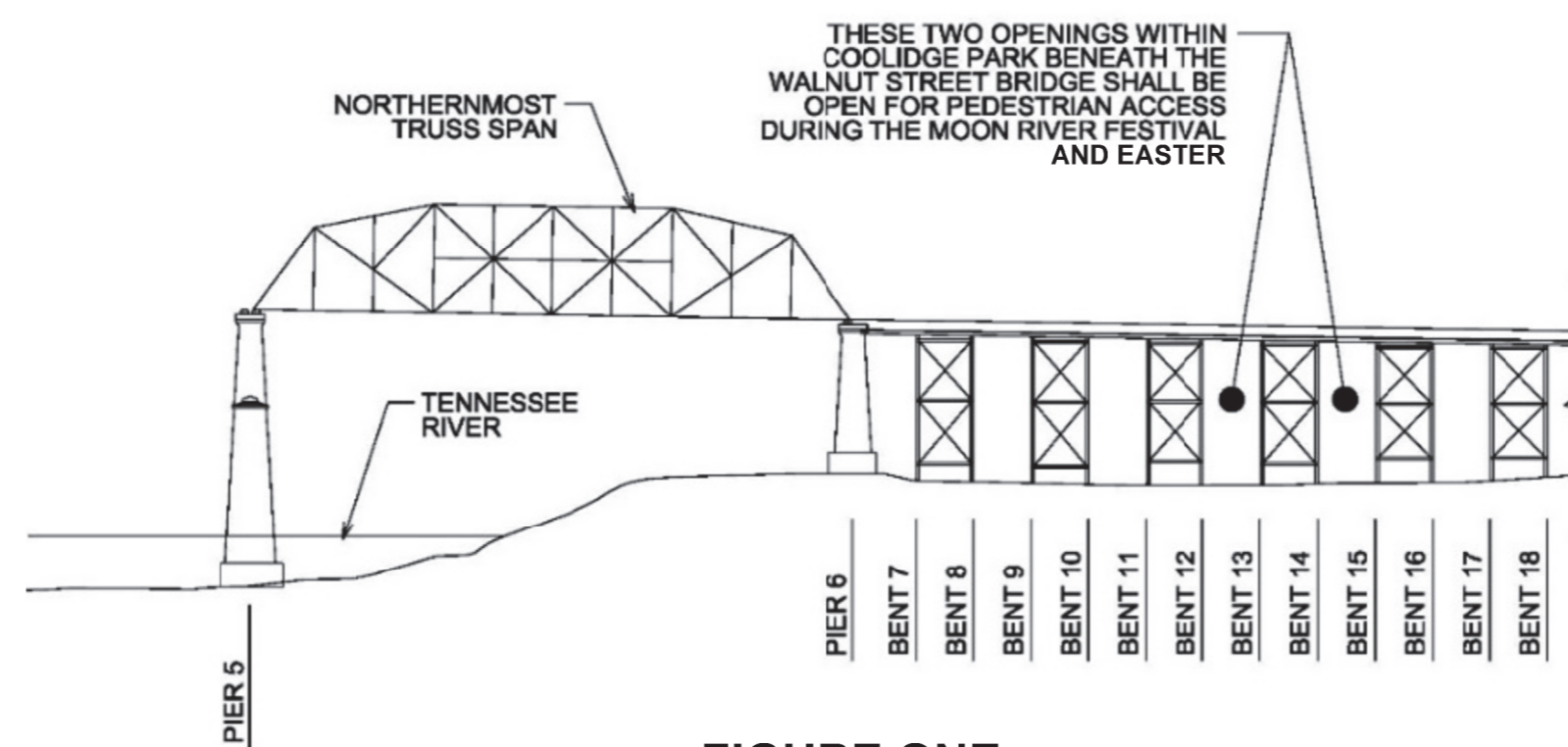


FIGURE ONE

- (6) **SHOP DRAWINGS:** REFER TO SECTION 105.02 OF THE STANDARD SPECIFICATIONS. IF USING PAPER COPIES, SHOP DRAWINGS ARE TO BE SENT TO THE CITY OF CHATTANOOGA PROJECT MANAGER, FOR ELECTRONIC SUBMITTALS, SEE SECTION 105.02 OF THE STANDARD SPECIFICATIONS. EACH SHOP DRAWING SHALL CONTAIN IN THE TITLE BLOCK THE FOLLOWING: THE CITY PROJECT NUMBER, COUNTY, BRIDGE NAME, AND BRIDGE NUMBER (OR STRUCTURE TYPE AND NUMBER). SHOP DRAWINGS WITH TITLE BLOCKS NOT INCLUDING THE FOREGOING IDENTIFICATION WILL BE RETURNED FOR CORRECTION BEFORE ANY REVIEWS FOR APPROVAL ARE CONDUCTED.
- (7) **UTILITY PROTECTION PLAN:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES, AND PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT A UTILITY PROTECTION PLAN FOR APPROVAL BY THE OWNER DESCRIBING THE MEANS AND METHODS BY WHICH ALL EXISTING UTILITIES SHALL BE PROTECTED FROM CONSTRUCTION OPERATIONS FOR THE DURATION OF THE CONTRACT. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR TEMPORARILY SUPPORTING ALL EXISTING UTILITIES WHILE TIMBER ELEMENTS ARE BEING REPLACED. THIS SHALL BE CONSIDERED AN INCIDENTAL ITEM. AS PART OF THE UTILITY PROTECTION PLAN, THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OUTLINED IN NOTE 88 ON SHEET 4C REGARDING THE EXISTING WATER LINE.
- (8) **REMOVAL OF ITEMS FROM THE JOB SITE :** CONTRACTOR SHALL USE EXTREME CARE AND TAKE ANY MEASURES NECESSARY TO ENSURE THAT NO DEBRIS IS DROPPED INTO THE HYDRAULIC, PEDESTRIAN, OR ROADWAY CROSSING BELOW THE STRUCTURE. ANY DEBRIS WHICH IS ALLOWED TO DROP ON THE BANKS BELOW THE BRIDGE SHALL NOT BE ALLOWED TO EXIT THE WORK AREA AND SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. ALL ITEMS REMOVED FROM THE EXISTING STRUCTURE AND WORK AREA, INCLUDING DEBRIS, OLD STEEL, TIMBER ELEMENTS, TRASH CANS, PARK BENCHES, ETC. SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND ITS REMOVAL FROM THE JOB SITE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS. HAULING OF REMOVAL ITEMS SHALL BE RESTRICTED TO TIMES OF DAY THAT WILL AVOID

INTERRUPTIONS TO TRAFFIC FLOW DURING PEAK HOUR VOLUMES. IN ADDITION NO HAULING SHALL BE ALLOWED DURING MORNING OR EVENING RUSH HOUR, WHICH SHALL BE CONSIDERED TO BE BETWEEN THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 7:00 PM.

- (9) **DEMOLITION:** THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ANY PARTS OF THE STRUCTURE THAT ARE NOT TO BE REMOVED SPECIFICALLY. ALL DEVICES PROPOSED FOR DEMOLITION SHALL MEET THE APPROVAL OF THE ENGINEER.
- (10) **BRIDGE LIGHTING:** LUMP SUM FOR BRIDGE LIGHTING INCLUDES ALL ITEMS AND LABOR NECESSARY TO MAKE THE BRIDGE LIGHTING COMPLETE AS SHOWN ON THE PLANS, INCLUDING CONNECTION TO THE EXISTING POWER SOURCE. SEE LIGHTING REPAIR DETAILS FOR ADDITIONAL INFORMATION.
- (11) **VERIFICATION OF EXISTING CONDITIONS:** THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CLEARANCES, AND MEMBER SIZES BEFORE SUBMITTING SHOP DRAWINGS. COST TO BE INCLUDED IN THE COST OF OTHER ITEMS.
- (12) **FALSEWORK OVER TRAFFIC:** SEE SECTION 604.06 OF THE STANDARD SPECIFICATIONS.
- (13) **FALL PROTECTION:** THE CONTRACTOR SHALL PROVIDE 100% CONVENTIONAL FALL PROTECTION FOR WORKERS INSTALLING DECKING ABOVE 15 FEET.
- (14) **CONSTRUCTION SEQUENCING:** REMOVAL AND REPLACEMENT OF TIMBER ELEMENTS SHALL BE PERFORMED BEGINNING ON THE SOUTH END OF THE BRIDGE AND MOVING NORTH ACROSS THE BRIDGE UNTIL COMPLETION. ALL OTHER CONSTRUCTION OPERATIONS ARE AT THE DISCRETION OF THE CONTRACTOR. THE CONTRACTOR SHALL ESTABLISH A PLAN PRIOR TO BEGINNING CONSTRUCTION OPERATIONS TO BE REVIEWED BY THE ENGINEER. SEE SPECIAL PROVISION SP-6 FOR ADDITIONAL DETAILS.

CONSTRUCTION STAGING: PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF CHATTANOOGA TO DETERMINE A SUITABLE LOCATION FOR CONSTRUCTION STAGING. THE CONTRACTOR IS RESPONSIBLE FOR ANY PERMITTING REQUIRED FOR OFF-SITE STAGING.

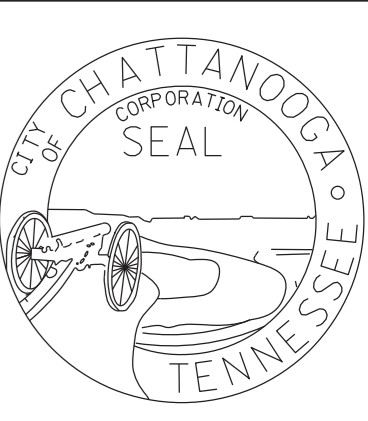
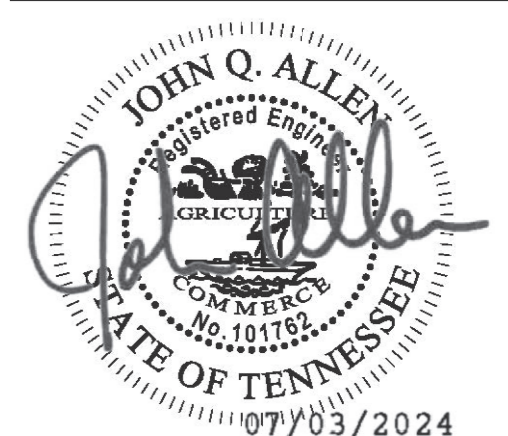
- (15) **SPECIAL NOTE CONCERNING WORK OVER A NAVIGABLE WATERWAY:** THE CONTRACTOR SHALL COMPLY FULLY WITH ANY REQUIREMENTS ESTABLISHED BY THE CORPS OF ENGINEERS, U.S. COAST GUARD, AND ANY OTHER AGENCIES WHICH MAY HAVE JURISDICTION RELATIVE TO CONSTRUCTION WORK OVER A NAVIGABLE STREAM WHICH IS APPLICABLE TO THIS CONTRACT, AND WHICH MAY NOT BE COVERED BY EXISTING PERMITS. **THE CONTRACTOR SHALL ALSO NOTIFY THE CORPS OF ENGINEERS INFORMING THEM OF WORK TO BE PERFORMED BEFORE ANY WORK OVER THE WATERWAY BEGINS.** THE CONTRACTOR SHALL SUBMIT A DESCRIPTION OF WORK AND SKETCHES OF ANY FALSEWORK, SCAFFOLDING, DEBRIS CONTAINMENT SYSTEMS, ETC. WHICH MAY BE REQUIRED DURING CONSTRUCTION WHICH MAY ENCROACH UPON THE VERTICAL AND/OR HORIZONTAL CLEARANCES FOR WATERWAY TRAFFIC TO THE U.S. COAST GUARD FOR APPROVAL BEFORE ANY WORK BEGINS.

CONTACT: ERIC WASHBURN
U.S. COAST GUARD
BRIDGE ADMINISTRATOR
1222 SPRUCE STREET
ST. LOUIS, MO 63103-2832

- (16) **REFERENCE DOCUMENTS:** FOR ADDITIONAL DETAILS, DIMENSIONS AND MEMBER SIZES OF THE EXISTING BRIDGE, THE CONTRACTOR IS REFERRED TO THE FOLLOWING DOCUMENTS (PROVIDED UPON REQUEST):
 - A. REHABILITATION PLANS - 1990, 2009, AND 2016
 - B. INSPECTION REPORT - 2015

- (17) **MAINTENANCE OF TRAFFIC ON BRIDGE:** SEE PROJECT SPECIFICATIONS.
- (18) **MAINTENANCE OF TRAFFIC IN COOLIDGE PARK:** SEE WORK ZONE DETAIL SHEETS.

REVISION 1 SEALED BY:



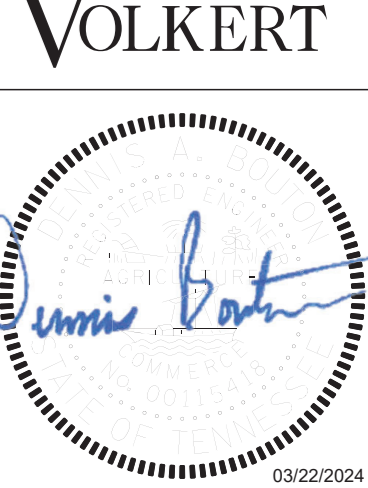
CITY OF CHATTANOOGA
 DIVISION OF TRANSPORTATION
CONTRACT #E-13-002-103
 WALNUT STREET PEDESTRIAN BRIDGE
 BRIDGE REPAIRS - PHASES 2, 3, & 4
 WILLIAM C. PAYNE, P.E., CITY ENGINEER

BRIDGE GENERAL NOTES (1 OF 4)

NO.	REVISION	DATE	SIG.
1	REV. NOTES	1/3/24	JOA

SCALE	NO SCALE
DRAWN	N. RUSSELL
DESIGN	A. CAGLE
CHECKED	J. ECKEL

VOLKERT



APPROVED	
JOB NO.	457003.17
DATE	03/22/2024
SHEET	4
FILE NO.	



CITY OF CHATTANOOGA
 DIVISION OF TRANSPORTATION
CONTRACT #E-13-002-103
 WALNUT STREET PEDESTRIAN BRIDGE
 BRIDGE REPAIRS - PHASES 2, 3, & 4

TOM HUTKA, ADMINISTRATOR

WILLIAM C. PAYNE, P.E., CITY ENGINEER

CONTACTOR SCHEDULE

LABEL	SIZE	AREA	CIRCUITS	CONTROL
C1	3-POLE - 100A	PANEL LS2	LS1-9,11,13	LTG. CONTROL PANEL (LCP-1)

POWER PEDESTAL LEGEND

LABEL	SIDE 1	SIDE 2	OTHER UTILITIES	MOUNTING	MODEL #
PP1	UNMETERED (1) 50A 240V & (1) 30A 120V RECPTS • 20A 120V GFCI MAINTENANCE RECPT	N/A	COORDINATE WITH OWNER	POST MNT. COORD. LOCATION WITH OWNER	USE MILBANK U500-XL-75 OR EQUAL BY HYPOPOWER, EATON. COORD. WITH OWNER.

SUB-STATION SCHEDULE

- NEMA 3R, ALUMINUM, COLOR TO BE SAME AS BRIDGE STRUCTURE. COORDINATE COLOR WITH OWNER AND MANUFACTURER.
 - USE AMERICAN MIDWEST POWER OR PRE-APPROVED EQUAL
 - SEE ONE-LINE & SCHEDULES

SSWB2		
PANELBOARD		WB2
LIGHTING CONTROL PANEL		LCP-2
SURGE PROTECTIVE DEVICE		SPD-2
PANELBOARD		WBL2

SURGE PROTECTION DEVICE SCHEDULE

LABEL	MODEL	PART #	AMP RATING
SPD-1	SQUARE-D	SSP02EMA24S	240,000
SPD-2	SQUARE-D	SSP02EMA24	240,000
SPD-3	SQUARE-D	SSP02EMA24	240,000
SPD-4	SQUARE-D	SSP02EMA24	240,000

NOTES:
 1. USE SPECIFIED DEVICE, SIEMENS, OR INNOVATIVE TECHNOLOGIES
 2. INSTALL PER MANUFACTURER'S REQUIREMENTS AND SPD DETAIL

CONDUIT SCHEDULE

GENERAL NOTES
 • CONDUIT SIZED FOR THWN COPPER IN IMC.
 • CONDUIT SIZES TO BE ADJUSTED IN ACCORDANCE WITH THE NEC IF THERE ARE ANY FIELD-REQUIRED VARIATIONS FROM CONDUIT, WIRING, AND CIRCUITING INDICATED ON PLANS.
 • REFER TO PANEL SCHEDULES FOR CIRCUITS IN EACH CONDUIT.

CONDUIT LABEL (C#)	MINIMUM SIZE
C1	2"
C2	2-1/2"
C3	2-1/2"
C4	2"
C7	2"
C8	2"
C9	2"
C10	2"
C11	2"
C12	2"
C13	1-1/4"
C14	1-1/2"
C15	1-1/4"
C16	1-1/4"
C17	1-1/2"
C18	1-1/2"
C19	1-1/2"
C20	1-1/2"
C21	1-1/2"
C22	1-1/2"

INVERTER SCHEDULE

• INVERTER LISTED IS BASIS OF DESIGN
 • THE FOLLOWING ARE OTHER APPROVED MANUFACTURERS:
 1. MYERS
 2. BARRON
 • INVERTER TO HAVE INTEGRAL OUTPUT CIRCUIT BREAKER AS NOTED IN SCHEDULE AND ON PLANS

LABEL	RATING (kW)	ENCLOSURE	INPUT	OUTPUT	BASIS OF DESIGN	PART NUMBER
I1	8	NEMA 3R	208Y/120	208Y/120	DSPM FORTRESS 3	FT3-8.0-208Y/120-208Y/120-OCB/208/1/30/1

LIGHTING FIXTURE SCHEDULE

NOTES:
 1.) FIRST MODEL LISTED BELOW IS BASIS OF DESIGN. ADDITIONAL MANUFACTURERS ARE LISTED AS APPROVED ALTERNATES. IF ADDITIONAL MANUFACTURERS ARE NOT LISTED, NO ALTERNATES WILL NOT BE ACCEPTED.
 2.) SEE SPECIFICATION SECTION 714 FOR ADDITIONAL INFORMATION REGARDING ALTERNATES FOR ANY OF THE FIXTURES LISTED BELOW.
 3.) QUANTITIES SHOWN ARE ESTIMATED AND NOT EXACT. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT QUANTITIES OF FIXTURES.

LABEL	QUANTITY	MANUFACTURER	MODEL	LAMP	DESCRIPTION	WATTS	VOLTS
A1	33	STERNBERG LIGHTING	SH3-1910LED-1L40T5-MDL12-A-CM	LED	PENDANT MOUNTED HISTORIC ACORN FIXTURE, STEM HUNG 6" FROM STRUCTURE, COORDINATE EXACT COLOR FINISH WITH OWNER.	93	208
A2	78	STERNBERG LIGHTING	1A-1910LED-1L40T3-MDL12-A-480HWB/CM	LED	SURFACE MOUNTED HISTORIC ACORN FIXTURE, SIDE MOUNTED FROM STRUCTURE, COORDINATE EXACT COLOR FINISH WITH OWNER. FIXTURE TO BE MOUNTED TO BRIDGE STRUCTURE WITH MANUFACTURER WALL BRACKET	93	208
A3	11	STERNBERG LIGHTING	1A-1910LED-1L40T3-MDL12-A-480HPM/4516-.188-BCC-CM	LED	POLE MOUNTED HISTORIC ACORN FIXTURE, POLE MOUNTED, 16'-0" POLE, COORDINATE EXACT COLOR FINISH WITH OWNER.	93	208
A4	9	STERNBERG LIGHTING	1A-1910LED-1L40T3-MDL12-A-480HPM/4516-.188-BCC-GFI IUC-CM	LED	POLE MOUNTED HISTORIC ACORN FIXTURE, POLE MOUNTED, 16'-0" POLE, POLE WITH 120V GFCI RECEPTACLE IN WEATHERPROOF COVER, COORDINATE EXACT COLOR FINISH WITH OWNER.	93	208
B	20	HE WILLIAMS LITHONIA SIGNIFY	VG1-L110-30-T5-SM-GRAY-UNV	LED	DURABLE SURFACE MOUNTED, UNDER-BRIDGE LIGHT, ALUMINUM HOUSING, STANDARD GRAY FINISH	104	208
F	25	INSIGHT LIGHTING LITHONIA SIGNIFY	PS17-HO-30K-HSL-TR-UNV-CC-VS	LED	SURFACE MOUNTED, UNDER-BRIDGE FLOOD LIGHT, COORDINATE MOUNTING WITH STRUCTURAL PLANS	85	120
N1	12	SEALITE PHAROS MARINE B&B ROADWAY	SL-BR	LED	180-DEGREE SECTORED RED WATER NAVIGATION LIGHT, FIXTURE TO COMPLY WITH U.S. COAST GUARD REQUIREMENTS	8	120
N2	6	SEALITE PHAROS MARINE B&B ROADWAY	SL-BR	LED	360-DEGREE GREEN WATER NAVIGATION LIGHT, FIXTURE TO COMPLY WITH U.S. COAST GUARD REQUIREMENTS	7	120
S	144	COLOR KINETICS LUMEN PULSE SOLID STATE LUMINAIRES	999-049000-01 SPECIAL, ARCHPOINT EW POWERCORE, RGBW, TRANSLUCENT DOME, CUSTOM COLOR, 100-240V, UL/CE 822220987399 GLARE SHIELD 120-00015300	LED	RGBW DOME FIXTURE WITH ACRYLIC LENSE, HALF SHADE COVER, CONDUIT MOUNTED, COORDINATE FINISH WITH OWNER	25	208
U	144	COLOR KINETICS INSIGHT LIGHTING SOLID STATE LUMINAIRES	BURST POWERCORE GEN3, RGBW	LED	RGBW WALL MOUNTED UPLIGHT W/ 10X20 BEAM SPREAD, COORDINATE EXACT MOUNTING WITH STRUCTURE, EXACT MOUNTING HEIGHT AND ORIENTATION OF FIXTURES TO BE DETERMINED BY MOCK-UP AS DESCRIBED IN SPECIFICATION SECTION 714	30	208

ELECTRICAL MATERIALS SCHEDULE

• ALL NONMETALLIC MATERIAL TO BE UV-RESISTANT

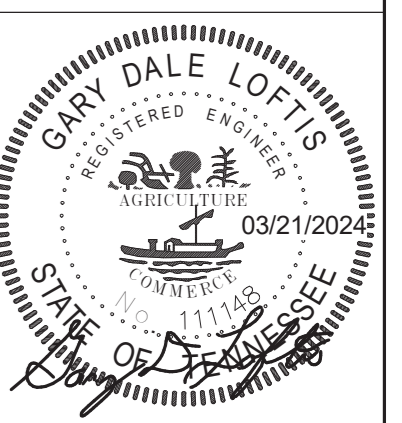
DESCRIPTION	MATERIAL	STANDARDS	REMARKS
SWITCHES	SAFETY SWITCHES	GENERAL DUTY TYPE #	UL 98 • QUICK MAKE / QUICK BREAK
BOXES	PULL / JUNCTION / OUTLET BOX	GALVANIZED STEEL	UL 731A • 1 1/2" MINIMUM DEPTH WITH COVER, COORDINATE SIZE WITH NEC
RECEPTACLES	DUPLEX RECEPTACLES	NEMA 5-15R 15-AMP 125-VOLT	UL498 • GROUNDING TYPE
WIRE / CABLE	#10 & SMALLER	600-VOLT THHN / THWN	UL 83 • SOLID • TINNED SOFT • DRAWN COPPER
	#8 & LARGER	600-VOLT 3THHN / THWN	UL 83 • SOLID • TINNED SOFT • DRAWN COPPER
	FIXTURE CONDUCTORS	105°C 600-VOLT THHN / THWN	UL 83 • SOLID • TINNED SOFT • DRAWN COPPER
CONDUIT	RIGID	GALVANIZED STEEL	HH 9359 • USE FOR FEEDERS AND UNDERGROUND, UNDERSLAB, AND ABOVE GROUND SERVICE ENTRANCE
	PVC	RIGID POLYVINYL CHLORIDE SCHEDULE 40 & 80	NEMA TC-2 • USE FOR UNDERGROUND AND UNDERSLAB SERVICE ENTRANCE CONDUCTORS, FEEDERS, AND COMMUNICATION ENTRANCE AND TRUNK LINES
	IMC	GALVANIZED STEEL INTERMEDIATE METAL CONDUIT	UL 1242 • USE ABOVE SLAB AND ON BRIDGE STRUCTURE FOR FEEDERS, BRANCH CIRCUITS, AND COMMUNICATIONS
CONDUIT HANGERS	UP TO 3/4"	GALVANIZED STEEL	• 5'-0" O/C MAXIMUM
	1" TO 1-1/2"		• 7'-0" O/C MAXIMUM
	1-3/4" & UP		• 9'-0" O/C MAXIMUM

ELECTRICAL SCHEDULES

NO.	REVISION 1	DATE	GDL
1	REVISION 1	7-3-24	GDL

SCALE AS NOTED
 DRAWN AJG
 DESIGN AJG
 CHECKED GDL

VOLKERT



APPROVED

JOB NO. 457003.17
 MLE JOB NO. 21080
 DATE 03/21/2024
 SHEET E-0.2
 FILE NO.



1 S. JEFFERSON AVE., STE 101
 COOKEVILLE, TN 38501
 TEL: (931) 526-5143
 www.maffett-loftis.com

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	AS BUILT QUANTITY
202-01	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LUMP SUM	1	
403-02	ASPHALT CEMENT FOR TACK COAT (TC)	TON	1	
411-01.01	MINERAL AGGREGATE FOR ASPHALTIC CONCRETE SURFACE (ACS) GRADING "D"	TON	124	
411-01.02	ASPHALT CEMENT FOR ASPHALTIC CONCRETE SURFACE (ACS) GRADING "D"	TON	6	
601-10.03	TREATED TIMBER STRINGER REPAIRS (4" X 16")	EACH	568	
601-10.10	TREATED TIMBER (LAMINATED DECKING)	MBM	126	
601-10.11	TREATED TIMBER (SIDEWALK PLANKS AND CURBS)	MBM	155	
602-10.06	STRUCTURAL STEEL	POUND	27,600*	
602-10.08	STEEL HANDRAIL REPAIRS	LUMP SUM	1	
602-10.20	BOLTS	EACH	528*	
602-10.32	STRUCTURAL STEEL REPAIRS	POUND	24,000*	
602-10.34	MISCELLANEOUS STRUCTURAL STEEL REPAIRS	POUND	4,000*	
602-10.36	STEEL BRIDGE FLOORING REPAIRS	SQUARE FOOT	400	
602-10.38	TRUSS POST-TENSIONING	LUMP SUM	1	
603-02.01	REPAINTING EXISTING STEEL STRUCTURES (WALNUT STREET BRIDGE)	LUMP SUM	1	
604-10.02	CONCRETE REPAIRS	CUBIC YARD	5	
604-10.18	REINFORCING STEEL REPAIRS	POUND	965	
604-10.74	REPOINTING OF STONE MASONRY JOINTS	LINEAR FOOT	1,000*	
604-10.75	CLEANING OF MASONRY SURFACES	SQUARE FOOT	24,000*	
621-01.01	TEMPORARY STRUCTURE (SHIELDING OVER ROADWAY)	LUMP SUM	1	
621-01.02	TEMPORARY STRUCTURE (TRUSS HANGER SUPPORTS)	LUMP SUM	1	
714-01.01	STRUCTURE LIGHTING	LUMP SUM	1	
717-01	MOBILIZATION	LUMP SUM	1	
750-01.01	SITE FURNISHING	LUMP SUM	1	
750-01.02	POTABLE WATER SERVICE	LUMP SUM	1	
920-02.36	FIELD OFFICE	LUMP SUM	1	

Revisions
 No. Date By Brief Description
 1 12 Sep 1990 JHP Items 403-02 and 604-10.02 rounded up. Description change for item 604-10.18.
 2 Nov 1990 JHP - Notes regarding Materials modified.

GENERAL NOTES

DESIGN SPECIFICATIONS
 AASHTO - 1989 EDITION
CONSTRUCTION SPECIFICATIONS
 TENNESSEE DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (MARCH 1981 EDITION) WITH REVISIONS AND SPECIAL PROVISIONS.

DESIGN LIVE LOAD

- A) EVERYDAY USE: TROLLEY LOAD - 43,500 LBS.
PEDESTRIAN LOAD - IN ACCORDANCE WITH AASHTO SECTION 3.14.1
- B) FESTIVAL USE: PEDESTRIAN LOAD - 85 PSF
(DURING FESTIVAL USE THE TROLLEY SERVICE IS TO BE SUSPENDED AND THE ROADWAY WIDTH RESTRICTED AS SHOWN ON THIS DRAWING)

MATERIALS

- A) STRUCTURAL STEEL SHAPES & PLATES - ASTM A36 UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325, FRICTION TYPE CONNECTION.
 - B) POST-TENSIONING STRANDS - GR.270, LOW RELAXATION, 7 WIRE COATED STRANDS. ("FLO-GARD" STRANDS)
 - C) SEE H)
 - D) TIMBER CURBS - TREATED SOUTHERN YELLOW PINE, YARD LUMBER, COMMERCIAL GRADE NO.1 AND/OR NO.2, C FINISH.
 - E) STRUCTURAL GLUED LAMINATED TIMBER PANELS SHALL CONFORM TO NBS VOLUNTARY PRODUCT STANDARD PS 56 AND AITC STANDARD SERIES 100.
 - F) CONCRETE - CLASS A, $f_c = 3000$ PSI
REINFORCING STEEL - ASTM A615 (GRADE 60) EPOXY COATED, SEE S.P. 907A
- FABRICATION AND ERECTION**
- A) THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CLEARANCES AND MEMBER SIZES BEFORE SUBMITTING SHOP DRAWINGS. COST TO BE INCLUDED IN THE VARIOUS ITEMS OF WORK.
 - B) SHOP DRAWINGS - SEE SPECIAL PROVISION NO 105A.
 - C) WELDING SHALL CONFORM TO AWS D1.5-88. ALSO SEE SPECIAL PROVISION NO 602.
 - D) GALVANIZING SHALL CONFORM TO ASTM A123 & A153
- CLEANING AND PAINTING**
- A) ALL EXISTING METAL SURFACES SHALL BE CLEANED BY SANDBLASTING (SSPC SP10 - NEAR WHITE) AND PAINTED WITH AN ORGANIC ZINC RICH SYSTEM (3 COATS). THE CONTRACTOR SHALL PROVIDE TARPS/BARRIERS TO PRECLUDE BLAST RESIDUE AND PAINT PARTICLES FROM FALLING INTO THE TENNESSEE RIVER AND FROM ENTERING ADJACENT PRIVATE PROPERTY (SEE SPECIAL PROVISION NO 603A)
 - B) ALL NEW STRUCTURAL STEEL SHALL BE PAINTED WITH SYSTEM B - INORGANIC ZINC
 - C) FINISH COAT COLOR: GUN METAL BLUE - PAINT CHIP FOR COLOR MATCHING TO BE PROVIDED BY THE CITY.
- TRAFFIC**
- A) BRIDGE TO REMAIN CLOSED TO TRAFFIC DURING CONSTRUCTION. DETOURS IN PLACE.
 - B) TROLLEY RAILS AND TIES FOR FUTURE USE BY OTHERS.
 - C) THE CONTRACTOR SHALL COMPLETE AND RETURN THE PROJECT INFORMATION RECORD REQUIRED BY THE US COAST GUARD. THIS FORM IS ON FILE WITH THE CITY.
- PLANS**
- A) PROPOSED WORK INDICATED IN HEAVY LINES.
 - B) FOR ADDITIONAL DETAILS, DIMENSIONS AND MEMBER SIZES OF THE EXIST. BRIDGE, THE CONTRACTOR IS REFERRED TO THE FOLLOWING PLANS, WHICH ARE MADE PART OF THE CONTRACT.
 - 1) ORIGINAL CONSTRUCTION - 1891
 - 2) BRIDGE REPAIR SHEET - 1971
 - 3) BRIDGE REPAIRS - 1974
 - 4) BRIDGE REPAIR SHEET - 1977
 - C) FOR ARCHITECTURAL & ELECTRICAL WORK SEE DWGS. A1-A5, E1-E3 & P1.
- UTILITIES**
- A) ALL ABANDONED UTILITIES TO BE REMOVED.
 - B) THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY COMPANIES (SEE SPECIAL PROVISION NO 105.07).

MATERIALS - CONTIN.

- G) ALL TIMBER, EXCEPT GLUED LAMINATED MEMBERS, SHALL BE PRESSURED TREATED WITH 0.6 PCF RETENTION USING EITHER PENTACHLOROPHENOL IN OIL OR CHROMIATED COPPER ARSENATE (CCA). FOR PRESSURE TREATMENT OF GLUED LAMINATED MEMBERS, SEE SUBSECTION 601.02 OF THE SPECIAL PROVISIONS. ALL MEMBERS TREATED WITH CCA SHALL HAVE AN APPROVED WATER REPELLENT ADDITIVE INCLUDED IN THE PRESERVATIVE.
 - H) TIMBER STRINGERS - TREATED SOUTHERN YELLOW PINE, STRESS GRADES FOR STRUCTURAL PURPOSES, NO. 1 DENSE.
- TIMBER DECK AND SIDEWALK PLANKS - TREATED SOUTHERN YELLOW PINE, STRESS GRADES FOR STRUCTURAL PURPOSES, NO. 2 DENSE.
- $f_b = 1,650$ psi for stringers
 $b_b = 1,200$ psi for deck members & sidewalk planks

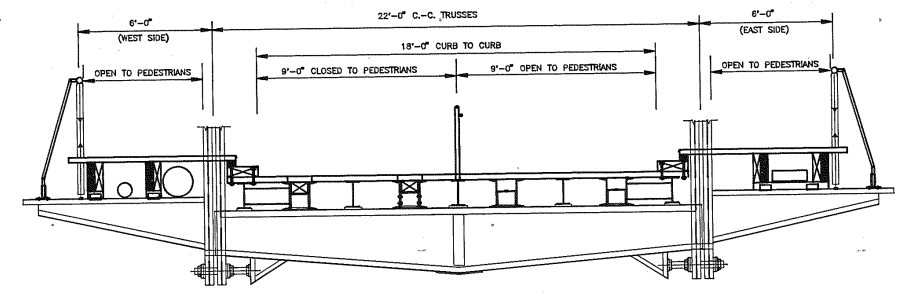
NOTES ON PAY ITEMS

- 1) QUANTITIES MARKED WITH AN ASTERISK (*) MAY BE INCREASED OR DECREASED AT THE DISCRETION OF THE ENGINEER.
- 2) LIST OF SPECIAL PROVISIONS:

	PROV. NO.	LAST REV. DATE
REGARDING TACK	403	01-17-89
APPROVAL OF SHOP DRAWINGS	105A	07-21-87
STEEL STRUCTURES	602	05-15-89
PAINING	603A	11-01-88
EPOXY COATED REINFORCING STEEL	907A	03-25-85

SEE PROJECT SPECIAL PROVISIONS FOR SPECIAL PROVISIONS NOT LISTED ABOVE.
- 3) ONLY ITEMS SHOWN ON THE PROPOSAL AS PAY ITEMS WILL BE PAID FOR. COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS FOR THE ENTIRE CONTRACT SHALL BE INCLUDED IN THE PRICE BID FOR THE PAY ITEMS.
- 4) ITEM 601-10.03, LENGTH VARIES FROM 20'-0" TO 23'-5"
- 5) ITEM 602-10.06 IS FOR STRINGERS
- 6) ITEM 602-10.32 IS FOR TRUSS, VIADUCT & SHIM REPAIRS
- 7) ITEM 603-02.01 INCLUDES REPAINTING OF ALL EXISTING STRUCTURAL STEEL & IRON. APPROXIMATE ESTIMATED WEIGHT 1480 TONS

For Tabulation of Structure Lighting quantities, see Project Special Provisions.



TRUSS SECTION - DURING FESTIVAL USE
 SCALE: 1/4" = 1'-0"

CITY OF CHATTANOOGA

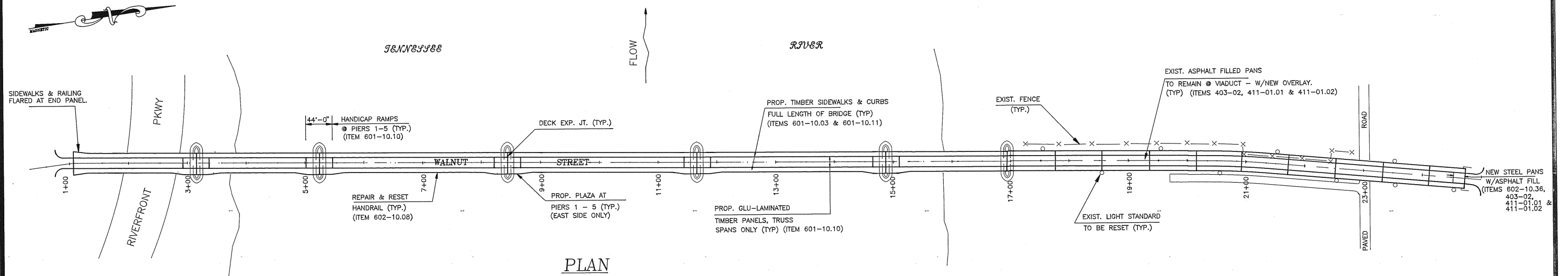
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE

CHATTANOOGA TENNESSEE

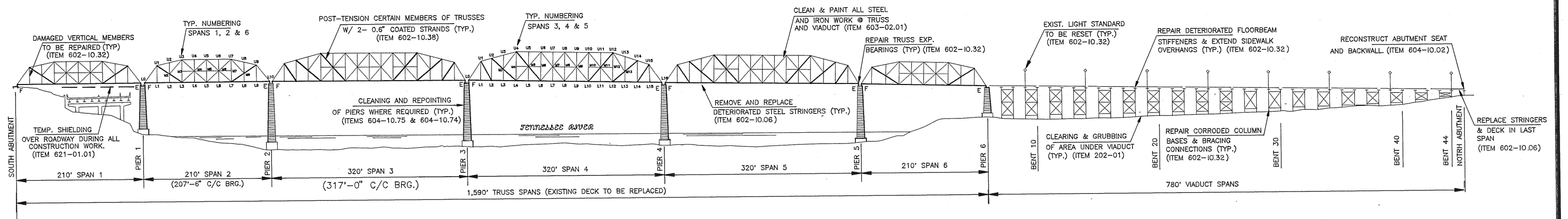
GENERAL NOTES & QUANTITIES

A.G. LICHTENSTEIN AND ASSOCIATES
CONSULTING ENGINEERS NEW JERSEY

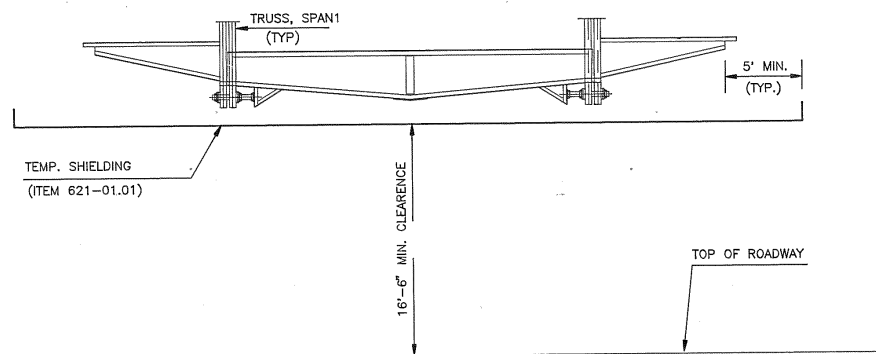
FAIR LAWN	DATE	DWG. NO. B-1
SCALE AS SHOWN	JUNE 1990	M-245-36



PLAN



EAST ELEVATION



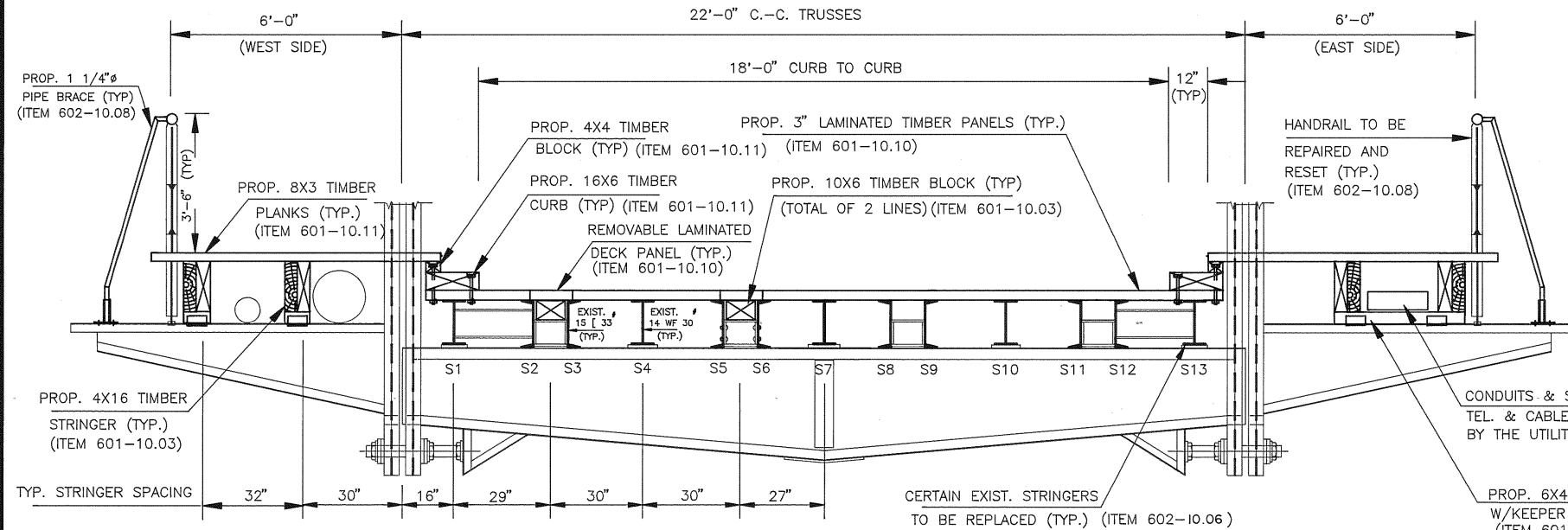
CLEARANCE DIAGRAM FOR SHIELDING

NOT TO SCALE

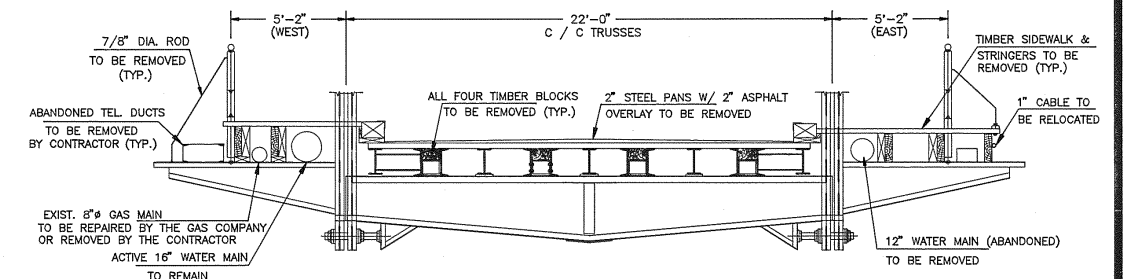
NOTES

- 1) EXIST. HANDRAILING NOT SHOWN ON ELEVATION. ENTIRE LENGTH OF HANDRAILING TO BE REMOVED, REPAIRED AND RESET. (ITEM 602-10.08)
- 2) SURVEY OF BRIDGE PERFORMED BY BETTS ENGINEERING ASSOC., INC., CHATTANOOGA.
- 3) FOR SITE FURNISHINGS, ELECTRICAL WORK & POST HYDRANT DETAILS SEE DWGS. A1-A5, E1-E3 & P1.

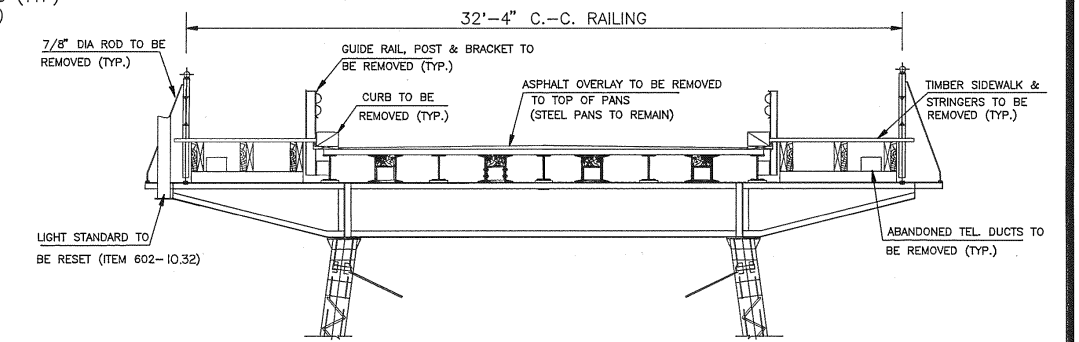
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA		TENNESSEE
GENERAL PLAN AND ELEVATION		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS		
FAIR LAWN		NEW JERSEY
SCALE 1"=80'	DATE JUNE 1990	DWG. NO. B-2 N-245-57



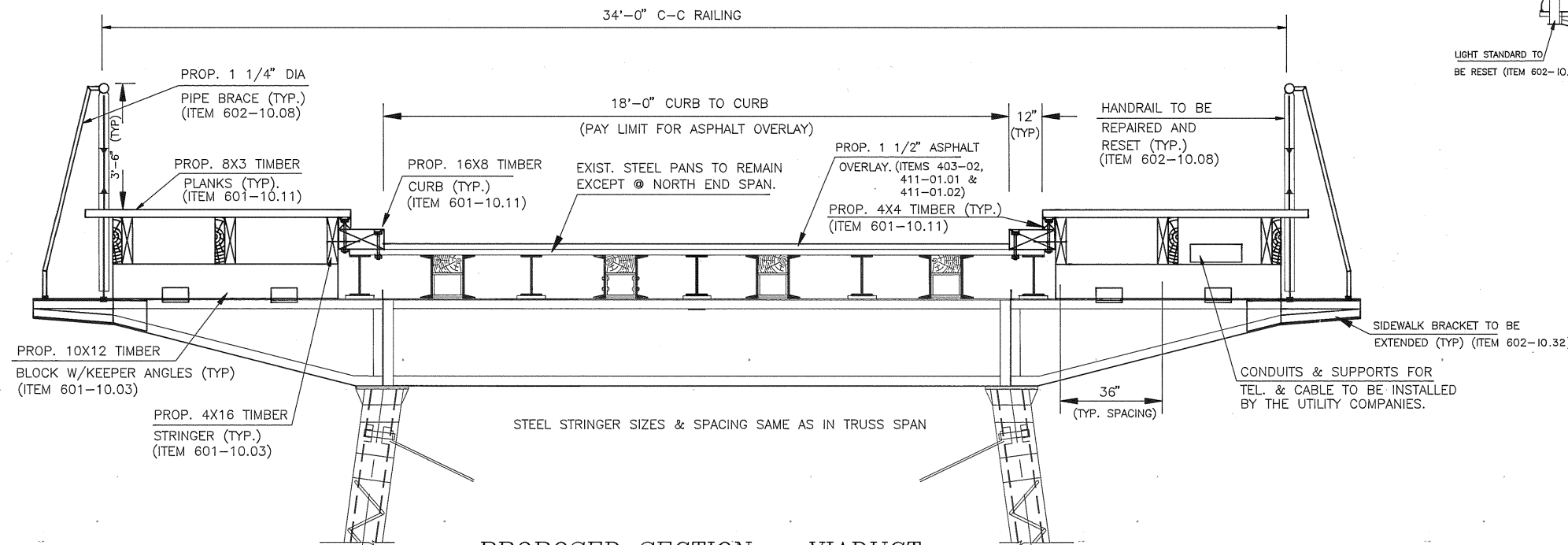
PROPOSED SECTION - TRUSS SPANS (EXCEPT @ PIER PLAZAS)
SCALE: 1/2" = 1'-0"



EXISTING SECTION - TRUSS
SCALE: 1/4" = 1'-0"



EXISTING SECTION - VIADUCT
SCALE: 1/4" = 1'-0"

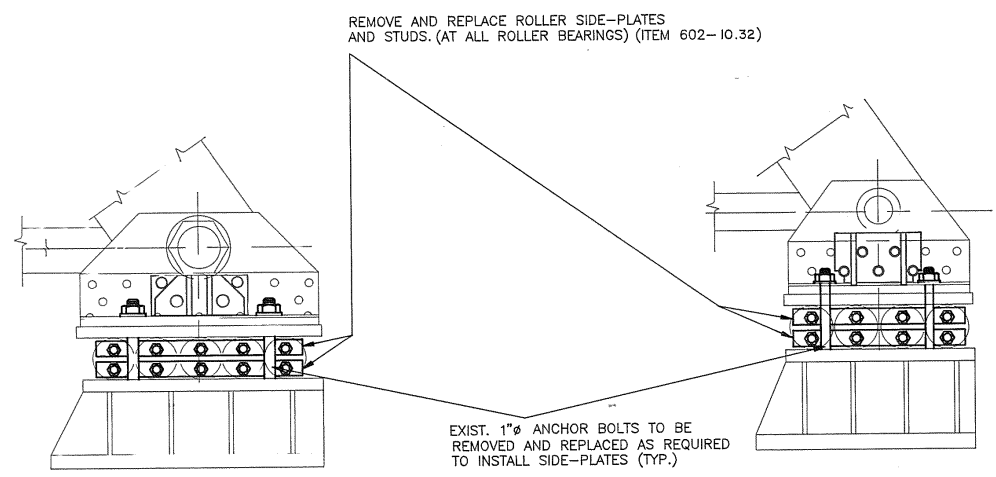


PROPOSED SECTION - VIADUCT
SCALE: 1/2" = 1'-0"

NOTES

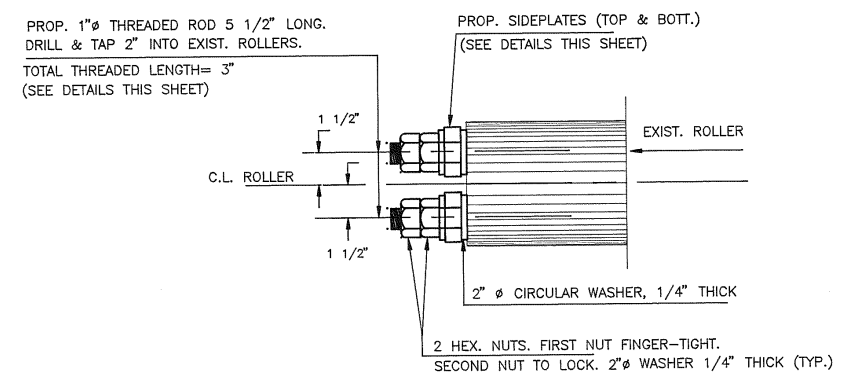
- 1) FOR TRUSS SECTION AT PIERS SEE DWG. NO. B 9
- 2) FOR DECK DETAILS SEE DWG. NO. B 10
- 3) TROLLEY TRACK BY OTHERS
- 4) ALL REMOVALS TO BE PAID UNDER ITEM 202-01 UNLESS OTHERWISE NOTED.
- 5) FOR SITE FURNISHINGS, ELECTRICAL WORK & POST HYDRANT SEE DWGS. A1-A5, E1-E3 & P1.

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
SECTIONS		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS		
FAIR LAWN	DATE	NEW JERSEY
SCALE AS SHOWN	JUNE 1990	DWG. NO. B-3 M-245-52

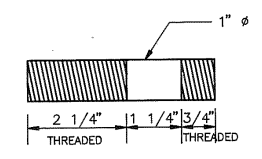


EXPANSION BEARING - SPANS 3,4 & 5
SCALE: 1"=1'-0"

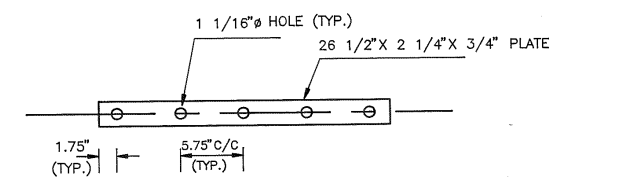
EXPANSION BEARING - SPANS 1,2 & 6
SCALE: 1"=1'-0"



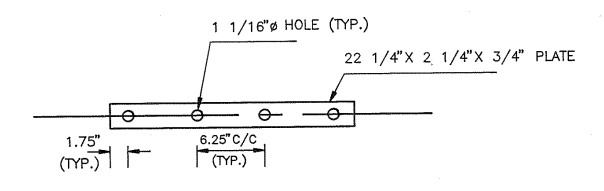
PROPOSED ROLLER SIDEPLATES
SCALE: 3"=1'-0"



THREADED ROD (ASTM A36)
HALF SCALE

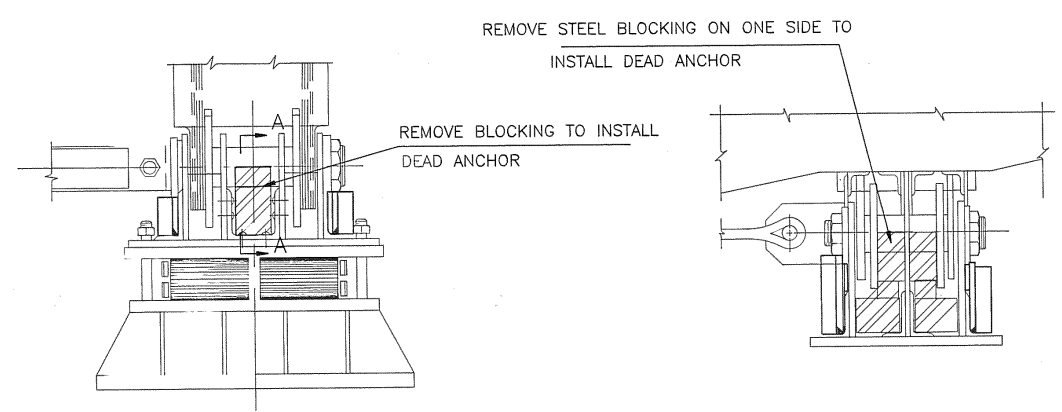


SPANS 3, 4 & 5



SPANS 1, 2 & 6

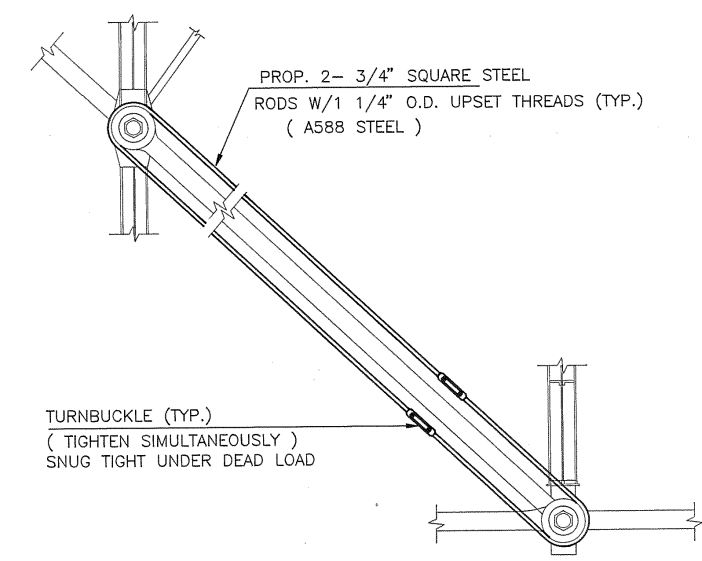
SIDEPLATE DETAILS
SCALE: 1 1/2"=1'-0"



SPAN 3 E. TRUSS (EXP.)
SPAN 5 E. & W. TRUSSES (EXP.)

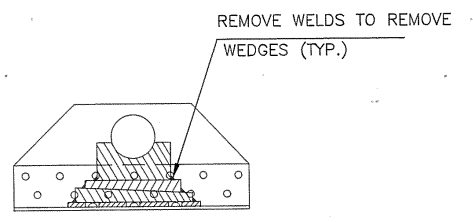
SPAN 1 E. & W. TRUSSES (FIX.)

REMOVAL OF STEEL BLOCKINGS @ BEARINGS (ITEM 202-01)
SCALE: 1"=1'-0"



TURNBUCKLE (TYP.)
(TIGHTEN SIMULTANEOUSLY)
SNUG TIGHT UNDER DEAD LOAD

- NOTES**
- 1) ALL SIDEPLATES, STUDS, BOLTS, NUTS & WASHERS TO BE GALVANIZED. (ASTM A36). PAID UNDER ITEM 602-10.32.
 - 2) STEAM CLEAN AND LIGHT BLAST TRUSS BEARINGS TO REMOVE DIRT, RUST, GREASE AND APPLY LUBRICANT (GREASE) PRIOR TO INSTALLING SIDE PLATES.
 - 3) AFTER CLEANING AND REMOVAL OF BLOCKING THE ENGINEER SHALL INSPECT THE BEARINGS TO DETERMINE IF ANY ADDITIONAL STEEL REPAIRS ARE REQUIRED.
 - 4) SIDEPLATES ARE TO BE REMOVED AND REPLACED ONE SIDE AT A TIME.
 - 5) ROLLER SIDES TO BE GROUND SMOOTH AFTER REMOVAL OF EXIST. STUDS
 - 6) EXIST. STEEL BLOCKINGS AT BEARINGS ARE TO BE REMOVED BY REMOVING WELDS AND IN SUCH A MANNER THAT WILL NOT DAMAGE THE TRUSS PINS OR MEMBERS.
 - 7) TRUSS BEARING REPAIRS SHALL BE COMPLETED PRIOR TO POST-TENSIONING OF TRUSSES.



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

EYEBAR REINFORCEMENT (ITEM 602-10.32)
1/2" = 1'-0"

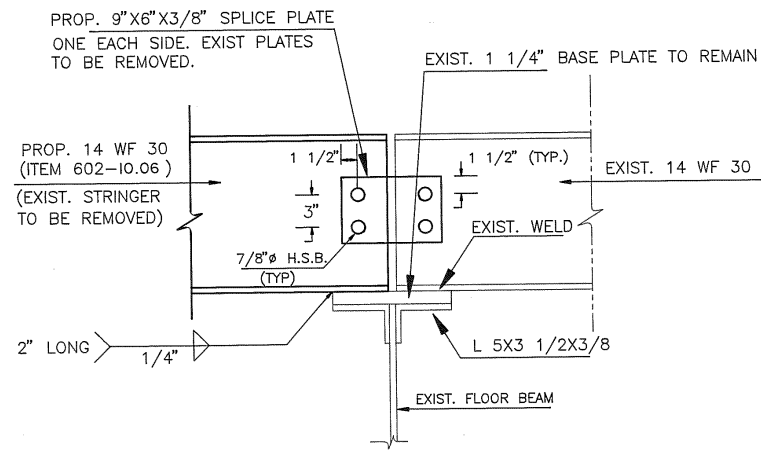
EYE BARS TO BE REINFORCED	
TRUSS	MEMBER
SPAN 1 EAST	L5M6
SPAN 1 WEST	L7M8
SPAN 3 EAST	L4M3
SPAN 3 EAST	L6M5
SPAN 5 WEST	L13L14
SPAN 6 EAST	L5M4

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE

TRUSS REPAIRS

A.G. LICHTENSTEIN AND ASSOCIATES
CONSULTING ENGINEERS
FAIR LAWN NEW JERSEY

SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-4	N-245-59
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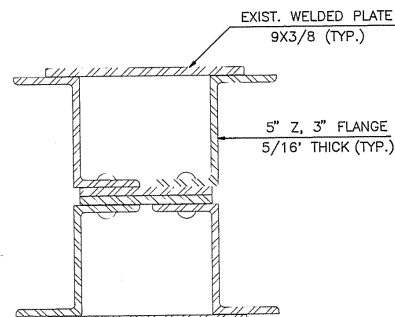
SECTION @ TRUSS FLOOR BEAM

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

14 WF 30 # STRINGERS TO BE REPLACED

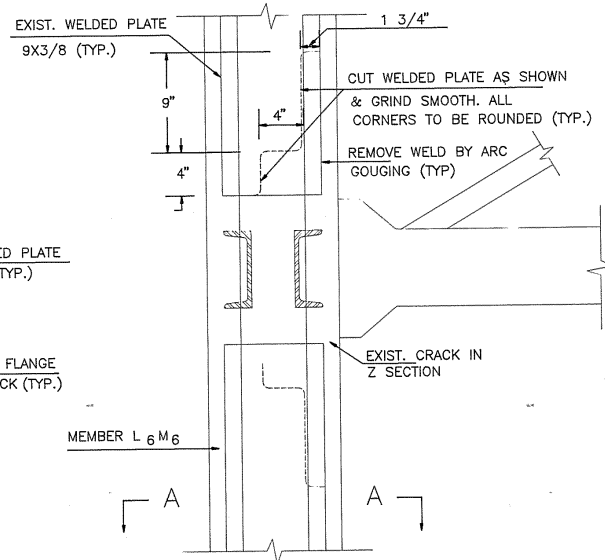
TRUSS SPAN	PANEL	STRINGER NO.
1	L0L1	S1
1	L0L1	S4
1	L0L1	S7
1	L0L1	S13
1	L1L2	S1
1	L1L2	S7
1	L1L2	S10
1	L1L2	S13
1	L2L3	S1
1	L3L4	S1
1	L3L4	S13
1	L4L5	S1
1	L4L5	S13
1	L5L6	S1
1	L7L8	S13
1	L9L10	S1
1	L9L10	S13
3	L5L6	S1
3	L10L11	S1
3	L11L12	S13
3	L13L14	S1
3	L15L16	S1
3	L15L16	S13
4	L3L4	S1
4	L4L5	S7
4	L4L5	S10
4	L4L5	S13
5	L15L16	S13
6	L4L5	S1

STRINGER REPLACEMENT @ TRUSS SPANS (ITEM 602-10.06)

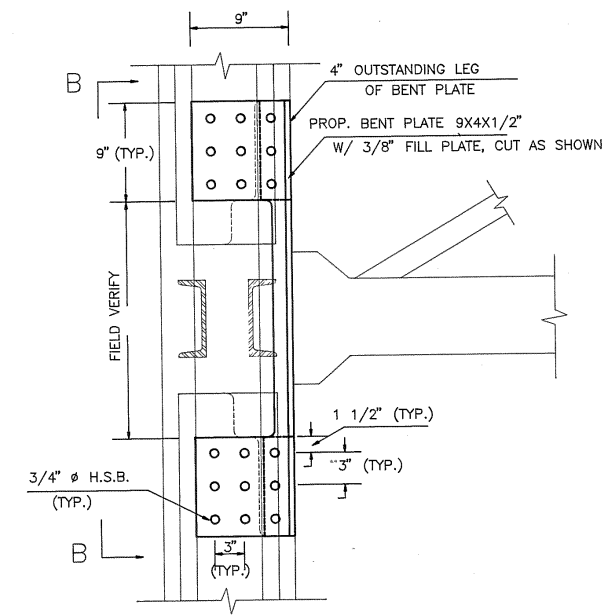


SECTION A-A

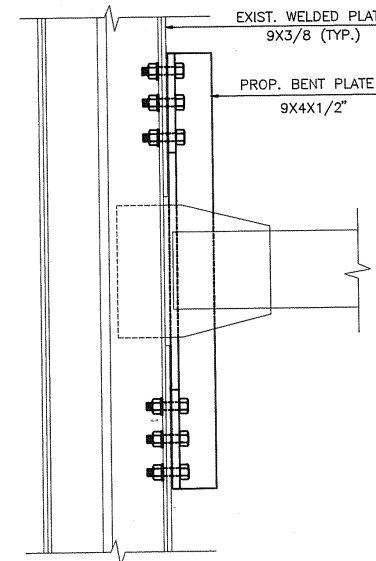
SCALE 3" = 1'-0"



EXISTING
(SOUTH ELEV.)



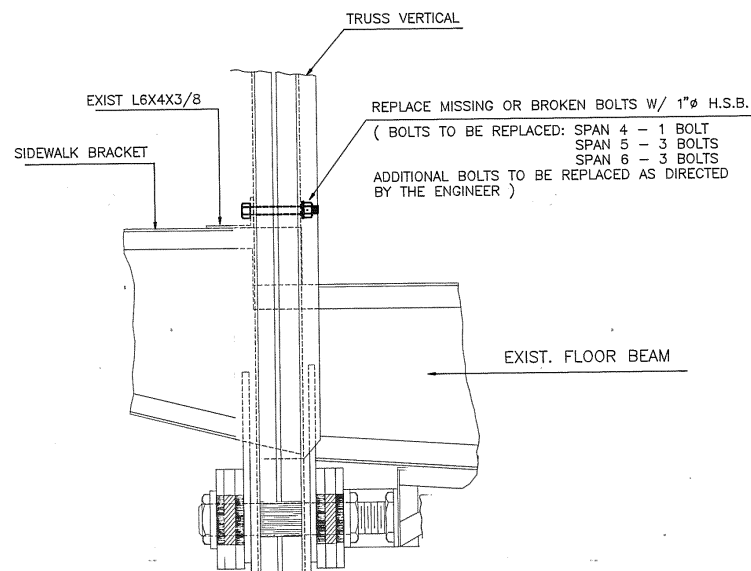
PROPOSED REPAIR
(SOUTH ELEV.)



VIEW B-B

REPAIRS TO L6M6 (SOUTH SIDE) @ M6 - SPAN 5, WEST TRUSS (ITEM 602-10.32)

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



SIDEWALK BRACKET CONNECTION BOLT REPAIR (ITEM 602-10.32)

SCALE: 1" = 1'-0"

NOTES

- 1) ALL FASTENERS SHALL BE ASTM-A325 H.S. BOLTS
- 2) THE ENGINEER SHALL INSPECT ALL STRINGERS AFTER COMPLETION OF BLAST CLEANING. ADDITIONAL STRINGERS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER.
- 3) CONTRACTOR SHALL PERFORM BLAST CLEANING OF ALL STRINGERS AT THE EARLIEST TIME POSSIBLE TO ALLOW TIME FOR INSPECTION & ANY ADDITIONAL REPLACEMENTS
- 4) EXISTING STRINGERS SHALL BE REMOVED BY REMOVING WELDS AT THE BOTTOM FLANGE AND BY REMOVING THE WELDED SPLICE PLATES.

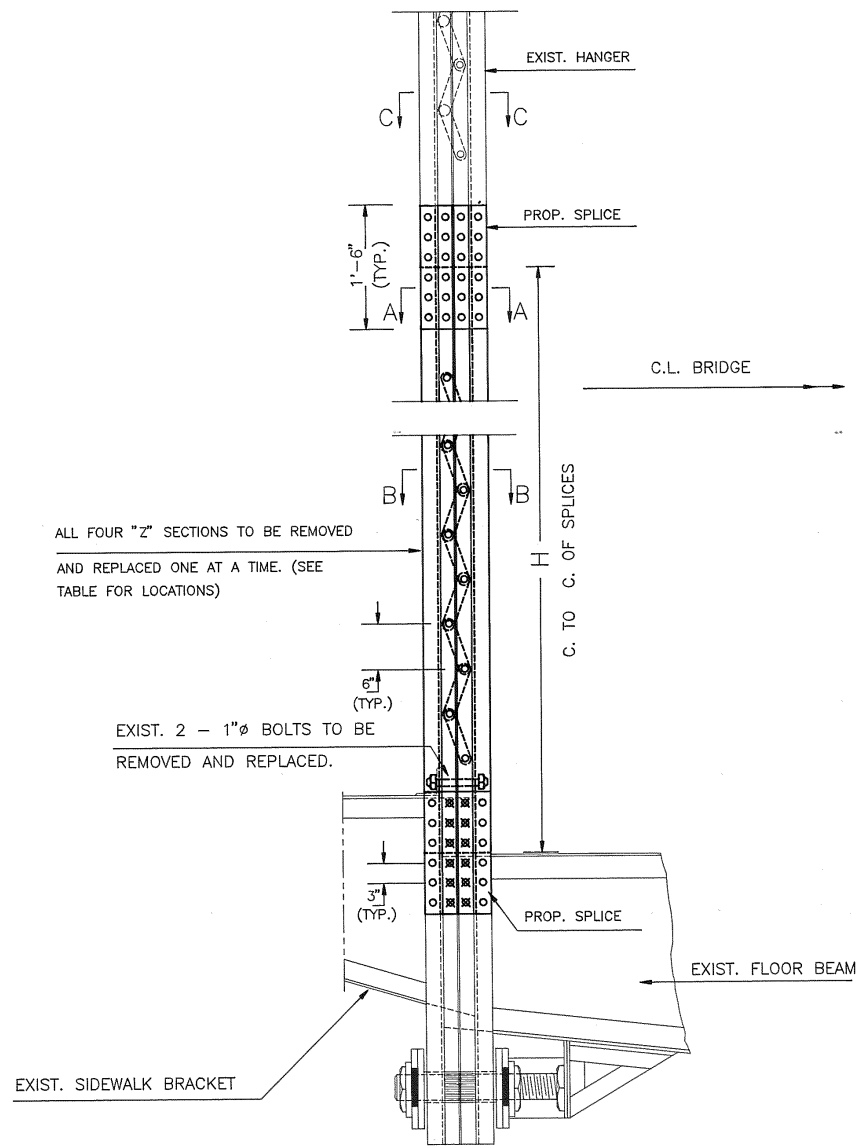
CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE

CHATTANOOGA TENNESSEE

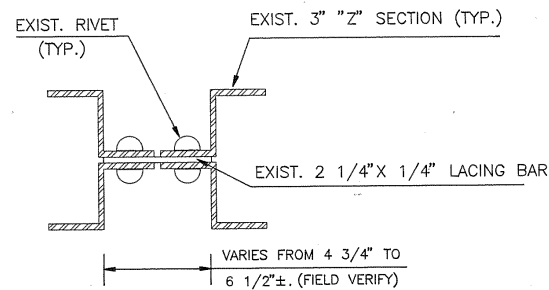
TRUSS/STRINGER REPAIRS

A.G. LICHTENSTEIN AND ASSOCIATES
 CONSULTING ENGINEERS NEW JERSEY

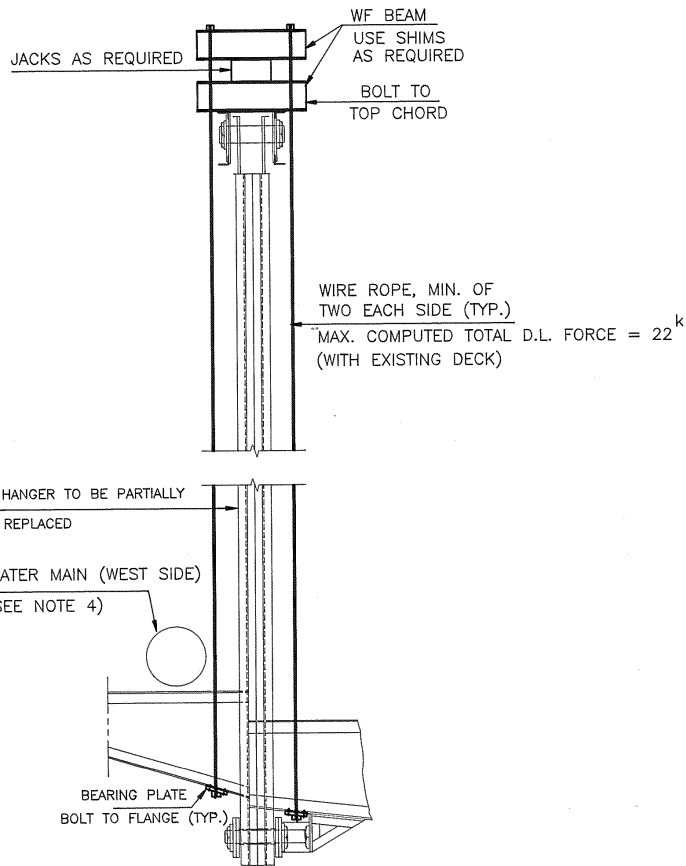
FAIR LAWN	DATE	DWG. NO.
SCALE AS SHOWN	JUNE 1990	B-5 N-245-60



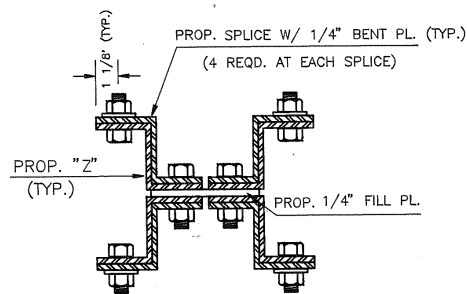
TRUSS HANGER - TRANSVERSE SECTION
 (ITEM 602-10.32)
 SCALE: 1"=1'-0"



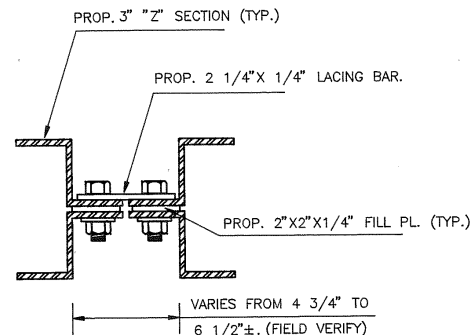
SECTION C-C
 SCALE: 3"=1'-0"



TEMPORARY SUPPORT FOR REPAIR OF HANGER
 (SHOWS GENERAL ARRANGEMENT ONLY) (ITEM 621-01.02)
 SCALE: 1/2" = 1'-0"

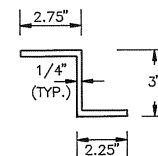


SECTION A-A
 SCALE: 3"=1'-0"

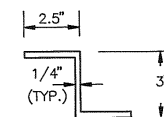


SECTION B-B
 SCALE: 3"=1'-0"

HANGERS TO BE PARTIALLY REPLACED		
MEMBER	TRUSS	H (FT.)
L1U1	SPAN 1 EAST	8
L2M2	SPAN 1 EAST	9
L4M4	SPAN 1 EAST	8
L9U9	SPAN 1 EAST	10
L2M2	SPAN 1 WEST	6
L13M13	SPAN 4 WEST	8
L13M13	SPAN 5 WEST	13
L9U9	SPAN 6 EAST	11



SPLICE PLATE
 SCALE: 3"=1'-0"



NOTE: USE BENT PLATE OR Z 3X6.7

"Z" SECTION (EXIST. & PROP.)
 SCALE: 3"=1'-0"

LEGEND

- NEW HOLES FOR H.S. BOLTS (5/8" Ø)
- ⊠ REMOVE EXIST. RIVET AND REPLACE WITH 5/8" Ø H.S. BOLT (ITEM 602-10.20)

CONSTRUCTION SEQUENCE

- 1) INSTALL TEMPORARY SUPPORT FOR HANGER.
- 2) REMOVE ONE "Z" SECTION WITHIN LIMITS SHOWN BY REMOVING RIVETS AND CUTTING OFF ENDS AND LACING BARS.
- 3) INSTALL NEW "Z" SECTION AND SPLICES. CONNECT ONLY FLANGES OF "Z" SECTIONS AT SPLICES.
- 4) REPEAT STEPS 2 & 3 FOR "Z" SECTION TO THE NORTH OR SOUTH OF NEW "Z".
- 5) INSTALL REMAINING BOLTS AT SPLICES.
- 6) REPEAT STEPS 2, 3, 4 & 5 FOR THE TWO REMAINING "Z" SECTIONS.
- 7) INSTALL LACING BARS ON THE NORTH OR SOUTH SIDE OF WEB.
- 8) REMOVE TEMPORARY SUPPORT.

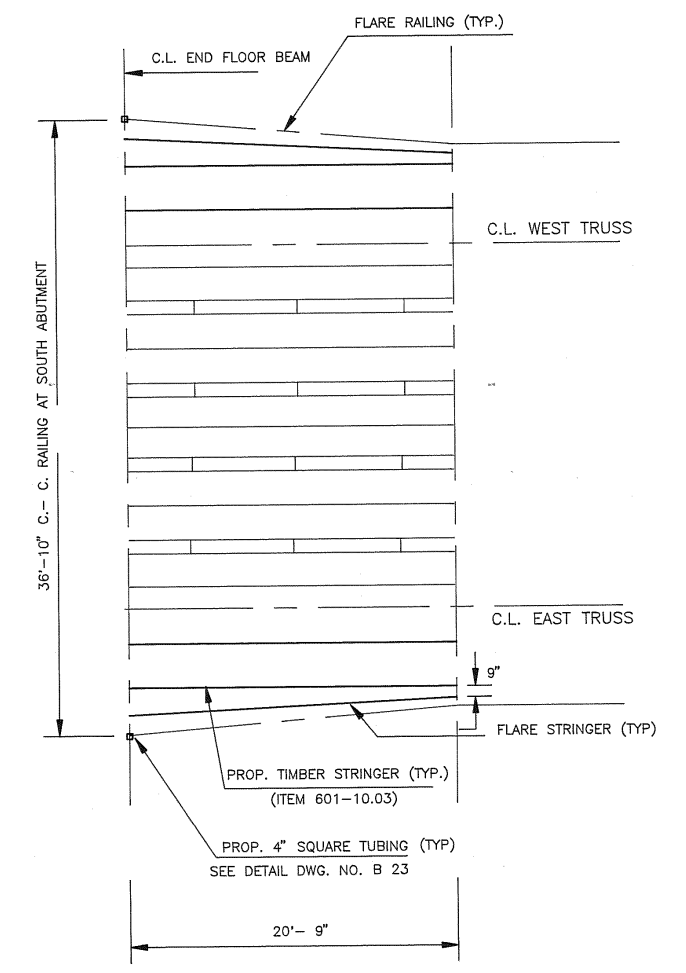
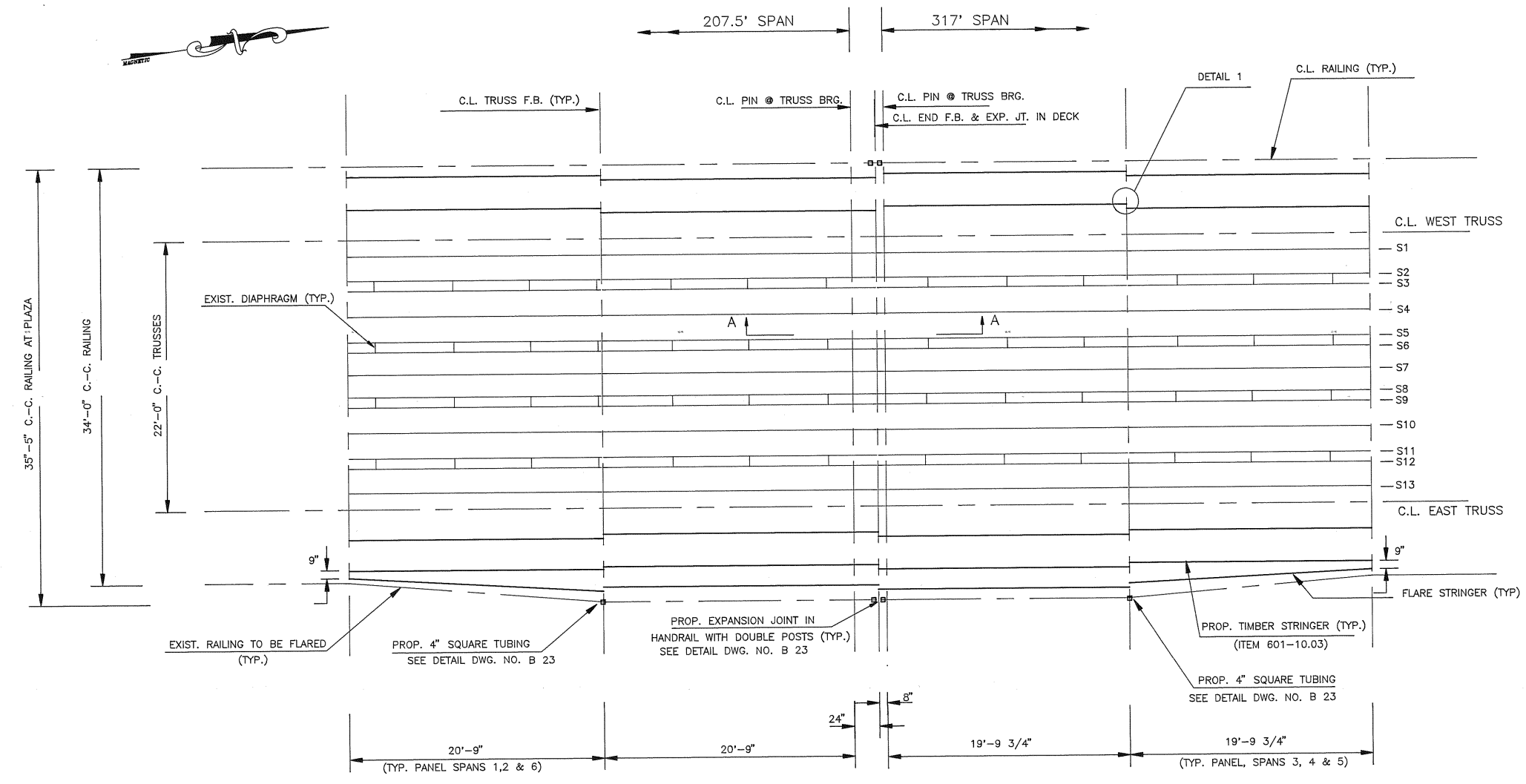
NOTES

- 1) ALL NEW FASTENERS SHALL BE 5/8" Ø A325 BOLTS - FRICTION TYPE CONNECTIONS.
- 2) CONTRACTOR SHALL VERIFY ALL DIMENSIONS GIVEN IN PLANS AND OBTAIN ALL NECESSARY MEASUREMENTS PRIOR TO SUBMITTING WORKING DRAWINGS. COST TO BE INCLUDED UNDER THE STEEL PAY ITEMS.
- 3) THE HANGERS SCHEDULED FOR REPAIRS HAVE SUFFERED IMPACT DAMAGE. CONTRACTOR'S FIELD VERIFICATION OF THESE MEMBERS SHALL INCLUDE MEASUREMENTS OF OUT-OF-PLUMBNESS AND/OR ROTATION OF THE PORTIONS OF HANGERS THAT ARE TO REMAIN AND SAME FOR THE SIDEWALK BRACKETS. ADJUSTMENTS MAY BE REQUIRED AT THE SPLICES DURING FABRICATION/ERECTION. COST TO BE INCLUDED UNDER ITEM 602-10.32.
- 4) TENSION SUPPORT CABLES TO TRANSFER DEAD LOAD TO CABLES USING JACKS. CONTRACTOR SHALL PROTECT THE WATER MAIN FROM DAMAGE, IN A MANNER APPROVED BY THE WATER COMPANY
- 5) CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ENGINEER WORKING DRAWINGS FOR THE TEMPORARY SUPPORT BASED UPON THE GENERAL METHOD SHOWN AND LOAD NOTED.
- 6) IN ADDITION TO THE REPAIRS SHOWN THE CONTRACTOR SHALL STRAIGHTEN, BY HEAT OR BY MECHANICAL METHODS, MINOR DENTS IN THE FLANGES OF THE FOLLOWING TRUSS MEMBERS AS DIRECTED BY THE ENGINEER:
 L5M5 SPAN 4 WEST
 L5M5 SPAN 4 EAST
 L8U8 SPAN 1 EAST
 COST TO BE INCLUDED UNDER ITEM 603-02.01
- 7) EXIST. WELDED COVER PLATES AND REPAIR PLATES WITHIN THE LIMITS OF THE PROPOSED REPAIRS TO BE REMOVED.

CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE
 CHATTANOOGA TENNESSEE

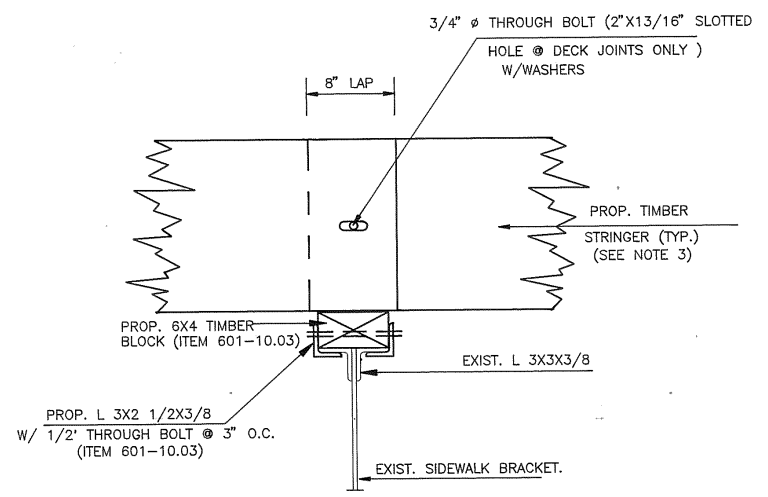
TRUSS HANGER REPAIRS

A.G. LICHTENSTEIN AND ASSOCIATES
 CONSULTING ENGINEERS NEW JERSEY
 FAIR LAWN
 SCALE AS SHOWN DATE JUNE 1990 DWG. NO. B-6

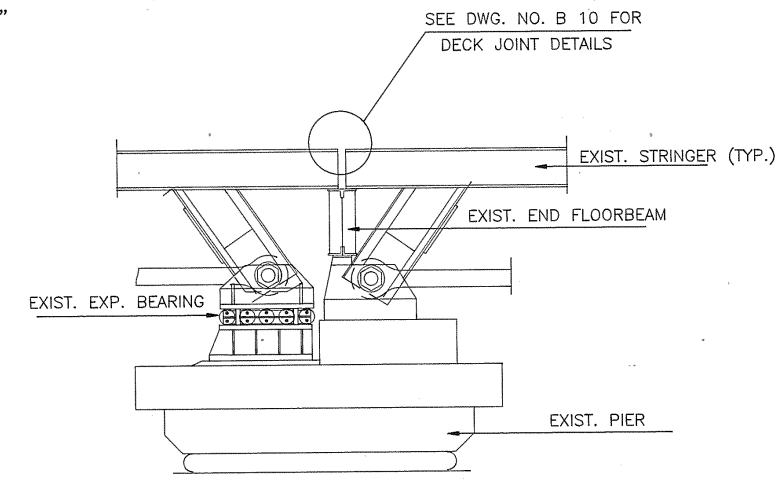


FRAMING PLAN AT PIERS 2 & 5
 SCALE: 3/16" = 1'-0"

FRAMING PLAN AT SOUTH ABUTMENT



DETAIL 1 (TYP. @ ALL TIMBER STRINGERS)
 SCALE: 1 1/2" = 1'-0"

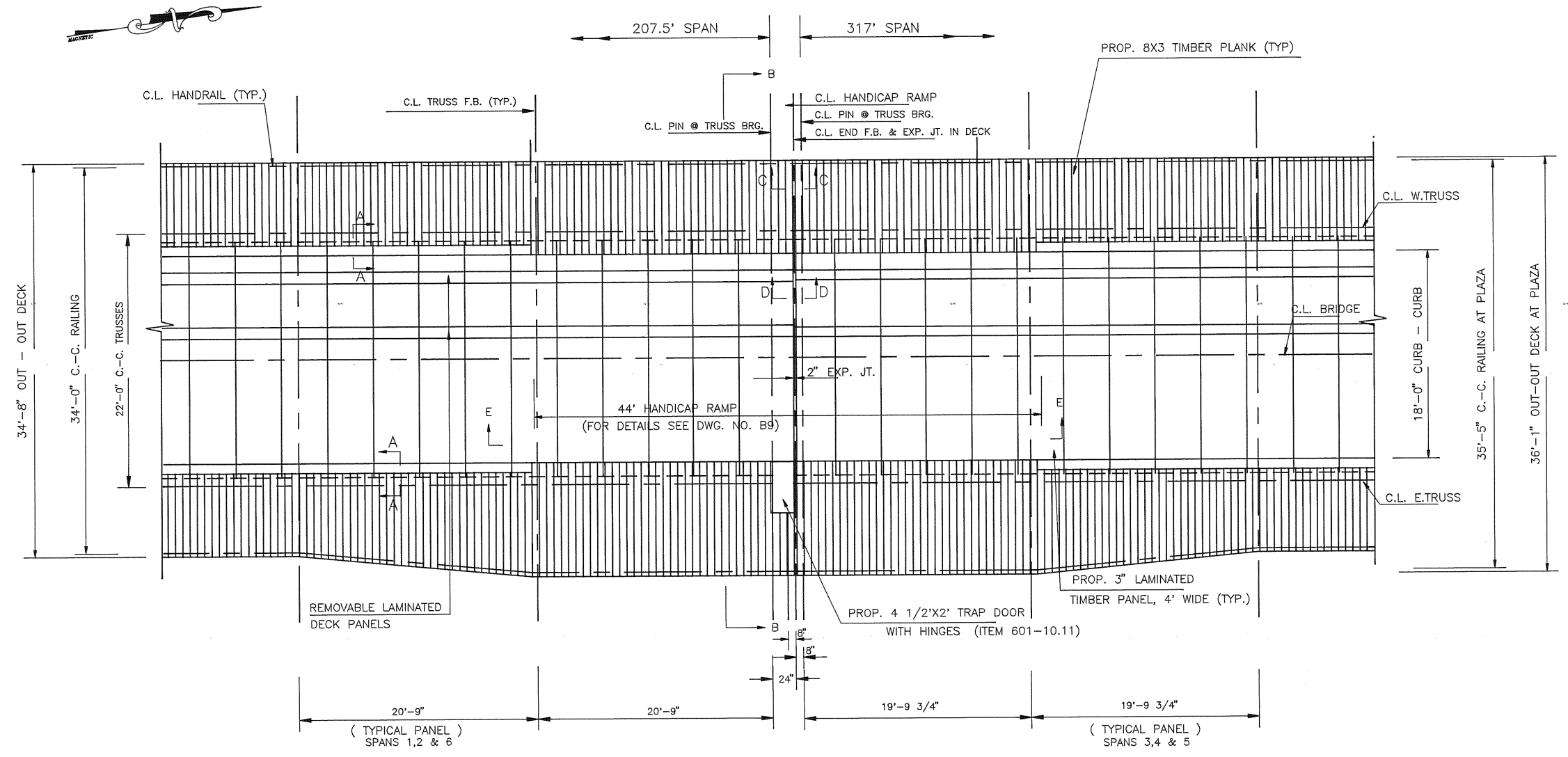


SECTION A-A
 SCALE: 3/8" = 1'-0"

NOTES

- 1) FRAMING PLAN AT PIERS 1, 3 & 4 IS SIMILAR TO THAT SHOWN FOR PIERS 2 & 5, EXCEPT THE TRUSS PANEL LENGTHS ARE THE SAME ON EITHER SIDE OF THE PIER.
- 2) FOR DECK SECTION AT PIERS SEE DWG. NO. B 9
- 3) STRINGERS SHALL BE TOE NAILED TO THE TIMBER BLOCK
- 4) ALL HARDWARE TO BE GALVANIZED.

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA		TENNESSEE
TRUSS FRAMING PLAN		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-7 M-245-62

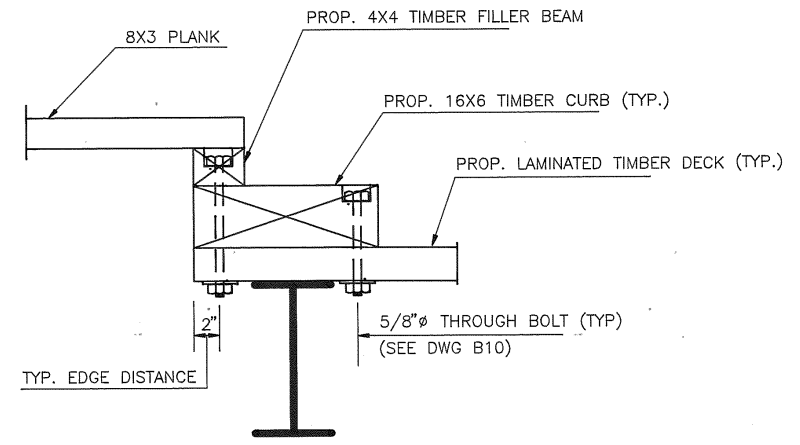


DECK PLAN AT PIERS 2 & 5

3/16" = 1'-0"

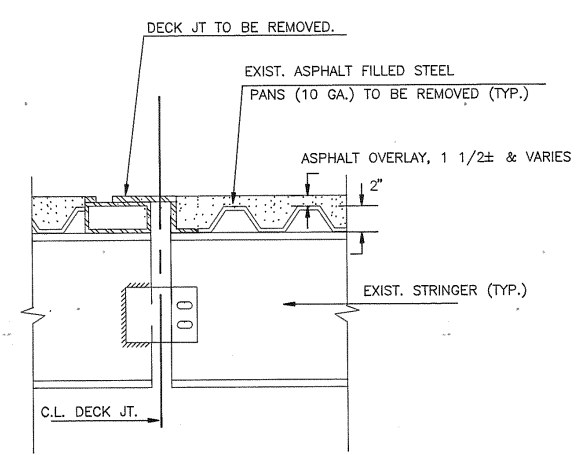
NOTES

- 1) DECK PLAN AT PIERS 1, 3 & 4 SIMILAR EXCEPT THAT THE TRUSS PANEL LENGTHS ARE THE SAME ON EITHER SIDE.
- 2) PROVIDE CUT OUTS IN SIDEWALKS PLANKS TO CLEAR TRUSS MEMBERS AND HANDRAIL POSTS.
- 3) PROVIDE A 4 1/2'X2' TRAP DOOR IN THE EASTERLY SIDEWALK AT EACH PIER LOCATION BETWEEN THE CURB AND THE FIRST SIDEWALK STRINGER, FOR USE BY INSPECTION FORCES. THE TRAP DOOR SHALL BE FABRICATED FROM 8X3 PLANKS & BOLTED TO THE SUPPORTING MEMBERS HINGES TO BE PROVIDED
- 4) SEE DWG. NO. B10 FOR DECK DETAILS
- 5) SEE DWG. NOS. B22 & B23 FOR HANDRAIL DETAILS.
- 6) FOR SECTION C-C & D-D SEE DWG. NO. B10 PROP. DECK JT. DETAIL NOT SHOWN IN PLAN.
- 7) FOR SECTION B-B, E-E & HANDICAP RAMP DETAIL SEE DWG. NO. B9



SECTION A-A

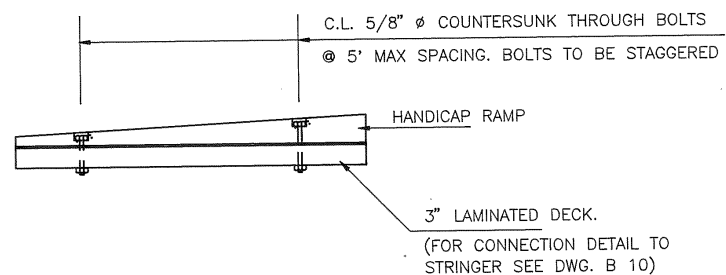
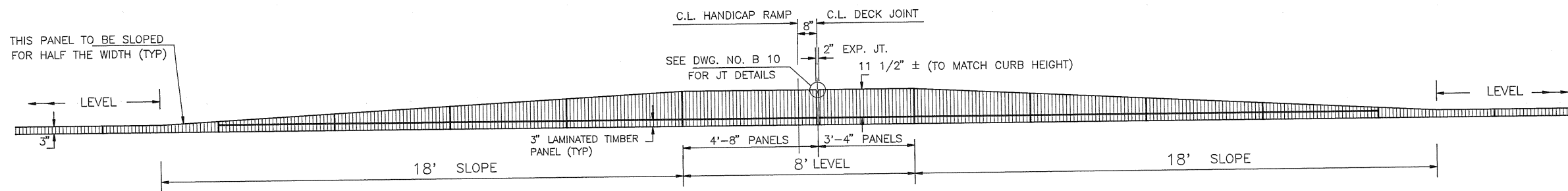
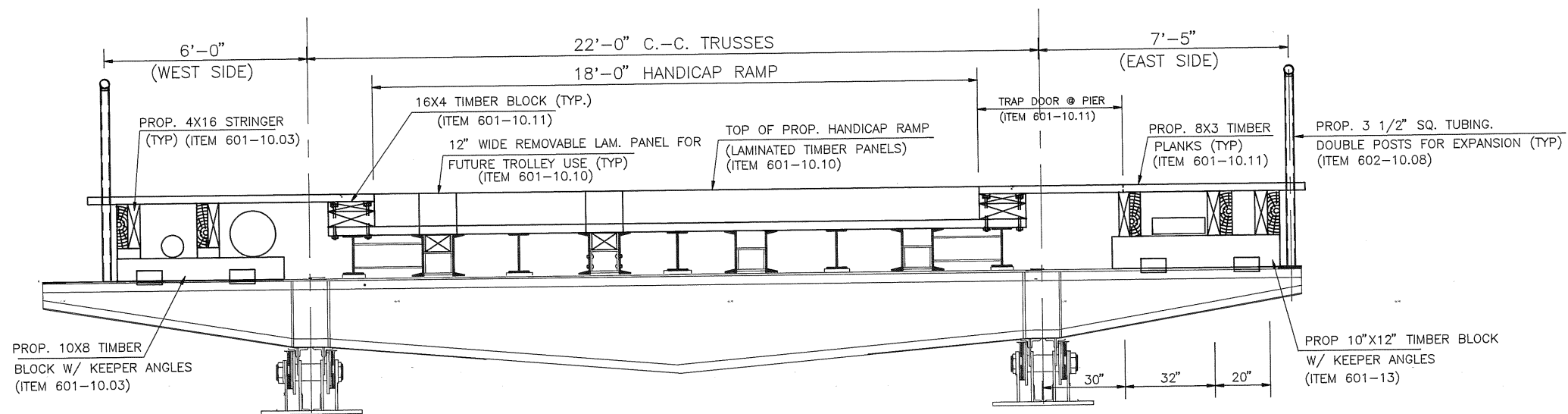
1 1/2" = 1'-0"



EXIST. DECK SECTION

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

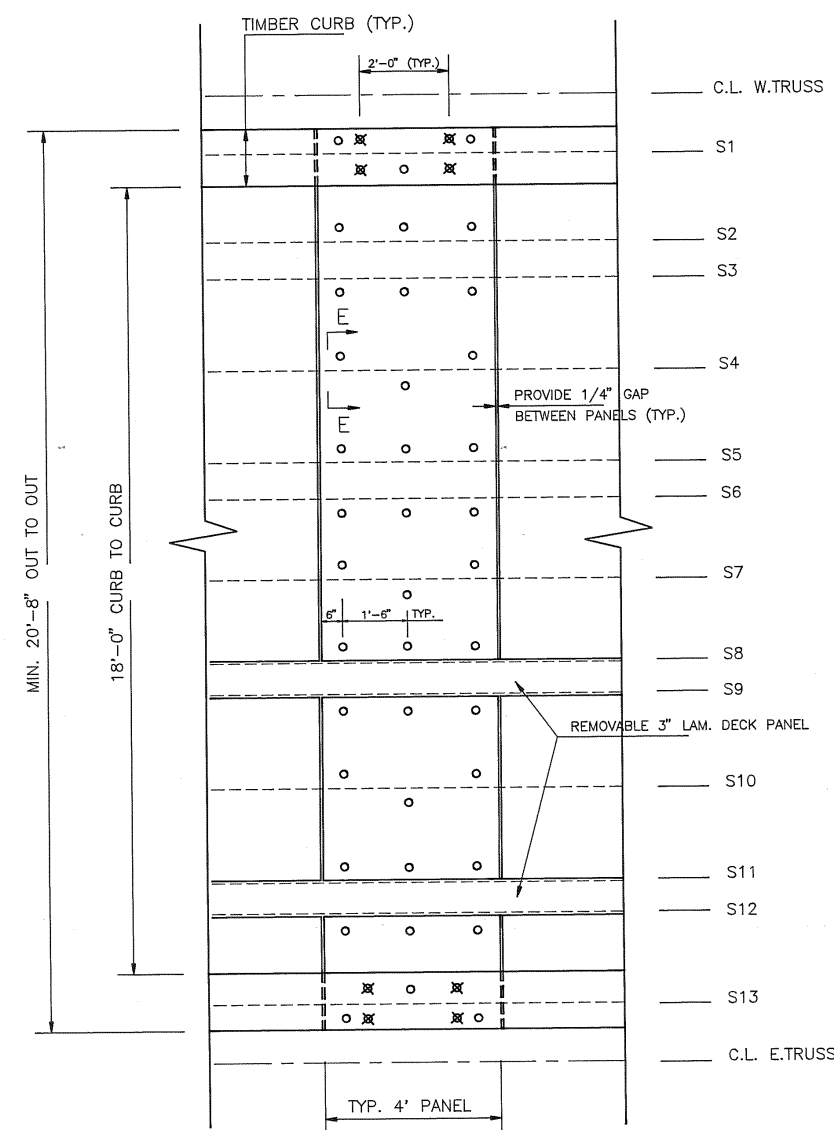
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA		TENNESSEE
DECK PLAN		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS		
FAIR LAWN	DATE	NEW JERSEY
SCALE AS SHOWN	JUNE 1990	DWG. NO. B-8 M-245-63



CONNECTION DETAIL (BETWEEN HANDICAP RAMP AND LAMINATED DECK)

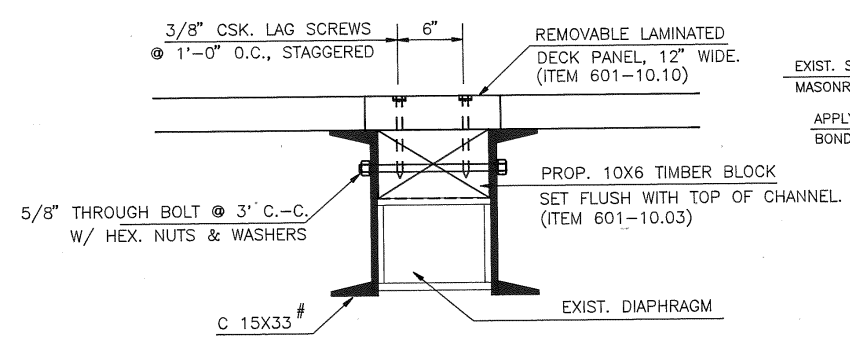
- 1) WORK THIS DRAWING WITH DWG. NO. B 8
- 2) RAMP DETAIL SHOWN TO BE CONSTRUCTED AT PIER 1-5 ONLY
- 3) HEIGHT OF HANDICAP RAMP TO MATCH CURB HEIGHT
- 4) HANDICAP RAMP MATERIAL TO BE SAME AS THAT FOR TIMBER DECK PANELS
- 5) ALL FASTENERS TO BE GALVANIZED. SEE DWG. B 10 FOR DECK DETAILS.
- 6) CONTRACTOR SHALL TEMPORARILY SUPPORT GAS & WATER MAINS WHEN REPLACING TIMBER BLOCK

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA		TENNESSEE
HANDICAP RAMP		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS		
FAIR LAWN		NEW JERSEY
SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-9 M-245-67



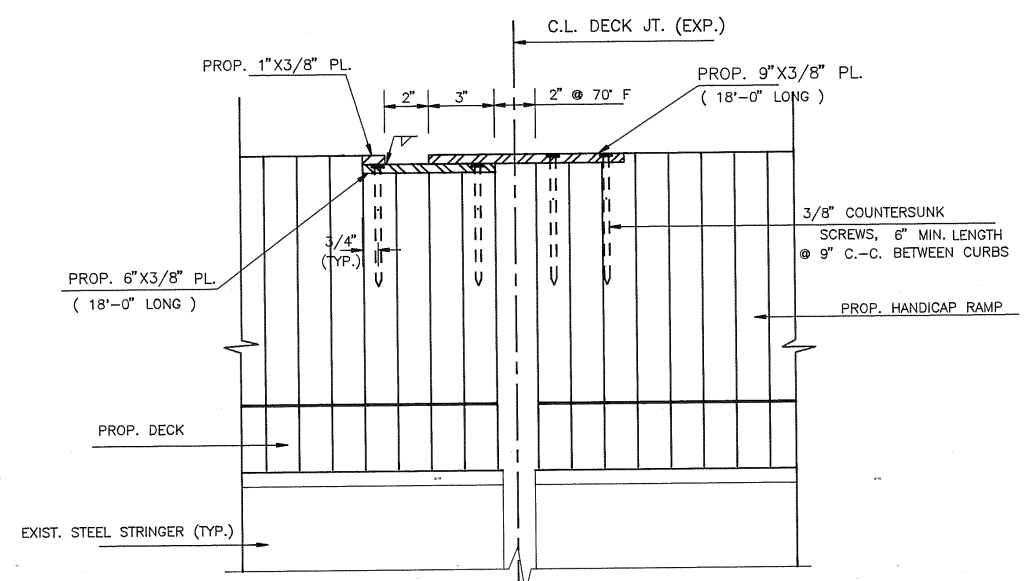
TYP. GLUED LAMINATED DECK PANEL

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



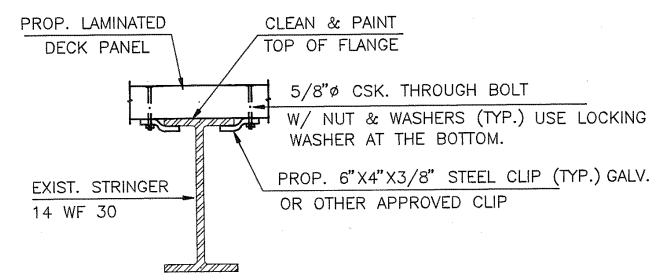
TIMBER BLOCK DETAIL

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



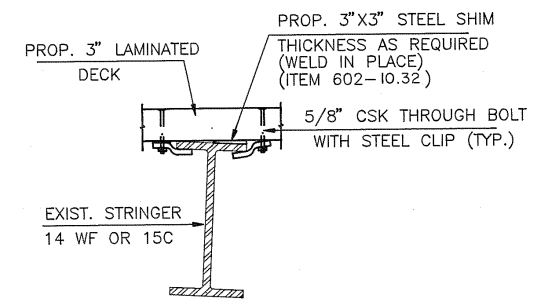
SECTION D-D @ PIERS 1 - 5

SCALE: 3" = 1'-0"



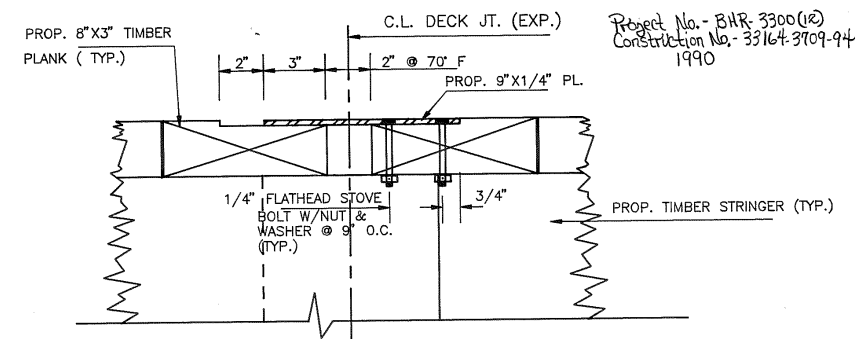
SECTION E-E (TYPICAL DECK PANEL/STRINGER CONNECTION. ONE CLIP ONLY @ CHANNEL STRINGERS.)

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



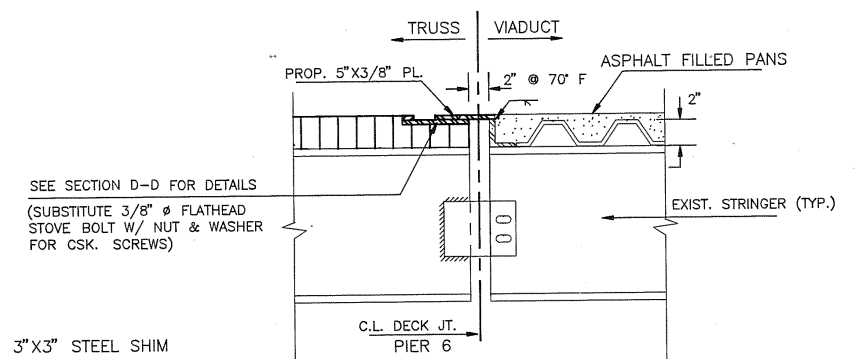
STEEL SHIM DETAIL (ITEM 602-10.32)
(AS DIRECTED)

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



SECTION C-C @ PIERS 1 - 6

SCALE: 3" = 1'-0"

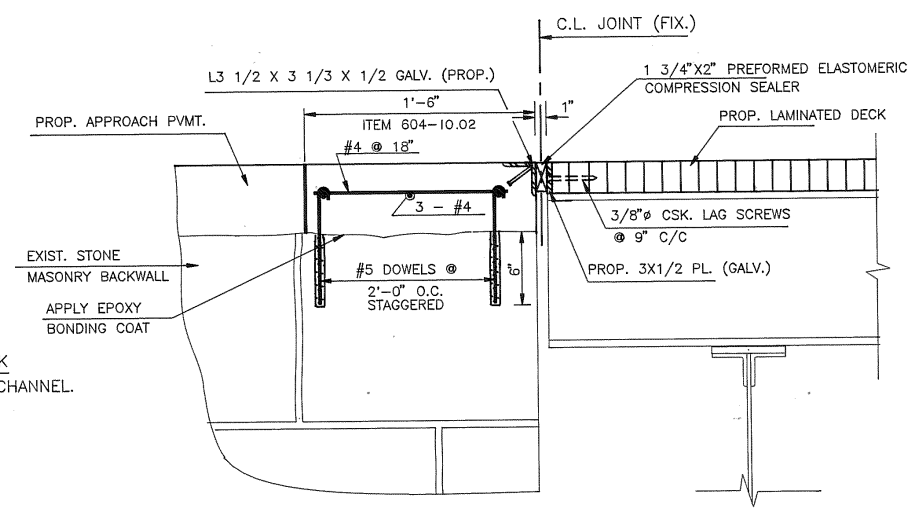


DECK JOINT @ PIER 6

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

NOTES

- 1) ALL ROADWAY DECK & CURB FASTENERS SHALL BE 5/8" THROUGH BOLTS W/STEEL WASHERS AND NUT. (A 307)
- 2) FASTEN SIDEWALK PLANKS WITH 3/8" CSK LAG SCREWS TWO PER STRINGER/CURB. SIDEWALK PLANKS & CURBS SHALL BE SURFACED FOUR SIDES (S4S).
- 3) ALL FASTENERS, STEEL PLATES, ANGLES AND CLIPS SHALL BE GALVANIZED.
- 4) CHAMFER EXPOSED EDGES OF DECK JOINT STEEL PLATES.
- 5) SEAL CSK. BOLT HOLES AFTER INSTALLATION.
- 6) STRINGER TOP FLANGES SHOULD BE GRIND SMOOTH AT DECK PAN/STRINGER CONNECTIONS.
- 7) AFTER REMOVING THE EXIST. DECK AND INSTALLING THE REPLACEMENT STRINGERS, THE CONTRACTOR SHALL TAKE TOP OF STRINGER ELEVATIONS AT THE BEARINGS AND AT THE MIDSPAN OF ALL STRINGERS. THE ELEVATIONS ARE TO BE SUBMITTED FOR REVIEW BY THE ENGINEER.
- 8) 3" X 3" STEEL SHIM PLATES MAY BE REQUIRED UNDER THE DECK PANELS AT THE FASTENER LOCATIONS IF STRINGERS ARE NOT LEVEL. PAID UNDER ITEM 602-10.32.
- 9) COST OF STEEL DECK JOINTS & SEALER INCLUDED IN THE RESPECTIVE TIMBER ITEMS
- 10) CONTRACTOR TO ADJUST WIDTH OF ONE DECK PANEL IN EACH SPAN TO FIT DIMENSIONS BETWEEN DECK JOINTS.



DECK JOINT @ S.ABUTMENT

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

NOTE: ALL REBARS EPOXY COATED, ITEM 604-10.18

LEGEND

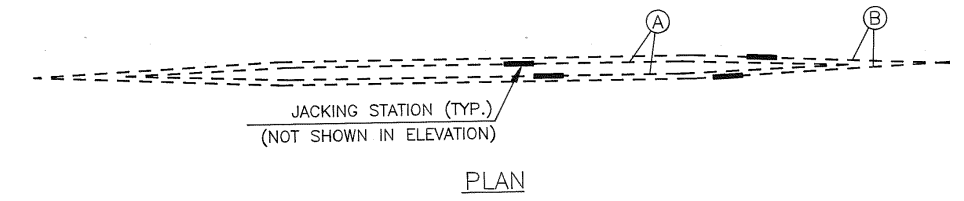
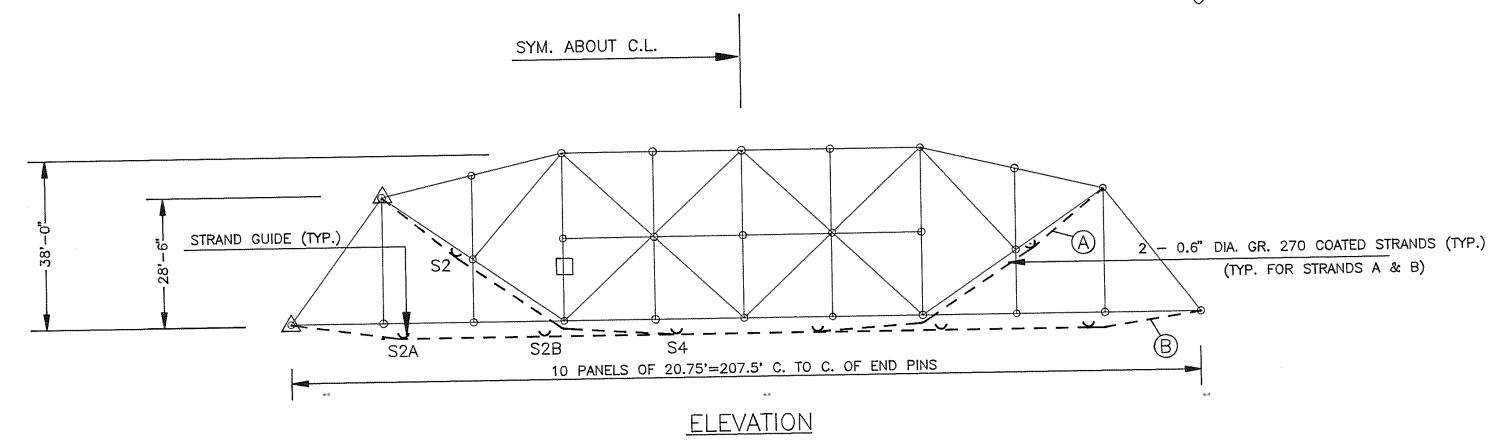
- DENOTES HOLE FOR DECK FASTENER (COUNTERSUNK)
- ✕ DENOTES HOLE FOR CURB FASTENER (COUNTERSUNK)

CITY OF CHATTANOOGA			
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE			
CHATTANOOGA		TENNESSEE	
DECK DETAILS			
A.G. LICHTENSTEIN AND ASSOCIATES			
CONSULTING ENGINEERS			
FAIR LAWN		NEW JERSEY	
SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-10	M-243-65

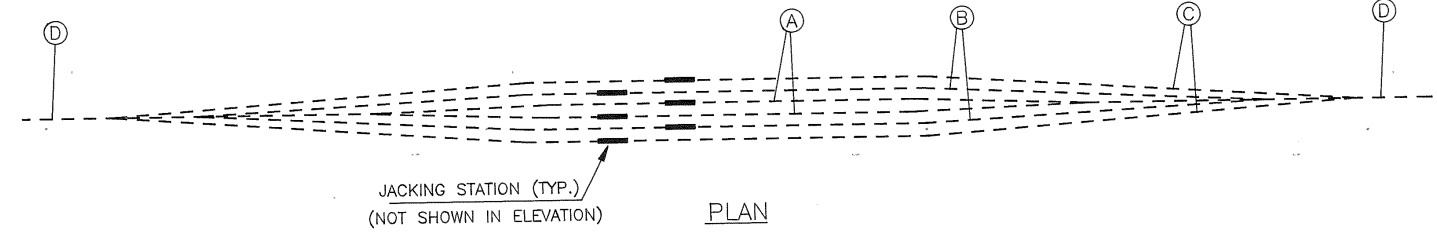
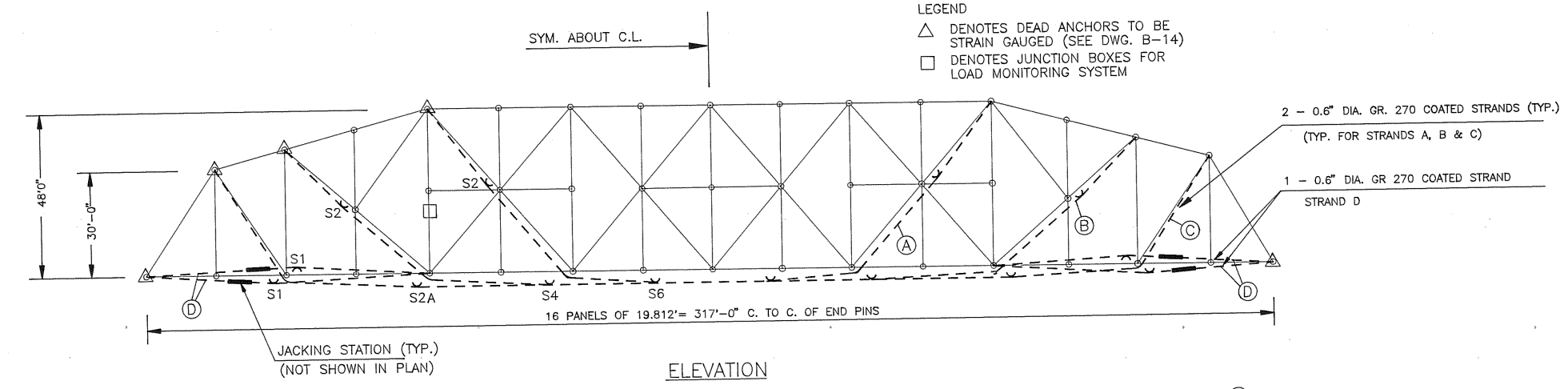
POST-TENSIONING FORCE (PER STRAND)

SPANS 1, 2 & 6	
STRAND	TENSION
A	17.5 K
B	20 K

SPANS 3, 4 & 5	
STRAND	TENSION
A	25 K
B	20 K
C	30 K
D	30 K



TRUSS SPANS 1, 2 & 6



TRUSS SPANS 3, 4 & 5

LEGEND
 △ DENOTES DEAD ANCHORS TO BE STRAIN GAUGED (SEE DWG. B-14)
 □ DENOTES JUNCTION BOXES FOR LOAD MONITORING SYSTEM

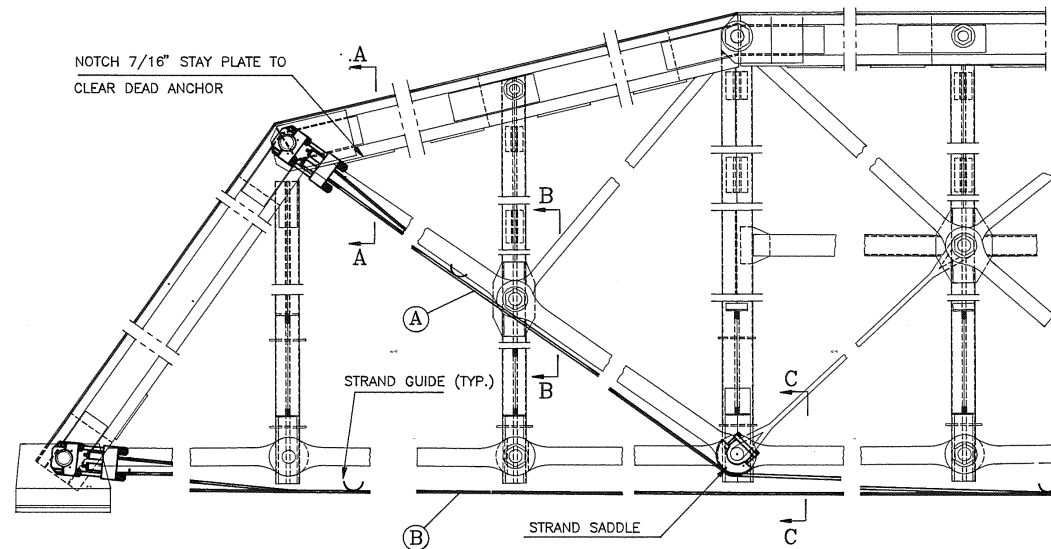
POST-TENSIONING STRAND INSTALLATION PROCEDURE

- 1) COMPLETE ALL TRUSS REPAIRS AND INSTALLATION OF THE NEW TIMBER ROADWAY DECK AND CURB. TRIM EXISTING STEELWORK AS NOTED ON PLANS. (SIDEWALK PLANKS MAY BE INSTALLED LATER. SIDEWALK STRINGERS TO BE IN PLACE)
- 2) INSTALL DEAD ANCHORS, STRAND SADDLES AND STRAND GUIDES.
- 3) HANG WORK PLATFORMS UNDER LOWER CHORD AT JACKING STATIONS.
- 4) ASSEMBLE JACKING SYSTEMS OVER WORK PLATFORMS.
- 5) PULL STRAND FROM COIL ON TURNTABLE (SWIFT) ON BRIDGE DECK. START WITH STRAND "A". THREAD THE STRAND THROUGH THE JACKING BLOCK, THROUGH THE STRAND GUIDE, AROUND THE STRAND SADDLE, THROUGH ANOTHER STRAND GUIDE AND INTO THE DEAD ANCHOR, AND INTO THE STRAND CHUCK, @ DEAD ANCHOR.
- 6) REPEAT STEP 5 WITH THE REMAINING STRANDS OF THE TWO-STRAND ASSEMBLY. ATTACH A ROUND JAWED KLEIN GRIP TO EACH OF THE FOUR STRANDS JUST OUTSIDE OF THE JACKING STATION AND SNUG THEM UP TO ABOUT 1000 LB. TENSION, BEING CAREFUL TO KEEP THE DEAD ANCHORS IN ALIGNMENT AND TO KEEP THE STRANDS IN THE SADDLES.
- 7) CUT THE STRANDS TO LENGTH AT THE JACKING STATION, LEAVING ABOUT A FOOT EXTRA.
- 8) INSTALL THE FOUR STRAND CHUCKS AT THE JACKING STATION.
- 9) ASSEMBLE THE CENTER HOLE RAMS ON THE JACKING RODS. (4 RAMS)
- 10) TENSION BOTH STRANDS CONCURRENTLY TO DESIGN TENSION.
- 11) TRIM STRANDS CLOSE TO JACKING CHUCK. ENCAPSULATE CHUCKS IN G.E. SILICONE SEALER.
- 12) INSTALL SIMILAR STRANDS ON OTHER TRUSS OF SAME SPAN. NEVER GET MORE THAN TWO STRANDS OUT OF BALANCE BETWEEN TWO TRUSSES OF A GIVEN SPAN.
- 13) REPEAT ABOVE PROCEDURE FOR STRANDS "B" THROUGH "D".
- 14) TIGHTEN TURNBUCKLES OF EXISTING REPAIR RODS.

NOTE: FOR MORE DETAILED PROCEDURE SEE SPECIFICATIONS

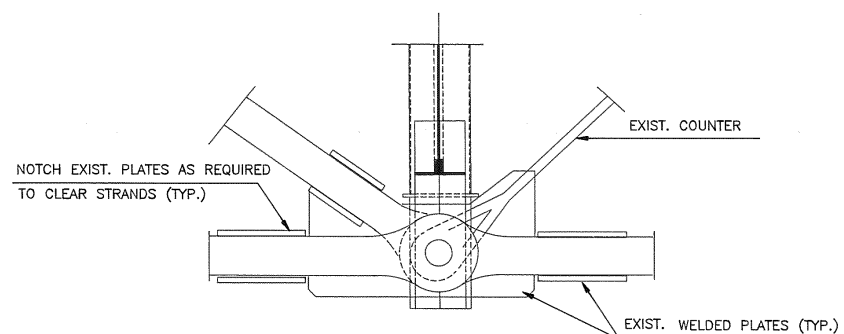
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
STRAND LAYOUT		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
SCALE NONE	DATE JUNE 1990	DWG. NO. B-11 N-245-14

Project No. BHR-3300 (12)
Construction No. 33164-3709-94
1990

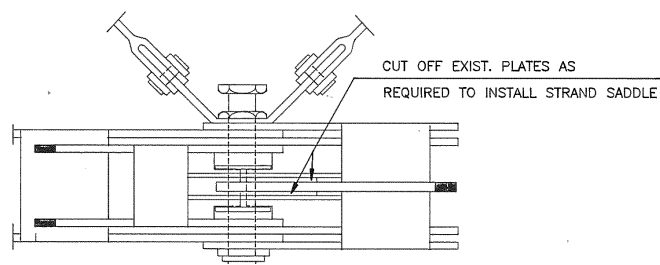


PARTIAL ELEVATION

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



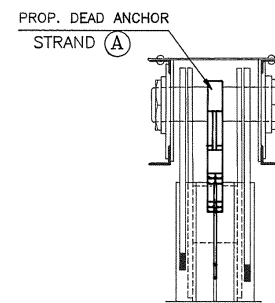
ELEVATION



PLAN

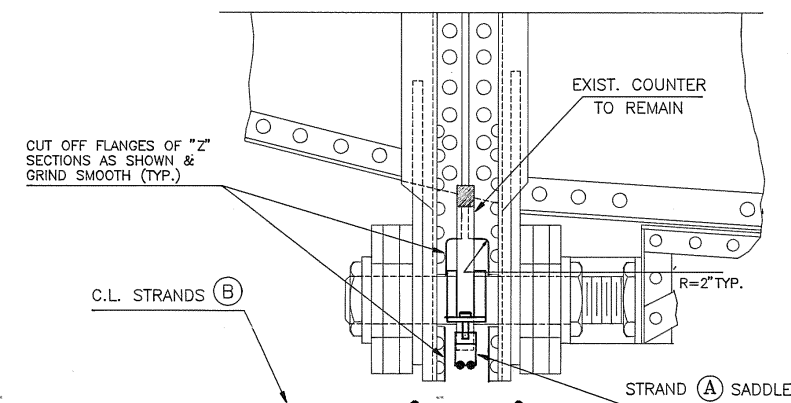
EXIST. WELDMENT @ JT. L3, SPAN 1

SCALE: 1" = 1'-0"



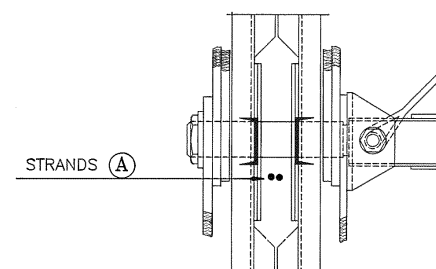
SECTION A-A

1" = 1'-0"



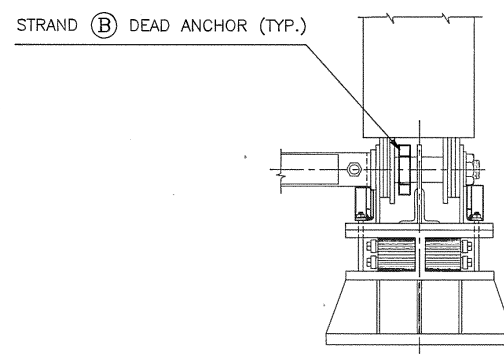
SECTION C-C

1 1/2" = 1'-0"

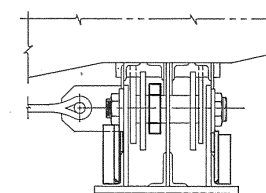


SECTION B-B

1" = 1'-0"



EXP.



FIX

BEARINGS - END VIEW

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

NOTES

- 1) FOR STRAND FITTINGS SEE DWG. NOS. B 14 & B 15
- 2) WELDMENTS SIMILAR TO THAT SHOWN EXIST AT SEVERAL LOWER JOINTS. NOTCH WELDMENTS AS REQUIRED TO CLEAR STRANDS. WELDMENTS NOT SHOWN ON TRUSS ELEVATION. ALL CUTTING, NOTCHING AND REMOVAL OF EXISTING STEEL PAID UNDER ITEM 202-01
- 3) FOR ADDITIONAL NOTES SEE DWG. NO. B 13
- 4) FOR BEARING REPAIRS SEE DWG. NO. B 4
- 5) EXIST. REPAIR RODS NOT SHOWN ON TRUSS ELEVATION. REFER TO AVAILABLE PLANS FOR LOCATIONS.

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE

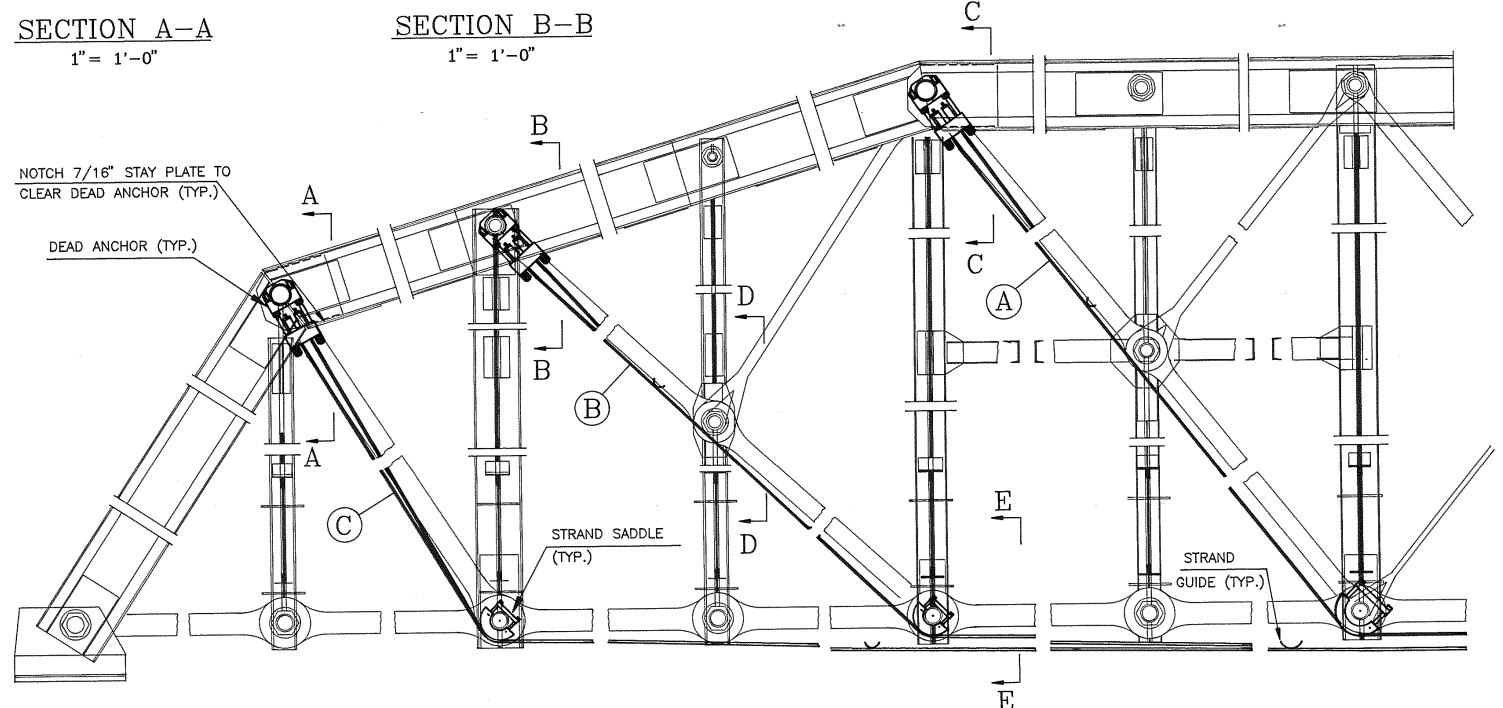
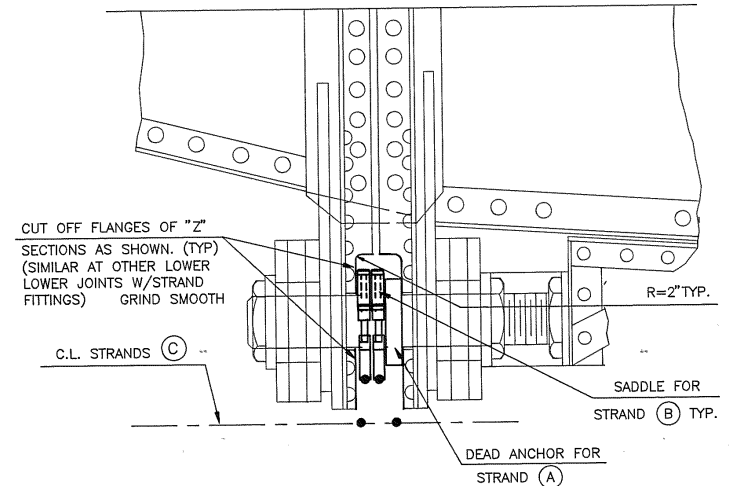
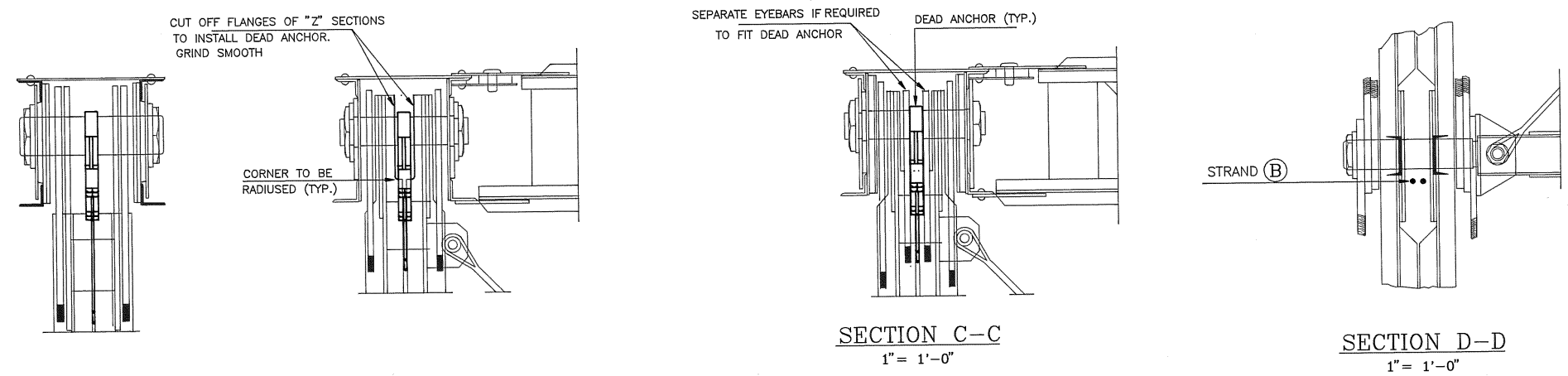
CHATTANOOGA TENNESSEE

**TRUSS POST-TENSIONING
SPANS 1, 2 & 6**

A.G. LICHTENSTEIN AND ASSOCIATES
CONSULTING ENGINEERS

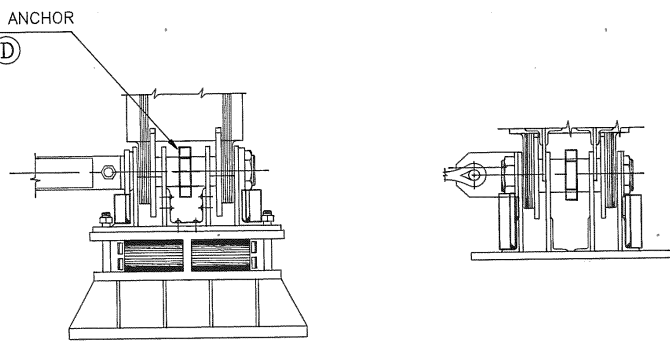
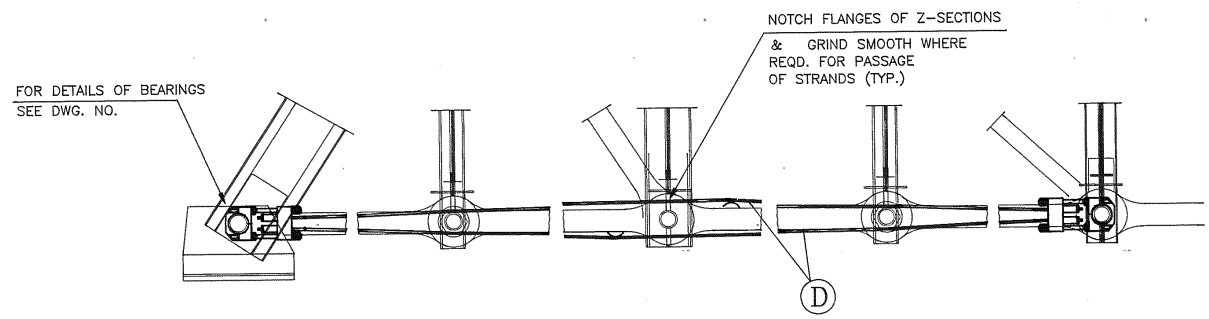
FAIR LAWN NEW JERSEY

SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-12 N-245-07
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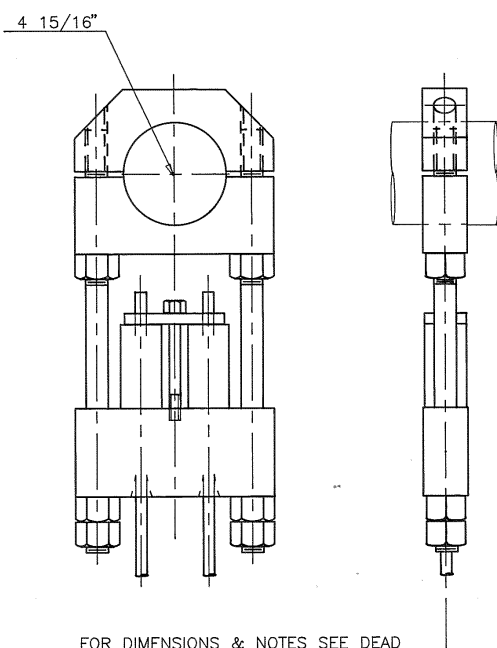


NOTES

- 1) LOCATIONS OF STRAND GUIDES MAY BE ADJUSTED BASED ON FIELD CONDITIONS.
- 2) REMOVE PIN COLLARS AT BEARINGS AS REQUIRED TO INSTALL DEAD ANCHORS. ALL CUTTING, NOTCHING & REMOVAL OF EXISTING STEEL PAID UNDER ITEM 202-01
- 3) THE GAP BETWEEN EXIST. REPAIR RODS (AT BEARING) TO BE INCREASED BY SEPARATING RODS, IF REQUIRED TO FIT DEAD ANCHOR.
- 4) RIVET HEADS THAT INTERFERE WITH THE INSTALLATION OF DEAD ANCHORS AT THE TRUSS BEARINGS SHALL BE REMOVED AND REPLACED WITH H.S. BOLTS.
- 5) FOR BEARING REPAIRS SEE DWG. NO. B 4
- 6) EXIST. REPAIR RODS NOT SHOWN ON TRUSS ELEVATIONS. REFER TO AVAILABLE PLANS FOR LOCATIONS.



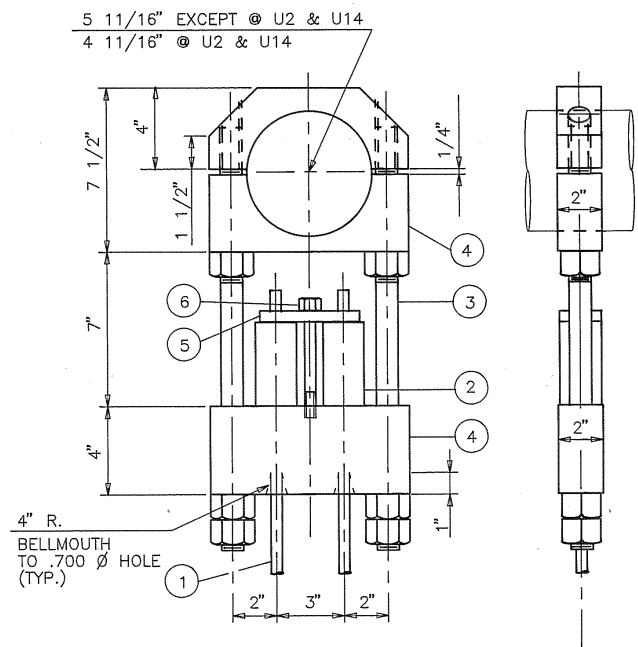
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
TRUSS POST-TENSIONING SPANS 3, 4 & 5		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN	DATE	DWG. NO.
SCALE AS SHOWN	JUNE 1990	B-13 M-245-68



FOR DIMENSIONS & NOTES SEE DEAD ANCHOR - SPANS 3, 4 & 5.

DEAD ANCHOR - SPANS 1, 2, & 6

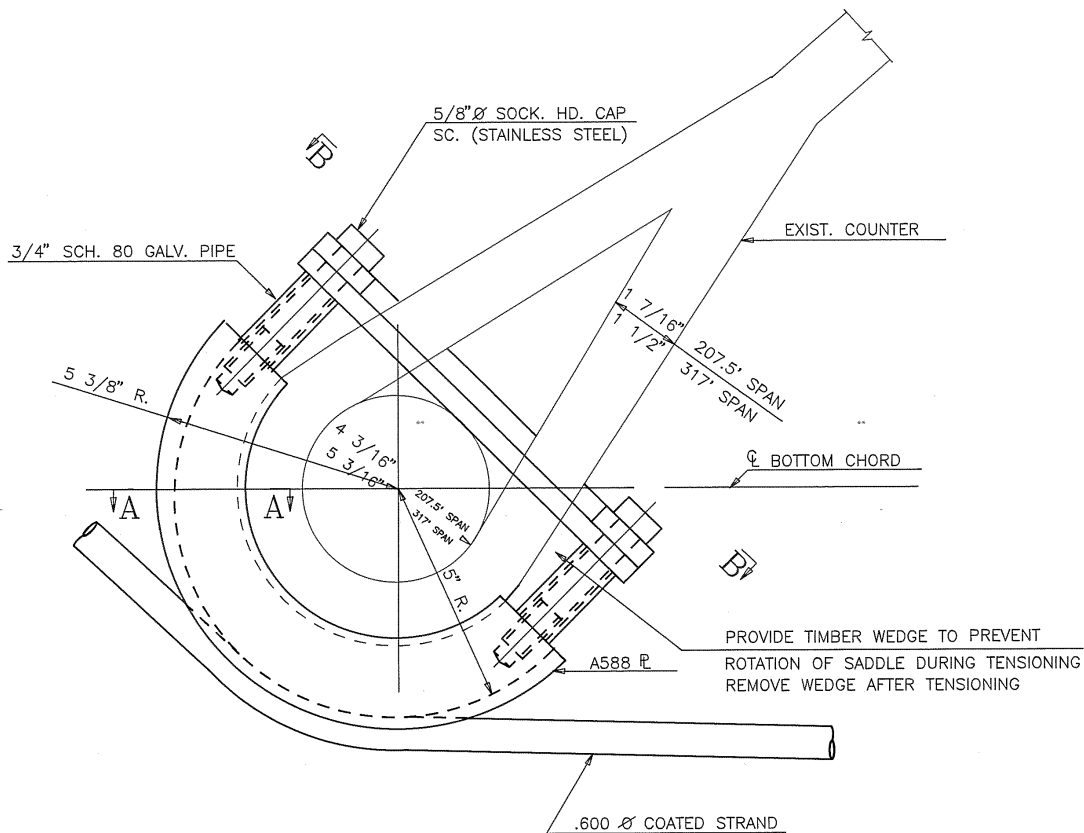
SCALE: 3"=1'-0"



DEAD ANCHOR - SPANS 3, 4 & 5

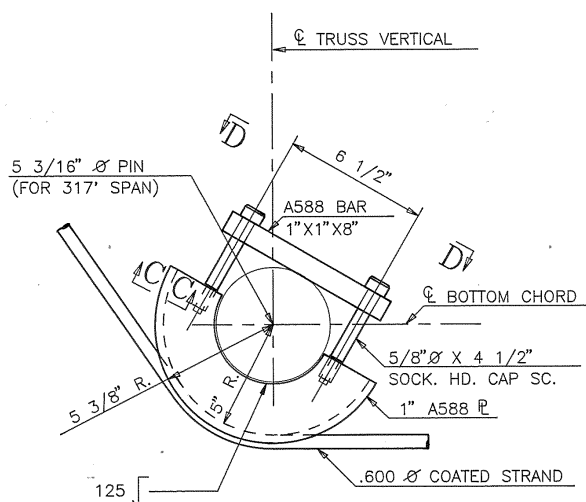
SCALE: 3"=1'-0"

- ① .600" DIA. POLYMER-COATED "FLO-GARD" STRAND (58^k ULT. STR.)
- ② REUSABLE CHUCK FOR .600" DIA. POLYMER-COATED STRAND.
- ③ 1" Ø RYCUT SO. C.D. W/ 1"-8NC THDS. CERTAIN RODS TO BE STRAIN GAUGED (SEE DWG. B-11)
- ④ A588 STEEL OR A572 GRADE 50
- ⑤ JAW-RETAINER PLATE. (1 1/2" X 3/8" X 4 1/2")
- ⑥ 1/2" Ø BOLT



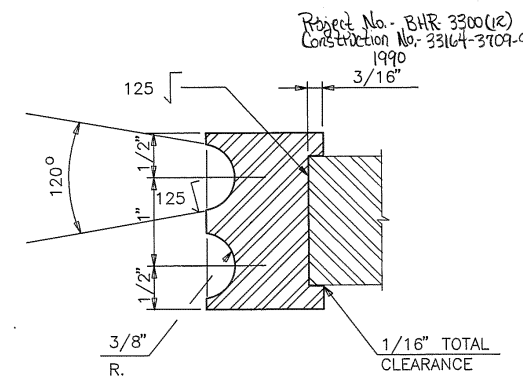
STRAND SADDLE - @ JOINTS WITH COUNTERS

HALF SCALE



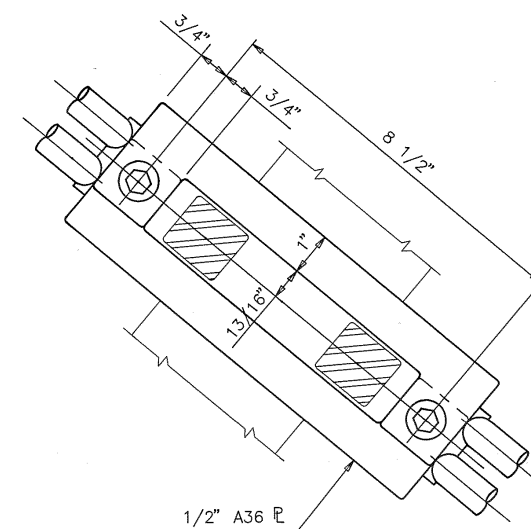
STRAND SADDLE

SCALE: 3"=1'-0"



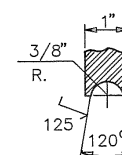
SECTION A-A

FULL SCALE



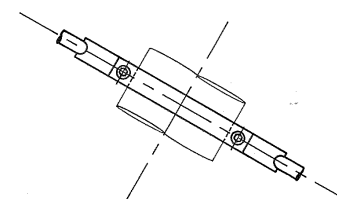
SECTION B-B

HALF SCALE



SECTION C-C

HALF SCALE



SECTION D-D

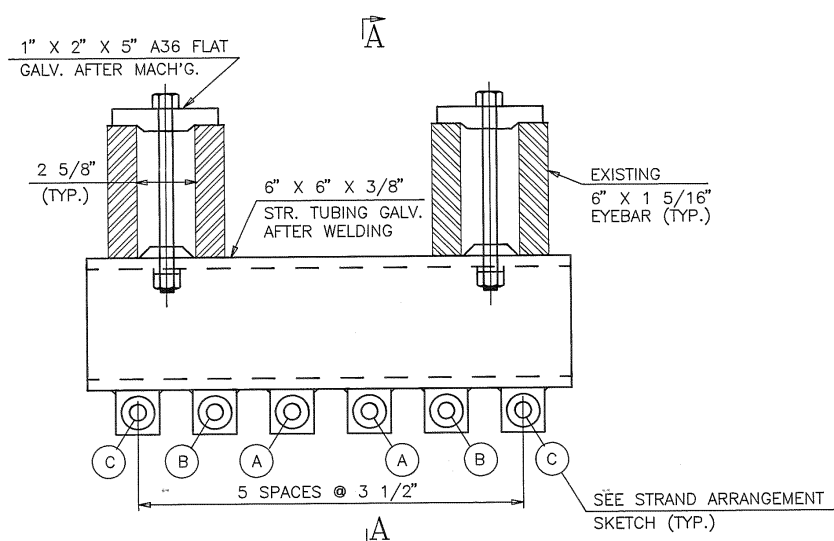
SCALE: 3"=1'-0"

NOTES

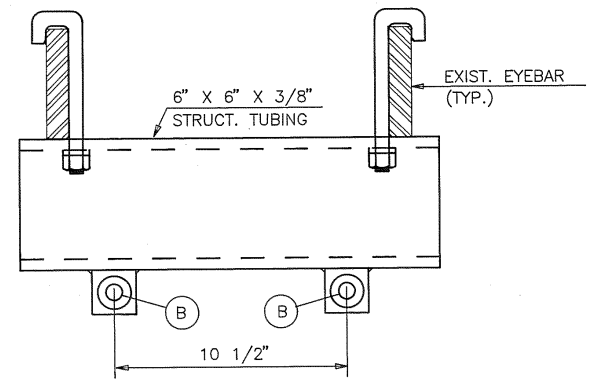
- 1) ALL A588, A36 & A572 STEEL TO BE GALVANIZED.

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA		TENNESSEE
STRAND SADDLES & ANCHORS		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS		
FAIR LAWN		NEW JERSEY
SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-14 M-245-04

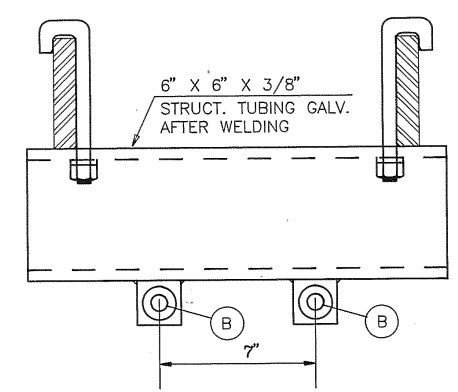
Project No. - BNR-3300(2)
 Construction No. 33164-3709-94
 1990



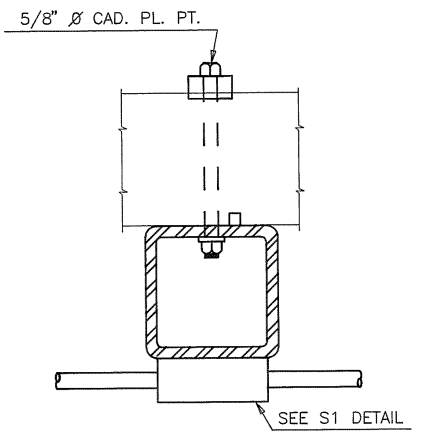
S6 DETAIL
 SCALE: 3"=1'-0"



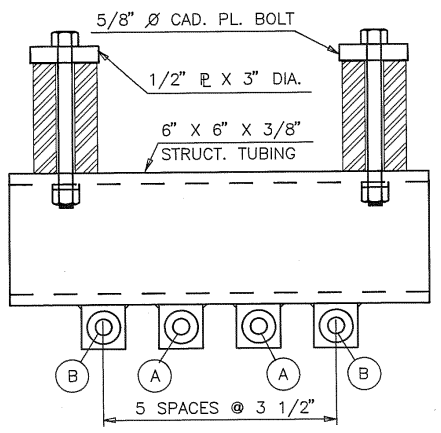
S2B DETAIL
 SCALE: 3"=1'-0"



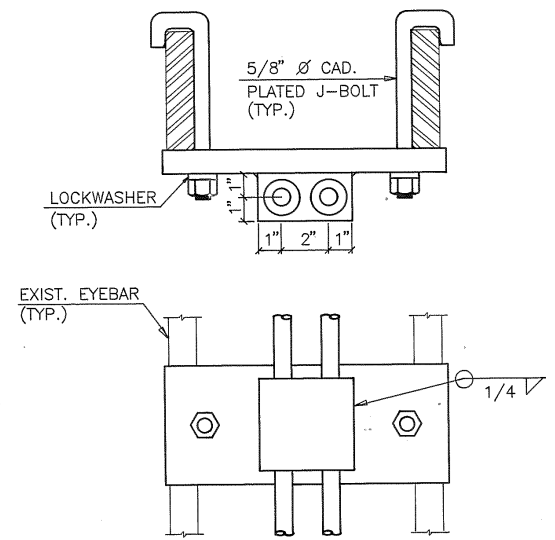
S2A DETAIL
 SCALE: 3"=1'-0"



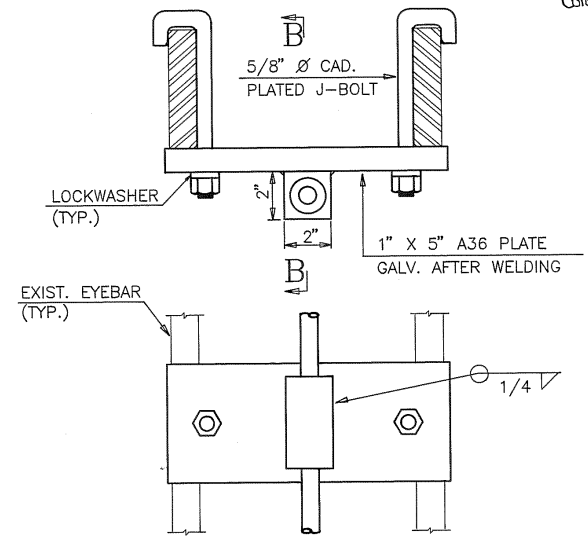
SECTION A-A
 SCALE: 3"=1'-0"



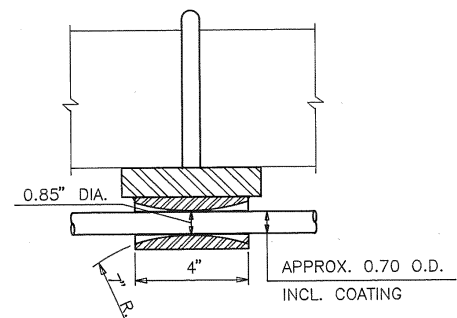
S4 DETAIL
 SCALE: 3"=1'-0"



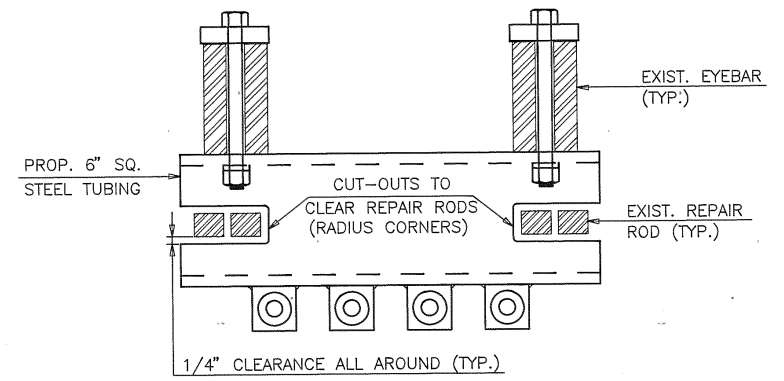
S2 DETAIL
 SCALE: 3"=1'-0"



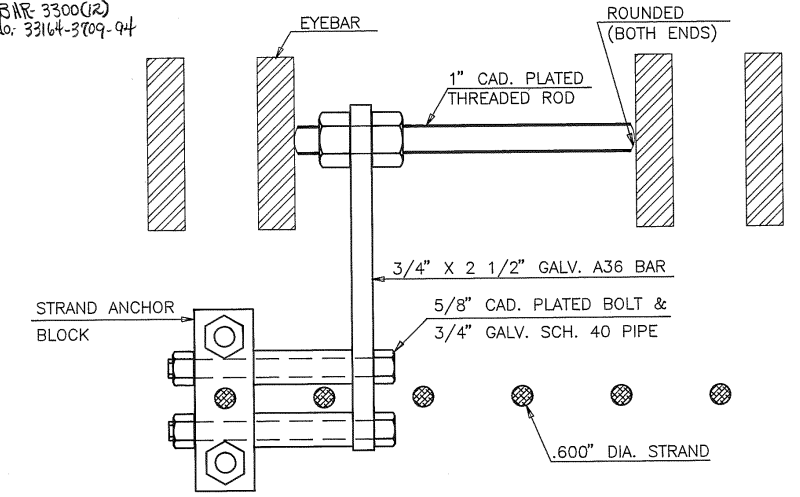
S1 DETAIL
 SCALE: 3"=1'-0"



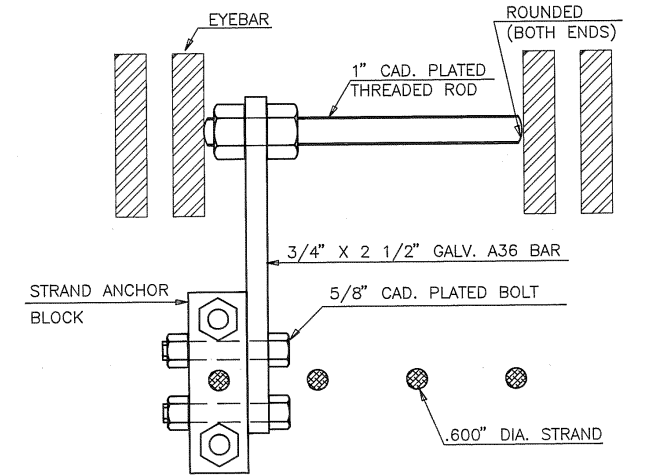
SECTION B-B
 SCALE: 3"=1'-0"
 (TYP. @ ALL STRAND GUIDES)



CUT-OUTS IN STRAND GUIDES
 N.T.S.
 (ONLY WHERE REQUIRED TO CLEAR REPAIR RODS)



TORQUE ARM - 317' SPAN
 SCALE: 3"=1'-0"

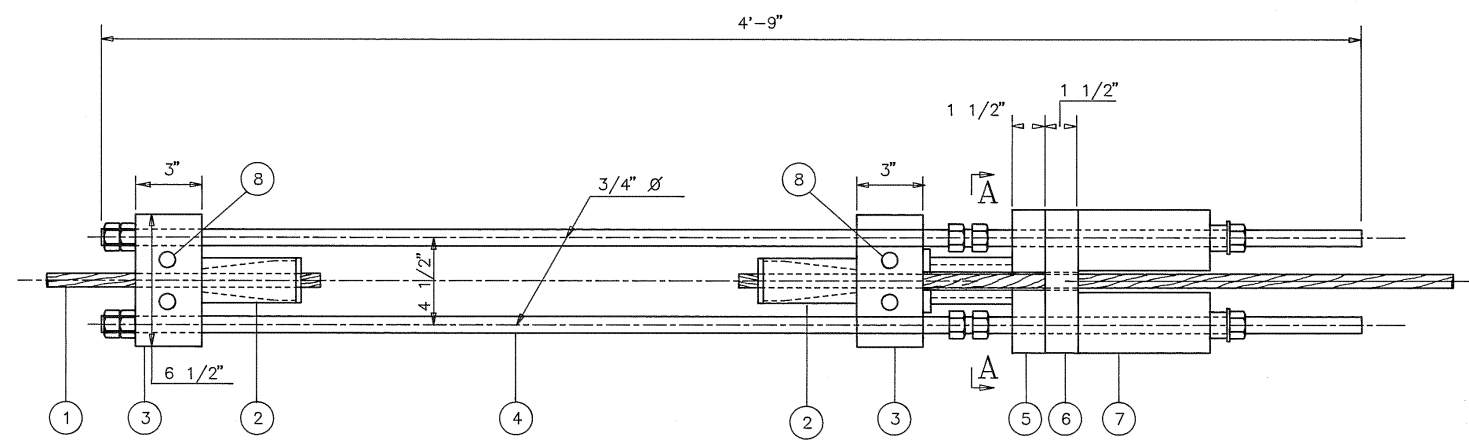


TORQUE ARM - 207'-6" SPAN
 SCALE: 3"=1'-0"

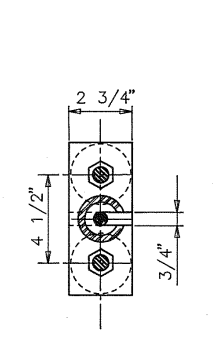
NOTES:

- 1) ALL STEEL SHALL BE A36 GALVANIZED, UNLESS NOTED OTHERWISE.
- 2) PROVIDE CUT OUTS IN STEEL TUBING FOR PASSAGE OF EXISTING REPAIR RODS.
- 3) SEE DWG. NO. B-11 FOR STRAND LAYOUT AND NOTATIONS
- 4) STRAND SPACING AT STRAND GUIDES MAY BE ADJUSTED IF REQUIRED FOR FIT.

CITY OF CHATTAHOOGA		
RESTORATION/REHABILITATION		
OF		
THE WALNUT STREET BRIDGE		
CHATTAHOOGA	TENNESSEE	
STRAND GUIDES		
A.G. LICHTENSTEIN AND ASSOCIATES		
CONSULTING ENGINEERS		
NEW JERSEY		
FAIR LAWN	DATE	DWG. NO. B-15
SCALE	JUNE 1990	M-245-70
AS SHOWN		



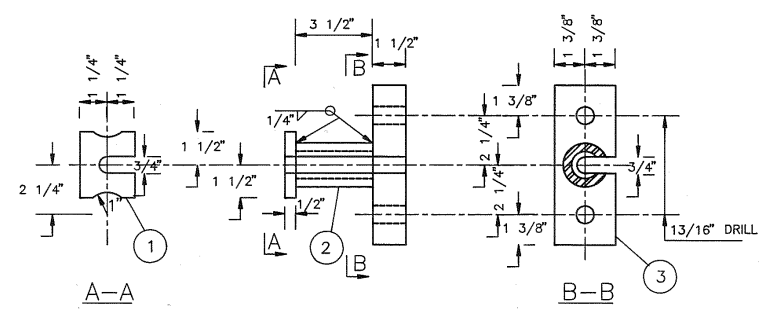
JACKING STATION DETAIL
 SCALE: 3"=1'-0"



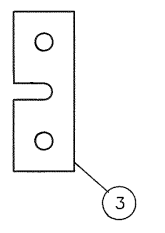
SECTION A-A
 SCALE: 3"=1'-0"

DRAWING NOTES:

- ① .600" DIA. POLYMER-COATED "FLO-GARD" STRAND (58^k ULT. STR.)
- ② REUSABLE CHUCK FOR 0.600" DIA. POLYMER COATED STRAND
- ③ A588 OR A572, GRADE 50 3" X 2" X 6 1/2"
- ④ 3/4"Ø X 4'-9" RYCUT 50, C.D. W/ 3/4"-10NC THDS. (95 KSI Y.P.)
- ⑤ JACK STAND WELDMENT (A588 OR A572, GRADE 50 STEEL)
- ⑥ A588 OR A572, GRADE 50 STEEL PL 2 3/4" X 1 1/2" X 7 1/4"
- ⑦ HYDRAULIC CYLINDER, ENERPAC NO. RCH-123. (CENTER HOLE REAMED FROM 3/4" TO 0.755" DIA.)
- ⑧ 11/16"Ø HOLES FOR TORQUE ARM BOLTS. INSTALL ARMS PRIOR TO TENSIONING STRANDS.



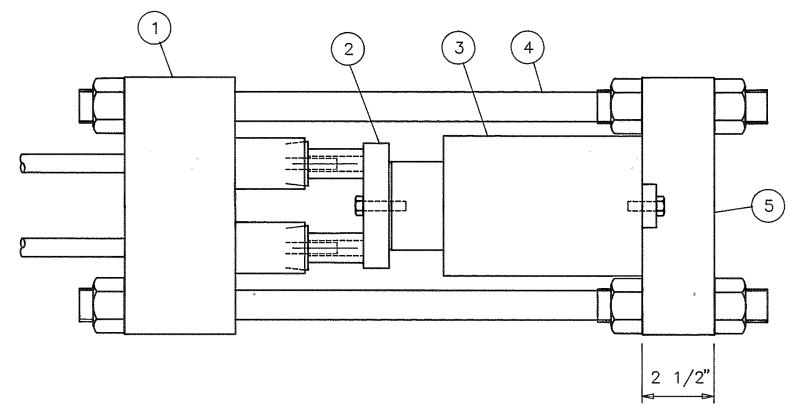
JACK STAND WELDMENT
 SCALE: 3"=1'-0"



JACKING PLATE
 (SAME DIMENSIONS AS JACK STAND BASE)
 SCALE: 3"=1'-0"

DRAWING NOTES:

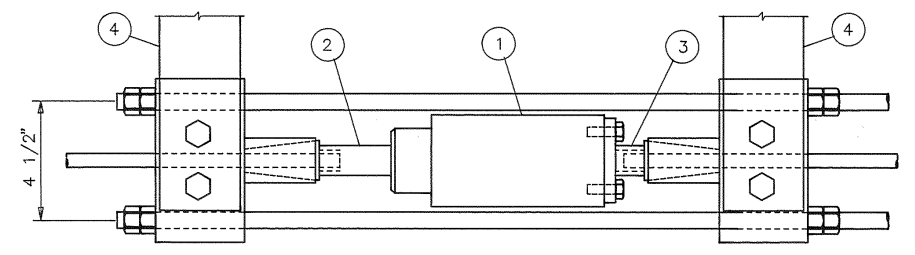
- ① PLATE 2 1/2X1/2X3" A588 OR A572 GRADE 50 STEEL.
- ② 2" O.D. X3/8" WALL X3 1/2" D.O.M. WELDED STEEL TUBING.
- ③ PLATE 2 3/4X1 1/2X7 1/4" A588 OR A572 GRADE 50 STEEL.



ANCHOR CHUCK PRELOAD DETAIL
 SCALE: 3"=1'-0"

DRAWING NOTES:

- ① ANCHOR BLOCK FOR TWO .600" Ø STRANDS.
- ② JAW-SETTING FIXTURE.
- ③ 50 TON HYDRAULIC CYLINDER, ENERPAC RC-502.
- ④ 3/4" Ø X 24 1/2" RYCUT 50, C.D. (95 KSI Y.P.) w 3/4" - 10NC THDS.
- ⑤ A36 STL., 2 1/2" X 2" X 9"

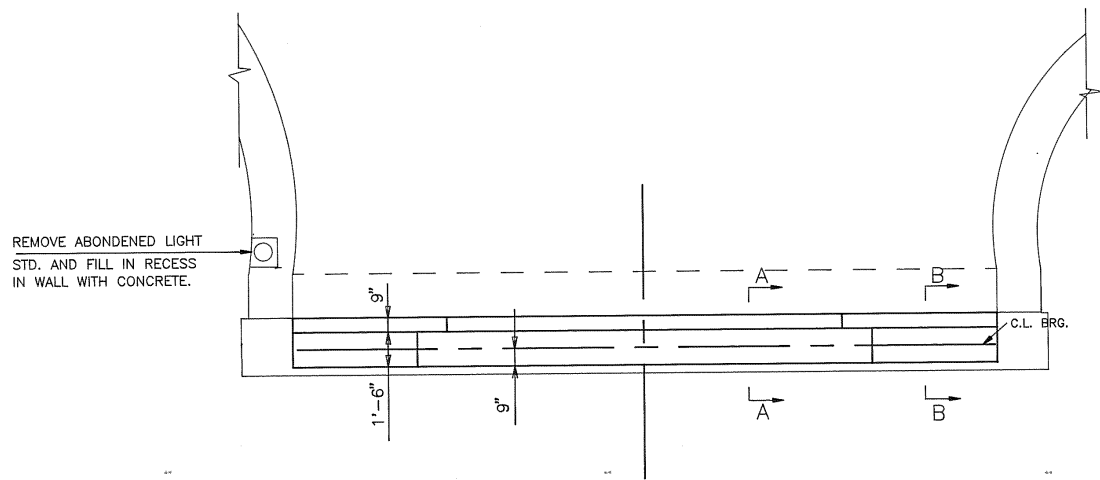


JACKING CHUCK PRELOAD DETAIL
 SCALE: 3"=1'-0"

DRAWING NOTES:

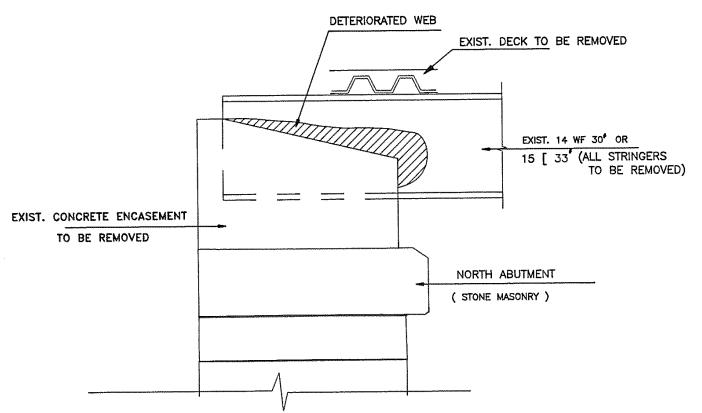
- ① 25 TON HYDRAULIC CYLINDER, ENERPAC RC-252.
- ② JAW-SETTING SLEEVE (SUPPLY SEVERAL LENGTHS).
- ③ JAW-SETTING SLEEVE, BOLTED TO CYLINDER.
- ④ TORQUE ARM. COMPLETE ASSEMBLY SHOWN ELSEWHERE.

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION		
OF		
THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
JACKING DETAILS		
A.G. LICHTENSTEIN AND ASSOCIATES		
CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN	DATE	DWG. NO. B-16
SCALE AS SHOWN	JUNE 1990	M-243-71

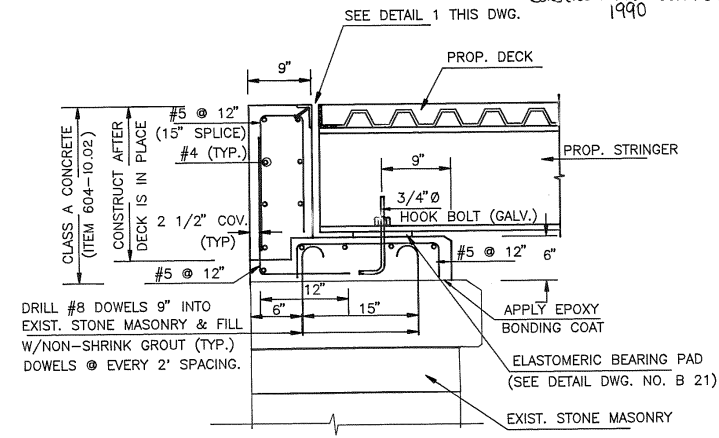


N. ABUTMENT PLAN

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



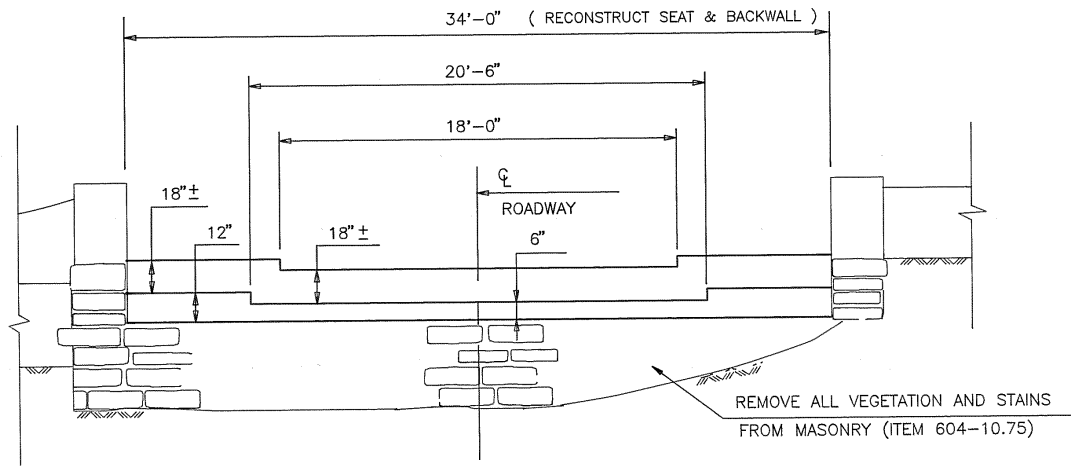
EXIST



PROPOSED

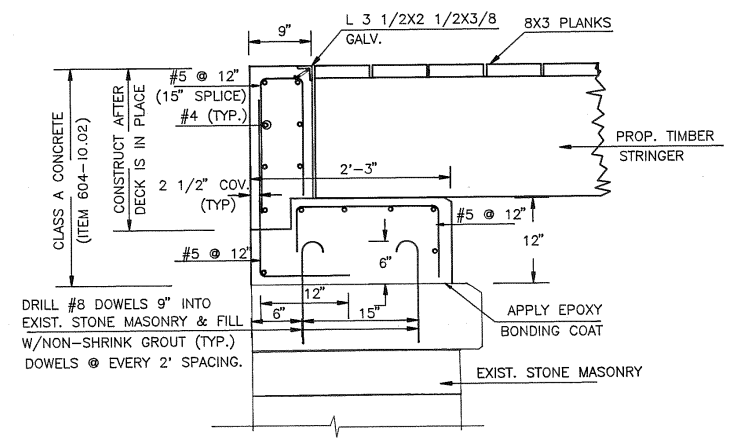
SECTION A-A

SCALE: 1" = 1'-0"



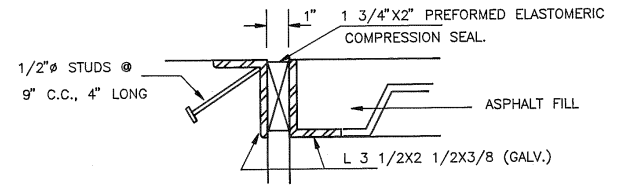
N. ABUTMENT ELEVATION

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



SECTION B-B

SCALE: 1" = 1'-0"

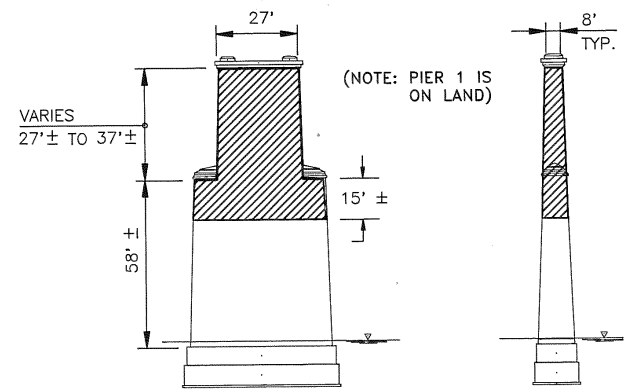


DETAIL 1

SCALE: 3" = 1'-0"

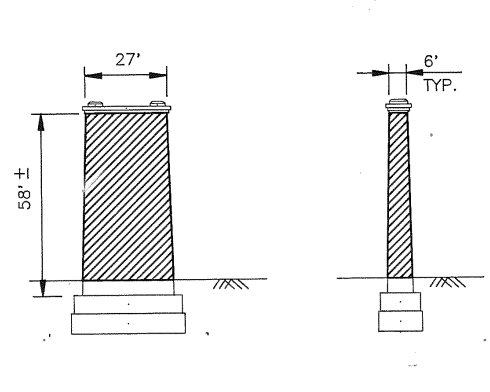
NOTES

- 1) THE STONE FACING AND JOINTS TO BE CLEANED ARE COVERED WITH CARBON AND OTHER POLLUTANTS AND RUST STAINS. THE AREAS NOTED BY HATCHING ARE APPROXIMATE. CLEANING TO BE DONE AS DIRECTED BY THE ENGINEER.
- 2) STONE MASONRY JOINTS WITH LOOSE OR MISSING MORTAR SHALL BE REPOINTED AS DIRECTED BY THE ENGINEER.
- 3) ALL REBARS TO BE EPOXY COATED. COST FOR DRILLING AND GROUTING OF REBARS TO BE INCLUDED IN ITEM 604-10.18.
- 4) APPLY WATERPROOFING SEAL COAT ON ABUTMENT BACKWALL AND SEAT. COST TO BE INCLUDED UNDER ITEM 604-10.02.
- 5) CONTRACTOR SHALL PROVIDE OPENINGS IN THE NORTH & SOUTH ABUTMENT BACKWALLS FOR UTILITY CONDUITS AS DIRECTED BY THE UTILITY COMPANIES. UNUSED UTILITY OPENINGS IN THE SOUTH ABUTMENT TO BE PLUGGED BY THE CONTRACTOR.
- 6) SEAL CURBS @ NORTH ABUTMENT DECK JOINT WITH ASPHALT FIBER BOARD
- 7) COST FOR DECK JOINT ARMORED ANGLES, COMPRESSION SEAL TO BE INCLUDED IN ITEM 602-10.10



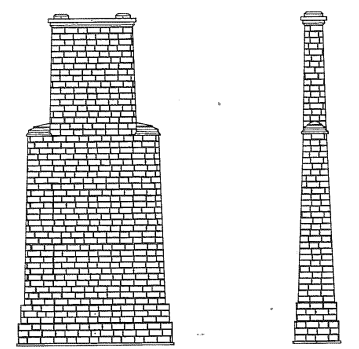
N & S ELEVATIONS E & W ELEVATIONS

PIERS 1 - 5

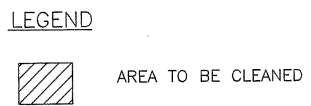


N & S ELEVATIONS E & W ELEVATIONS

PIER 6



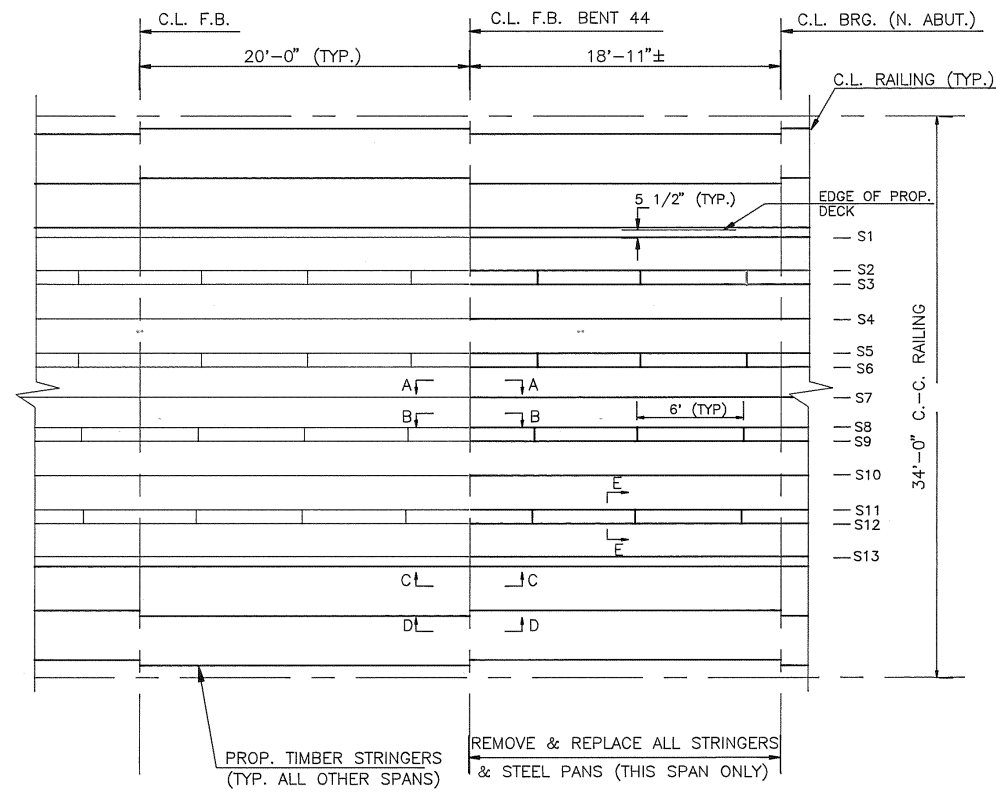
TYP. PIER STONE MASONRY



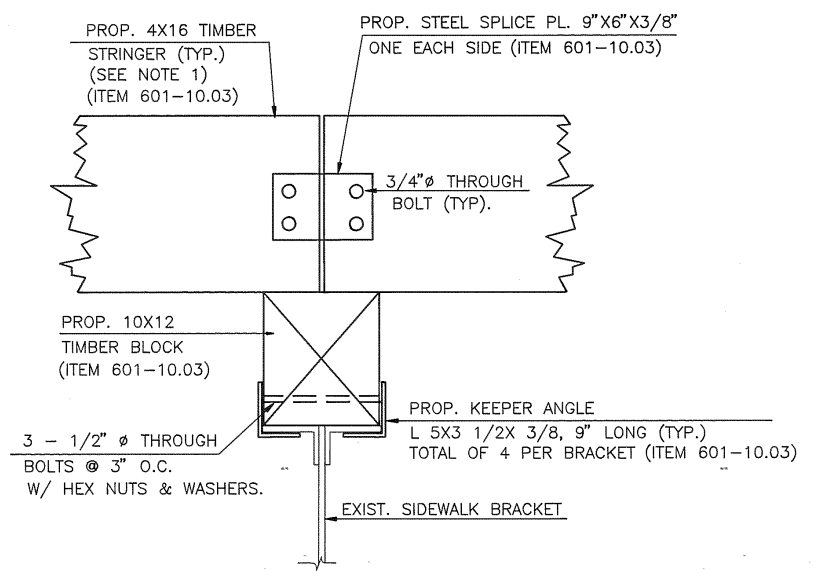
PIERS TO BE CLEANED (ITEM 604-10.75)

NO SCALE

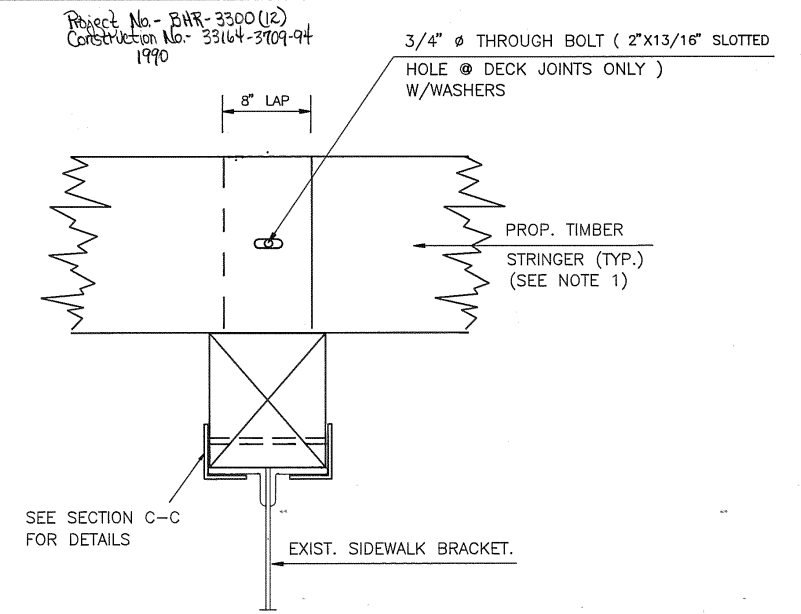
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
ABUTMENT & PIER REPAIRS		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-17 M-245-72



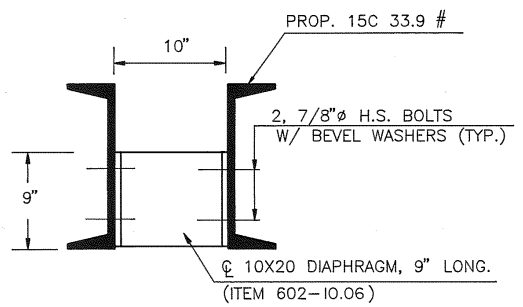
FRAMING PLAN
SCALE: 3/16"=1'-0"



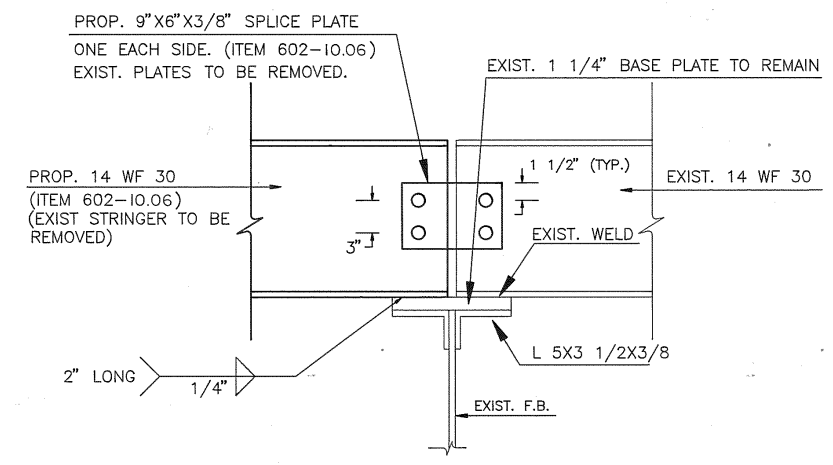
SECTION C-C
SCALE: 1 1/2"=1'-0"



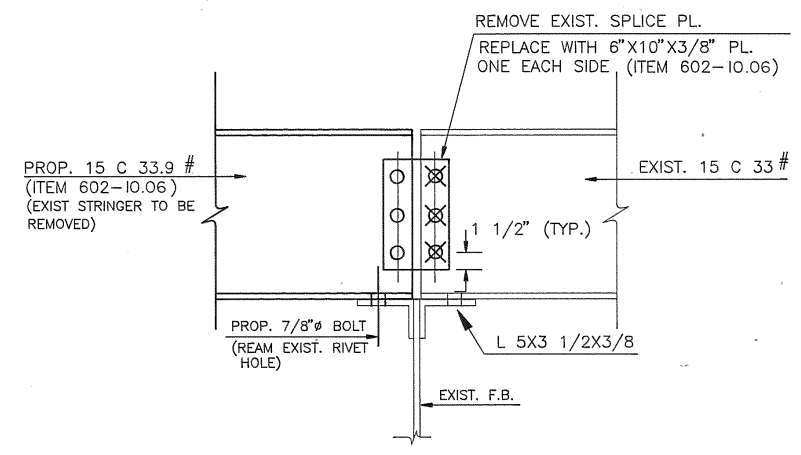
SECTION D-D (SIMILAR DETAIL @ FASCIA STRINGER)
SCALE: 1 1/2"=1'-0"



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



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

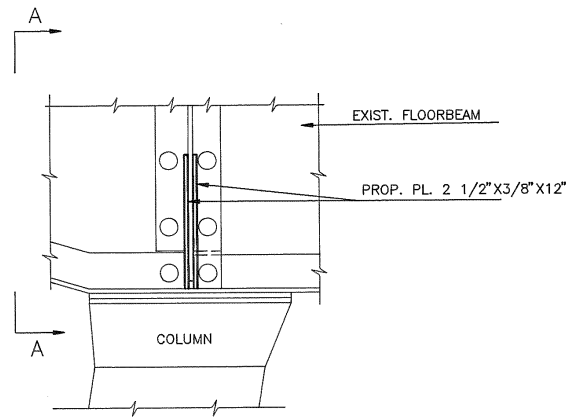


SECTION B-B
SCALE: 1 1/2"=1'-0"

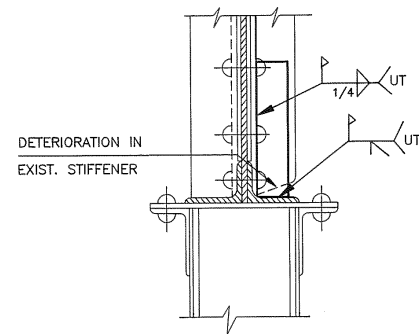
- LEGEND**
- NEW HOLES FOR H.S. BOLTS
 - ⊗ REUSE EXIST. RIVET HOLE IN STRINGER WEB. (REAMING REQD.) (ITEM 602-10.20)

- NOTES**
- 1) ALL TIMBER STRINGERS SHALL BE TOE NAILED TO THE 10X6 TIMBER BLOCK.
 - 2) FOR STRINGER BEARING PAD DETAILS SEE DWG. NO. B 21
 - 3) ALL NEW STEEL STRINGERS, DIAPHRAGMS AND SPLICE PLATES SHALL BE PAID UNDER ITEM 602-10.06

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
VIADUCT FRAMING PLAN		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN	DATE	DWG. NO. B-18
SCALE AS SHOWN	JUNE 1990	M-245-73



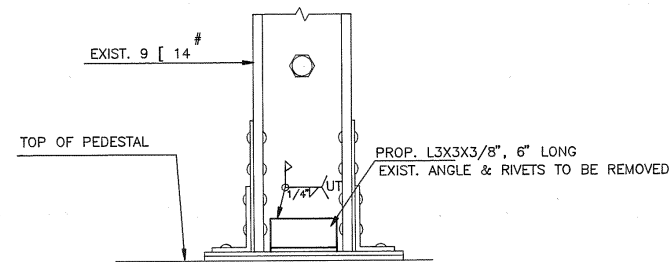
FLOORBEAM STIFFENER REPAIRS



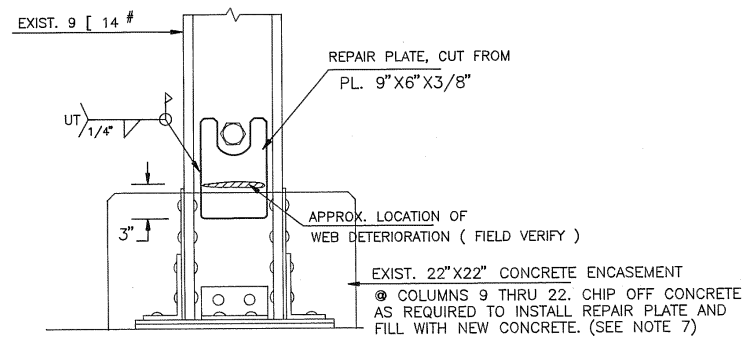
SECTION A-A

F.B. STIFFENERS TO BE REPAIRED					
COLUMN	NORTH	SOUTH	COLUMN	NORTH	SOUTH
17W		*	27E		*
19E		*	28E		*
19W		*	31E		*
21E	*		31W	*	
23W		*	32E		*
24E	*		32W	*	
24W	*		33W	*	
25E		*	37E		*
26E	*		37W	*	

COLUMN CLIP ANGLES TO BE REPLACED					
COLUMN	EAST	WEST	COLUMN	EAST	WEST
19W	*	*	34W	*	*
24E	*		37E	*	*
24W		*	37W	*	
26W	*		38W	*	
27E	*		39E	*	
29E	*		39W	*	
30W	*	*	42E	*	*
33W	*		42W	*	*



COLUMN CLIP ANGLE REPLACEMENT

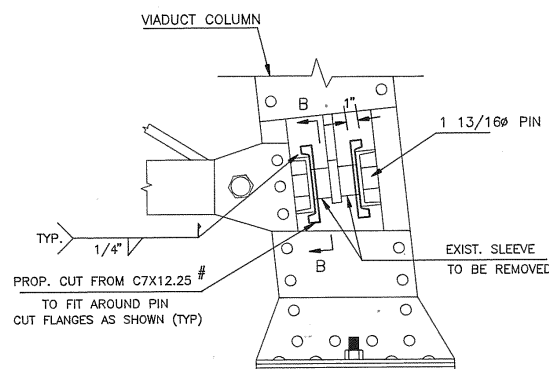


COLUMN WEB REPAIRS

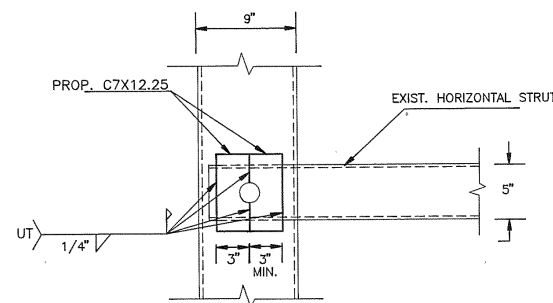
COLUMN WEBS TO BE REPAIRED					
COLUMN	EAST [WEST [COLUMN	EAST [WEST [
9E		*	18W	*	
12W	*		20E		*
		*	21E		*
15W	*	*	22E	*	
16E	*	*	23E		*
17E	*	*	24E	*	*
17W		*	24W	*	*

NOTES

- 1) ALL REPAIR STEEL - ASTM A36
- 2) FOR REPAIR OF STRINGERS @ VIADUCT SEE DWG. NO. B 21
- 3) CLEAR ALL VEGETATION GROWTH ON THE VIADUCT. AREAS UNDER THE VIADUCT TO BE CLEARED AND GRUBBED.
- 4) REPAIR OR REPLACE LOOSE OR BENT LONGITUDINAL CLOSURE PLATES OF STEEL DECK PANS, AS DIRECTED BY THE ENGINEER.
- 5) ADDITIONAL REPAIRS TO THE VIADUCT MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
- 6) ALL REPAIRS SHOWN ON THIS DRAWING PAID UNDER ITEM 602-10.32. ALL COSTS FOR WELDING AND ULTRASONIC TESTING (UT) TO BE INCLUDED IN UNIT BID PRICE FOR ITEM 602-10.32.
- 7) ANY CONCRETE REPLACEMENT OR REPAIRS AT THE COLUMN BASES AS ORDERED BY THE ENGINEER WILL BE PAID UNDER ITEM 604-10.02.



HORIZONTAL STRUT REPAIRS @ PIN



SECTION B-B

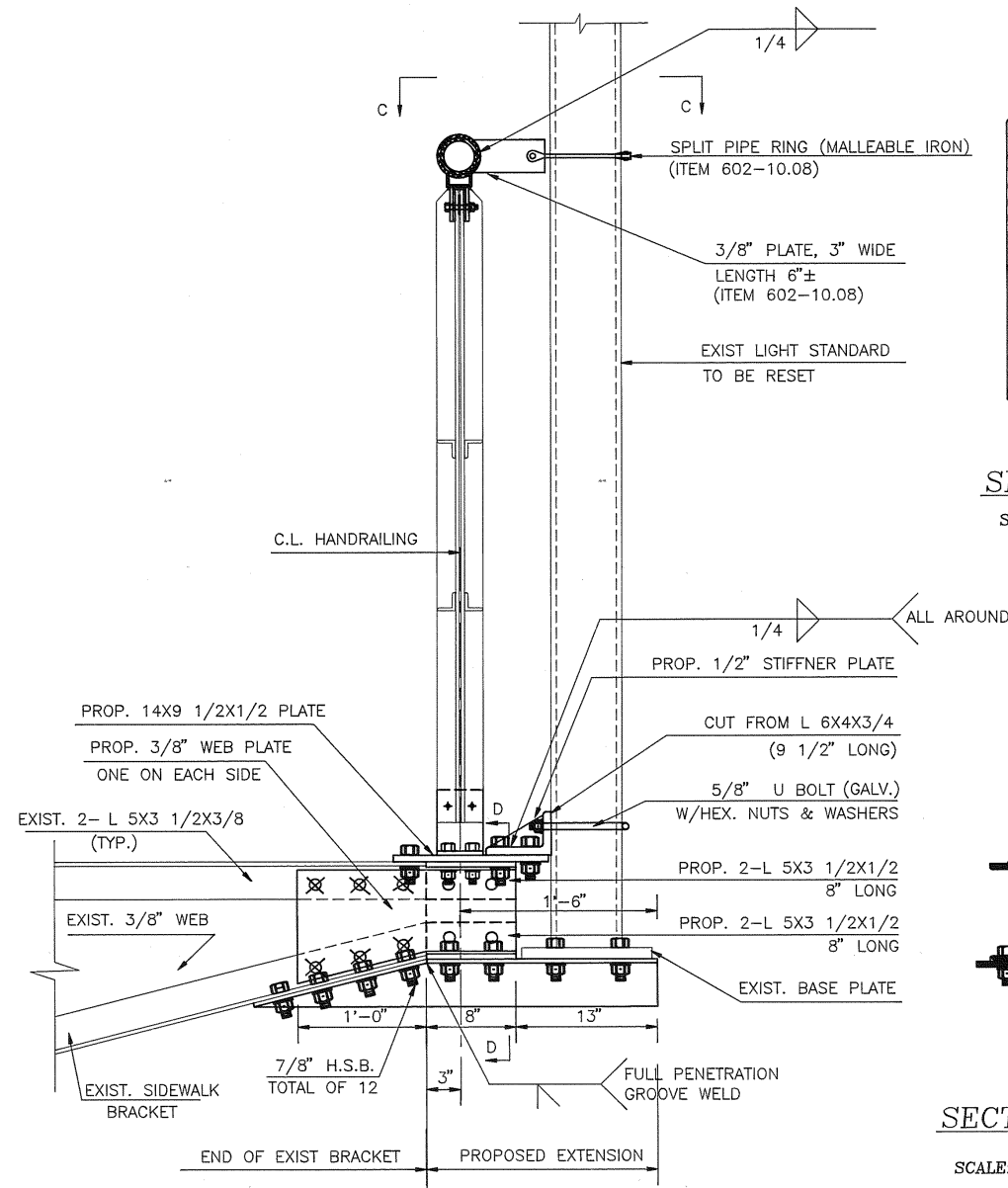
HORIZONTAL STRUTS TO BE REPAIRED @ PINS	
LOWER LONGITUDINAL STRUT AT BENT 23E	
TOP LONGITUDINAL STRUT AT BENT 31W	
TOP LONGITUDINAL STRUT AT BENT 32W	
LOWER LONGITUDINAL STRUT AT BENT 37W	
LOWER LONGITUDINAL STRUT AT BENT 42W	
LOWER LONGITUDINAL STRUT AT BENT 44E	
LOWER LONGITUDINAL STRUT AT BENT 44W	
LOWER TRANSVERSE STRUT AT BENT 20E	
LOWER TRANSVERSE STRUT AT BENT 21E	
LOWER TRANSVERSE STRUT AT BENT 26E	
LOWER TRANSVERSE STRUT AT BENT 29E	
LOWER TRANSVERSE STRUT AT BENT 36E	
LOWER TRANSVERSE STRUT AT BENT 41E	
LOWER TRANSVERSE STRUT AT BENT 43E	

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE

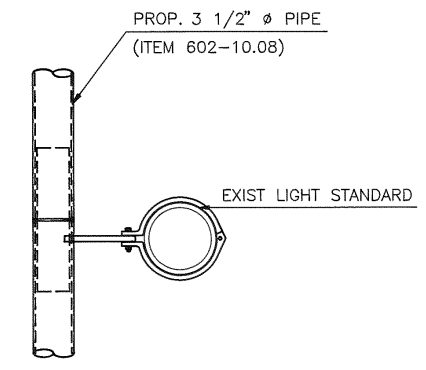
VIADUCT REPAIRS I

A.G. LICHTENSTEIN AND ASSOCIATES
CONSULTING ENGINEERS
FAIR LAWN NEW JERSEY

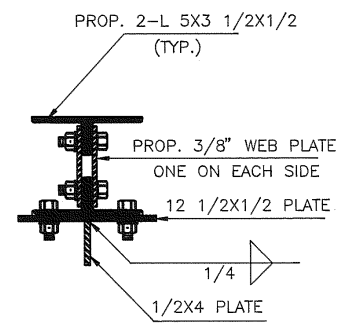
SCALE 1 1/2"=1'-0" DATE JUNE 1990 DWG. NO. B-19



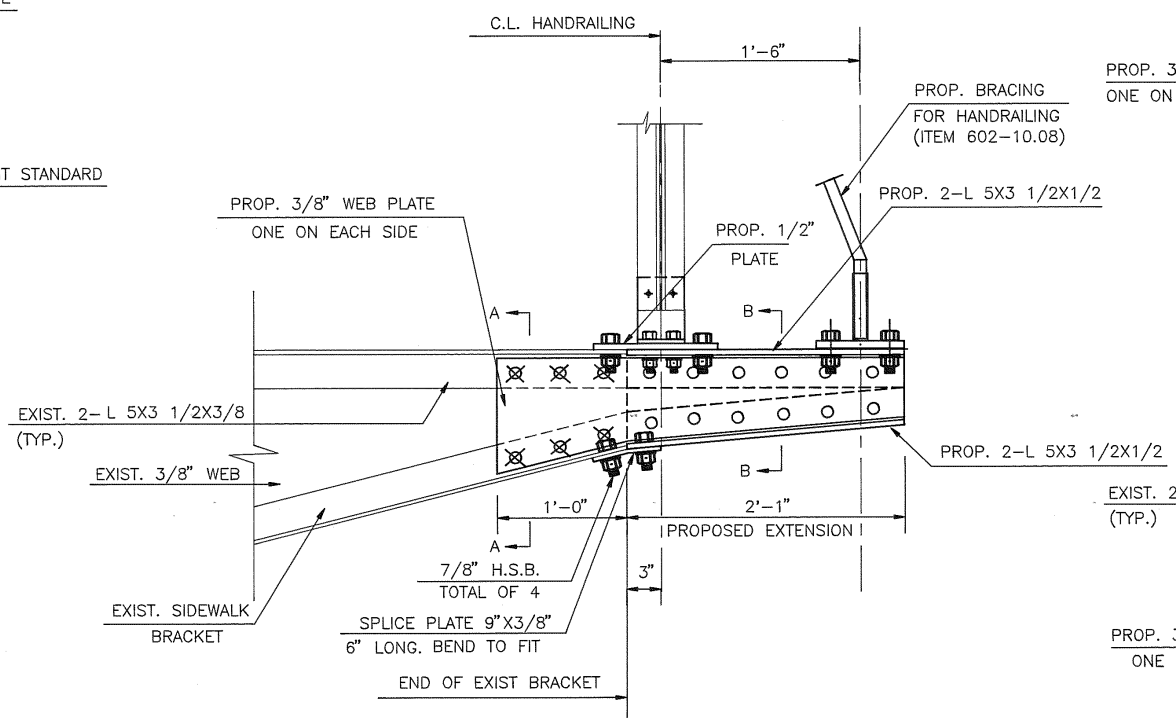
SIDEWALK BRACKET EXTENSION @ VIADUCT
(@ LIGHT STD. LOCATIONS) (SEE DWG. NO. B 2 FOR LOCATIONS)
SCALE: 1 1/2"=1'-0"



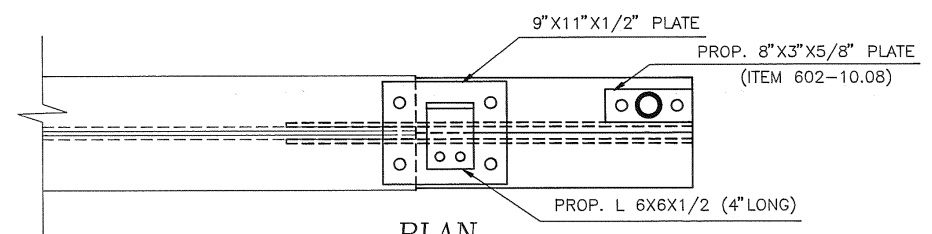
SECTION C-C
SCALE: 1 1/2"=1'-0"



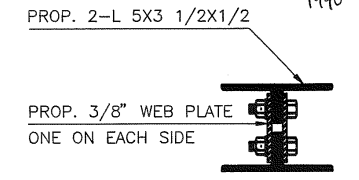
SECTION D-D
SCALE: 1 1/2"=1'-0"



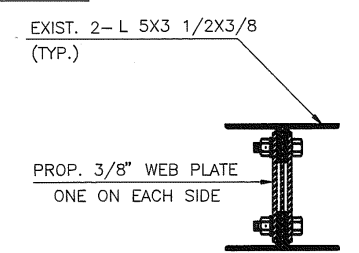
SIDEWALK BRACKET EXTENSION @ VIADUCT
SCALE: 1 1/2"=1'-0"



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

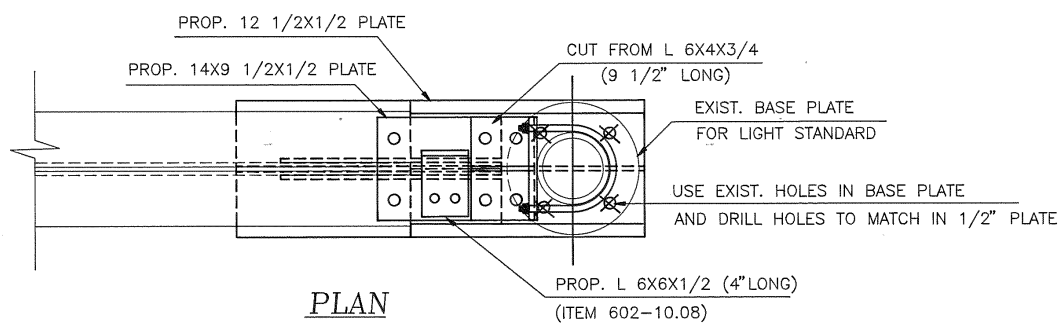


SECTION B-B
SCALE: 1 1/2"=1'-0"



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

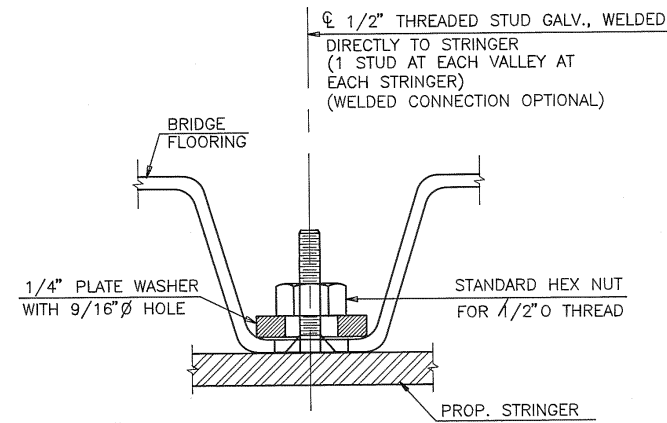
- NOTES**
- 1) ALL DIMENSIONS SHOWN IN INCHES UNLESS NOTED OTHERWISE
 - 2) ALL FASTENERS TO BE 7/8" H.S. BOLTS UNLESS NOTED OTHERWISE
 - 3) SEE DWGS. E1-E3 FOR ELECTRICAL DETAILS.
 - 4) ALL RAILING FASTENERS & U BOLTS TO BE GALVANIZED
 - 5) ALL STR. STEEL REPAIRS TO SIDEWALK BRACKET SHOWN ON THIS DRAWING PAID UNDER ITEM 602-10.32.



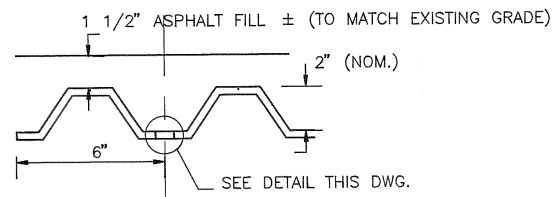
PLAN
SCALE: 1 1/2"=1'-0"

- LEGEND**
- NEW 7/8" H.S. BOLT IN NEW HOLE
 - ⊗ REMOVE EXIST. RIVET & REPLACE WITH 7/8" H.S. BOLT. NEW HOLE IN NEW MEMBER. REAM RIVET HOLE IN EXIST. MEMBER. (ITEM 602-10.20)

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION		
OF		
THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
VIADUCT REPAIRS II		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN	DATE	DWG. NO.
SCALE	JUNE 1990	B-20
AS SHOWN		M:215.75

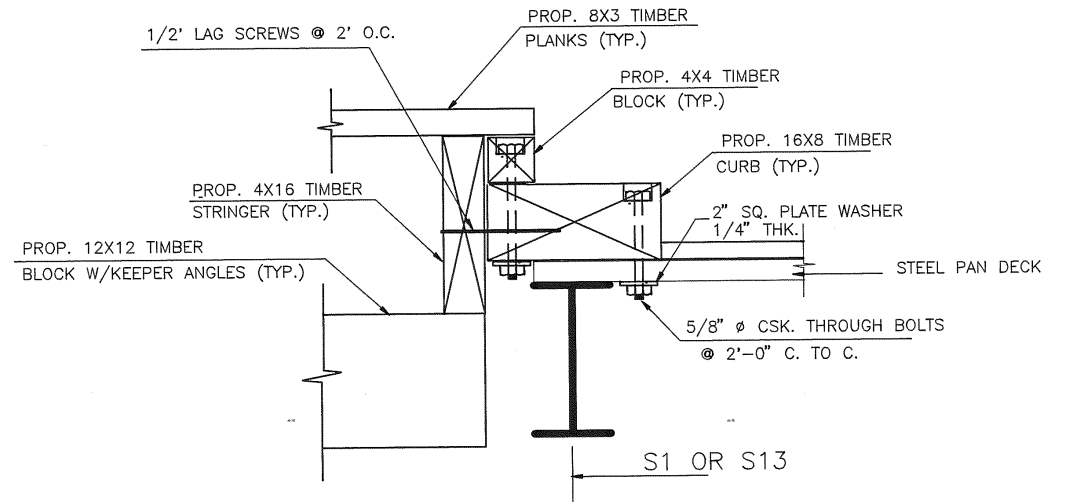


STEEL FLOORING CONNECTION DETAIL
 NOT TO SCALE

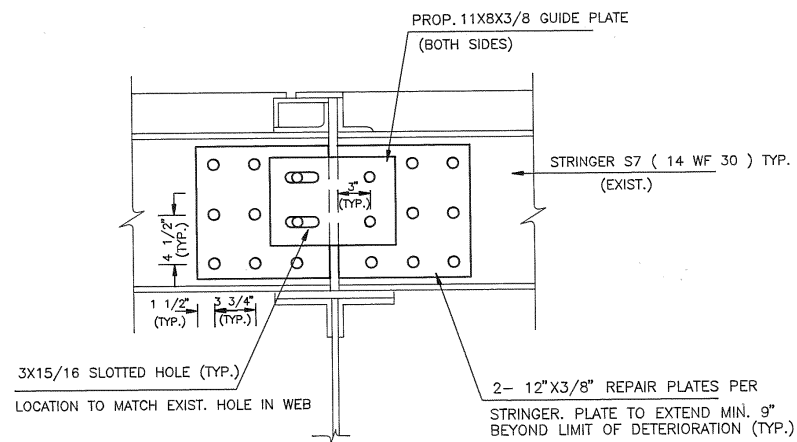


10 GAGE, GALVANIZED STEEL FLOORING.
 ASTM A570.

STEEL FLOORING DETAIL (ITEM 602-10.36)
 SCALE: 3"=1'-0"



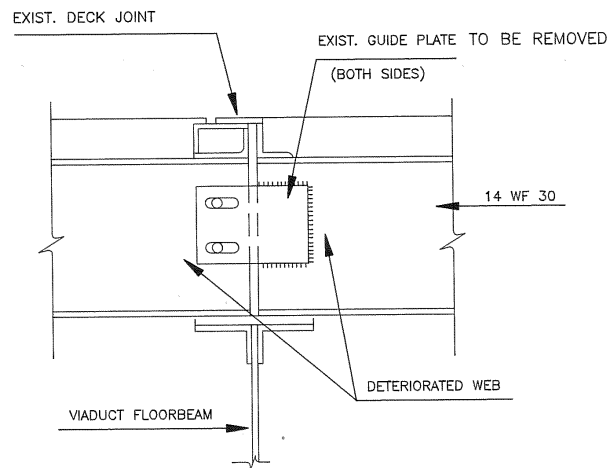
CURB DETAIL @ VIADUCT
 SCALE: 1 1/2"=1'-0"



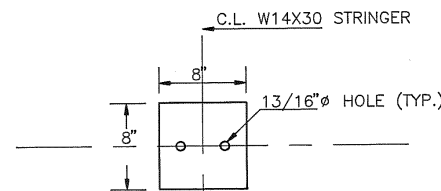
PROP. SECTION

STRINGER S7 REPAIRS @ VIADUCT EXP. JOINTS (@ BENTS 18, 22, 26 & 30)
 (ITEM 602-10.32)

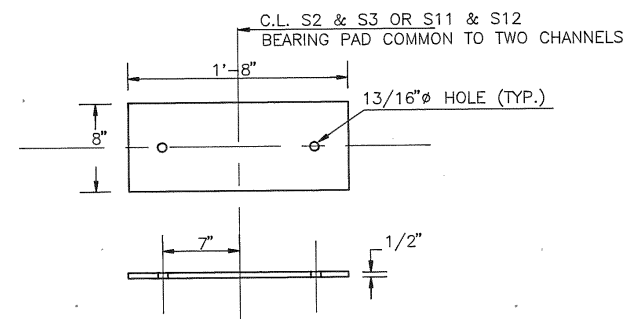
SCALE: 1 1/2"=1'-0"



EXIST. SECTION



WF STRINGERS



CHANNEL STRINGERS

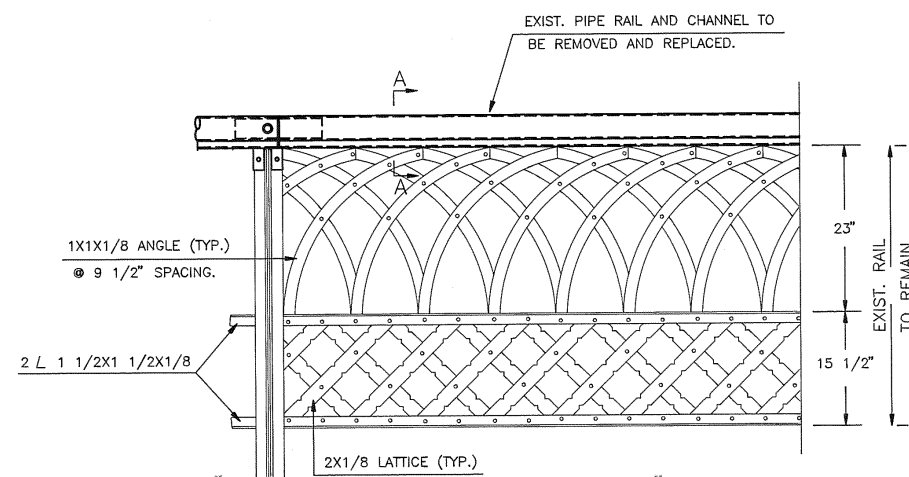
PLAIN ELASTOMERIC BEARINGS
 (FOR STRINGERS @ THE N. ABUTMENT)

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

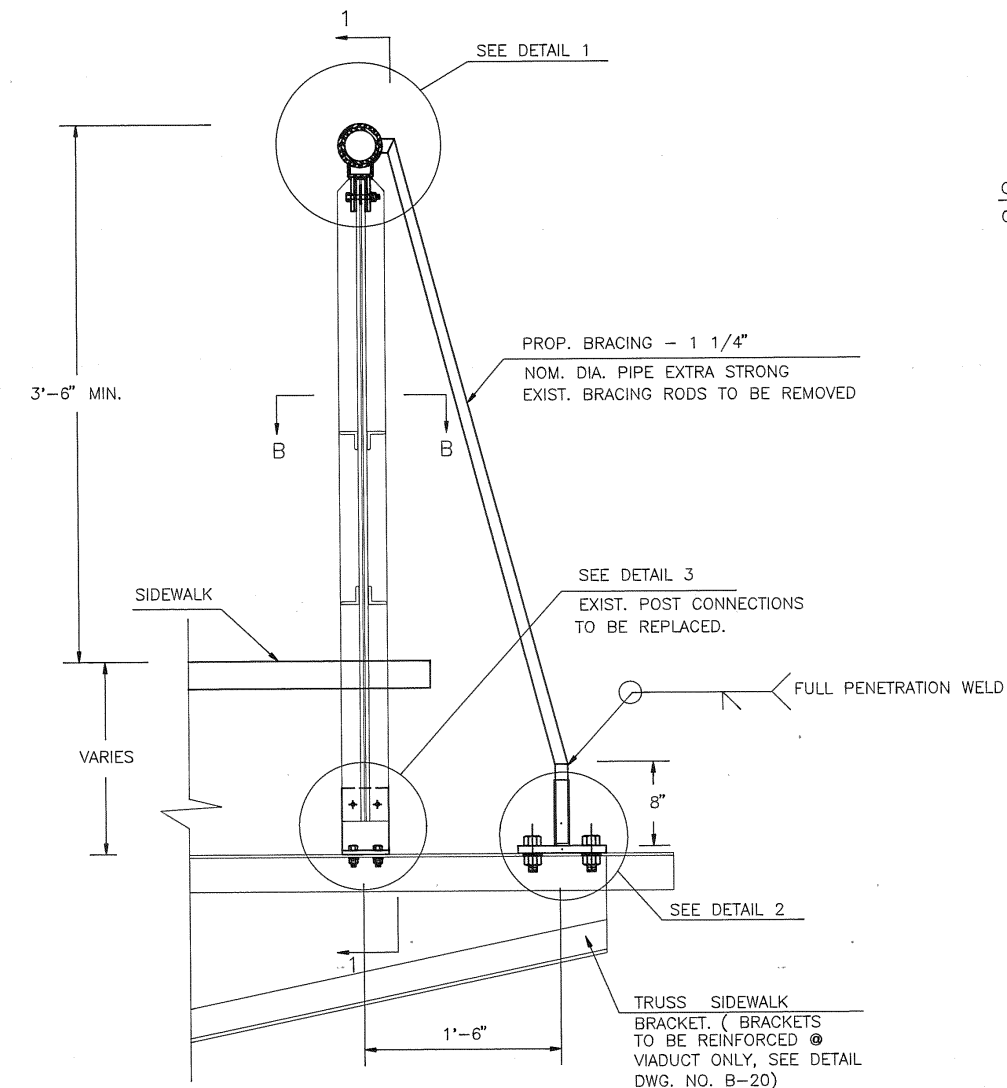
NOTES

- ELASTOMERIC BEARING PADS SHALL BE CONSTRUCTED FROM 60 DUROMETER ELASTOMER. PAID UNDER ITEM 602-10.06.

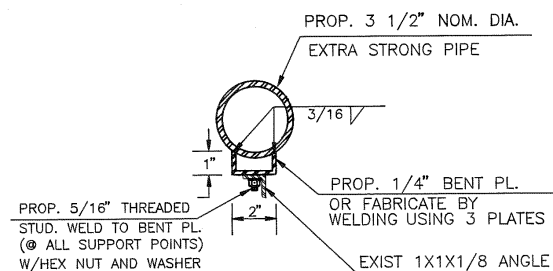
CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
VIADUCT DETAILS		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
FAIR LAWN	DATE	DWG. NO.
SCALE AS SHOWN	JUNE 1990	B-21 N.245-76



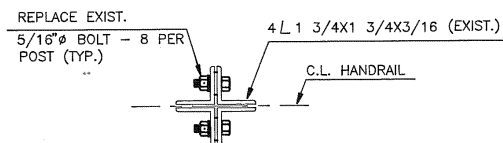
ELEVATION
SCALE: 1"=1'-0"



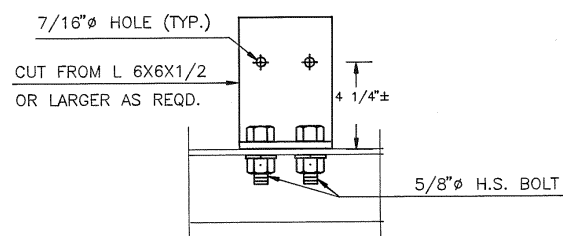
POST DETAIL
SCALE: 1 1/2"=1'-0"



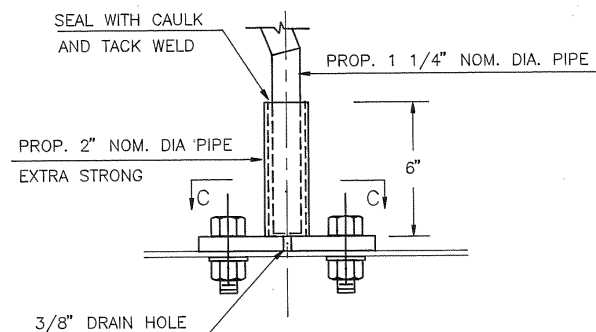
SECTION A-A
SCALE: 3"=1'-0"



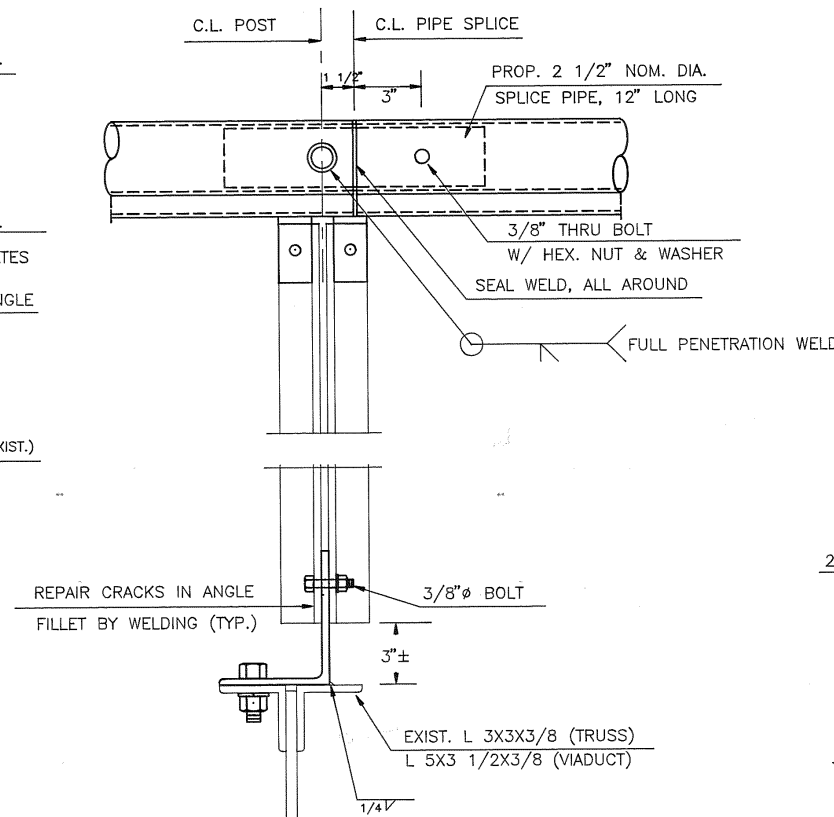
SECTION B-B
SCALE: 3"=1'-0"



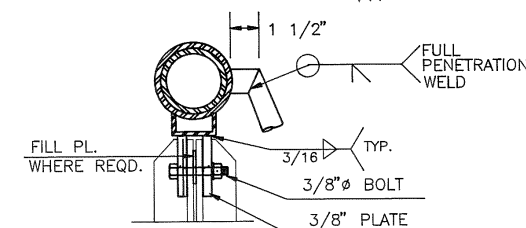
DETAIL 3
SCALE: 3"=1'-0"



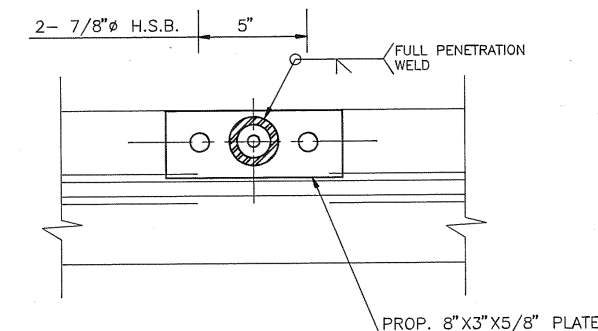
DETAIL 2
SCALE: 3"=1'-0"



SECTION 1-1
SCALE: 3"=1'-0"



DETAIL 1
SCALE: 3"=1'-0"



SECTION C-C
SCALE: 3"=1'-0"

ADDITIONAL HANDRAIL REPAIRS

- 1) STRAIGHTEN A 40 FT. LENGTH OF TILTED RAILING AT SPAN 1
- 2) REPAIR A 2 FT. LENGTH OF DAMAGED LATTICE WORK AT SPAN 1
- 3) REPAIR OR REPLACE AS DIRECTED BY ENGINEER ALL BENT OR BROKEN RAILING POST ANGLES. (ESTIMATED NO. = 10 POSTS)
- 4) OTHER REPAIRS AS DIRECTED BY THE ENGINEER (ITEM 602-10.34)
- 5) REPAIR BY WELDING 2 TO 3 INCH CRACKS AT THE BOTTOM OF THE RAILING POST ANGLE FILLETS. (ESTIMATED NUMBER = 90 ANGLES)

ALL NEW STEEL SHAPES, PLATES AND ANGLES REQUIRED FOR THE ABOVE REPAIRS AND FOR OTHER REPAIRS AS DIRECTED BY THE ENGINEER WILL BE PAID UNDER ITEM 602-10.34

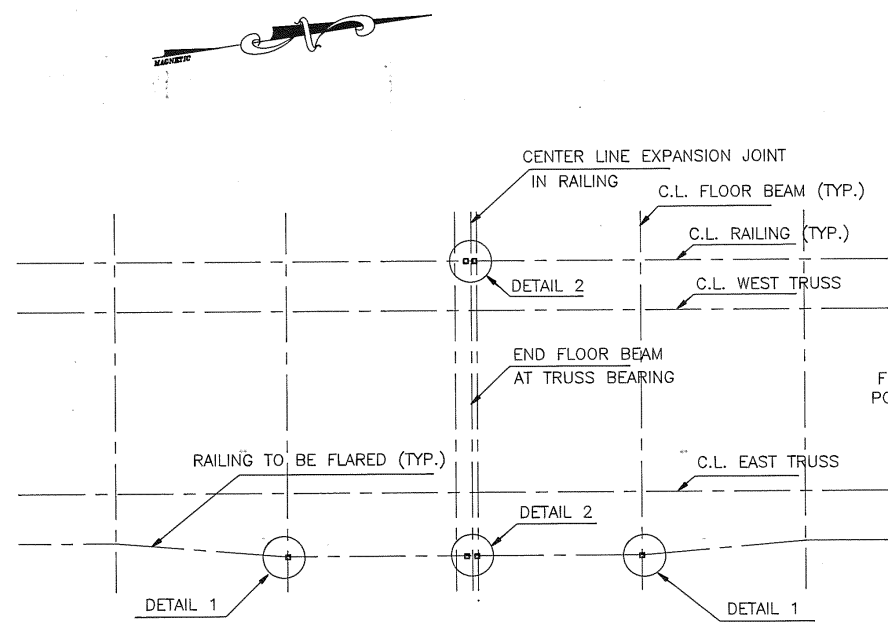
ALL REPAIRS TO EXIST. RAILING WHICH DO NOT REQUIRE FURNISHING NEW STEEL MEMBERS SHALL BE DONE UNDER ITEM 603-02.01 THIS SHALL INCLUDE STRAIGHTENING BENT MEMBERS & WELDING CRACKS AS NOTED ABOVE AND AS DIRECTED BY THE ENGINEER

NOTES

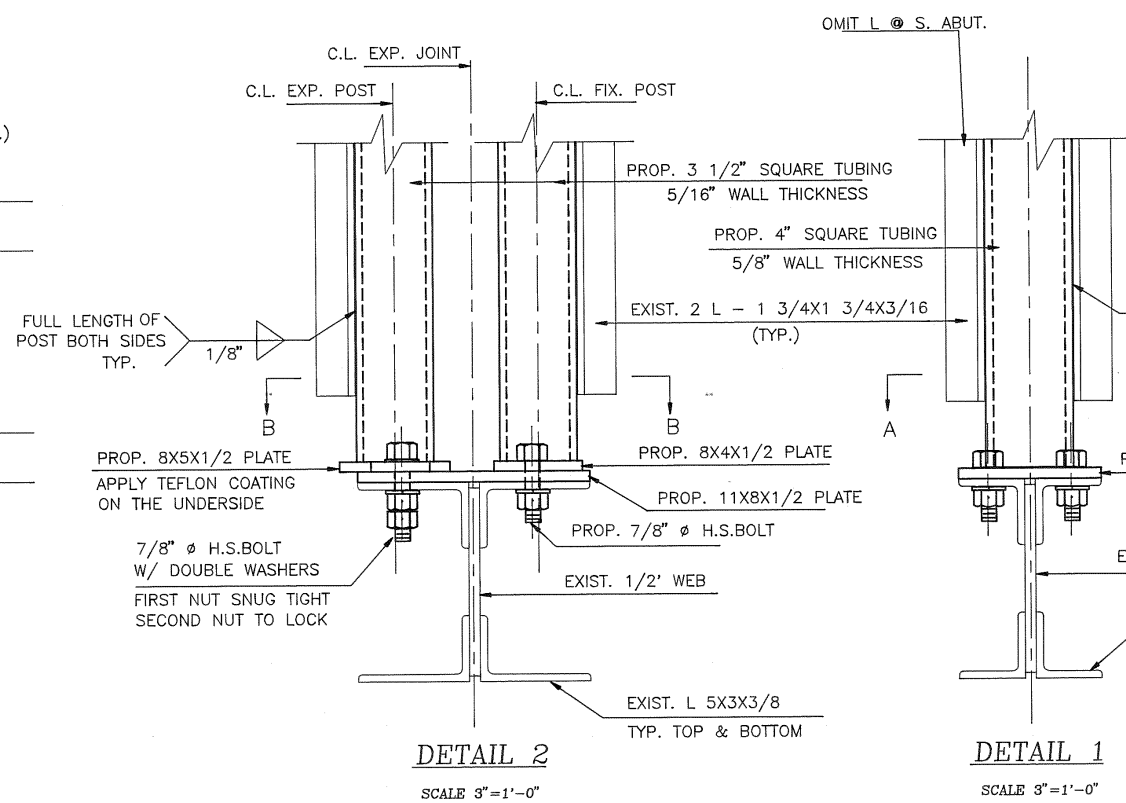
- 1) THE ENTIRE LENGTH OF BRIDGE HANDRAIL IS TO BE REMOVED REPAIRED AND RESET AS SHOWN AND AS DIRECTED BY THE ENGINEER.
- 2) FOR RAILING DETAILS AT PIERS SEE DWG. NO. B 23
- 3) ALL FASTENERS TO BE GALVANIZED
- 4) PIPES SHALL BE EXTRA STRONG PIPES CONFORMING TO ASTM A53
- 5) ALL NEW STEEL FURNISHED AND INSTALLED AS SHOWN ON THIS DRAWING TO BE PAID UNDER ITEM 602-10.08

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE
HANDRAIL REPAIRS I

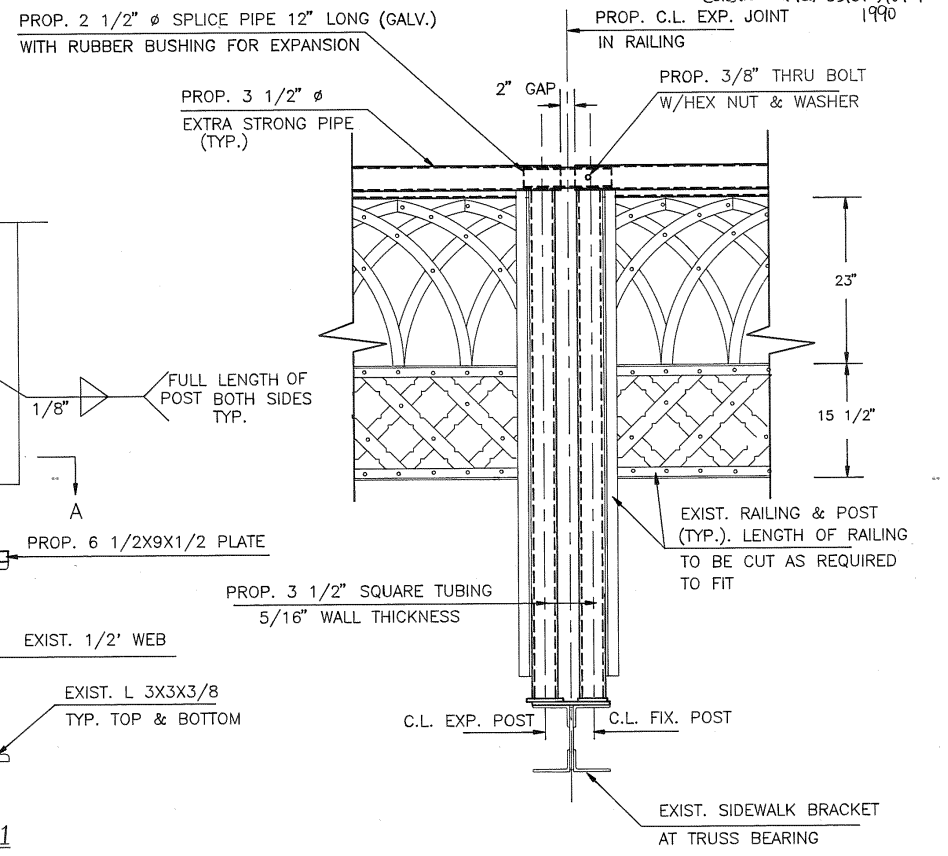
A.G. LICHTENSTEIN AND ASSOCIATES
CONSULTING ENGINEERS NEW JERSEY
FAIR LAWN
SCALE AS SHOWN DATE JUNE 1990 DWG. NO. B-22
M-245-77



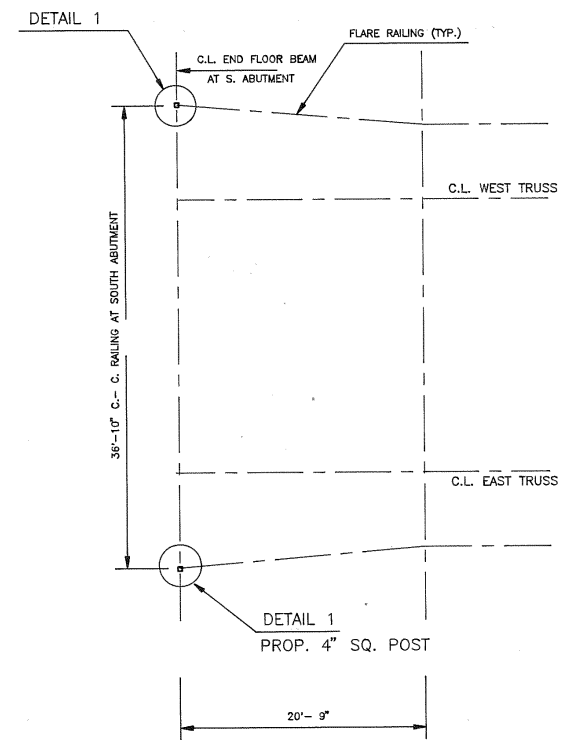
RAILING PLAN AT PIERS 1-5
 NOT TO SCALE



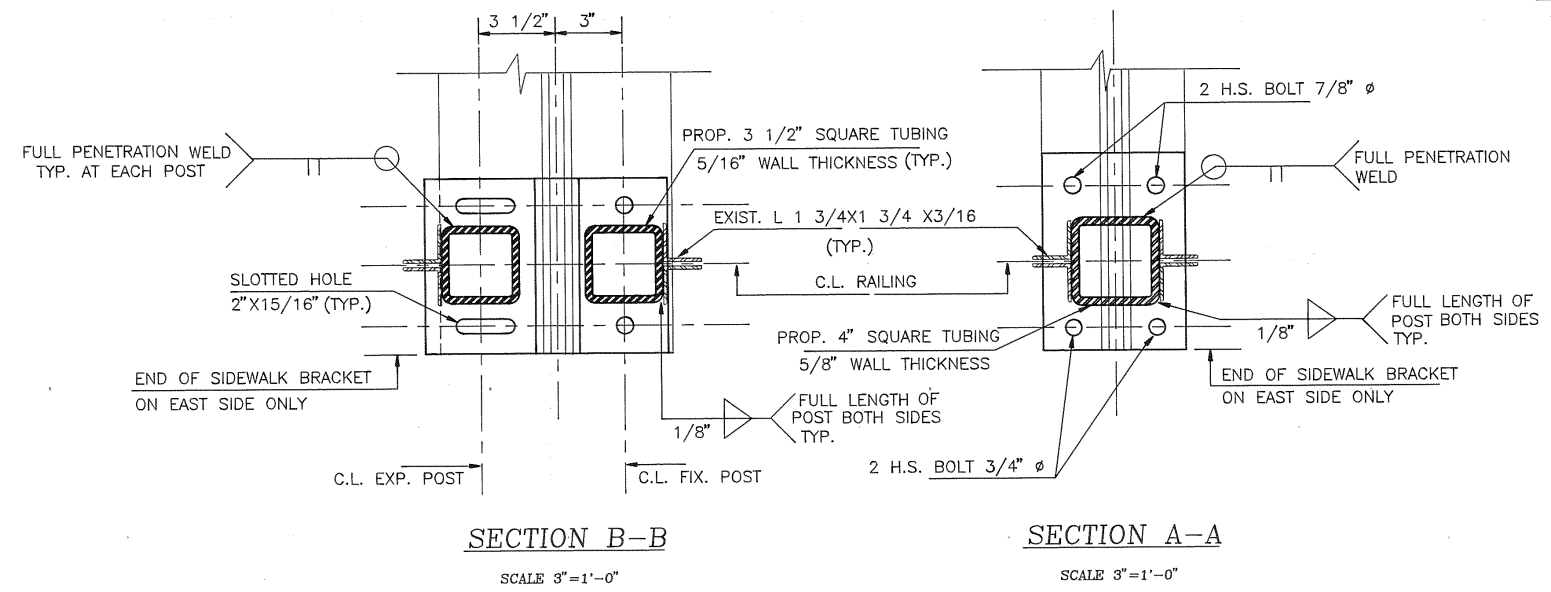
DETAIL 2 SCALE 3"=1'-0"
DETAIL 1 SCALE 3"=1'-0"



RAILING ELEVATION AT PIER
 SCALE 1"=1'-0"



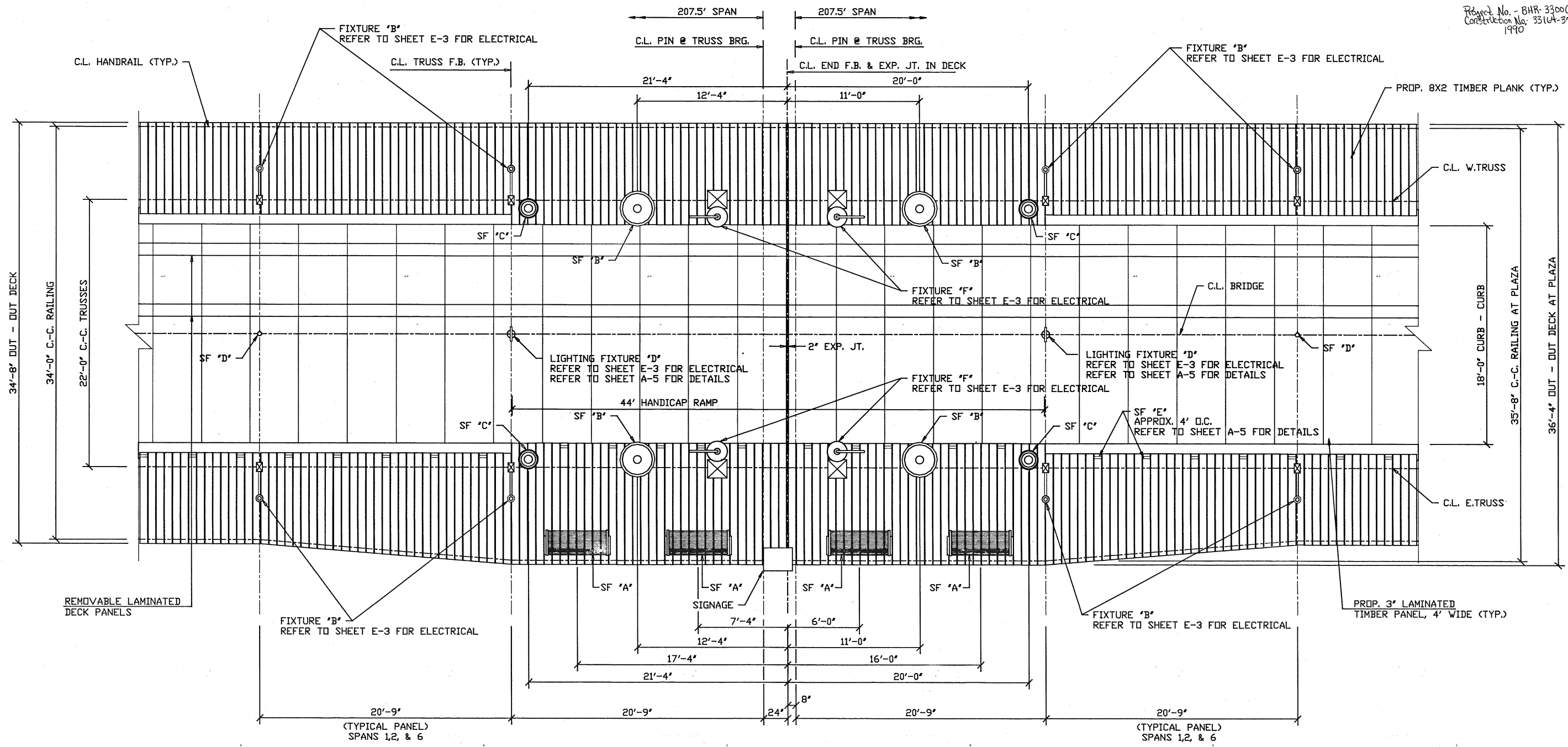
RAILING PLAN AT SOUTH ABUTMENT
 NOT TO SCALE



SECTION B-B SCALE 3"=1'-0"
SECTION A-A SCALE 3"=1'-0"

- NOTES**
- 1) ALL FASTENERS TO BE GALVANIZED
 - 2) PIPES SHALL CONFORM TO ASTM A53
 - 3) ALL NEW STEEL FURNISHED AND INSTALLED AS SHOWN ON THIS DRAWING TO BE PAID UNDER ITEM 602-10.08

CITY OF CHATTANOOGA		
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE		
CHATTANOOGA	TENNESSEE	
HANDRAIL REPAIRS II		
A.G. LICHTENSTEIN AND ASSOCIATES CONSULTING ENGINEERS NEW JERSEY		
SCALE AS SHOWN	DATE JUNE 1990	DWG. NO. B-23 M-245-78



NOTE:
 ALL SITE FURNISHINGS SHOWN ON THIS SHEET
 TO BE BID AS ITEM 750-01.01

SITE FURNISHINGS SCHEDULE

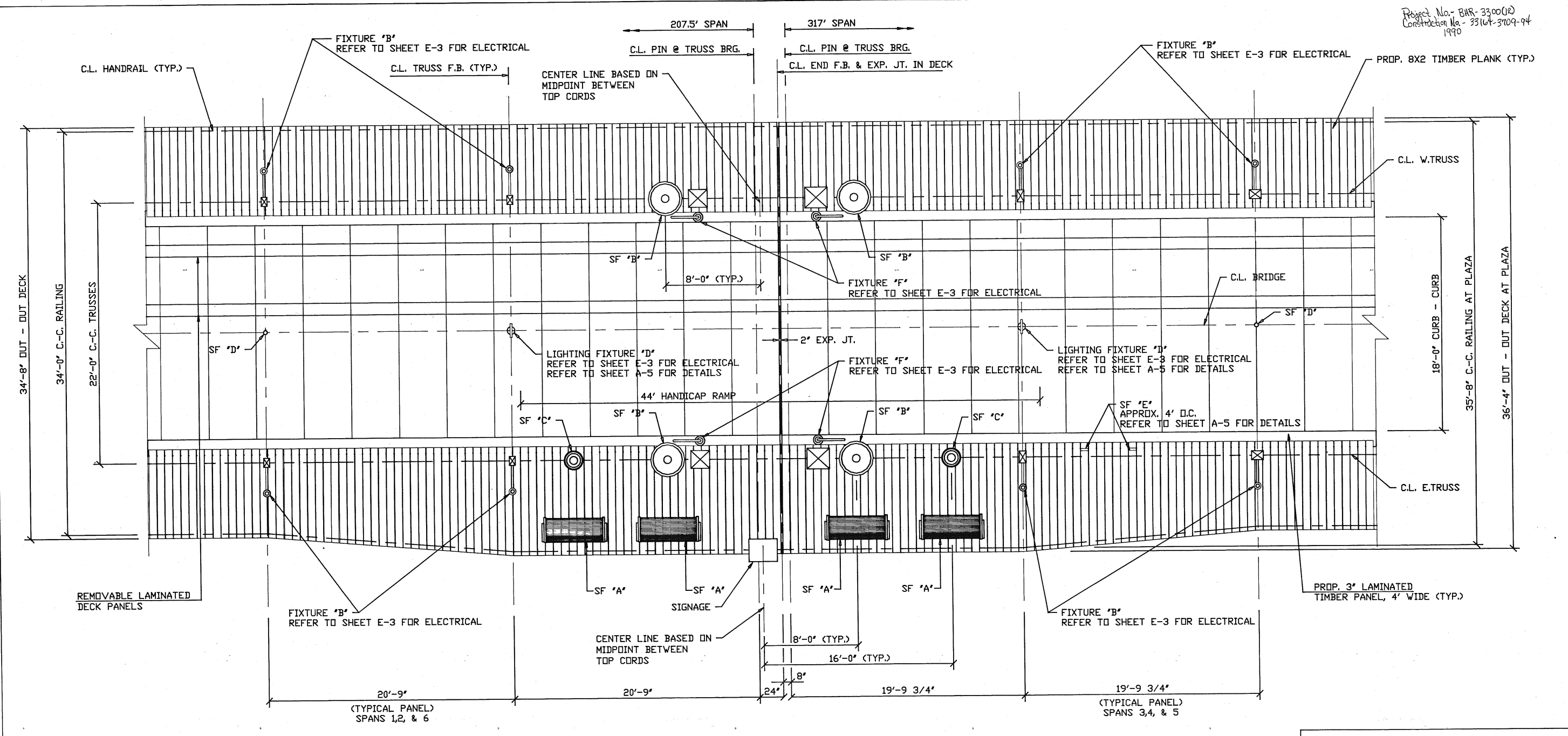
QTY	ITEM
4	SF 'A', URBAN ACCESSORIES R.E.H. BENCH
4	SF 'B', URBAN ACCESSORIES CAST ALUMINUM PLANTER
4	SF 'C', TRYSTAN TUX-1 LITTER UNIT
11	SF 'D', URBAN ACCESSORIES NON-LIGHTED BOLLARD
800	SF 'E', COMMEMORATIVE PLAQUES
SEE SECTION 02760 PROJECT MANUAL FOR DESCRIPTION	

SITE FURNISHINGS PLAN AT PIER 1
 1/4" = 1'-0"
 (SEE STRUCTURAL SHEETS FOR DECK AND STRUCTURE)

CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE
 CHATTANOOGA TENNESSEE

Site Furnishings-1
 Associated Architects
 Chattanooga Tennessee

SCALE AS SHOWN DATE AUG. 1990 DWG. NO. A-1



SITE FURNISHINGS PLAN AT PIER 2

1/4" = 1'-0"

(SEE STRUCTURAL SHEETS FOR DECK AND STRUCTURE)

NOTE:
ALL SITE FURNISHINGS SHOWN ON
THIS SHEET TO BE BID AS
ITEM 750-01.01

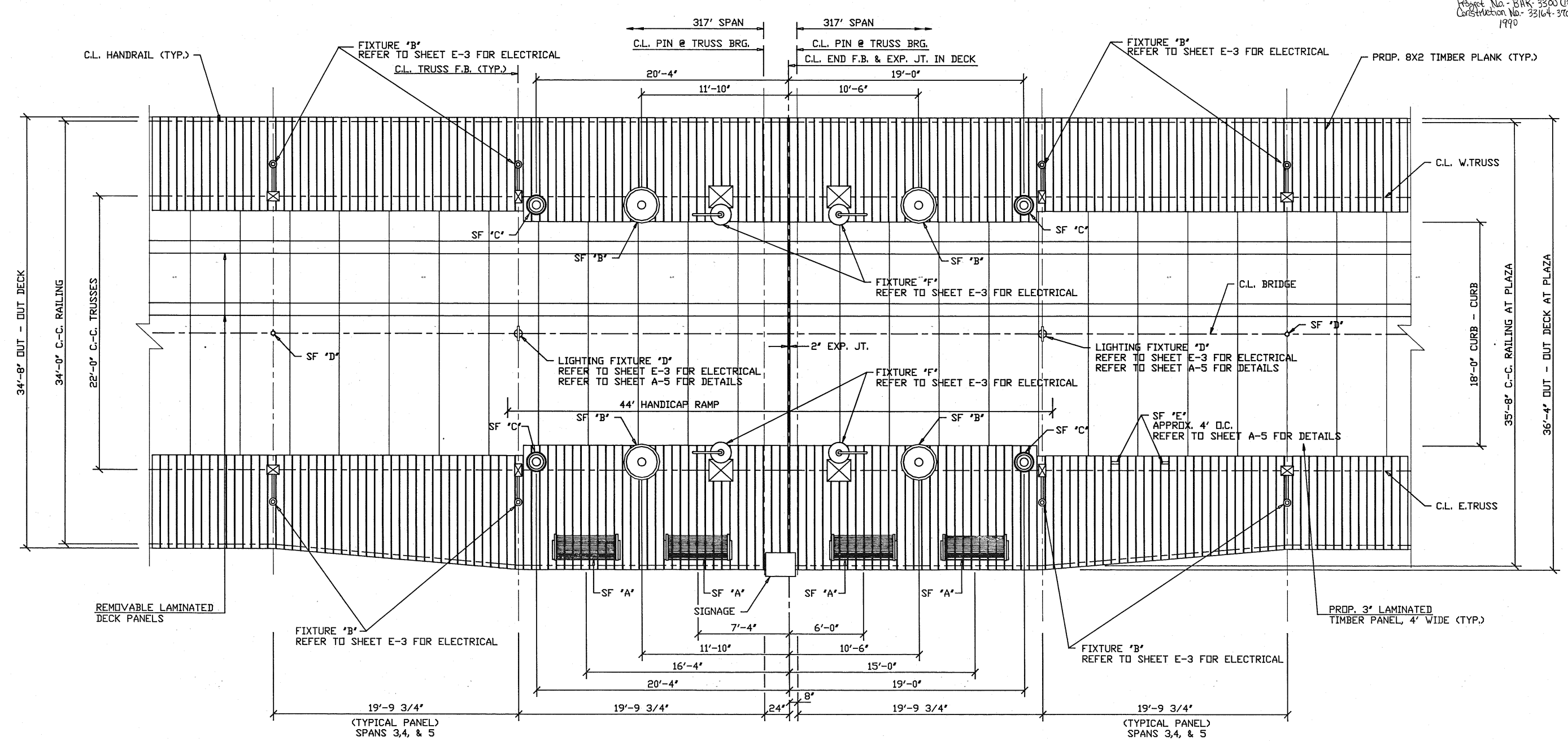
SITE FURNISHINGS SCHEDULE

QTY	ITEM
4	SF*A, URBAN ACCESSORIES R.E.H. BENCH
4	SF*B, URBAN ACCESSORIES CAST ALUMINUM PLANTER
4	SF*C, TRYSTAN TUX-1 LITTER UNIT
11	SF*D, URBAN ACCESSORIES NON-LIGHTED BOLLARD
800	SF*E, COMMEMORATIVE PLAQUES
SEE SECTION 02760 PROJECT MANUAL FOR DESCRIPTION	

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE

Site Furnishings-2
Associated Architects
Chattanooga Tennessee

SCALE AS SHOWN	DATE AUG. 1990	DWG. NO. A-2
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NOTE:
 ALL SITE FURNISHINGS SHOWN ON
 THIS SHEET TO BE BID AS
 ITEM 750-01.01.

SITE FURNISHINGS PLAN AT PIER 3 & 4

1/4" = 1'-0"

(SEE STRUCTURAL SHEETS FOR DECK AND STRUCTURE)

SITE FURNISHINGS SCHEDULE

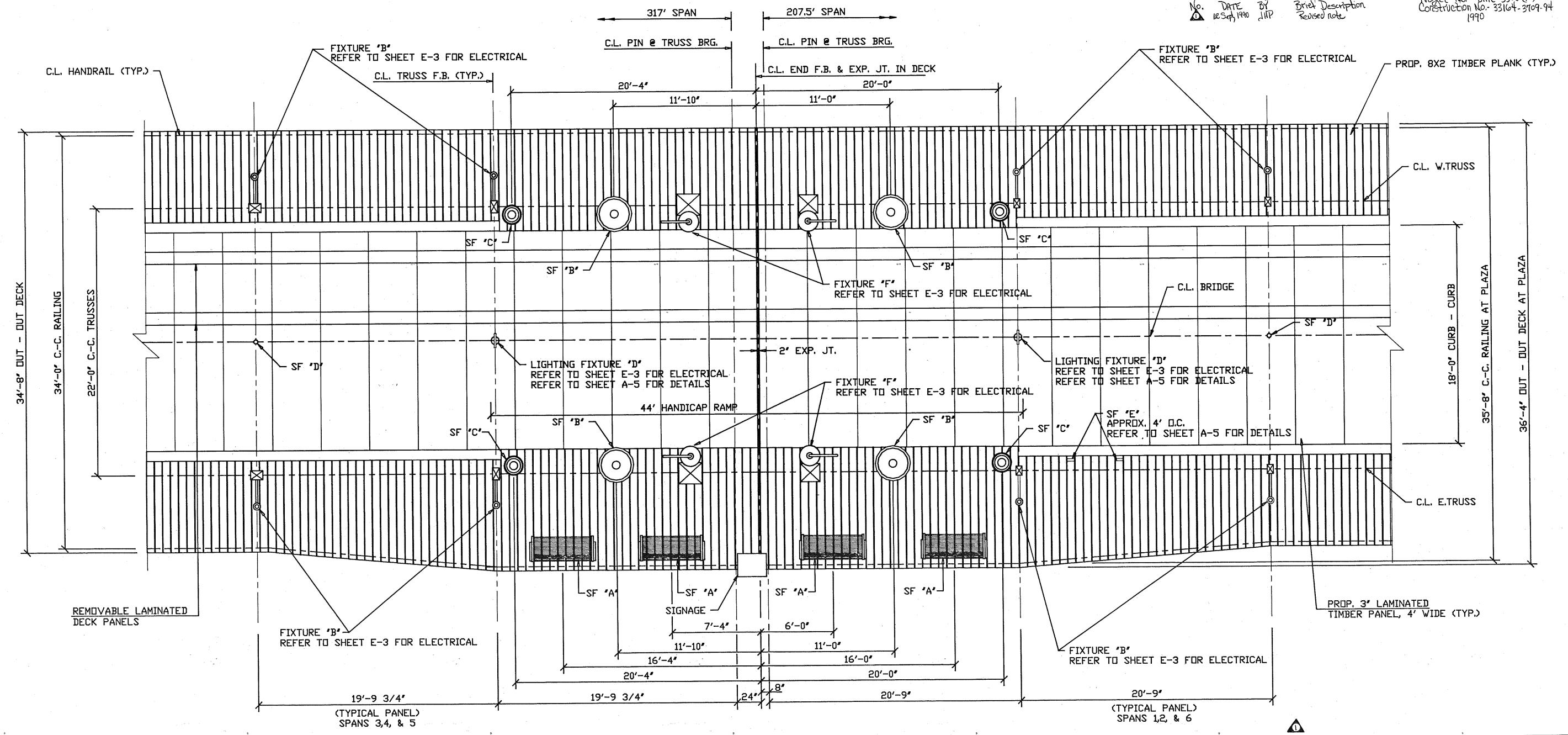
QTY	ITEM
4	SF*A*, URBAN ACCESSORIES R.E.H. BENCH
4	SF*B*, URBAN ACCESSORIES CAST ALUMINUM PLANTER
4	SF*C*, TRYSTAN TUX-1 LITTER UNIT
13	SF*D*, URBAN ACCESSORIES NON-LIGHTED BOLLARD
800	SF*E*, COMMEMORATIVE PLAQUE
SEE SECTION 02760 PROJECT MANUAL FOR DESCRIPTION	

CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE
 CHATTANOOGA TENNESSEE

Site Furnishings-3

Associated Architects
 Chattanooga Tennessee

SCALE AS SHOWN DATE AUG. 1990 DWG. NO. N-215-31 A-3



NOTE:
 ALL SITE FURNISHINGS SHOWN ON THIS SHEET
 TO BE BID AS ITEM NO. 750-01.01

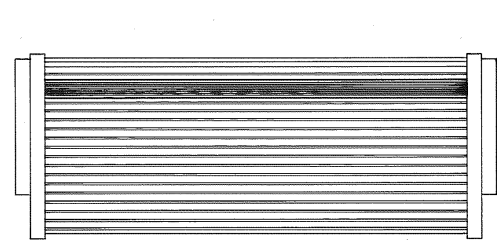
SITE FURNISHINGS SCHEDULE

QTY	ITEM
4	SF 'A'. URBAN ACCESSORIES R.E.H. BENCH
4	SF 'B'. URBAN ACCESSORIES CAST ALUMINUM PLANTER
4	SF 'C'. TRYSTAN TUX-1 LITTER UNIT
14	SF 'D'. URBAN ACCESSORIES NON-LIGHTED BOLLARD
800	SF 'E'. COMMEMORATIVE PLAQUE

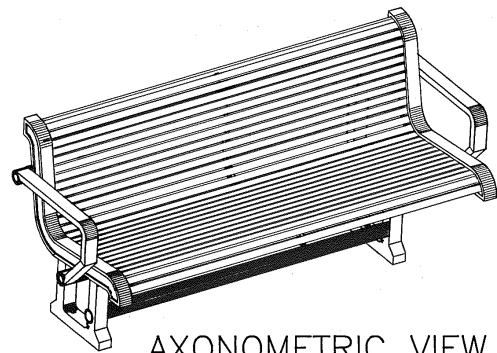
SEE SECTION 02760 PROJECT MANUAL FOR DESCRIPTION

SITE FURNISHINGS PLAN AT PIER 5
 1/4" = 1'-0"
 (SEE STRUCTURAL SHEETS FOR DECK AND STRUCTURE)

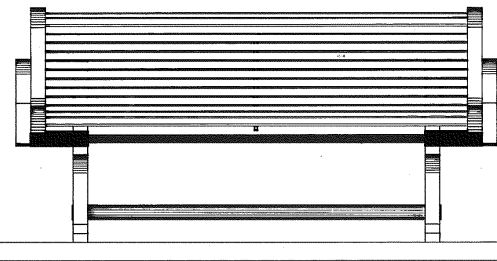
CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE
 CHATTANOOGA TENNESSEE
Site Furnishings-4
 Associated Architects
 Chattanooga Tennessee
 SCALE AS SHOWN DATE AUG. 1990 DWG. NO. A-4



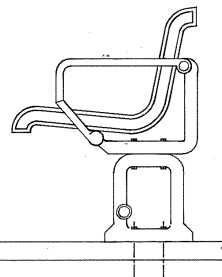
PLAN VIEW



AXONOMETRIC VIEW

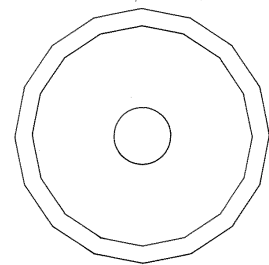


FRONT ELEVATION

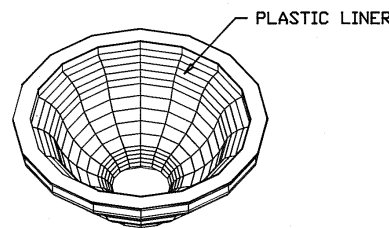


SIDE ELEVATION

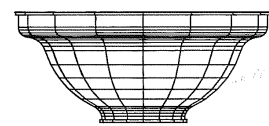
1
A5 **R.E.H. BENCH**
FIXTURE SF "A"
1" = 1'-0"



PLAN VIEW

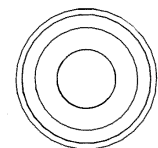


AXONOMETRIC VIEW

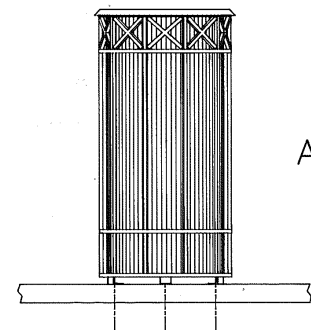


FRONT ELEVATION

2
A5 **PLANTER 34" DIA.**
FIXTURE SF "B"
1" = 1'-0"

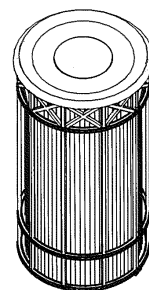


PLAN VIEW



FRONT ELEVATION

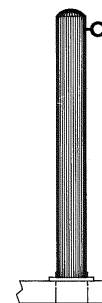
3
A5 **TUX-1 Litter Unit**
FIXTURE SF "C"
1" = 1'-0"



AXONOMETRIC VIEW

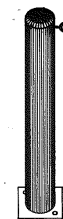


PLAN VIEW

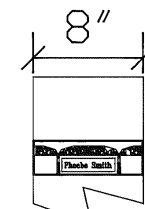


FRONT ELEVATION

4
A5 **BOLLARD (NON-LIGHTED)**
FIXTURE SF "D"
1" = 1'-0"

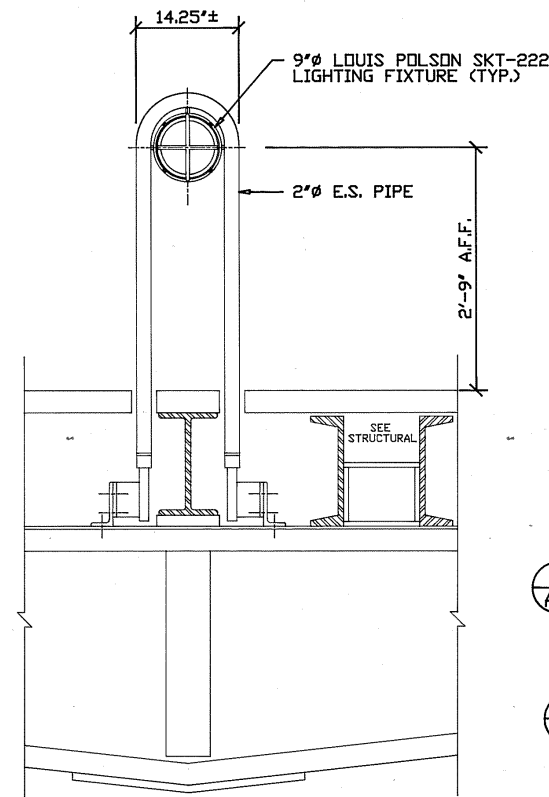


AXONOMETRIC VIEW

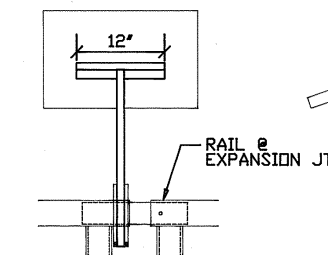


PLAN VIEW

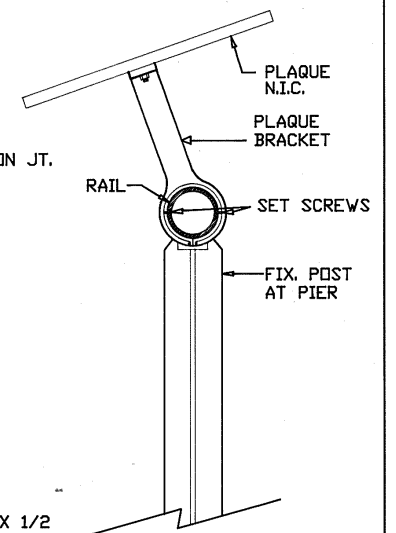
5
A5 **COMMEMORATIVE PLAQUE**
1/2" = 1'-0"



7
A5 **BOLLARD DETAIL**
1" = 1'-0"



REAR ELEVATION



SIDE ELEVATION

8
A5 **SECTION** 1" = 1'-0"
9
A5 **PLAQUE BRACKET** 1/2" = 1'-0"
SITE FURNISHING SCHEDULE

QTY	ITEM
20	SF'A', URBAN ACCESSORIES R.E.H. BENCH
20	SF'B', URBAN ACCESSORIES CAST ALUMINUM PLANTER
20	SF'C', TRYSTAN TUX-1 LITTER UNIT
62	SF'D', URBAN ACCESSORIES NON-LIGHTED BOLLARD
4000	SF'E', COMMEMORATIVE PLAQUES (SUPPLIED BY OWNER)
5	SF'F', PLAQUE BRACKET

SEE SECTION 02760 PROJECT MANUAL FOR DESCRIPTION

NOTE: 1
ALL SITE FURNISHINGS SHOWN ON THIS SHEET TO BE BID AS ITEM 750-01.01

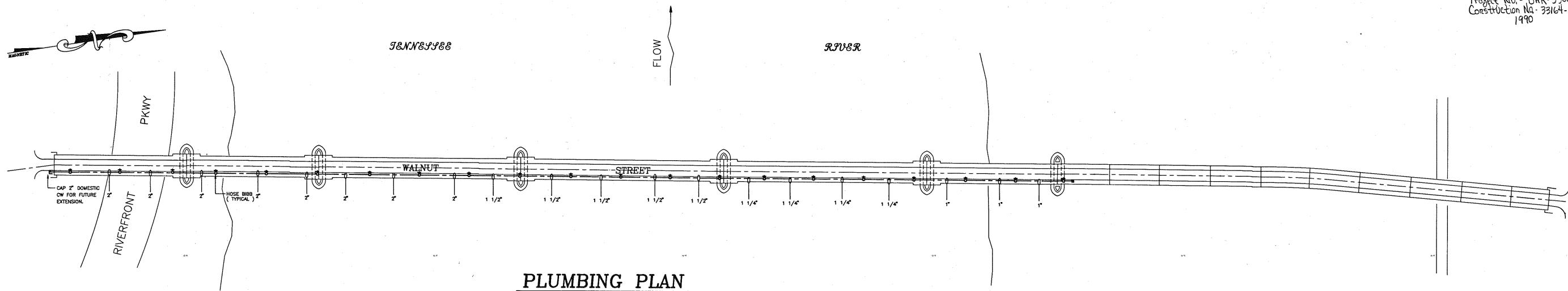
NOTE: 2
SEE SPECIFICATION SHEETS FOR DIMENSIONS AND MATERIALS

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE

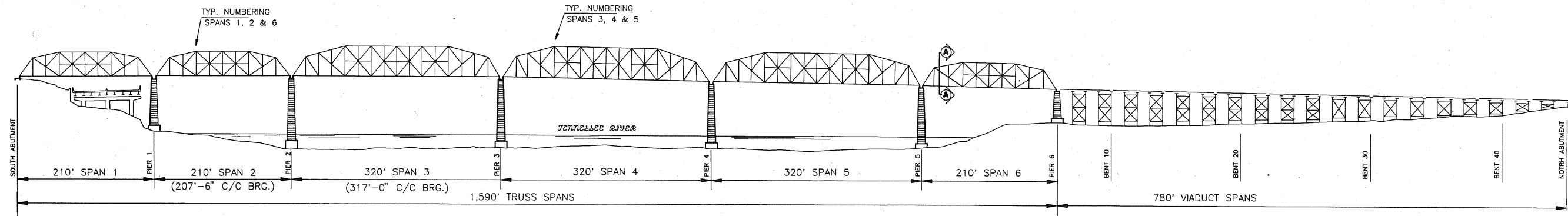
SITE FURNISHINGS
ASSOCIATED ARCHITECTS CHATTANOOGA TENNESSEE

SCALE AS SHOWN DATE AUG. 1990 DWG. NO. A-5

Project No. - BMR-3300(12)
 Construction No. - 33164-3709-94
 1990

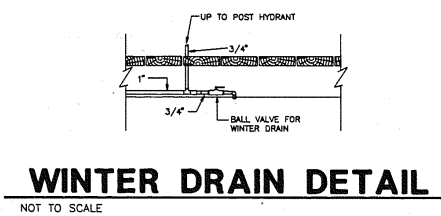


PLUMBING PLAN

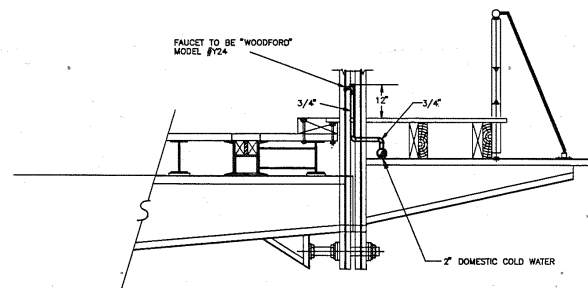


EAST ELEVATION

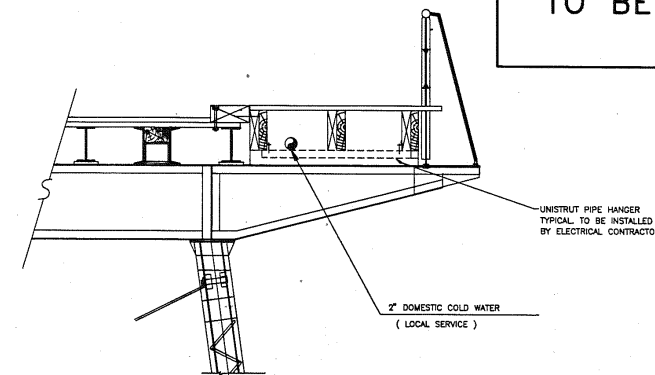
NOTE:
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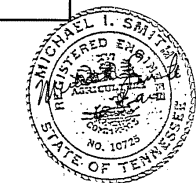
WINTER DRAIN DETAIL
 NOT TO SCALE



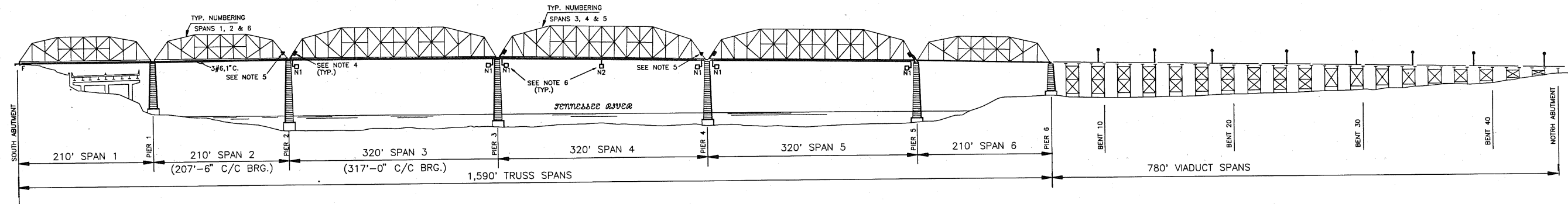
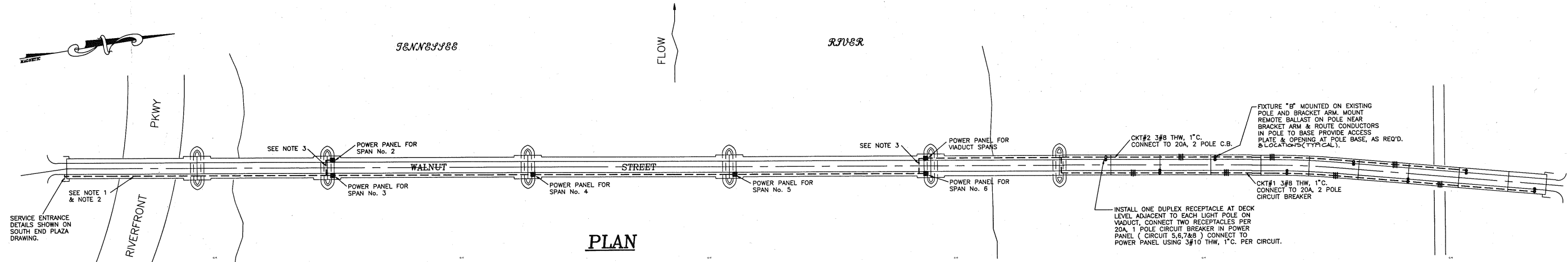
POST HYDRANT DETAIL
 NOT TO SCALE



SECTION "A"
 NOT TO SCALE

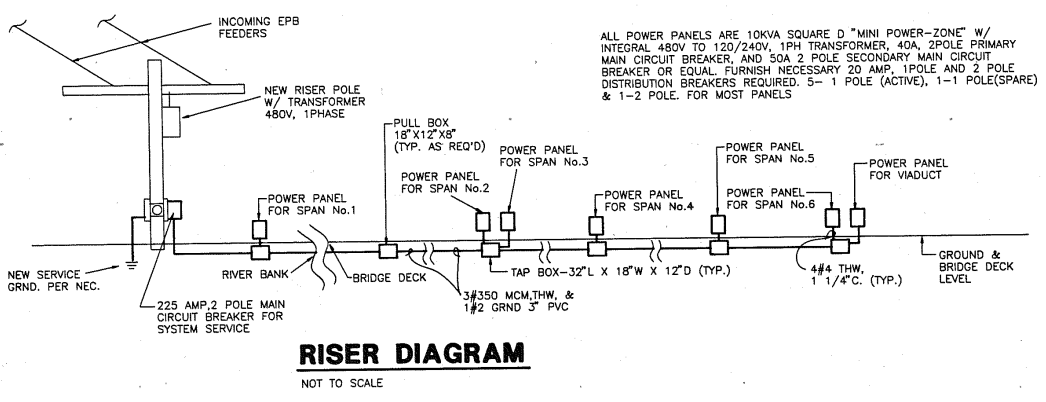
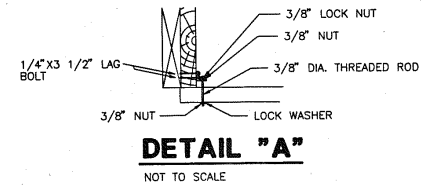
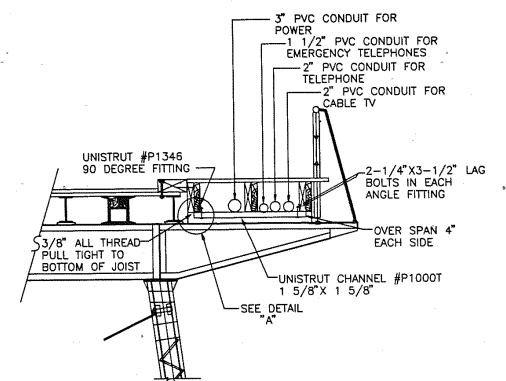
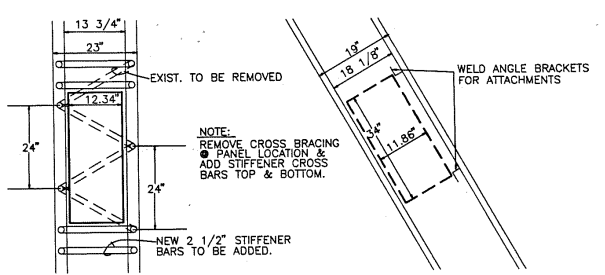


CITY OF CHATTANOOGA			
RESTORATION/REHABILITATION OF THE WALNUT STREET BRIDGE			
CHATTANOOGA			TENNESSEE
POTABLE WATER SERVICE			
CAMPBELL & ASSOCIATES, INC. CONSULTING ENGINEERS (815)281-9718 651 EAST FOURTH STREET CHATTANOOGA, TN 37403			
SCALE 1"=80'	DATE 2/5/90	DWG. NO. 11-245-24	P-1
		REV. 1 JUNE 90	



EAST ELEVATION

- NOTES:**
- POWER DISTRIBUTION ON BRIDGE SHALL BE AT 480V, 1PHASE, VIA 3#350MCM THW & 1#2 GND. IN 3" PVC CONDUIT. DISTRIBUTION CABLE WILL BE PROTECTED BY 225 AMP, 2 POLE, MAIN CIRCUIT BREAKER (TO BE SHOWN ON ANOTHER DRAWING.)
 - POWER PANEL FOR SPAN No. 1 TO BE LOCATED IN SOUTH END PLAZA, ADJACENT TO BRIDGE. PANEL SHALL BE 10KVA "MINI POWER-ZONE", SQUARE D CATALOG No. MPZ 10S40F, W/ TRANSFORMER, PRIMARY AND SECONDARY MAIN CIRCUIT BREAKERS, OR EQUAL. (TYPICAL ALL POWER PANELS). SHOWN ON ANOTHER DRAWING.
 - TAPS FOR POWER PANELS TO COMPLY W/ REQUIREMENTS OF 25 FT. TAP RULE NEC-240-21. EXCEPTION No.3 SEE RISER.
 - SEE DETAIL "B", THIS SHEET FOR MOUNTING REQUIREMENTS OF POWER PANELS. ALL ATTACHMENTS TO BRIDGE STRUCTURE TO BE WELDING, UNLESS APPROVED BY STRUCTURE ENGINEER.
 - MOUNT EMERGENCY TELEPHONE ON ROADSIDE OF TRUSS DIAGONAL ADJACENT TO LIGHT POLE (FIXTURE "E"). FURNISH 1 1/2" CONDUIT TO SOUTH END PLAZA FOR EMERGENCY PHONE CABLE (CABLING BY SCHELL) EMERGENCY TELEPHONES TO BE GRAYBAR CATALOG No. 085555ND-14-5Y W/ MOUNTING HARDWARE.
 - FIXTURES N1 (OBSTRUCTION MARKER 6 EACH) & N2 (CHANNEL MARKERS 1 EACH) ARE COAST GAIRD APPROVED NAVIGATION FIXTURES. ACCEPTABLE MANUFACTURERS ARE: TIDELAND SIGNAL CORP. AND AUTOMATIC POWER, INC. (DIVISION OF PENN WALT). POWER TO BE FURNISHED BY TWO (2) 20A, 240V, 1PH CIRCUIT BREAKERS IN POWER PANEL AT SOUTH END PLAZA.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LIGHT FIXTURE AND OTHER MATERIAL QUANTITIES REQ'D. FOR THIS PROJECT.



CITY OF CHATTANOOGA
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OF
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CHATTANOOGA, TENNESSEE

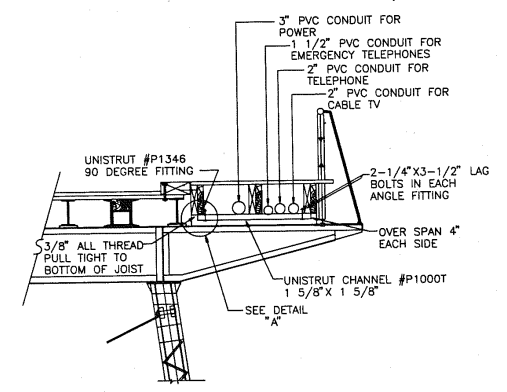
LIGHTING & POWER I

CAMPBELL & ASSOCIATES, INC.
CONSULTING ENGINEERS (615)287-9718
651 EAST FOURTH STREET CHATTANOOGA, TN 37403

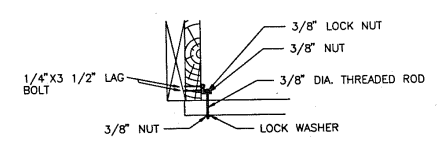
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DATE 2/5/90
DWG. NO. M-245-85
E-1



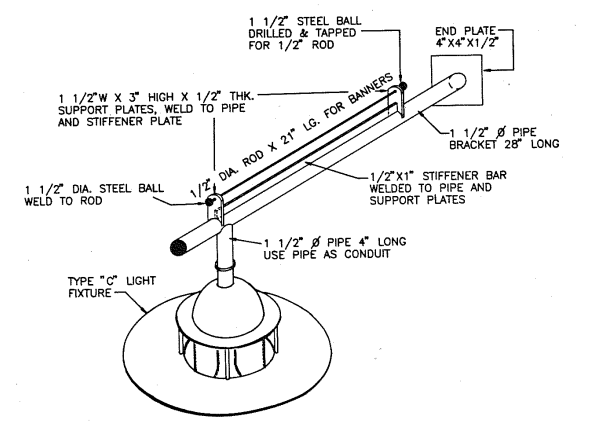
Project No. - BHR-3300(12)
Construction No. - 33164.3709-94
1990



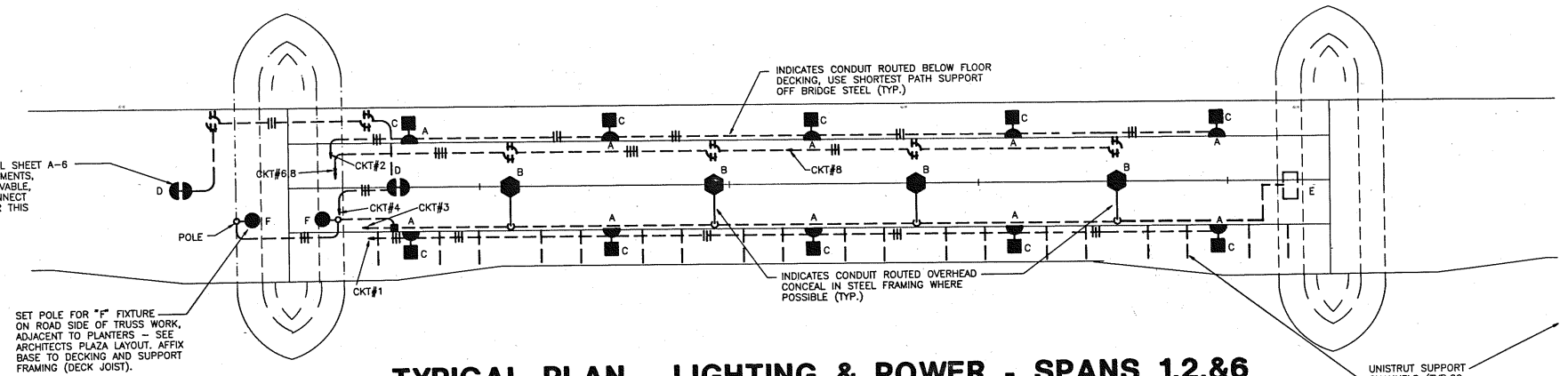
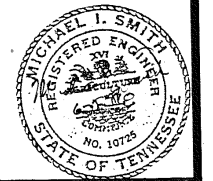
PIPE HANGER DETAIL
NOT TO SCALE



DETAIL "A"
NOT TO SCALE

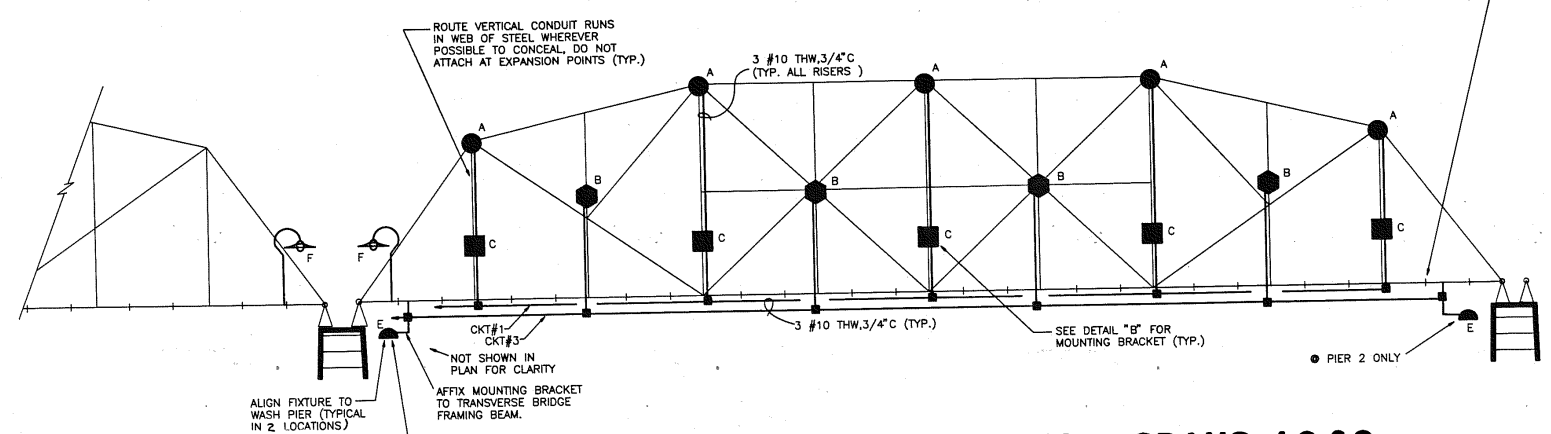


DETAIL "B"
NOT TO SCALE



TYPICAL PLAN - LIGHTING & POWER - SPANS 1,2,&6

NOTE
1. POWER PANEL 120/240V, 1PH TO BE LOCATED AS SHOWN ON SHEET E-1
2. CIRCUIT LAYOUT AS SHOWN FOR SPAN NO. 5 1 & 6 ROUTE HOME RUNS TO OPPOSITE END OF SPAN 2.



TYPICAL ELEVATION - LIGHTING - SPANS 1,2,&6

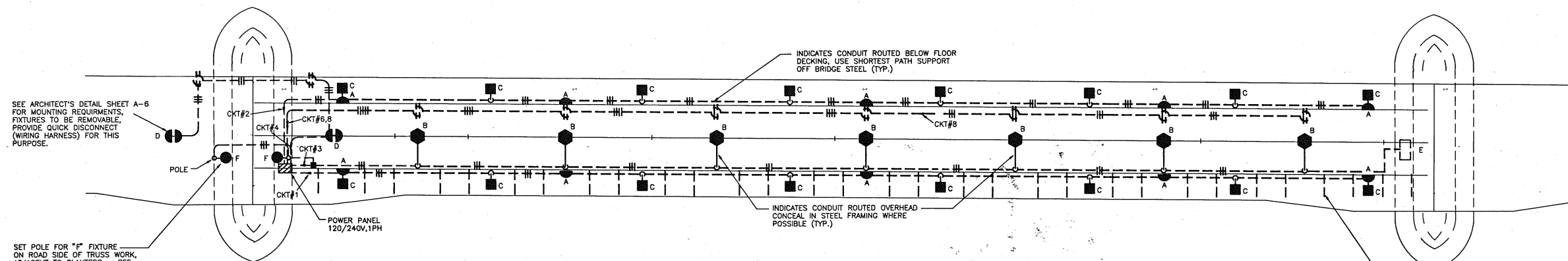
NO. REQ'D	LIGHTING SCHEDULE
50	FIXTURE "A" - TRIMBLEHOUSE SB/1400 - WM - CTBS
12	FIXTURE "B" - TRIMBLEHOUSE SP/4300 - MH/V WIREGUARD W/175W/MH LAMP PENDANT MTD., 15'-0" AFF W/REMOTE BALLAST-240V
30	FIXTURE "C" - TRIMBLEHOUSE SP/THC M-MH/V-CTBS ON SPECIAL BRACKET SEE DETAIL "B" THIS SHEET
6	FIXTURE "D" - TRIMBLEHOUSE SB/1400 - 70/MH/120-CTBS
2	FIXTURE "E" - KIM ALF9/250MH240/BL-E/A-32, W/WM2/BL-E BRACKET
6	FIXTURE "F" - TRIMBLEHOUSE SP/4300-MH/V WIREGUARD 175W/MH LAMP W/REMOTE BALLAST-240V, POLE MTD. W/FIXTURE 10'-0" AFF

CITY OF CHATTANOOGA
RESTORATION/REHABILITATION
OF
THE WALNUT STREET BRIDGE
CHATTANOOGA TENNESSEE

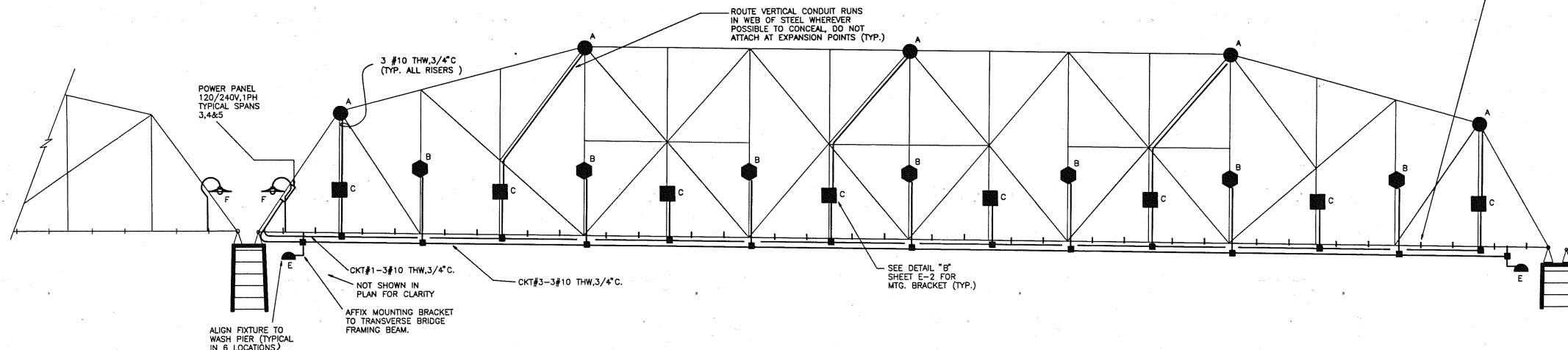
LIGHTING & POWER II

CAMPBELL & ASSOCIATES, INC.
CONSULTING ENGINEERS (615)287-9718
651 EAST FOURTH STREET CHATTANOOGA, TN 37403

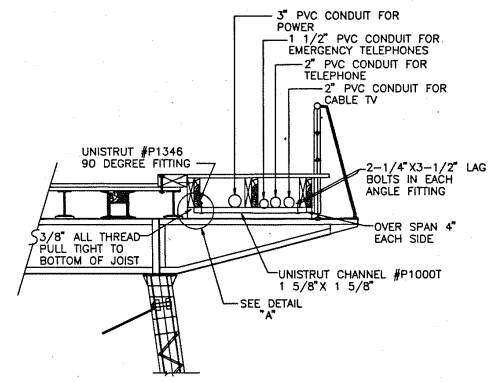
SCALE 1/16" = 1'	DATE 2/5/90	DWG. NO. M-245-26	E-2	REV. 1 JUNE 5, '90
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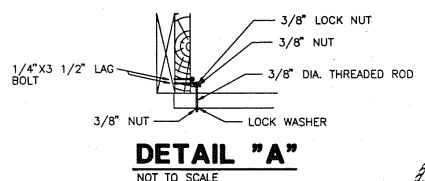
TYPICAL PLAN - LIGHTING & POWER - SPANS 3,4,&5



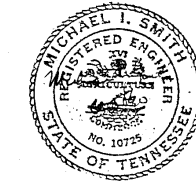
TYPICAL ELEVATION - LIGHTING - SPANS 3,4,&5



PIPE HANGER DETAIL



DETAIL "A"



NO. REQ'D.	LIGHTING SCHEDULE
30	FIXTURE "A" - TRIMBLEHOUSE SB/1400 - WM - CTBS
21	FIXTURE "B" - TRIMBLEHOUSE SP/4300 - MH/V WIREGUARD W/175W/MH LAMP PENDANT MTD, 15'-0" AFF W/REMOTE BALLAST-240V
48	FIXTURE "C" - TRIMBLEHOUSE SP/THC M-MH/V-CTBS ON SPECIAL BRACKET SEE DETAIL "B" THIS SHEET
6	FIXTURE "D" - TRIMBLEHOUSE SB/1400 - 70/MH/120-CTBS
6	FIXTURE "E" - KIM ALF9/250MH240/BL-E/A-32, W/WM2/BL-E BRACKET
6	FIXTURE "F" - TRIMBLEHOUSE SP/4300-MH/V WIREGUARD 175W/MH LAMP W/REMOTE BALLAST-240V, POLE MTD. W/FIXTURE 10'-0" AFF

CITY OF CHATTANOOGA
 RESTORATION/REHABILITATION
 OF
 THE WALNUT STREET BRIDGE
 CHATTANOOGA TENNESSEE

LIGHTING & POWER III

CAMPBELL & ASSOCIATES, INC.
 CONSULTING ENGINEERS (615)287-9718
 651 EAST FOURTH STREET CHATTANOOGA, TN 37403

SCALE 1/16" = 1'	DATE 2/5/90	DWG. NO. NY-245-37	REV. 1 E-3 JUNE 5 '90
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7-8-24 Partial listing of Questions/Answers

Question	Answer
Due to a heavy workload, we need more time to put this bid together. Please extend the bidding period by two weeks.	A schedule is added with this addendum no. 2
In regard to Bid Item 604-10.89, MISCELLANEOUS BRIDGE ITEMS, please clarify if the scope of work has to do with "Electrical Platform" work as shown on the bid form or "Dispose Existing Deck Boards" as shown on Sheets 2 and 2A (Footnote 22) of the plan set.	Bid form to be revised to show "Dispose Existing Deck Boards"
Item 604-10.89 MISCELLANEOUS BRIDGE ITEMS (ELECTRICAL PLATFORM) Where is the Electrical Platform?	Bid form to be revised to show "Dispose Existing Deck Boards"
Does the deck panels, sidewalk planks or stringers need to be surfaced S4S to match the curbs and blocks?	No
And does the treatment need to be incised?	No
Plan Sheet 23A - Please verify if any existing utility lines will need to be relocated for the construction of new electrical platform?	Please see the notes on Sheet 23A
Plan Sheets 2C and 4C - Please verify if the contractor will be responsible for procuring an Asbestos Survey of the bridge, and please direct us where we can find SP202ACM Special Provision regarding abatement requirements. Will cleaning of the existing waterline containing asbestos be required to be performed by an Accredited Abatement Firm?	SP202ACM is included in Addendum 2
Are the sizes provided net or nominal dimensions?	The dimensions shown on the plans are the actual dimensions used to draw out the bridge components, so the sizes labeled are the "actual" or "net" sizes.
Plan Sheet 13 - The width and the thickness of the curb timbers are given but the length is not provide. Please specify the length required or if the length can be determined by the contractor	The length can be determined by the contractor.
Plan Sheet 13 - The length and thickness of the Glued Laminated Timber Deck panels are given. What is the width of these timbers?	The width is provided on sheet 13 in the detail labeled TYPICAL GLUED LAMINATED DECK PANEL.
Plan Sheet 13 - The length and thickness of the timber sidewalk planks are given. What is the width of these timbers? Since this quantity is combined with the curbs timbers we cannot determine the estimated quantity of each timber to be replaced. Can the estimate quantities of the sidewalk planks and curb timbers be broken out to EACH?	The width of the sidewalk planks are given both in the TYPICAL CROSS SECTION and SECTION B-B on sheet 13. The estimated quantity can be determined using the bridge length and the given dimensions of the curbs and sidewalk planks. Estimated quantities will not be broken out to EACH. The unit of measurement will remain as is.
Request for As-Built Drawings for the Walnut Street Pedestrian Bridge.	There are no As Built plans for this bridge. Plans from 1990 repairs are added to this addendum no. 2
There is not enough information on the existing bridge to quantify the amount of steel to be blasted and repainted. We request that the bridge As Built be provided. Details for the handrails and bearings are also needed to price the painting scope.	There are no As Built plans for this bridge. Plans from 1990 repairs are added to this addendum no. 2
What is the load rating of the bridge?	There is no load rating for the bridge.
Re Sheet 2A, Comment 24. Text is not complete on this comment.	Will be revised in Addendum 2
Item 920-20.37 ADDITONAL FASTENERS - Is item 920-20.37 limited to treated timber decking replacement? - Will this LS item be paid if only 1 additional Screw is needed?	Yes