Tennessee Valley Authority
Regulatory Submittal for Kingston Fossil Plant

Documents submitted:
Rim Ditch Structural Improvements Work Plan

Date submitted
7/ 17/ 2009

Submitted to whom
Leo Francendese, EPA

Concurrence

Received	Not Applicable	TVA
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☐	☒	Dennis Yankee
☐	☒	David Stephenson
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☐	☒	Donna Cueroni
☐	☒	Paul Clay
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Approvals

TVA Michael T. Scott Date 7/17/09

EPA Leo Francendese Date 7/18/09

Consulted w/ TDEC B. Scott 7/20/09

cc:

- ☒ Anda Ray, TVA
- ☒ Barbara Scott, TDEC
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- ☒ Kathryn Copeland, TVA
- ☒ Cynthia Anderson, TVA
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- ☒ EDM
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- ☐ Gretchen Wahl, Jacobs
- ☒ Dannena Bowman, EPA
- ☒ Jeff Gary, Jacobs

Rim Ditch Structural Improvements Work Plan

1.0 Purpose of Work

The Rim Ditch serves as a primary receptor and treatment structure for ash slurry dredged from the Emory River and Swan Pond Embayment. It discharges into the Sluice Trench, the receptor of the ash slurry from the Kingston Fossil plant. The combined flow of the Sluice Trench and Rim Ditch discharges into the Ash Settling Pond, followed by the Stilling Pond and then into the waters of the Emory River. The major portion of the ash in the dredge slurry from the Emory River settles in the Rim Ditch and is then removed with crawler excavators and placed on the "ball field", Ash Processing Area to be processed.

Over the last several months, the scouring action of the slurry and excavation activities have severely eroded the west bank of the Rim Ditch. This rapid erosion will continue as the project progresses, unless structural improvements are made. There are both safety and production concerns regarding ongoing erosion of the Rim Ditch. In addition, the modified, aggressive dredging plan includes larger and heavier excavators to remove ash from the Rim Ditch. The current path along the northwest side of the Rim Ditch is not structurally capable of supporting the weight of the superimposed load. The purpose of the work is to construct a working platform to support the equipment for removing the ash from the Rim Ditch at the rate required for the upcoming, aggressive dredging schedule.

It is expected that although these improvements will require an approximate one week suspension of hydraulic dredging, it would result in an overall system capable of receiving and processing higher flow rates than the current system. It would greatly reduce the maintenance that will be required as the Rim Ditch continues to erode (if the improvements are not made). Ultimately, higher average production over the next year is expected when these improvements are made.

2.0 Design Components

The material along the northwest side of the Rim Ditch is primarily ash with an aggregate layer approximately two feet thick below the ash. The ash below this layer continues for approximately 40 feet to native soil and then bed rock. The proposed platform will be along the entire 1,800 feet of the Rim Ditch and consists of four components (Sheets D1 and D2), with adjacent sheet pile reinforcement: The four components in the platform itself are geogrid, geotextile material, select structural fill, and wooden crane mats. A geogrid material, tensar biaxial, will be place over existing aggregate and/or ash to strengthen the subgrade and reduce downward movement of select material. Structural fill, 16" thick, wrapped in geotextile material is placed on the geogrid in two 8 inch compacted lifts. The geotextile provides strength and helps bond the structural fill into a structural member. The top layer of structural fill, 8" thick provides additional support. Wooden crane mats are placed on top of the fill where they distribute the load and prevent rutting.

The first 800 feet of the Rim Ditch (Sheet D1) will have 40' long AZ19-700 sheet piles installed to buttress the working platform. These sheet piles will be installed using the push hammer method recommended by Geosyntec during design discussions. This installation method reduces vibration and potential impact on surrounding areas. The last 1,000 feet of the Rim Ditch (Sheet D2) will have 25' long AZ19-700 sheet piles, also installed by the push hammer method.

A stability analysis of the Rim Ditch west wall for the area between the Rim Ditch and intake channel has been performed to ensure that no stability issues were noted. Both Geosyntec and GGE (Sevenson's consultant) agreed during the teleconference on the afternoon of July 17, 2009 that the design described above is appropriate, including from a "global" geotechnical sense which considers areas surrounding the Rim Ditch as well as the Rim Ditch edge itself. The Bureau of Reclamation stated during this phone call that they would like to see the design calculations but expect no issues considering that both GGE and Geosyntec are in agreement.

3.0 Construction Management

The platform construction will be accomplished by conventional methods utilizing trucks, and other construction haul vehicles, dozers, track hoes, and craftsmen. Sheet piles will be driven by push hammer. Delivery of material, and subsequent transporting and placement will require close coordination with other site activities. Structural fill, approximately 7,200 tons, will likely be brought in by articulated trucks for most of the operation.

4.0 Schedule

Platform preparation could begin as early as Monday, July 20 pending TVA and EPA approval as well as the availability of materials and equipment. Sheet pile installation could begin as early as July 22. Beginning the work on these dates would allow the improvements to be far enough along such that once the 20" dredge is ready to begin work (expected on 8/3/09), the Rim Ditch platform would be prepared to support the large (PC-800) excavators that would work on the first 800' of the Ditch. It is expected that the complete installation of the improvements would not be completed until mid-August. This schedule will be expedited to allow full scale dredging at the earliest possible time.

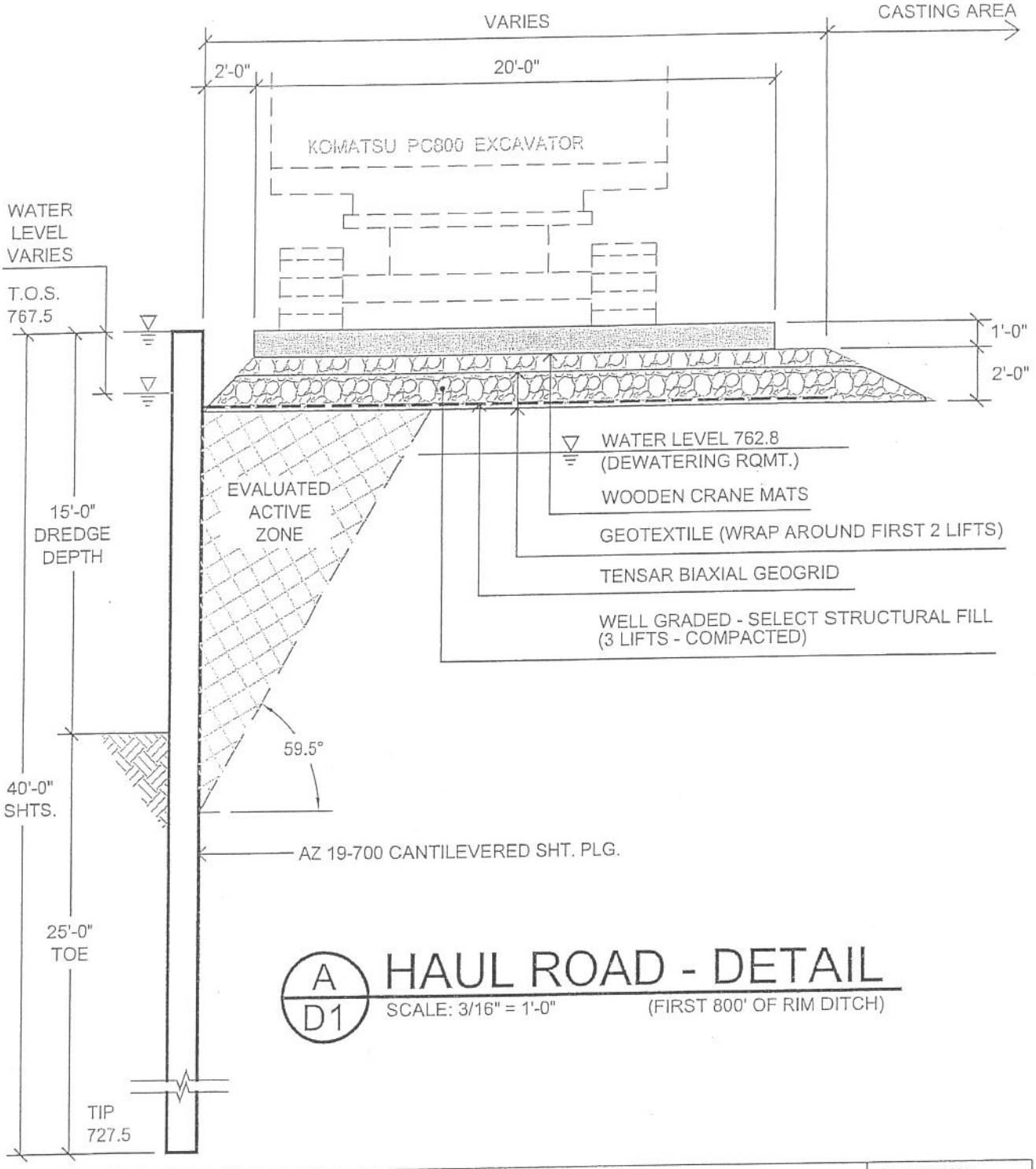
Hydraulic dredging activities would need to be suspended for the week starting 7/20/09 to allow these improvements to be made. During that week platform construction would be completed and sheet piling would be completed over most or all of the first 800' for the Rim Ditch. It is expected that hydraulic dredging operations would resume on 7/27/09.

5.0 Waste Management

No waste other than miscellaneous construction debris will be created.

6.0 Health and Safety

All construction activities will be done in accordance with site wide Health and Safety Plan. Work in close proximity of the Rim Ditch will be specifically addressed in the Job Safety Plan.



A / D1 HAUL ROAD - DETAIL

SCALE: 3/16" = 1'-0" (FIRST 800' OF RIM DITCH)

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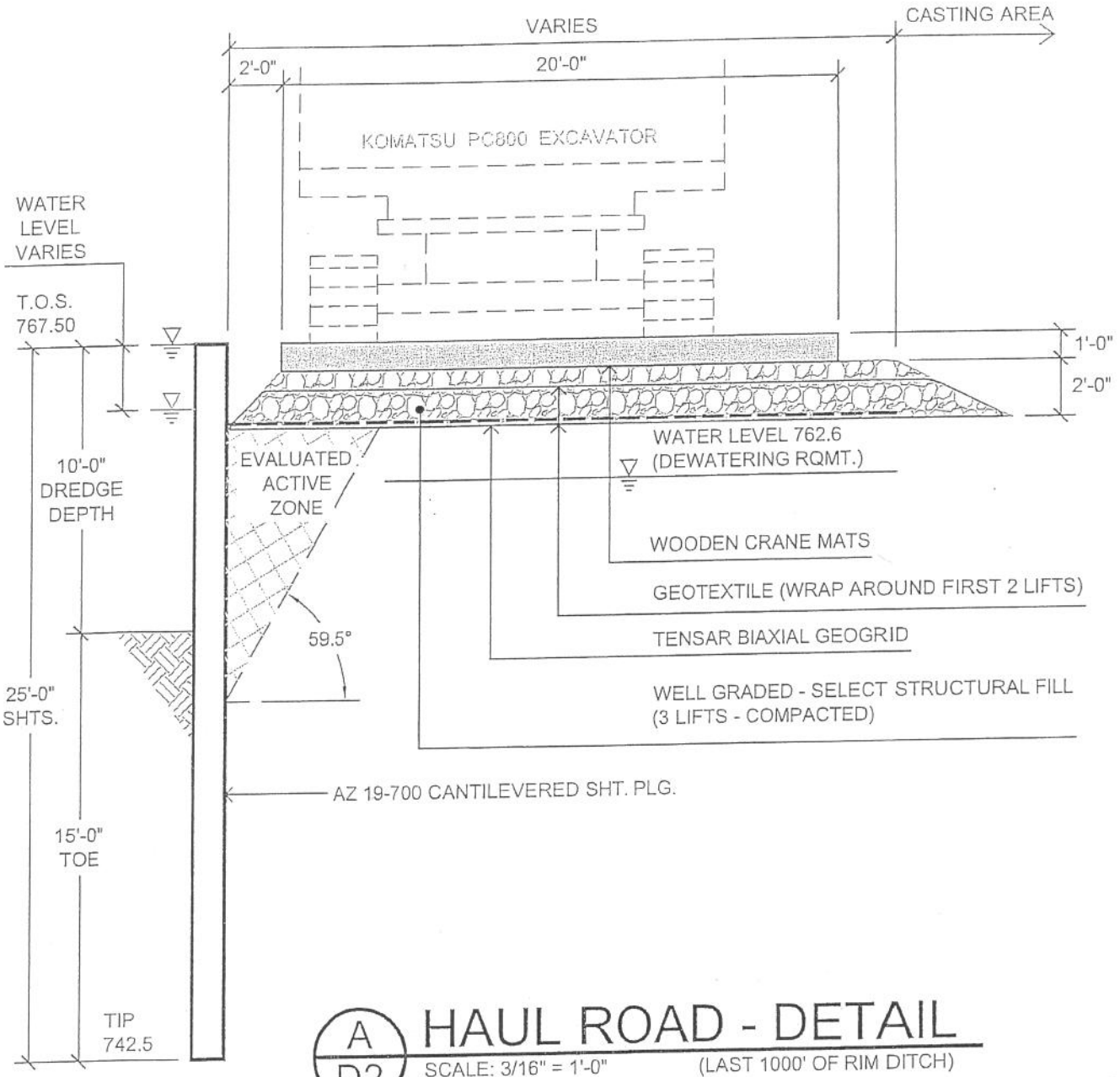
PROJECT: KINGSTON FOSSIL PLANT				SHEET NO.: D1
SUBJECT: HAUL ROAD DETAIL (FIRST 800 LF)				
CLIENT: SEVENSON ENVIRONMENTAL SERVICES, INC.				
PROJ. NO.: 09-1103	SCALE: 3/16" = 1'-0"	DATE: 7.17.09	BY: MJL	



A / D2 HAUL ROAD - DETAIL

SCALE: 3/16" = 1'-0" (LAST 1000' OF RIM DITCH)

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PROJECT: KINGSTON FOSSIL PLANT				SHEET NO.:
SUBJECT: HAUL ROAD DETAIL (LAST 1000 LF)				D2
CLIENT: SEVENSON ENVIRONMENTAL SERVICES, INC.				
PROJ. NO.: 09-1103	SCALE: 3/16" = 1'-0"	DATE: 7.17.09	BY: MJL	