Gray, Jeff

From: Blackwell, Thomas Alan

Sent: Monday, September 25, 2006 8:30 AM

To: Gray, Jeff; Shaffer, Douglas P; Cross, James; Lewis, Kenneth E II; Bennett, Denver L; Berros, James A; Foshee, Benny J Jr; Johnson, Linden Printz; Iserman, Randall

Subject: JSF Ash Pond CO2- Pedestrian Bridge Specification-DRAFT

Attachments: DRAFT-JSF Ped bridge spec.pdf

All,

I have attached the draft specification for the pedestrian bridge. I should have some more details on the probe locations this week to be able to finish the specification.
Therefore, I would like to have everyone's comments by 9/29/06.

A couple of items to point out:

1. Standard lead time on these bridges is 12-14 weeks. Looking at the project schedule, we do not have that much time. I have requested an onsite delivery date of 12/15/06. If we were able to award the bridge contract by 10/13/06, that would give the vendor 8.5 weeks. If the 12/15 date could slide at all it will probably save some $$$, because it will cost more for expedited fabrication and delivery.
2. I requested bids based on a hot-dipped galvanized bridge and a weathering steel bridge.

Regards,

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TENNESSEE VALLEY AUTHORITY
JOHN SEVIER FOSSIL PLANT
ASH POND CO_2 SYSTEM
PEDESTRIAN BRIDGE
SPECIFICATION

1. Scope

This specification covers the requirements for the design, fabrication, and delivery of one prefabricated, pedestrian bridge of welded steel construction.

The requirements contained herein are the minimum requirements and are to be supplemented by the Contractor's own design and quality control requirements.

The Contractor shall be required to coordinate, design, develop, procure, fabricate, assemble, and deliver at the designated place the specified components. The contractor shall also furnish all information, drawings, data, lists, and/or construction quantities as indicated in this specification.

The Contractor shall furnish all items that are necessary and implied for a complete functional pedestrian bridge, whether noted herein or not.

The Contractor shall not deviate from this specification, its references, or subsequent approved documents without prior written authorization from TVA. Any conflict between this specification and its references shall be brought to the attention of TVA for resolution prior to any further action by the contractor.

2. Division of Responsibilities

TVA Responsibilities:

- Concrete bridge abutment design and construction including bridge anchor rods.
- Field erection of the pedestrian bridge.
- Unloading the bridge from delivery truck(s).
- TVA will furnish the Contractor, without charge, necessary copies of the contract and specifications with TVA figures and appendices as may reasonably be required for the work.
- Following award of the contract, TVA shall provide the Contractor with any technical data that is on file at TVA and that TVA considers essential for the completion of work required by the specification. The Contractor shall not be responsible for the accuracy of TVA-supplied analysis, drawings, and other TVA-supplied data.

Contractors Responsibilities:

- Furnish a complete pedestrian bridge.
- The Contractor is responsible for compliance with all of the detailed requirements presented in this specification. Approval of any drawings, specifications, calculations, and/or tests by TVA shall in no way relieve the Contractor from these responsibilities. There shall be no deviations from this specification, its attachments, and references without prior written approval from the Technical Engineer.
- Nothing in this specification shall relive the Contractor of the responsibility for performing, in addition to the requirements of this specification, such analyses, tests, inspections, and other activities that the Contractor considers necessary to ensure that the design, material, and workmanship are satisfactory for the service intended or as may be required by common usage or good practice.
- The Contractor shall be responsible for performing any additional calculations and analysis required for performance of work required by this specification.

3. Information to be Submitted with Bid

   All bidders are to submit with their bid all information specified in the General Conditions of the Purchase Requisition.

   All bidders are to submit preliminary bridge support reactions with their bid.

   All bidders are to submit preliminary bridge anchor rod requirements (i.e. rod spacing, size, etc.) with their bid.

   Bids not containing the requested information may not be considered.

4. General Requirements

   The structure shall conform to the clear span, clear width, and railing requirements shown on the attached sketch.

   The bridge shall have a vertical camber dimension at midspan equal to 100% of the full dead load deflection plus 1% of the full length of the bridge.

5. Design Requirements

   Structural design of the bridge shall be performed by a professional engineer licensed to work in the state of Tennessee.

The superstructure of the pedestrian bridge shall consist of two parallel Half-through trusses, or Pony trusses, with at least one diagonal per panel. The trusses shall be the main load-carrying members of the bridge.

The members of each Half-through truss, or Pony truss, (upper and lower chords, diagonals, end posts, and vertical posts) shall be fabricated from square and rectangular structural steel tubing.

Floor beams and stringers shall be fabricated from structural steel shapes and/or square and rectangular structural steel tubing.

All structural members and connections in the bridge shall be designed for a live load of 85 pounds per square foot of deck area. No live load reduction is allowed.

Wind loads shall be calculated per ASCE 7-05 with the following information:

- Basic wind speed, V = 90 miles per hour
- Topographic factor, Kzt = 1.0
- Directionality factor Kd = 0.85
- Exposure Category C
- Importance Factor, I = 1.0

Seismic design shall conform to the requirements of the Uniform Building Code 1997 edition.

Snow loading shall conform to ASCE 7-05. Ground snow load, pg = 15 pounds per square foot.

The load combinations of ASCE 7-05 shall be used for design.

Handrail assemblies shall be designed to resist a single concentrated load of 200 lbs applied in any direction at any point along the rail and to transfer this load through the structure.

Collateral loading on the bridge will be as shown in the attached sketch.

Half-through truss top chord stability shall be considered in design. The Contractor shall submit a copy of reference material used to develop top chord stability requirements used in the bridge design.

All Structural steel design, including connection design, shall be in accordance with the Steel Construction Manual, 13th edition, by American Institute of Steel Construction. Design shall utilize the Allowable Strength Design (ASD).

Minimum thickness of structural steel shall be 3/16 of an inch.

The bridge shall be designed for a minimal ambient temperature differential 70 degrees Fahrenheit. The Contractor shall provide slotted holes in the bridge base plates to allow for temperature movements.

The vertical deflection of the main trusses due to service pedestrian live load shall not exceed 1/400 of the span. The deflection of the floor system members (floor beams and stringers) due to service pedestrian live load shall not exceed 1/360 of their respective spans. The horizontal deflection of the structure due to lateral wind loads shall not exceed 1/500 of the span.

The bridge shall be supplied with a steel toe plate mounted to the inside face of both trusses. The toe plate shall be a minimum of 4 inches high. Toe plating shall be welded to the truss members at a height adequate to provide a 2 inch gap between the bottom of the plate and the top of the deck. The span of unstiffened, flat toe plating (from center to center of supports) shall not exceed 5 feet 8 inches.

6. Material requirements

All structural steel shall be new (unused) material.

The Contractor shall provide separate prices for the following two bridge material designations:

Weathering Steel

- All structural steel shapes and plates shall conform to the requirements of ASTM A 588, High-Strength Low-Alloy Structural Steel.

- All square and rectangular structural steel tubing shall conform to the requirements of ASTM A 847, Cold-Formed Welded and Seamless High Strength, Low Alloy Structural Tubing With Improved Atmospheric Corrosion Resistance.

- All structural steel field connections shall be bolted with high strength bolts. High strength bolts, including suitable nuts and plain hardened washers, shall conform to the requirements of ASTM A 325. Bolt assemblies shall be Type 3.

- To aid in providing a uniformly "weathered" appearance for weathering steel, all surfaces of steel shall be blast cleaned in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7 Brush-Off Blast Cleaning, SSPC-SP7 latest edition.

Hot Dipped Galvanized

- All structural steel shapes shall conform to the requirements of ASTM A 992.
- All plate, angles, and channel shall conform to ASTM A 572
- All square and rectangular tubing shall conform to ASTM A 500 Grade B.
- All structural steel field connections shall be bolted with high strength bolts. High strength bolt assemblies shall conform to the requirements of ASTM A 325 Type 1 with hot dipped galvanized bolts, ASTM A563 Grade DH heavy hex nuts, and ASTM F436 washers. Bolt assemblies shall be hot dipped galvanized in accordance with ASTM A153.
- The bridge shall be configured in sections to allow hot-dipped galvanizing after fabrication. Bridge sections shall be hot-dipped galvanized in accordance with ASTM A 123, Grade 75 coating. All holes and welding shall be completed prior to hot-dipped galvanizing. Tubular shapes shall be drilled as required for venting purposes in places not visible to the casual observer.

1/2 inch diameter weep holes shall be drilled (flame cut holes will not be allowed) at all low points of all steel tubing members as oriented in the in-place, completed structure. In members that are level, or flat, a total of two weep holes shall be drilled, one at each end. Weep holes and their locations shall be shown on the Shop Drawings.

Bridge decking shall be galvanized steel grating meeting the following requirements:

- Grating shall have, at minimum, rectangular load bars 1 1/2 inches x 1/4 inch on 1 3/16 inch centers with a maximum cross bar spacing of 4".
- Grating shall be hot dip galvanized after fabrication in accordance with ASTM A123.

7. Fabrication

Bridge(s) shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category "Simple Steel Bridge Structures" as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

Welding and weld procedure qualification tests shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code". Filler metal shall be in accordance with the applicable AWS Filler Metal Specification (i.e. AWS A 5.28 for the GMAW Process). For exposed, bare, unpainted applications of corrosion resistant steels (i.e. ASTM A588 and A847), the filler metal shall be in accordance with AWS D1.1, Section 3.7.3. Welders shall be properly accredited operators, each of

whom shall submit certification of satisfactorily passing AWS standard qualification tests for all positions with unlimited thickness of base metal, have a minimum of 6 months experience in welding tubular structures and have demonstrated the ability to make uniform sound welds of the type required.

Exposed ends of angles and all ends of tubes shall be closed and ground smooth.

A copy of all Procedure Qualification Records, Welder Qualification Test Records, Quality Control Plan and all visual and nondestructive test reports shall be submitted at the request of TVA.

The bridge shall be assembled in the shop so as to minimize the amount of field connections required during erection.

8. Documentation

Design calculations and drawings shall contain the signature & endorsement seal of the Professional Engineer registered in the State of Tennessee responsible for the design.

Drawings:

- Within 14 days from award of contract, the Contractor shall furnish assembly and detail drawings, instructions, and cuts of the work in such manner and detail as necessary for installation and for demonstrating that it complies with the requirements of the specifications.
- Such drawings shall include but shall not be limited to necessary plans, sections, elevations, and details of assemblies.
- All drawings shall show the material and dimensions as necessary to demonstrate compliance with the requirements of the specifications.
- Two sets of prints with one reproducible of each drawing shall be submitted to the Engineer for approval and in such sequence that he will have all information necessary for checking.
- The Engineer will, within 7 calendar days after receipt of prints of drawings for approval, forward one copy to the Contractor marked "Approved," "Approved with Correction as noted," or "Returned for Correction."
- Within 7 days after receipt of returned drawings, the Contractor shall make necessary corrections and revisions on drawings marked "approved with Corrections as Noted" and on drawings marked "Returned for Correction," and he shall submit prints for approval in the same routine as before. Time involved in drawing approval will be considered as having been included in the delivery time.
- Approval by the Engineer shall not be held to relieve the Contractor of the responsibility for the correctness of the drawings furnished by the

Contractor nor for their compliance with the specification unless so stated at the time of approval.

- If at any time before the completion of the work changes are made necessitating the revision of approved drawings, the Contractor shall make such revisions and proceed in the same routine as for the original approval.
- As each drawing is approved, the Contractor shall furnish two additional prints of the approved drawings.

Calculations:

- In addition to drawing submittals, the Contractor shall submit checked calculations (2 copies total) for the bridge(s).
- Calculations shall be submitted within 14 days from the award of contract.

9. Delivery

The bridge shall be delivered by truck to a location nearest the erection site. Hauling permits and freight charges are the responsibility of the Contractor.

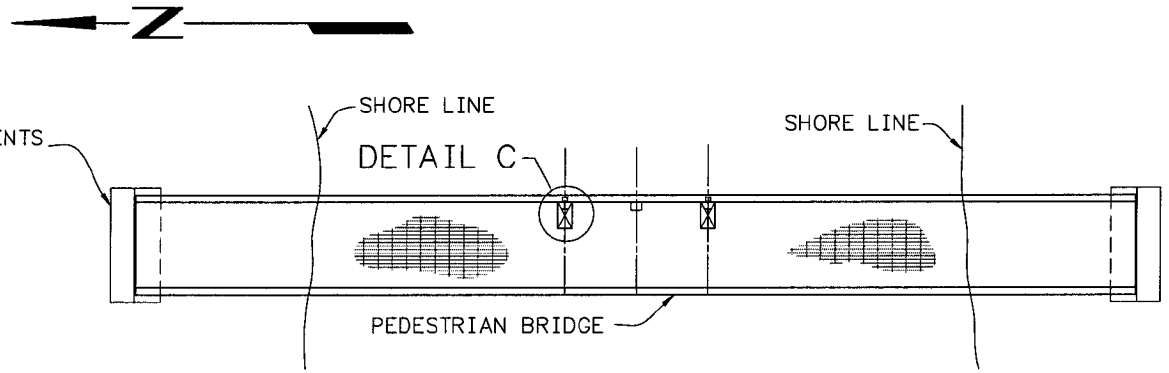
The Contractor shall notify TVA in advance of the expected arrival time. The Contractor shall notify TVA regarding delays after the truck(s) depart the Contractor's fabrication facility.

The contractor shall submit to TVA actual lifting weights, attachment points, center of gravity, and all other necessary information required to unload and erect the bridge.

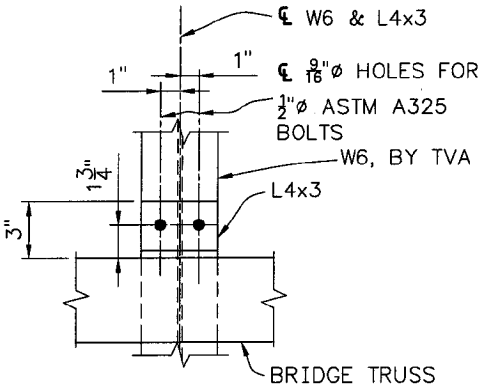
10. Schedule

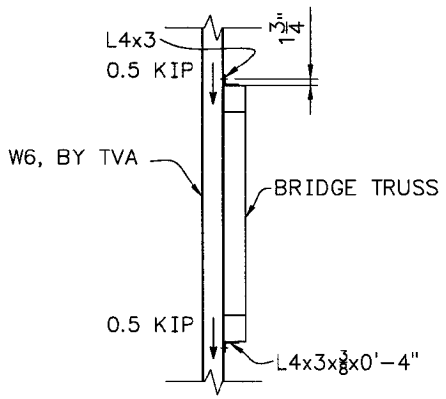
The bridge shall be delivered to the site no later than December 11, 2006.

DRAWING CHANGE AUTHORIZATION

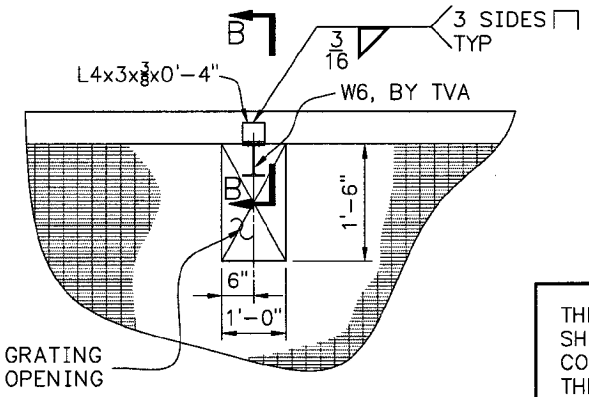


PLAN





B–B

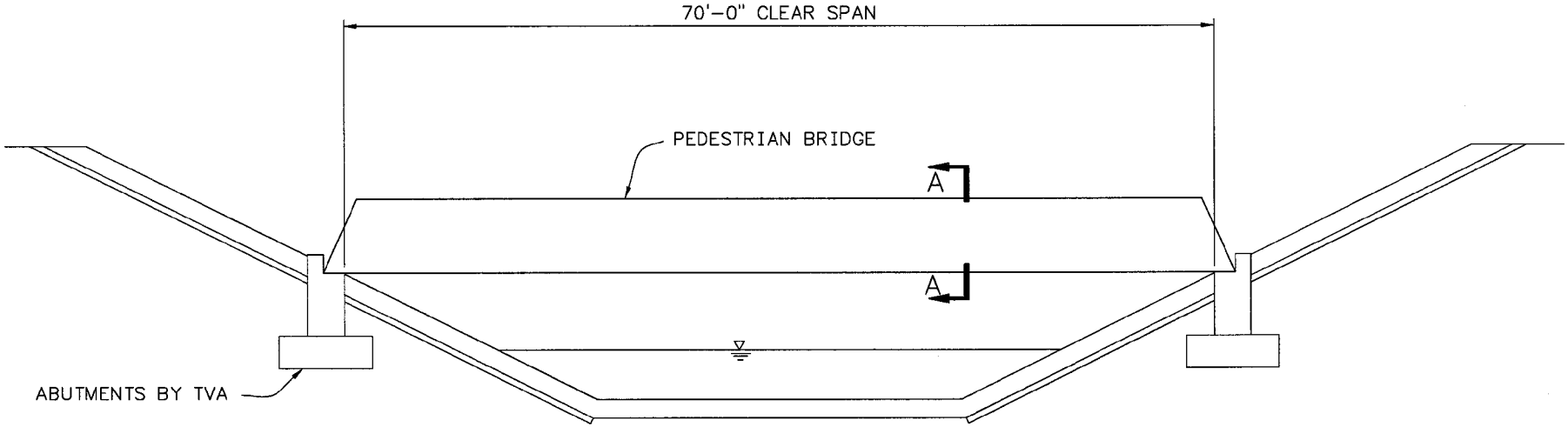


DETAIL C

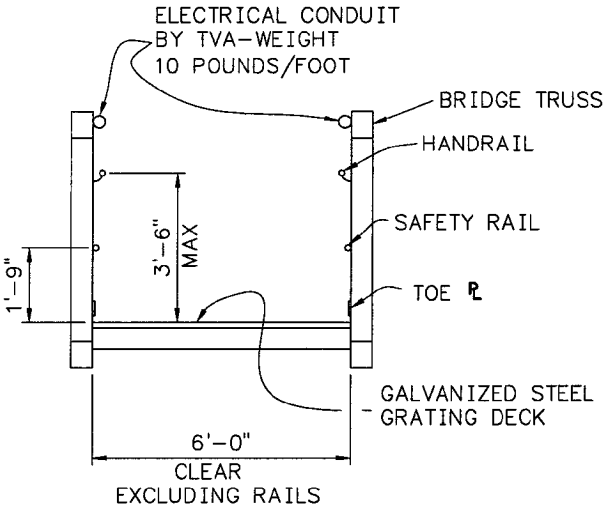
THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATION

SCALE: NONE			EXCEPT AS NOTED
YARD CO2 SYSTEM			
PEDESTRIAN BRIDGE PROCUREMENT			
		C	LATER
0	T.A. BLACKWELL		
Rev.	Prepared/Date	Checked/Date	Change Reference
Contract No.:			Affected Base Drawing No. / Rev.:
DCA Prerequisites:			
Ant. Dsg. No.:		CAT.:	DCA No.:
Discipline: CIVIL		UNIT	JOHN SEVIER FOSSIL PLANT

DRAWING CHANGE AUTHORIZATION



ELEVATION



A-A

THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATION

SCALE: NONE			EXCEPT AS NOTED
YARD CO2 SYSTEM			
PEDESTRIAN BRIDGE PROCUREMENT			
		C	LATER
0	T.A. BLACKWELL		
Rev.	Prepared/Date	Checked/Date	Change Reference
Contract No.:			Affected Base Drawing No. / Rev.:
DCA Prerequisites:			
Ant. Dwg. No.:		CAT.:	DCA No.:
Discipline	CIVIL	UNIT	JOHN SEVIER FOSSIL PLANT