Tennessee Valley Authority
Regulatory Submittal for Kingston Fossil Plant

Documents submitted:
Sluice Trench Outlet Piping
RDP-0114-H

Date Submitted:
June 6, 2012

Submitted to whom
Craig Zeller, EPA

Concurrence

Received	Not Applicable	TVA
☒	☐	Kathryn Nash
☒	☐	Jamie Dotson - via e-mail
☒	☐	Michelle Cagley MC

Received	Not Applicable	Jacobs
☒	☐	Jack Howard
☒	☐	Bruce Haas
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Approvals

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EPA Craig Zeller Date 6/20/12

cc:

- ☒ Anda Ray, TVA
- ☒ Barbara Scott, TDEC
- ☒ Brenda Brickhouse, TVA
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- ☒ Kathryn Nash, TVA
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- ☒ Diane Odom, Jacobs
- ☒ Jack Howard, Jacobs
- ☒ Michelle Cagley, TVA
- ☒ Greg Signer, TVA
- ☒ KIF Incident Document Control
- ☒ Michael Clemmons, TVA
- ☒ Amanda Miolen, EPA
- ☒ Robert Pullen, Jacobs
- ☒ Document Control, Jacobs (Terry Crabtree-Hagemann)

Construction Quality Control (CQC) Plan

Sluice Trench Outlet Piping

Kingston Fossil Plant
Roane County, Tennessee

ISSUED FOR REVIEW

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Tennessee Valley Authority
Chattanooga, Tennessee

May 31, 2012

Construction Quality Control (CQC) Plan
Sluice Trench Outlet Piping
Kingston Fossil Plant
Roane County, Tennessee

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Construction Quality Control (CQC) Plan
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1. Purpose and Scope

This document is a site specific Construction Quality Control (CQC) plan that addresses construction of the Sluice Trench Outlet Piping to convey flow from the sluice trench to the Ash Pond Outlet Structures.

The CQC plan defines acceptable construction materials and methods along with responsibilities and authority of the Owner, CONTRACTOR and designated QC personnel. This plan should be considered to represent minimum QC requirements and shall serve as an outline for use in developing site specific QC protocols based on conditions encountered during construction and operation of the facility. It is noted that a detailed construction package, also referred to as RDP-0114-H, consisting of construction drawings (10W434-01 – 10W434-07), notes and Technical Specifications, is an integral part of this project. The construction drawings and specifications are the official documents controlling the project requirements. Where there is a conflict between this QC Plan and the construction documents, the construction documents take precedence.

2. Limitations

The QC plan does not include any facility element outside the limits of construction designated on the Plans for Construction.

3. Responsibility and Authority

3.1. Engineer

A qualified professional engineer licensed in the State of Tennessee shall be designated as the Engineer of Record (Engineer). The Engineer shall be responsible preparing the construction documents, approving required “Engineer Approved” submittals, and responding to requests for information (RFI’s) during construction. The Engineer for this project is Stantec Consulting Services Inc. (Stantec). The Engineer of Record is Mr. Matthew A. Hoy, P.E (636-343-3880).

3.2. Quality Control Manager and Team

A qualified professional engineer licensed in the State of Tennessee shall be designated as the Quality Control Manager (QC Manager). The QC Manager shall be responsible for management of construction monitoring, testing and related documentation as outlined herein. The QC Manager shall determine appropriate test standards and methods for field observations and/or laboratory testing designated in the project requirements and is responsible for review of all QC data to assess conformance with project requirements. The QC Manager shall also perform random observations of personnel and activities (to include final constructed elements) working and/or performed under his direct supervision as needed

in order to complete the required certification during the course of the project. The Quality Control Team (QC Team) shall consist of qualified personnel working under the direct supervision of the QC Manager. The QC Team shall be familiar with facility operations as it affects the project, proper material placement protocols and the functional intent of the respective design components. The QC Team is also Stantec Consulting Services Inc. with Jim Andrew as the QC Manager. Personnel assignments are subject to change provided qualification requirements are met.

3.3. Owner and Operator

The plant and its ancillary functions are owned and operated by Tennessee Valley Authority (Owner). The Owner shall be responsible for the overall management of project activities to include but not limited to contracting, administration, and retaining the services of qualified consultants as required during the project. In addition, the Owner shall approve any design and/or QC revisions and administer related permit modifications.

The Owner shall also designate one representative to serve as the Construction Manager to be responsible for construction activities to include but not be limited to the character and sequence of work, coordination, scheduling, and management of cost, time and contract administration as related to the execution of the project. The Owner shall be responsible for providing qualified professionals to establish and enforce safety protocols related to the project.

3.4. CONTRACTOR

The CONTRACTOR for this project is TVA Civil Projects. The CONTRACTOR shall designate a site superintendent responsible for construction activities and maintaining communication with the QC Manager and Construction Manager. The CONTRACTOR shall be responsible for all construction activities associated with this project including meeting all of the requirements for project quality as defined in the construction drawings and specifications.

4. Project Setting

This project will take place at the Kingston Fossil Plant (KIF) Ash Pond.

4.1. Project Description

The purpose of this project is to construct the Sluice Trench Outlet Piping to allow for conveyance of flow from the sluice trench to the Ash Pond Outlet Structures. The outlet piping system will consist of three 48-inch HDPE pipes. Dewatering will be performed as needed to drain the pipe excavation and inlet of the existing ash pond outlet structure during excavation. The bedding and backfill material around the pipes will consist of controlled low strength material (CLSM) or flowable fill for the upstream 20 feet of the piping to act as a barrier to stormwater penetration through the dike and will continue as TDOT No. 57 stone for the remainder of the length. Fill above the pipes will consist of soil backfill as shown in the Plans for Construction. Precast manholes will be installed near the midpoint of each pipe alignment for maintenance access. Grouted riprap will be placed on the slopes surrounding the inlet and outlet of the pipes. The inlet and outlet channels will be lined with riprap underlain by geotextile fabric for scour protection.

4.2. Key Design and Construction Elements

Key project design and construction elements are defined in the following sections. It is noted that in all cases proper construction sequence and methodology along, with compliance to established project requirements, is critical to the project.

4.2.1. Ash Pond Water Quality

The existing stilling pond spillway outlets are an NPDES permitted discharge point. Following ash pond pool lowering, the decreased surface area may affect particle settling times. One of the permit effluent requirements is total suspended solids (TSS). As highlighted in the Plans for Construction, the Owner is responsible for mitigating effects of TSS levels.

4.2.2. Dewatering

A dewatering plan will need to be developed by the CONTRACTOR to divert seepage and storm water away from the pipe excavation during construction. Dewatering shall be performed in according with the Construction Drawings and Technical Specifications within the Construction Package.

4.2.3. Precast Manholes

Concrete structures shall be installed as indicated in the construction drawings. Requirements and submittals for the precast manholes are outlined in the Technical Specifications.

4.2.4. Earthwork and CLSM (Flowable Fill) Placement

Compacted backfill shall be placed as indicated in the Plans for Construction. Proper construction techniques and materials are critical as backfill is used to reconstruct the embankment around and above the pipes, and retain water in the sluice channel and existing ash pond. There are two zones of pipe bedding and backfill. In the embankment penetration zone, CLSM will be placed around the pipes and must be placed in a controlled manner (defined lifts) to prevent flotation of the pipes during placement. Clay backfill will be placed above the CLSM. No. 57 stone will be placed as bedding and initial backfill along the remainder of the pipe length downstream of the embankment penetration. Material and placement specifications are included in the Technical Specifications.

4.2.5. Grout

Grout shall be placed as indicated in the construction drawings to fill the voids within the inlet and outlet riprap around the pipes and within the precast saddle manholes to reduce hydraulic losses by forming a smooth transition between the pipes. Material application requirements and submittals are included in the Technical Specifications.

4.2.6. HDPE Pipe

HDPE pipe shall be placed as indicated in the construction drawings. HDPE pipe is used in the Sluice Trench Outlet Piping. Material and placement specifications are included in the Technical Specifications. The pipe is being installed with a relatively small slope, therefore

the slope shown on the construction drawings should be verified and documented every 40 feet along the alignment. Tolerances are listed on the Plans for Construction.

4.2.7. Erosion and Sediment Control

General locations of sediment and erosion control features are shown on the Plans for Construction. All construction activities shall be conducted in accordance with applicable permit requirements, the sitewide SWMP and the erosion prevention and sediment control (EPSC) notes in the Plans for Construction.

4.3. Record Surveys

Field surveys shall be conducted in association with construction activities to verify elevations and dimensions specified in the Plans for Construction or as directed by the CONTRACTOR or QC Manager. These surveys shall document earthwork element elevations to one-quarter (0.25) of one foot, riprap final grade to one-half (0.5) of one foot, measurements to five-one hundredths of plan dimensions, and pipe invert elevations to five-tenths (0.05) of one foot. The Owner or its designee shall conduct these surveys.

5. Quality Control Activities

5.1. Project Meetings

Project meetings shall be coordinated and conducted by the QC Manager.

5.2. Modifications

General construction and QC modifications may be executed following approval of the Engineer and the Owner. Proposed construction modifications shall be developed by the CONTRACTOR using an RFI form, submitted to the Engineer for review and comment, and then submitted to the Owner for review and comment prior to incorporation into the facility design. Modifications that require an added cost will also require submittal of a Project Change Request (PCR) form and a Field Change Notice (FCN) form.

5.3. Field Observations – QC Team

The QC Team shall perform minimum daily observations of the facility. Daily observations are to be documented on the Daily Field Report Form included in the QA requirements for the project. In addition, weekly observations shall be made of embankment outslopes for indications of slope instability to include but not be limited to tension cracks, sloughs, and seepage. The QC Team shall observe all constructed sediment control structures as well as overall site drainage conditions. These observations shall be documented on the Weekly Field Observation Form.

The Noncompliance Report Form shall be used as needed to immediately report deficiencies, remediation required and resolution to the CONTRACTOR and the Owner.

Any suspect facility conditions shall be promptly reported to both the Owner and the Engineer. Copies of observation forms that may be adapted for use in this project are provided in the QA requirements for the project. Each observation shall be documented for inclusion with the project records.

5.4. CONTRACTOR Submittals

CONTRACTOR submittals shall be reviewed and approved by the QC Manager prior to procurement, delivery and/or use of the respective construction materials. Copies of all submittals shall be included with the project records. A list of required submittals is included in on the Plans for Construction.

5.5. Conformance Testing

Conformance testing shall consist of periodic testing of materials and/or constructed products. Conformance testing shall be conducted at frequencies as specified in the Technical Specifications and listed in Appendix A and documented by the QC Team. Results of testing shall be reviewed by the QC Manager to assess conformance with project requirements. Copies of all conformance testing results shall be included with the project records.

5.6. Stop Work Authority

The CONTRACTOR or QC Manager may exercise Stop Work Authority where personnel safety is concerned and, after approval by the Engineer, in extreme deviations from design, significant cost or schedule impact, or stability concerns.

5.7. Mandatory QC Hold Points

Work may not proceed beyond the following hold points until a QC Team Member has completed the applicable QC test or confirmation and has so notified the CONTRACTOR.

Hold Point	Test or Confirmation
Excavation	Confirm utility locate has been performed
Pipe Installation	Confirm bedding material suitable for installation Confirm that pipe installation is consistent with design grade and alignment prior to covering (check every 40 feet)
Precast Structure Placement	Confirm dimensions and elevations comply with Plans for Construction
Flowable Fill	Confirm precautionary measures are in place to prevent pipe from floating during placement Confirm submittals have been received Confirm flowable fill is placed in lifts or held down as outlined in the technical specifications
Backfill	QC Team approval of fill material Confirm passing compaction test for each lift Confirm elevations and slopes consistent with plans
Grouting Preparation	Confirm grout meets fluidity requirements
Placement of Geosynthetics	Confirm proper installation prior to covering with subsequent layer

6. Project Submittals and Material Testing

6.1. Precast Structures

Submittals shall be reviewed and approved by the QC Manager. The QC Manager shall observe all precast structures upon delivery. Any structures showing signs of shipment damage or non-conformance to design or project specifications shall be replaced by the CONTRACTOR. The QC Manager shall observe the subgrade and backfill methods for all structures.

6.2. CLSM (Flowable Fill)

CLSM shall comply with the Technical Specifications. The QC Team shall conduct conformance testing during placement to verify the acceptability of supplied materials at prescribed intervals provided in the testing schedule present in Appendix A of this plan. Material shall not be placed prior to Engineer approval. The QC Team shall observe the flowable fill placement. A mix design shall be submitted to the QC Team 15 working days prior to beginning of work, and the CONTRACTOR shall supply the QC Team with delivery slips. Samples for strength testing shall be obtained at random for every 50 cubic yards placed or directed by the QC Manager. Flow testing shall be conducted on each truck for acceptance.

6.3. Grout

Grout shall be used in this project to fill in grouted riprap and within precast manholes. Materials used in grout shall meet the requirements within the Technical Specifications.

6.4. Earthwork

Site preparation work shall be performed in accordance with the Technical Specifications and shall not commence until erosion and sediment control measures are in place.

The QC Team shall observe all pertinent earth-moving activities and verify that erosion and sediment control measures are in place prior to commencement of work. The CONTRACTOR shall prepare and present a Site Safety Plan to be reviewed and approved by a TVA Safety Professional. No work will be allowed prior to submittal of the plan and approval of the document.

6.4.1. Excavation

Excavation shall be consistent with the Plans for Construction and Technical Specifications and shall not commence until erosion and sediment control measures are in place.

During excavation, the CONTRACTOR is responsible for verifying all grades and lines as shown on the Plans for Construction. Excavations carried below the indicated depths shall be replaced with material satisfactory to the Engineer. The QC Team shall verify that the Plant has been notified prior to excavation in the dike.

6.4.2. Backfill and Embankment

Compacted backfill shall be placed as indicated in the construction drawings. Material and placement specifications are included in the Technical Specifications.

Backfill material shall be tested for classification, standard proctor density and optimum moisture content by the QC Team for each borrow source or when a change in the supplied material is noted. Classification shall be approved by the QC Manager prior to being placed as fill by the CONTRACTOR. The QC Team shall observe placed backfill for rutting, quaking or heaving. If observed, QC Team shall notify the Engineer and the CONTRACTOR.

Material and placement requirements for the compacted backfill are specified in the construction documents. The QC Team will verify subgrade has been properly prepared for fill placement prior to placement of each lift.

Each lift of structural fill shall be compacted with appropriate heavy equipment as approved by the QC Team to the minimum requirements established in the testing schedule presented in Appendix A of this plan. The QC Team shall observe the prepared foundation and direct the CONTRACTOR to maintain proper moisture control.

Field conformance testing shall include periodic in-place density and device calibration testing to provide documentation of the compaction operations at prescribed intervals provided in the testing schedule presented in Appendix A of this plan. Compaction testing of each lift shall be conducted by the responsible QC Team Member or testing personnel assigned by a QC Team Member. Compacted materials shall be tested at the minimum frequency specified in Appendix A. Materials for subsequent lifts shall not be placed by the CONTRACTOR until testing results on the previous lift meet project specifications.

Prior to construction of subsequent backfill lifts, the QC Team shall verify the following:

- Confirm the material is properly compacted and uniform, is suitable to support further construction, and that top layer has been properly scarified.
- Observe and document that placement and compaction meets project specifications.
- Confirm and document that materials used meet the specifications.

6.4.3. Dewatering

Dewatering is needed to maintain the working areas in the excavation area as needed to perform the construction operations specified.

Prior to beginning work, the CONTRACTOR shall submit to the Engineer a plan for dewatering the excavated area and maintaining the dewatered state in the working area prior to beginning work. The QC Team shall perform reviews of these dewatering features. Appropriate maintenance and adjustments to dewatering the excavated area shall be made by the CONTRACTOR as deemed necessary by the Owner or Engineer.

6.4.4. Erosion and Sediment Control

Basic sediment and erosion control structures are shown on the Plans for Construction. The site-wide SWMP shall govern all erosion and sediment control requirements. Primary erosion and sediment control features include the installation of silt fencing around the construction area.

6.4.5. Geotextile Fabric

The geotextile materials shall include geotextile fabric as specified in the Technical Specifications. Alternative materials must be approved by the QC Manager. Geotextile fabric shall be used for silt fence and separation applications.

The CONTRACTOR shall submit certified material specifications provided by the supplier to demonstrate that the supplied material meets the requirements of the Technical Specifications. CONTRACTOR submittals are included on the Plans for Construction. The QC Team Member shall confirm the material being applied is as specified and approved.

6.4.6. Stone and Riprap

Durable stone aggregate materials designated for use in this project shall meet the requirements listed in the Technical Specifications. The QC Team shall observe placement of stone bedding and backfill to verify that the lift thickness and compaction are in accordance with the technical specifications. The QC Team shall observe riprap placement to the thickness shown on the plans for construction.

Prior to delivery, the CONTRACTOR shall submit supplier certification to the QC Manager that all materials meet or exceed the minimum established properties. Required submittals are summarized in the material submittal schedule presented in the Plans for Construction.

6.4.7. HDPE Pipe

Installation of HDPE pipe shall be performed in accordance with the Plans for Construction and with the project requirements established in the Technical Specifications.

Pipe suppliers shall submit certified material specifications, delivery tickets and all other available documentation to show that the supplied material meets the project specifications. During pipe trench backfill operations, the QC Team shall document that these operations are performed in accordance with the project requirements and manufacturer recommendations.

6.5. Record Surveys

Field surveys shall be conducted in association with facility construction and phased operations as directed by the QC Manager. These surveys shall document all relevant elevations as shown on the Plans for Construction. The Owner or its designee shall conduct these surveys.

7. Project Documentation

Project documentation shall be obtained and maintained by the QC Manager (copied to the Owner) during all phases of construction. This documentation shall include:

- Construction field reports;
- Observation reports;
- CONTRACTOR submittals;
- Material conformance data;
- Survey data;
- Photographic documentation in accordance with site SOP;
- Construction issue and resolution reports;
- Request for Information (RFI) or Field Change Notice (FCN) forms;
- Design and/or specification modifications
- Record Drawings; and
- Meeting minutes.

The QC Manager shall prepare a Construction Certification Report (CCR) at the completion of this project in accordance with TVA Programmatic Documents. This report shall include construction observations, evaluations performed and results obtained. This report shall also contain a statement that indicates that the construction was performed in general accordance with the plans and specifications. The QC Team shall also prepare Record Drawings based on as-built drawings and surveys provided by the CONTRACTOR and Owner. The following statement shall be used in the CCR:

I,_____, hereby certify that I am a licensed engineer in the State of Tennessee. To the best of my knowledge, information, and belief the documentation submitted in this report indicates construction operations were performed in general conformance with the intent of the approved plans and specifications and in my professional opinion, is in compliance with applicable regulations as required by Rule 1200-1-7-.04 (9)(c)19.

Appendix A

Material Testing Schedule

Construction Quality Control Plan
Material Testing Schedule
Sluice Trench Outlet Piping
Kingston Fossil Plant
Roane County, Tennessee

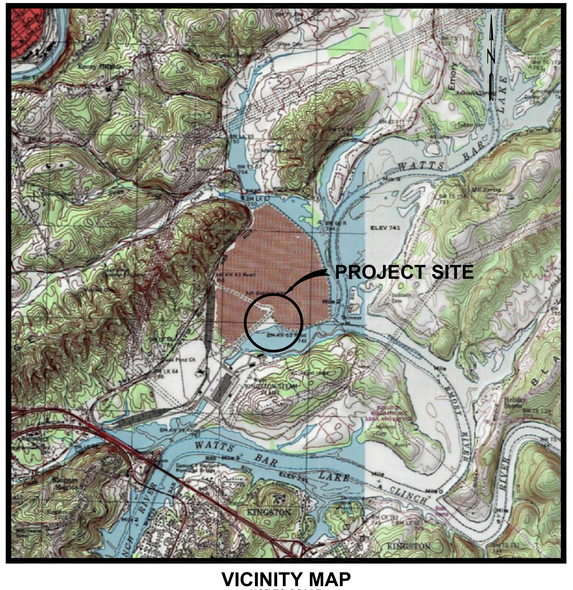
MATERIAL	PROPERTY / TEST	RESPONSIBLE PERSONNEL	METHOD	Value	Minimum Frequency [1]
Clay Backfill					
	Classification	QC Team	ASTM D-2487	CL, CL-ML, CL-CH, CH	1/ supplier / source
	Density	QC Team	ASTM D-698	Determine max dry density 98% max dry density	1/ supplier / source 1/ 4-inch or 8-inch lift (per plans)
	Moisture	QC Team	ASTM D-698	Optimum moisture content +2 / -2 % optimum moisture	1/ supplier / source 1/ 4-inch or 8-inch lift (per plans)
Ash Backfill					
	Density	QC Team	ASTM D-698	Determine max dry density 90% max dry density	1/ supplier / source 1/ 4-inch or 8-inch loose lift (per plans)
	Moisture	QC Team	ASTM D-698	Optimum moisture content +6 / -2 % optimum moisture	1/ supplier / source 1/ 4-inch or 8-inch loose lift (per plans)
CLSM (Flowable Fill)					
	Compressive Strength	QC Team	ASTM D-5971 ASTM D-4832	200 psi min (28 day)	1/ 50 cu. yd. 4 samples / test; 1 broken 7 days ; 2 at 28 days
	Consistency	QC Team	ASTM D-6103	Min spread 8 inch diam.	1/ truck

PLANS FOR CONSTRUCTION

SLUICE TRENCH OUTLET PIPING
RDP-0114-H
KINGSTON FOSSIL PLANT
HARRIMAN, ROANE COUNTY, TENNESSEE

PREPARED FOR

TENNESSEE VALLEY AUTHORITY



VICINITY MAP
NOT TO SCALE

PREPARED BY

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INDEX OF SHEETS

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGK1FFESCDX000000201200002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV CD
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–
ISSUED FOR REVIEW – REVISED 90% SUBMITTAL											

DISCIPLINE INTERFACE

SCALE: NONE EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
COVER SHEET
RDP-0114-H

REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000	DATE 05/31/12	36	C	10W424-01	R B

STANTEC	0
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

PLOT DATE: 05/31/2012 USER: MYERS, TONY
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GENERAL NOTES

SUMMARY OF WORK

THE WORK DESCRIBED IN THIS DRAWING SET CONSISTS OF INSTALLATION OF SLUICE TRENCH OUTLET PIPING AT THE TENNESSEE VALLEY AUTHORITY (TVA) KINGSTON FOSSIL PLANT. THE PIPES WILL CONVEY FLOW FROM THE SLUICE TRENCH TO THE ASH POND OUTLET STRUCTURES AT THE SOUTHEAST CORNER OF THE ASH POND. THE PLANS ALSO INCLUDE INSTALLATION OF 3 MANHOLES FOR MAINTENANCE ACCESS RIPRAP PROTECTION AT THE INLET AND OUTLET OF THE PIPES, AND RETURN OF THE STATION SUMP PUMP OUTLET TO ITS ORIGINAL CONFIGURATION.

1.0 GENERAL PROVISIONS

1.1 DEFINITIONS: WHENEVER THE FOLLOWING TERMS ARE USED IN THESE DRAWINGS, IT IS UNDERSTOOD THAT THEY REPRESENT THE FOLLOWING:

CONTRACTOR: THE ENTITY WITH WHICH THE TENNESSEE VALLEY AUTHORITY (TVA) HAS ENTERED INTO AN AGREEMENT TO CONSTRUCT THIS PROJECT (OR THEIR DESIGNEE).

EPA: THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WHICH IS THE REGULATORY AUTHORITY FOR THE SITE.

KRP: KINGSTON RECOVERY PROJECT.

TDEC: THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION.

ENGINEER: STANTEC CONSULTING SERVICES INC.

OWNER: TENNESSEE VALLEY AUTHORITY – KINGSTON FOSSIL PLANT.

TDOT: THIS MEANS THE TENNESSEE DEPARTMENT OF TRANSPORTATION AND SPECIFICALLY REFERENCES THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION. ANY MATERIAL DESIGNATED AS "TDOT" IS TO CONFORM TO THE MATERIAL STANDARDS NOTED AND PLACEMENT/INSTALLATION METHODOLOGY SPECIFIED IN THE CURRENT EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

QUALITY CONTROL (QC) PLAN: REFERS TO A DOCUMENT THAT ESTABLISHES MINIMUM QUALITY CONTROL REQUIREMENTS, TESTING FREQUENCY AND QUALITY OVERSIGHT RESPONSIBILITY.

QUALITY CONTROL (QC) MANAGER: A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TENNESSEE THAT IS RESPONSIBLE FOR THE QUALITY OF THE CONSTRUCTED PROJECT AS DEFINED IN THE QC PLAN. THIS INDIVIDUAL IS THE ENGINEER OF RECORD FOR CONSTRUCTION. STANTEC CONSULTING SERVICES, INC. IS THE QC MANAGER FOR THIS PROJECT. THE QC TEAM CONSISTS OF QUALIFIED PERSONNEL THAT WORK UNDER THE DIRECT SUPERVISION OF THE QC MANAGER. THE QC TEAM PERSONNEL ARE INDIVIDUALS THAT ARE FAMILIAR WITH THE MATERIALS UTILIZED.

RETRIEVED ASH: MATERIAL PLACED ON SITE TO INCLUDE ASH AND INCIDENTAL EARTHEN MATERIALS RECOVERED DURING EXCAVATION ACTIVITIES WITHIN THE EMBAYMENT AREAS.

CONSTRUCTION MANAGER: RESPONSIBLE FOR CONSTRUCTION ACTIVITY TO INCLUDE BUT NOT BE LIMITED TO THE CHARACTER AND SEQUENCE OF WORK, COORDINATION AND SCHEDULING. JACOBS IS THE CONSTRUCTION MANAGER FOR THIS PROJECT. COORDINATE CONSTRUCTION ACTIVITIES WITH KRP, CCP, CONTRACTOR, AND JACOBS.

SWMP: STORM WATER MANAGEMENT PLAN.

1.2 THESE DRAWINGS ARE THE CONSTRUCTION DRAWINGS THAT ARE TO BE REFERENCED ALONG WITH THE TECHNICAL SPECIFICATIONS, THE QC PLAN, THE SITE WIDE SWMP AND APPLICABLE ENVIRONMENTAL AND SAFETY REGULATIONS.

1.3 THE CONTRACTOR SHALL SUBMIT DETAILED WORKPLANS OUTLINING ALL PROVISIONS TO OBTAIN REGULATORY APPROVAL PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT SAID WORKPLANS TO THE OWNER FOR APPROVAL AND TO THE ENGINEER FOR INFORMATION.

1.4 THE CONTRACTOR SHALL CONFINE ALL SPECIFIC WORK ACTIVITIES TO THE AREA DEFINED BY THE PLANS OR APPROVED BY THE OWNER. ACCESS INTO THE WORK AREA FOR DELIVERY OF EQUIPMENT, MATERIALS AND WORKFORCE SHALL BE REVIEWED DAILY BY THE CONTRACTOR, AND CONTROLLED AS NEEDED TO PREVENT ANY DAMAGE TO THE CREST AND SLOPES OF THE DIKES SURROUNDING THE ASH POND.

1.5 THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DETERMINE THE LOCATION AND AREA FOR EQUIPMENT OR MATERIAL STORAGE AND FOR OTHER CONSTRUCTION LAY DOWN ACTIVITY.
PLACE EXCESS SPOIL MATERIAL WITHIN PLANT BOUNDARY, AT AN AREA DESIGNATED BY TVA KINGSTON RECOVERY PROJECT MANAGEMENT.

1.6 WHENEVER REFERENCE IS MADE TO TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT) STANDARD SPECIFICATIONS, AMERICAN CONCRETE INSTITUTE (ACI), AMERICAN WELDING SOCIETY (AWS), AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) AND OTHER PUBLISHED STANDARDS OR SPECIFICATIONS, IT SHALL MEAN THE LATEST VERSION IN ITS ENTIRETY.

1.7 ACCEPTABLE CONSTRUCTION TOLERANCES FROM PLAN DIMENSIONS, ELEVATIONS, AND GRADES SHALL BE AS FOLLOWS:
- –EXCAVATIONS AND FINAL GRADES FOR EARTH SURFACES AND SLOPES: ± 0.25 FEET
- –RIPRAP: FINAL GRADE ±0.5 FEET, THICKNESS ZERO TO +0.5 FEET
- –MEASUREMENTS WITHIN 0.05 FEET OF PLAN DIMENSIONS
- –PIPES AND APPURTENANCES: ±0.05 FEET OF PLAN ELEVATION
- –INLET TO OUTLET DIFFERENTIAL ±0.05 FEET OF PLAN ELEVATION
- –END–TO–END OF ANY 40 FOOT LENGTH OF PIPE ±0.02 FEET

1.8 NO DEVIATIONS FROM THE PLANS OR APPROVED SHOP DRAWINGS SHALL BE MADE WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL DEVIATIONS IN LOCATION OR ELEVATION OF ANY INSTALLATION FROM THAT SHOWN ON THE PLANS, AND ANY DEVIATIONS IN INSTALLATIONS FROM APPROVED SHOP DRAWINGS. AT COMPLETION OF THE PROJECT A SET OF RECORD DRAWINGS WILL BE PREPARED BY THE QC TEAM BASED ON THE AS–BUILT RECORD PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL COOPERATE FULLY AND ASSIST WITH PREPARATION OF THE FINAL RECORD DRAWINGS.

1.9 ANY PROPOSED MODIFICATION TO DESIGN FEATURES AS SHOWN (OR DESCRIBED) IN THE APPROVED ISSUED FOR CONSTRUCTION DESIGN DOCUMENTS SHALL BE CONTINGENT UPON ENGINEER OF RECORD APPROVAL. TEMPORARY FEATURES TO FACILITATE CONSTRUCTION TO ACHIEVE THE APPROVED DESIGN FEATURES SHALL BE ADDRESSED BY METHODS DESCRIBED IN APPROVED PROJECT DOCUMENTS AND PRACTICES (E.G. STORM WATER MANAGEMENT PLAN, BEST MANAGEMENT PRACTICES, ETC.).

1.10 THE GEOTECHNICAL INFORMATION AND DATA FURNISHED HEREIN ARE NOT INTENDED AS REPRESENTATION OR WARRANTIES BUT ARE FURNISHED FOR INFORMATION ONLY. IT SHALL BE DISTINCTLY UNDERSTOOD THAT THE OWNER OR ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DEDUCTION, INTERPRETATION OR CONCLUSION DRAWN THEREFROM. THE INFORMATION IS MADE AVAILABLE IN ORDER THAT THE CONTRACTOR MAY HAVE READY ACCESS TO THE SAME INFORMATION AVAILABLE TO THE OWNER AND THE ENGINEER AND IS NOT PART OF THIS CONTRACT. (FOR AVAILABLE GEOTECHNICAL INFORMATION, SEE GEOTECH REPORT BY AMEC DATED 3/5/12. FOR S&ME BORINGS, SEE S&ME JOB NO. 1431–10–412, DATED 3–31–11 THRU 4–14–11.)

1.11 GRAVEL CONSTRUCTION EXITS WILL NOT BE REQUIRED EXCEPT WHERE EQUIPMENT AND VEHICLES LEAVE TVA PROPERTY. NORMAL CLEANING AND DUST CONTROL WILL APPLY TO NEARBY ROADS. VEHICLES LEAVING THE SITE SHALL BE WASHED DOWN BEFORE ENTERING ONTO PUBLIC ROADS. THE CONSTRUCTOR SHALL REPAIR OR REPLACE IN–KIND ANY DAMAGE RESULTING FROM PROJECT CONSTRUCTION ACTIVITIES.

2.0 SITE CONDITIONS

2.1 THESE DRAWINGS WERE COMPILED USING SURVEY INFORMATION PROVIDED BY TVA ON 04/17/2012. TOPOGRAPHIC SURVEY FILE "TOPO 3–01–12.DWG" DATED 03/01/2012. SITE FEATURES OBTAINED FROM TVA SURVEY PROVIDED BY TVA DATED 02/02/2012. HORIZONTAL COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NAD 27. ELEVATIONS ARE BASED ON NGVD 29.

2.2 THE CONTRACTOR SHALL NOTIFY KIF PLANT PERSONNEL 48 HOURS IN ADVANCE OF DIKE C CUTTING TO ALLOW FOR COORDINATION OF ALTERNATIVE TRAFFIC ROUTES.

2.3 VEHICULAR ACCESS TO THE SITE SHALL BE DETERMINED BY TVA. NO CONSTRUCTION ACTIVITIES SHALL BE PERFORMED THAT CAUSE AN INTERFERENCE WITH THROUGH TRAFFIC DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE APPROVED SIGNAGE, BARRIERS AND TRAFFIC SAFETY PERSONNEL RESPONSIBLE FOR DIRECTING CONSTRUCTION AND PLANT TRAFFIC AT ALL POINTS OF INGRESS AND EGRESS.

2.4 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO COMMENCEMENT OF WORK. UTILITIES AND INSTRUMENTATION SHOWN ON THE ATTACHED PLANS SHALL BE CONSIDERED APPROXIMATE AND DO NOT COVER ALL EXISTING UTILITIES IN THE AREA. CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING EXCAVATION. SHOULD PIPING OR OTHER UTILITIES THAT ARE NOT SHOWN ON THE DRAWINGS BE ENCOUNTERED, CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, WHO WILL IN TURN NOTIFY TVA PLANT PERSONNEL IMMEDIATELY. WHERE APPLICABLE, THE CONTRACTOR SHALL PROVIDE NECESSARY MEASURES TO PROTECT UTILITIES FROM DAMAGE DUE TO CONTRACTORS WORK.

2.5 THE CONTRACTOR SHALL PROTECT INSTRUMENTATION FROM DAMAGE. THE CONTRACTOR SHALL INSTALL PROTECTIVE T–POSTS IN ACCORDANCE WITH TVA STANDARDS AROUND SAID INSTRUMENTATION. ORANGE SAFETY FENCE SHALL BE WRAPPED AROUND THE TOP POSTS TO DENOTE LIMITED ACCESS. COMPACTION OF MATERIALS AROUND GEOTECHNICAL INSTRUMENTATION SHALL BE PERFORMED BY MANUALLY OPERATED TAMPING DEVICES. EXISTING INSTRUMENTATION WILL BE EXTENDED UPWARD BY THE QC TEAM DURING THE COURSE OF THE WORK AS DESCRIBED IN THESE CONSTRUCTION DOCUMENTS AND IN ACCORDANCE WITH ESTABLISHED TVA PROCEDURES. PROPOSED GEOTECHNICAL INSTRUMENTATION WILL BE INSTALLED BY THE QC MANAGER.

2.6 SECURITY ON SITE IS PROVIDED BY TVA.

2.7 CONTRACTOR SHALL BE RESPONSIBLE FOR THE HEALTH AND SAFETY OF ITS PERSONNEL AND SHALL MEET ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS INCLUDING BUT NOT LIMITED TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS AND TVA SAFETY REQUIREMENTS.

3.0 SURVEY

3.1 STAKING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURVEYING AND STAKING NECESSARY FOR LAYOUT AND CONSTRUCTION OF THE PROJECT. STAKING SHALL BE PERFORMED BY OR UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR.

3.2 CONTROL:
A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751–8416 OR (423)751–2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

3.3 CONTRACTOR SHALL EMPLOY A COMPETENT SURVEYOR LICENSED IN THE STATE OF TENNESSEE TO ESTABLISH OR CONFIRM ALL LINES, ELEVATIONS, REFERENCE MARKS, ETC. NEEDED BY THE CONTRACTOR OR ENGINEER DURING CONSTRUCTION. THE QUANTITIES OF MATERIALS PRESENTED HERE SHALL BE CONSIDERED APPROXIMATE AND ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.

4.0 EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

4.1 ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE KIF SITE WIDE STORM WATER MANAGEMENT PLAN (SWMP).

4.2 THE CONTRACTOR IS RESPONSIBLE FOR SITE DRAINAGE THROUGHOUT CONSTRUCTION AND SHALL INSTALL TEMPORARY DRAINAGE STRUCTURES OR PUMP WATER AS NECESSARY TO PREVENT INTERFERENCE WITH THE WORK. SUCH TEMPORARY DRAINAGE FEATURES SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ENVIRONMENTAL PERMITS AND THE SITE WIDE SWMP.

5.0 EARTHWORK

5.1 MATERIAL SPECIFICATIONS FOR STRUCTURAL FILL, AGGREGATE, PIPE AND OTHER CONSTRUCTION MATERIALS ARE DEFINED IN THE TECHNICAL SPECIFICATIONS UNLESS NOTED OTHERWISE.

5.2 TEMPORARY EXCAVATIONS SHALL BE PREPARED IN ACCORDANCE WITH TVA SAFETY STANDARDS (SECTION 804) AND OSHA STANDARDS. STABILITY OF EXCAVATION SLOPES IS THE RESPONSIBILITY OF THE CONTRACTOR.

5.3 NO MATERIAL SHALL BE PLACED IN ANY SECTION OF THE EMBANKMENT UNTIL THE FOUNDATION FOR THAT SECTION HAS BEEN APPROVED BY THE QC MANAGER. THE CONTRACTOR SHALL KEEP THE FOUNDATION AND SUBGRADE FREE FROM WATER OR UNACCEPTABLE MATERIALS AFTER FILL OPERATIONS HAVE STARTED.

5.4 MATERIAL THAT IS PLACED ADJACENT TO AND LESS THAN 2 FEET ABOVE THE TOP OF THE OUTLET PIPES SHALL BE COMPACTED USING HAND–DIRECTED COMPACTORS (JUMPING JACK TYPE COMPACTOR / RAMMER) WITH A MAXIMUM LIFT THICKNESS OF 4–INCHES.

5.5 CONSTRUCTOR TO OBTAIN EXCAVATION PERMITS FROM TVA PRIOR TO COMMENCEMENT OF WORK.

5.6 EXCAVATION FOR RELOCATED OR REMOVED UTILITIES SHALL BE BACKFILLED WITH MATERIAL DEFINED IN THE TECHNICAL SPECIFICATIONS.

5.7 TEMPORARY STOCKPILES SHALL BE PLACED IN UNIFORM 24" LIFTS OVER THE EXTENT OF THE QC MANAGER APPROVED STOCKPILE LIMITS. LOCATIONS AND SIZE OF TEMPORARY STOCKPILES SHALL BE APPROVED BY THE QC MANAGER AND TVA PRIOR TO MATERIAL PLACEMENTS. STOCKPILES SHALL BE GRADED TO MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. THE SIDE SLOPES SHALL HAVE MAXIMUM 6H:1V SLOPE. THE TOP OF THE STOCKPILE SHALL HAVE A MINIMUM TWO PERCENT SLOPE. MATERIALS SHALL BE SEGREGATED AS DIRECTED BY THE QC MANAGER.

6.0 CONSTRUCTION DOCUMENTATION

6.1 CONSTRUCTION OBSERVATION AND TESTING:
THE QC REPRESENTATIVE SHALL PROVIDE QUALITY ASSURANCE CONTROL TESTING AND SHALL OBSERVE AND DOCUMENT CONSTRUCTION ACTIVITIES.

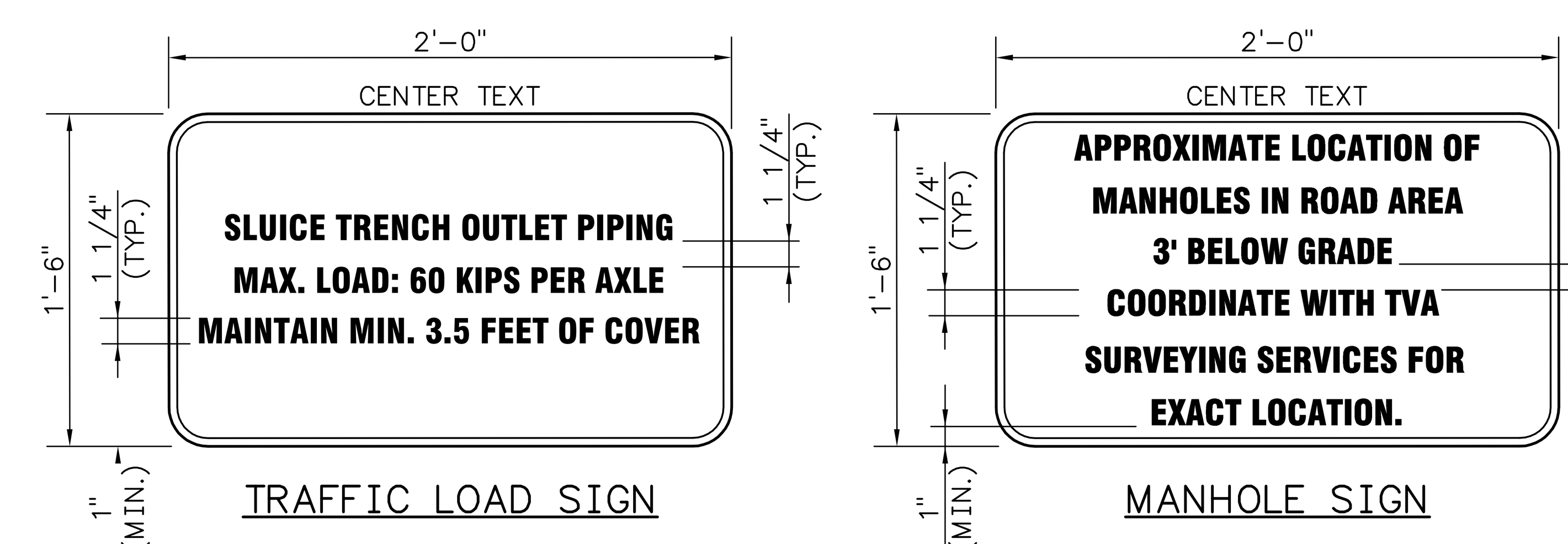
6.2 DAILY REPORT:
THE QC REPRESENTATIVE SHALL COMPLETE A DAILY ACTIVITIES REPORT FOR EACH DAY IN WHICH ANY CONSTRUCTION ACTIVITY OCCURS. THIS REPORT SHALL DOCUMENT THE EQUIPMENT AND PERSONNEL ACTIVE ON SITE (WITH RELEVANT TIMES NOTED) AND IT SHALL PROVIDE A GENERAL DESCRIPTION OF THE CONSTRUCTION ACTIVITIES PERFORMED DURING THE DAY. IT SHALL ALSO INCLUDE A DESCRIPTION OF ONGOING CONSTRUCTION PROGRESS. DISCUSSIONS OF INCLEMENT WEATHER, EQUIPMENT BREAKDOWNS AND ANY DAMAGE, SAFETY, ENVIRONMENTAL, ETC. INCIDENTS WHICH OCCUR SHALL BE PROVIDED. THE CONTRACTOR SHALL PROVIDE HIS OWN FORMAT FOR THIS REPORT, SUBJECT TO ENGINEER APPROVAL. IT IS EXPECTED THAT THIS REPORT SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OR CQA REPRESENTATIVE BY NOON ON THE NEXT BUSINESS DAY FOLLOWING THE DAY WITHIN WHICH THE REPORT COVERS.

6.3 RECORD DRAWINGS
THE CONTRACTOR SHALL MAINTAIN A CLEAN SET OF CONSTRUCTION PLANS AT THE PROJECT SITE. THIS SET OF PLANS SHALL BE USED ONLY FOR RECORDING CONSTRUCTION ACTIVITY AS IT OCCURS. ALL ITEMS INSTALLED INTO THE WORK SHALL BE NOTED AND ANY VARIATION IN MATERIAL SPECIFICATIONS, DETAILS, ELEVATIONS, OR HORIZONTAL LOCATIONS SHALL BE NOTED ON THE PLAN SET WITH RED MARKINGS. TO THE EXTENT NECESSARY, THE CONTRACTOR SHALL ENGAGE A QUALIFIED SURVEYOR TO ESTABLISH THE "AS–BUILT" LOCATION OF ALL PIPES, DRAINS, STRUCTURES, EMBANKMENT ZONE LIMITS, ETC. EACH ITEM'S POSITION SHALL BE DULY NOTED ON THIS 'RED–LINE" PLAN SET. THE INFORMATION SHALL BE RECORDED WITH SUFFICIENT ACCURACY AND CLARITY TO BE UNDERSTOOD AND RELIED UPON. AT THE COMPLETION OF THE CONSTRUCTION PROCESS, THIS "RED–LINE" PLAN SET SHALL BE PROVIDED TO THE CQA REPRESENTATIVE FOR USE IN DEVELOPING THE RECORD DRAWINGS FOR THE PROJECT. THE INFORMATION ON THE "RED–LINE" DRAWING SET SHALL BE KEPT CURRENT AT ALL TIMES AND SHALL BE AVAILABLE TO THE OWNER OR ENGINEER AT ANY TIME. THE CONTRACTOR SHALL SUBMIT THE "RED–LINE" AS–BUILT SET OF DRAWINGS TO THE CQA REPRESENTATIVE WITHIN FIVE WORKING DAYS OF COMPLETION AND ACCEPTANCE OF THE WORK DESCRIBED IN THIS WORK PACKAGE. THE CQA TEAM SHALL PREPARE THE RECORD DRAWINGS.

CONSTRUCTION QUALITY CONTROL PRODUCT SUBMITTALS

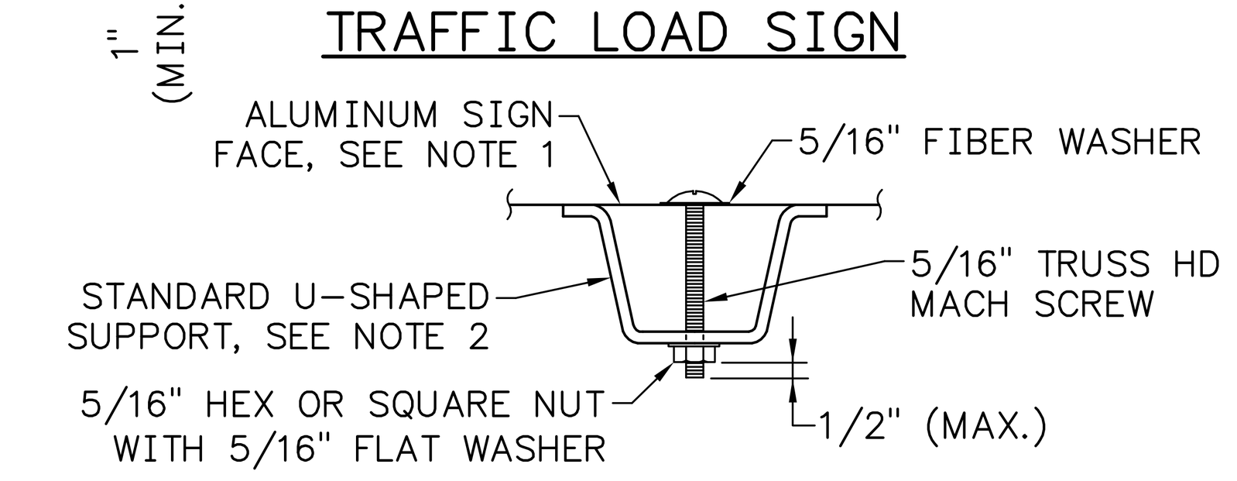
MATERIAL	SPECIFICATION	REQUIREMENTS	(FIO)/(EA)[1]	MINIMUM FREQUENCY	SUBMITTAL DATE	APPROVAL DATE
GENERAL		DETAILED WORKPLANS OUTLINING ALL PROJECT PROVISIONS TO BE SUBMITTED FOR APPROVAL BY THE OWNER.	FIO	15 DAYS PRIOR TO BEGINNING WORK		
		SITE SAFETY PLAN (FOR TVA APPROVAL)	EA	15 DAYS PRIOR TO BEGINNING WORK		
CONCRETE						
PRECAST STRUCTURES	03 41 00	SHOP DRAWINGS AND MANUFACTURER CERTIFICATION.	EA	15 DAYS PRIOR TO DELIVERY		
GROUT	03 41 00	DESIGN MIX SUBMITTALS	EA	15 DAYS PRIOR TO DELIVERY		
EARTHWORK						
SITE PREPARATION	31 10 00	SITE SAFETY PLAN FOR APPROVAL BY TVA SAFETY PROFESSIONAL	FIO	PRIOR TO BEGINNING WORK		
BACKFILL AND EMBANKMENT	31 23 00	MATERIAL CLASSIFICATION OR SAMPLES FOR TESTING FROM EACH REPRESENTATIVE BORROW SOURCE	EA	1/SUPPLIER/SOURCE		
		PASSING RESULTS OF DENSITY AND MOISTURE TESTING DURING PLACEMENT AND COMPACTION.	FIO	8–INCH LIFT (LOOSE)		
DEWATERING	31 23 19	PLAN FOR DEWATERING THE EXCAVATED AREA AND MAINTAINING THE DEWATERED STATE IN THE WORKING AREA.	FIO	PRIOR TO BEGINNING WORK		
CLSM (FLOWABLE FILL)	31 23 23.33	DELIVERY SLIPS CERTIFYING CONTENTS OF EACH BATCH NOTING TIME OF DELIVERY.	FIO	1/BATCH		
		DESIGN MIX SUBMITTALS	EA	15 DAYS PRIOR TO DELIVERY		
GEOTEXTILES	31 40 00	SUPPLIER CERTIFICATION AND ALL OTHER AVAILABLE DOCUMENTATION TO DEMONSTRATE THAT SUPPLIED MATERIAL MEETS SPECIFICATIONS	EA	1/SUPPLIER		
STONE AND RIPRAP	31 37 00	GRADATION CURVE FOR THE MATERIAL AND CERTIFICATION THAT THE MATERIAL MEETS THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS.	EA	1/SUPPLIER/SOURCE		
GROUT	31 37 00	DESIGN MIX SUBMITTALS	EA	15 DAYS PRIOR TO DELIVERY		
UTILITIES						
HDPE PIPE	33 40 00	MANUFACTURER CERTIFICATION THAT THE PIPE AND EACH FITTING COMPLIES WITH THE TECHNICAL SPECIFICATIONS	EA	1/SUPPLIER		

(1) FIO = FOR INFORMATION ONLY; EA = ENGINEER APPROVAL



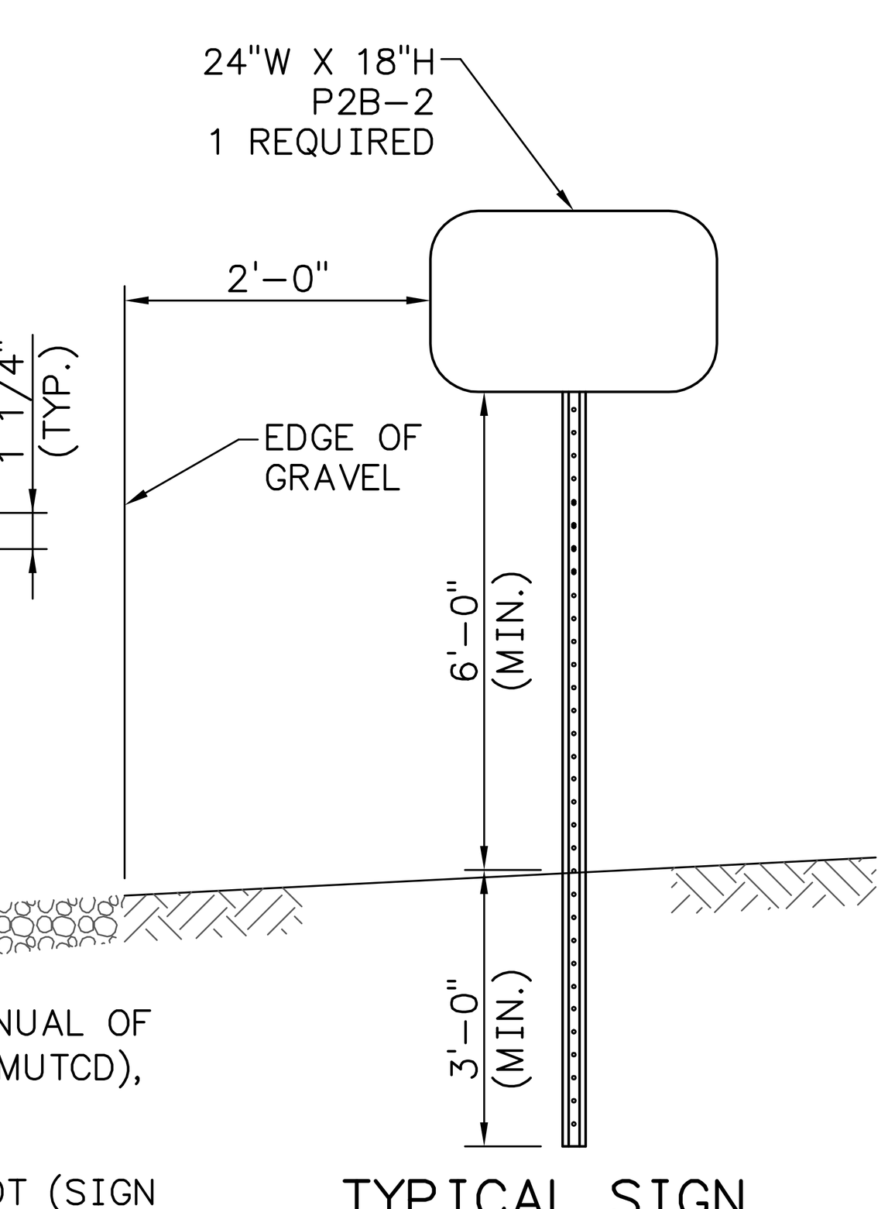
TRAFFIC LOAD SIGN

MANHOLE SIGN



SIGN TO U–POST CONNECTION

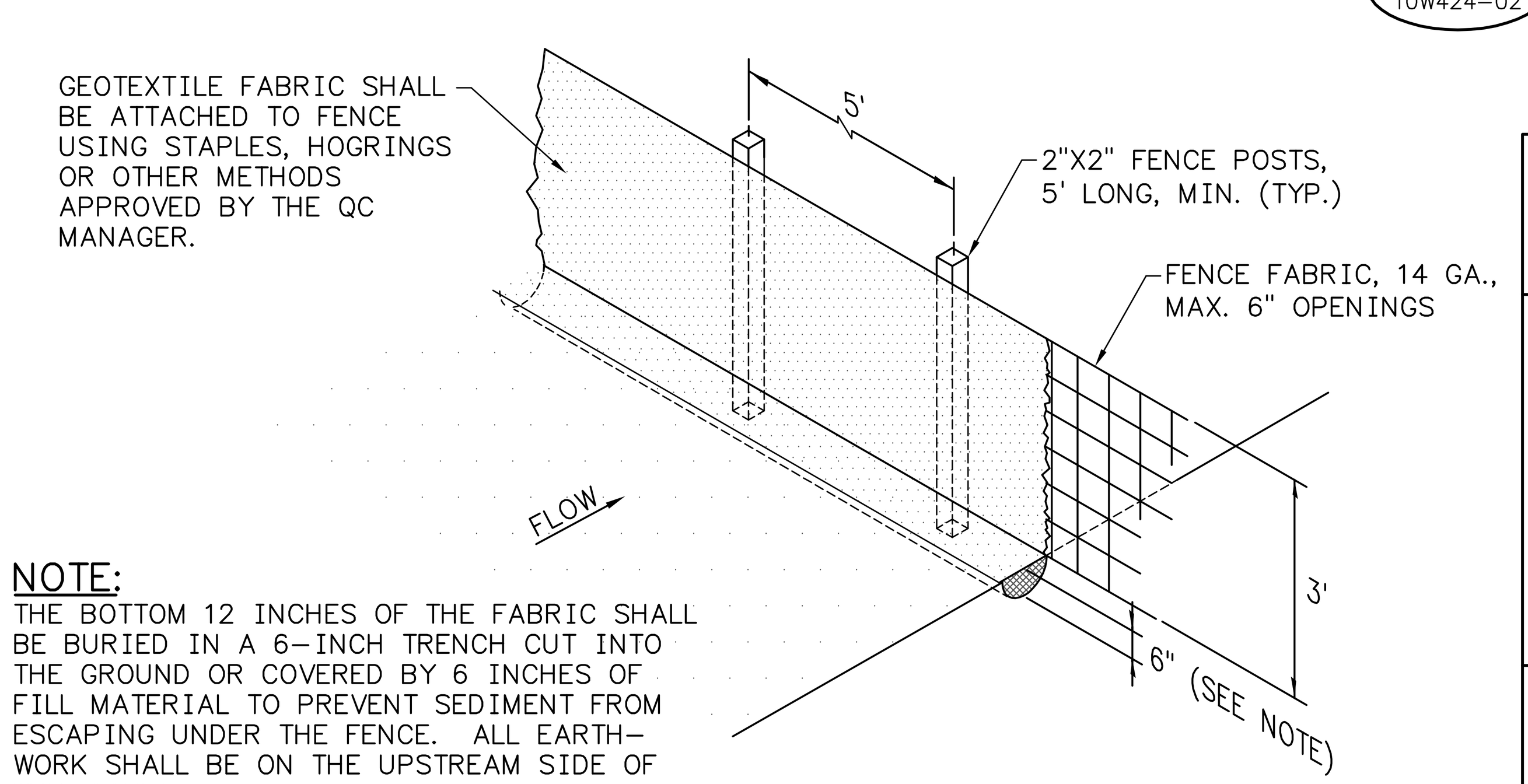
SIGN NOTES:
1. SIGNAGE SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICE (MUTCD), LATEST EDITION.
2. STANDARD U–POST, TWO LBS PER FOOT (SIGN SHALL REQUIRE DOUBLE POST MOUNTING).



TYPICAL SIGN

2 / 10W424–02 DETAIL – SIGN & U–POST CONNECTION
NOT TO SCALE

REVISED 90% SUBMITTAL
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION



NOTE:
THE BOTTOM 12 INCHES OF THE FABRIC SHALL BE BURIED IN A 6–INCH TRENCH CUT INTO THE GROUND OR COVERED BY 6 INCHES OF FILL MATERIAL TO PREVENT SEDIMENT FROM ESCAPING UNDER THE FENCE. ALL EARTH–WORK SHALL BE ON THE UPSTREAM SIDE OF THE FENCE.

1 / 10W424–02 DETAIL – SILT FENCE
NOT TO SCALE

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGKIFFESCDX00000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV CD
R –	–	–	–	–	–	–	–	–	–	–	–
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–

ISSUED FOR REVIEW – REVISED 90% SUBMITTAL

DISCIPLINE INTERFACE 1 2 3 4

SCALE: NONE EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
GENERAL NOTES
RDP–0114–H

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

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KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000 | DATE 05/31/12 | 36 | C | 10W424–02 | R B

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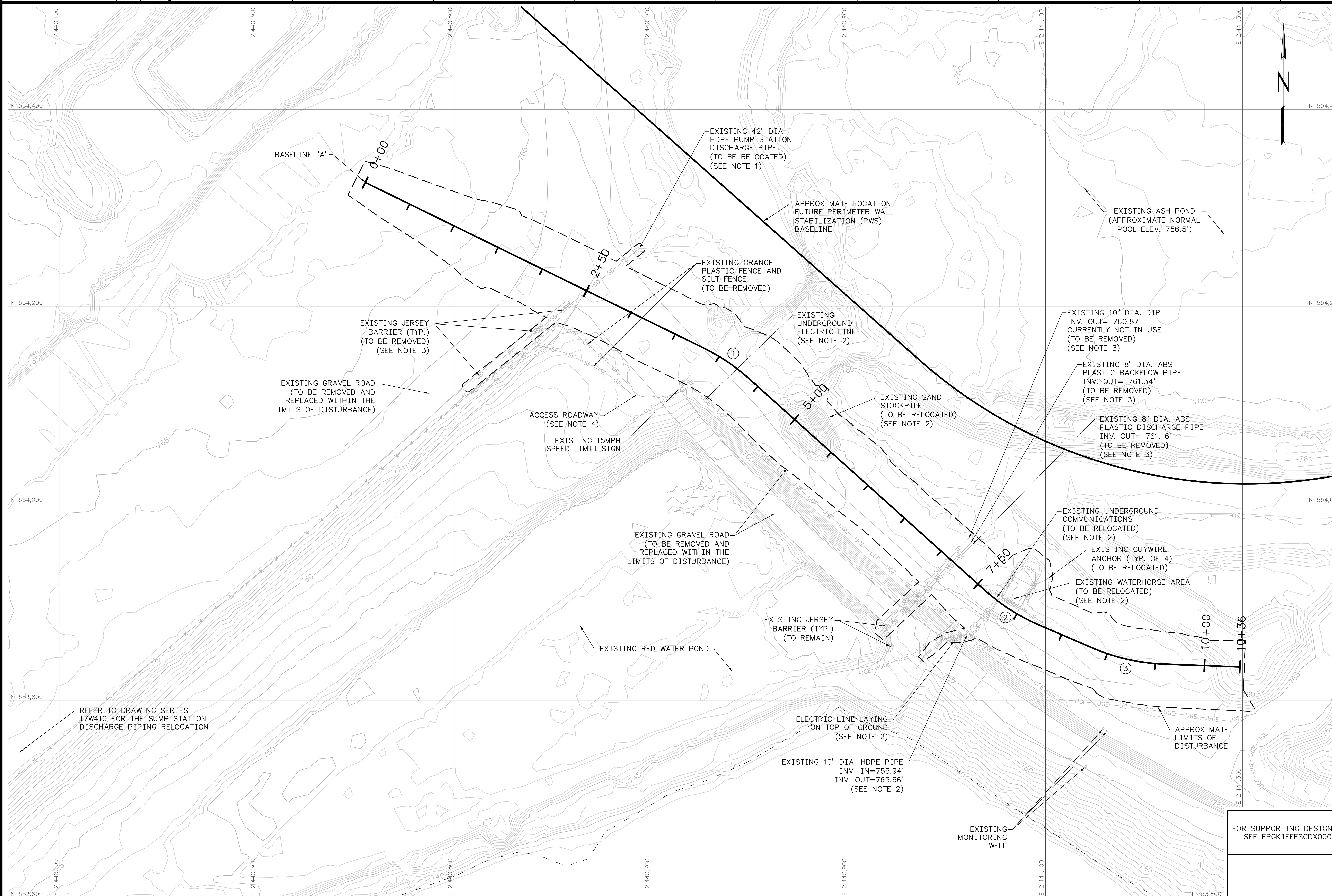
TASK COMPLETED BY: | REV NO.

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY



NOTES:

1. EXISTING 42" DIA. HDPE PUMP STATION DISCHARGE PIPE TO BE RELOCATED AS SHOWN ON SHEETS 17W410-1 THRU 17W410-4.
2. CONTRACTOR TO COORDINATE WITH KINGSTON RECOVERY PROJECT MANAGER FOR RELOCATING OR REMOVAL OF THE EXISTING WATERHORSE AREA WITH ASSOCIATED 10" HDPE PIPE, ELECTRICAL LINE, AND UNDERGROUND COMMUNICATIONS AND THE EXISTING SAND STOCKPILE.
3. CONTRACTOR TO COORDINATE WITH KINGSTON RECOVERY PROJECT MANAGER FOR THE REMOVAL OF THE EXISTING 10" DIP, EXISTING JERSEY BARRIERS, AND THE TWO (2) 8" ABS PLASTIC PIPES.
4. WIDEN ACCESS ROADWAY WITH SIMILAR MATERIALS, TO PROVIDE ACCESS TO LOWER ROADWAY DURING CONSTRUCTION. CONSTRUCTION OF ROADWAY SHOULD BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
5. APPROXIMATE AREA OF LIMITS OF DISTURBANCE = 1.9 ACRES.

MAPPING NOTE:

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SURVEY CONTROL NOTE:

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LEGEND

- EXISTING CONTOURS
- EXISTING HYDROGRAPHIC CONTOURS
- BASELINE
- FUTURE PWS BASELINE
- APPROXIMATE LIMITS OF DISTURBANCE
- JB — EXISTING JERSEY BARRIER
- OPF — EXISTING ORANGE PLASTIC FENCE
- UGE — EXISTING ELECTRIC
- UGC — EXISTING COMMUNICATIONS
- UGW — EXISTING WATER
- SD — EXISTING STORM PIPE
- X — EXISTING FENCE
- SF — EXISTING SILT FENCE

TABLE OF BASELINE COORDINATES

STATION	BASELINE	NORTHING	EASTING
0+00.0	BASELINE A	554,326.07	2,440,409.95
3+82.5	BASELINE A	554,157.88	2,440,753.52
4+37.8	BASELINE A	554,127.06	2,440,799.21
7+60.0	BASELINE A	553,911.78	2,441,038.95
8+25.3	BASELINE A	553,876.81	2,441,093.68
8+84.7	BASELINE A	553,853.34	2,441,148.33
9+58.4	BASELINE A	553,837.26	2,441,219.79
10+36.0	BASELINE A	553,834.37	2,441,297.34

BASELINE "A" CURVE DATA ①

P.I. STA. = 4+10.35
NORTHING =554,145.64
EASTING = 2,440,778.51
Δ = 15°50'17"
D = 28°38'52"
T = 27.82'
L = 55.28'
R = 200.00'
E = 1.93'
P.C. STA. = 3+82.53
P.T. STA. = 4+37.81

BASELINE "A" CURVE DATA ②

P.I. STA. = 7+92.94
NORTHING =553,889.79
EASTING = 2,441,063.44
Δ = 18°41'17"
D = 28°38'52"
T = 32.91'
L = 65.23'
R = 200.00'
E = 2.69'
P.C. STA. = 7+60.03
P.T. STA. = 8+25.27

BASELINE "A" CURVE DATA ③

P.I. STA. = 9+21.99
NORTHING =553,838.65
EASTING = 2,441,182.56
Δ = 21°06'04"
D = 28°38'52"
T = 37.25'
L = 73.66'
R = 200.00'
E = 3.44'
P.C. STA. = 8+84.74
P.T. STA. = 9+58.40

20 0 40 80 FEET
GRAPHIC SCALE

REVISED 90% SUBMITTAL
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGKIFFESCDX00000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV CD
R –	–	–	–	–	–	–	–	–	–	–	–
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–

ISSUED FOR REVIEW – REVISED 90% SUBMITTAL

DISCIPLINE INTERFACE 1 2 3 4

SCALE: 1"=40' EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING EXISTING CONDITIONS RDP-0114-H

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

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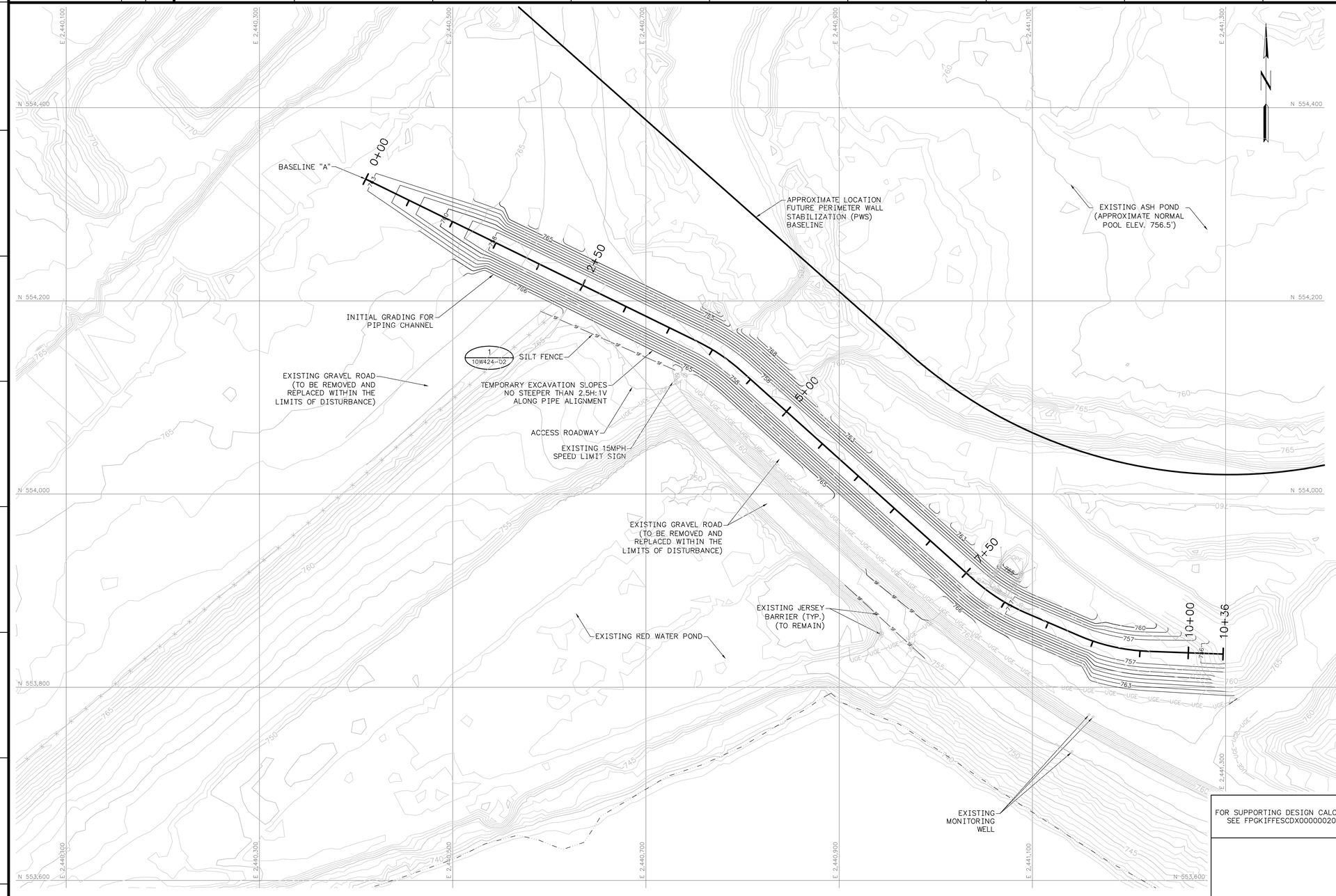
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000 | DATE 05/31/12 | 36 | C | 10W424-03 | R B

STANTEC | 0
TASK COMPLETED BY: | REV NO.

PLOT FACTOR:40
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY



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LEGEND

- EXISTING CONTOURS
- EXISTING HYDROGRAPHIC CONTOURS
- BASELINE
- FUTURE PWS BASELINE
- APPROXIMATE LIMITS OF DISTURBANCE
- SF — SILT FENCE
- JB — JB — EXISTING JERSEY BARRIER
- OPF — OPF — EXISTING ORANGE PLASTIC FENCE
- UGE — UGE — EXISTING ELECTRIC
- UGC — UGC — EXISTING COMMUNICATIONS
- UGW — UGW — EXISTING WATER
- SD — SD — EXISTING STORM PIPE
- X — X — EXISTING FENCE
- SF — SF — EXISTING SILT FENCE

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY

20 0 40 80 FEET
GRAPHIC SCALE

REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGK1FFESCDX000000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV. CO'S
R –	–	–	–	–	–	–	–	–	–	–	–
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–

ISSUED FOR REVIEW – REVISED 90% SUBMITTAL

DISCIPLINE INTERFACE

SCALE: 1"=40' EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
INTERIM GRADING
RDP-0114-H

Stantec Consulting Services Inc.
1859 Bowles Avenue
Suite 250
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63026-1944
Tel. 636.343.3880
Fax. 636.343.3554
www.stantec.com

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

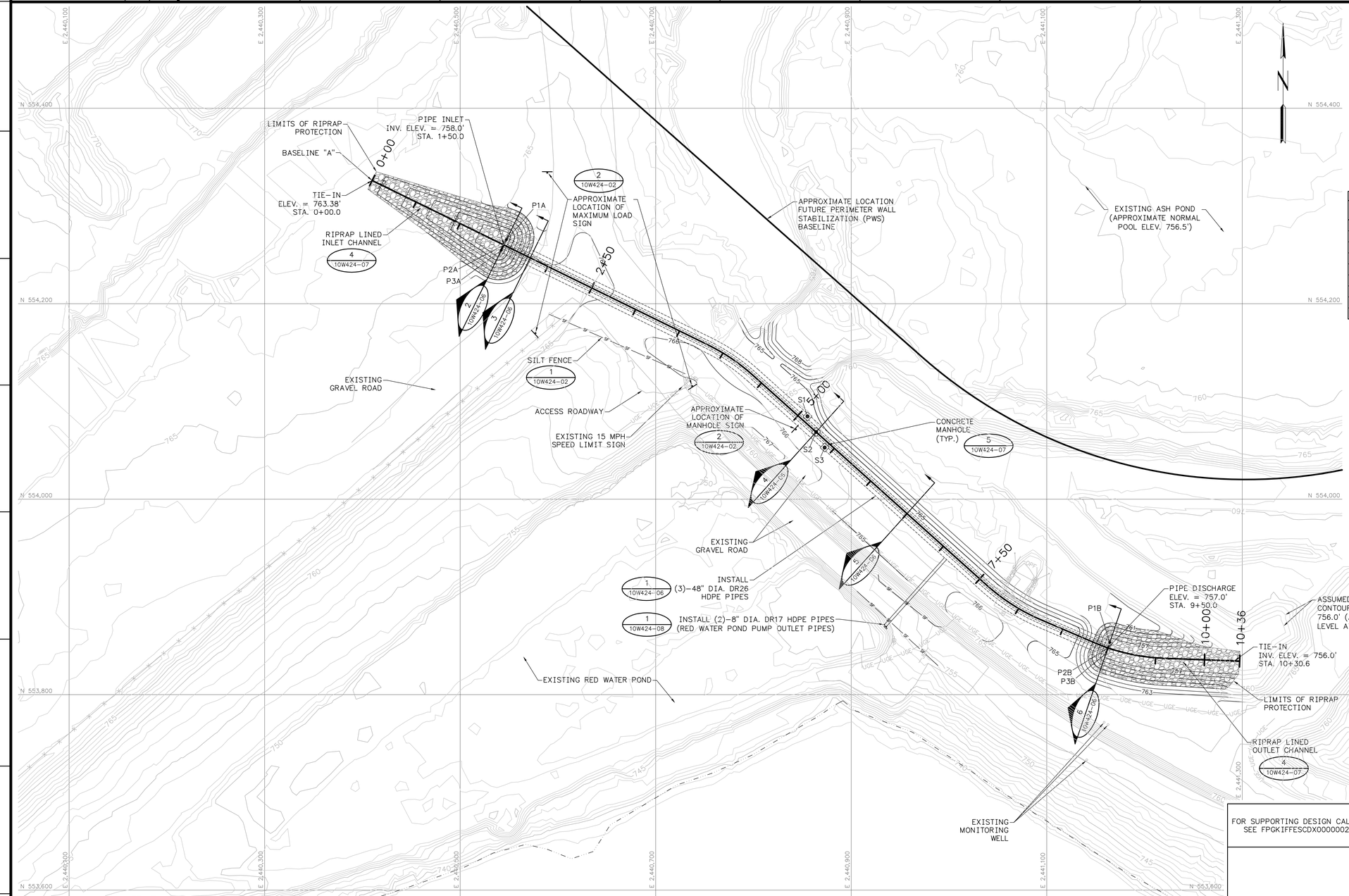
AUTOCAD R 2000	DATE 05/31/12	36	C	10W424-04	R B

STANTEC	0
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:40
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

PLOT DATE: 05/31/2012 USER: MYERS, TONY
U:\T7565201\2\ENVIRONMENTAL\DRAWING\SHEET_FILES\XFP2VREVS\VERS_PRO\10W424-04-RB.DWG



MAPPING NOTE:

THESE DRAWINGS WERE COMPILED USING SURVEY INFORMATION PROVIDED BY TVA. TOPOGRAPHIC SURVEY FILE "TOPO 3-01-12.DWG" DATED 03/01/2012. SITE FEATURES OBTAINED FROM TVA SURVEY PROVIDED BY TVA DATED 02/02/2012. HORIZONTAL COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NAD 27. ELEVATIONS ARE BASED ON NGVD 29.

SURVEY CONTROL NOTE:

A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

OUTLET STRUCTURE SCHEDULE

STRUCTURE REFERENCE	STRUCTURE DESCRIPTION	BASELINE	STATION	OFFSET	INVERT ELEV.
P1A	PIPE FLOWLINE AT INLET	A	0+00.00	(L) 6.00'	758.00'
P1B	PIPE FLOWLINE AT OUTLET	A	9+50.00	(L) 6.00'	757.00'
P2A	PIPE FLOWLINE AT INLET	A	0+00.00	(C) 0.00'	758.00'
P2B	PIPE FLOWLINE AT OUTLET	A	9+50.00	(C) 0.00'	757.00'
P3A	PIPE FLOWLINE AT INLET	A	0+00.00	(R) 6.00'	758.00'
P3B	PIPE FLOWLINE AT OUTLET	A	9+50.00	(R) 6.00'	757.00'
S1	PIPE FLOWLINE AT MANHOLE	A	5+07.83	(L) 6.00'	757.52'
S2	PIPE FLOWLINE AT MANHOLE	A	5+25.00	(C) 0.00'	757.50'
S3	PIPE FLOWLINE AT MANHOLE	A	5+42.17	(R) 6.00'	757.48'

LEGEND

- 390 — EXISTING CONTOURS
- 350 — EXISTING HYDROGRAPHIC CONTOURS
- BASELINE
- FUTURE PWS BASELINE
- APPROXIMATE LIMITS OF DISTURBANCE
- SF — SILT FENCE
- JB — JB — EXISTING JERSEY BARRIER
- OPF — OPF — EXISTING ORANGE PLASTIC FENCE
- UGE — UGE — EXISTING ELECTRIC
- UGC — UGC — EXISTING COMMUNICATIONS
- UGW — UGW — EXISTING WATER
- SD — SD — EXISTING STORM PIPE
- X — X — EXISTING FENCE
- SF — SF — EXISTING SILT FENCE

NOTE:

ITEMS TO BE RELOCATED SHOWN ON 10W424-03.

NOTE:

REFER TO DRAWING SERIES 17W410 FOR THE SUMP STATION DISCHARGE PIPING.

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY

20 0 40 80 FEET
GRAPHIC SCALE

REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGK1FFESCDX000000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	DISCIPLINE INTERFACE
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–

ISSUED FOR REVIEW - REVISED 90% SUBMITTAL

SCALE: 1"=40' EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
FINAL GRADING
RDP-0114-H

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
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KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000	DATE 05/31/12	36	C	10W424-05	R B

STANTEC | 0
TASK COMPLETED BY: | REV NO.

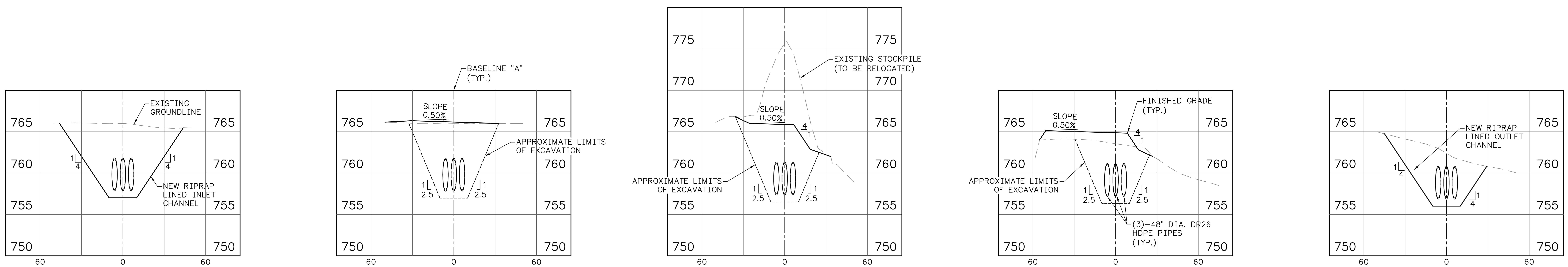
PLOT FACTOR:40
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

PLOT DATE: 05/31/2012 USER: MYERS, TONY
U:\T3560201\ENV\ENGINEERING\DRAWINGS\SHEET_FILES\V12F20\VERSIONS\VERSION_P90\10W424-05-RB.DWG

1 10W424-06 PROFILE – BASELINE A
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

NOTE:
SEE DETAILS 1 AND 2 ON SHEET 10W424-07 FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.



2 10W424-06 SECTION – 1+50
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

3 10W424-06 SECTION – 1+80
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

4 10W424-06 SECTION – 5+25
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

5 10W424-06 SECTION – 6+50
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

6 10W424-06 SECTION – 9+00
SCALE: 1"=30' (HORIZONTAL) 1"=5' (VERTICAL)

NOTE:
TEMPORARY EXCAVATION SLOPES SHALL BE NO STEEPER THAN 2.5H:1V.

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY

REVISED 90% SUBMITTAL
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGKIFFESCDX00000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK

ISSUED FOR REVIEW – REVISED 90% SUBMITTAL

SCALE: AS SHOWN EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
PROFILE AND SECTIONS
RDP-0114-H

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

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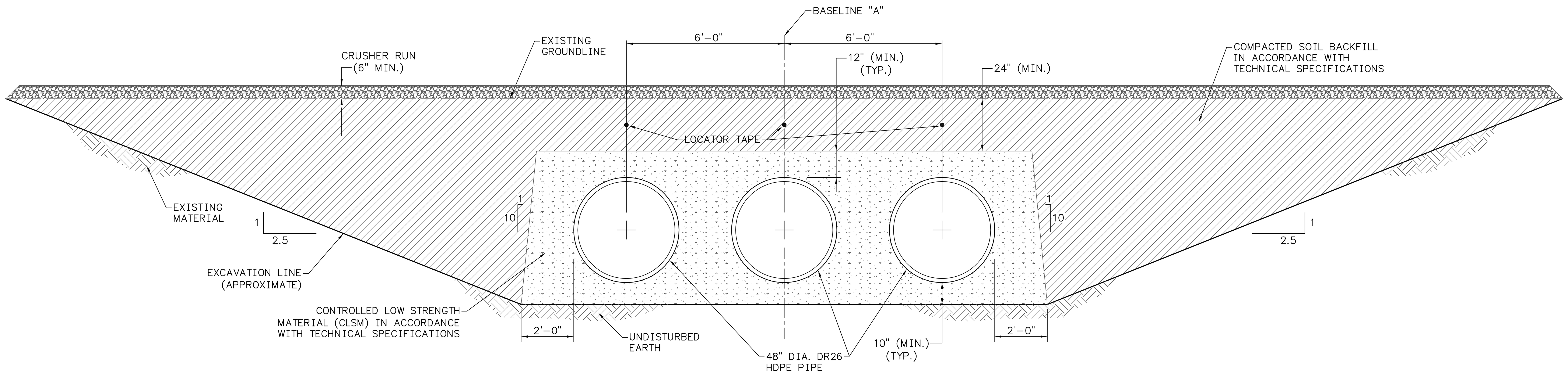
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000 | DATE 05/31/12 | 36 | C | 10W424-06 | R B

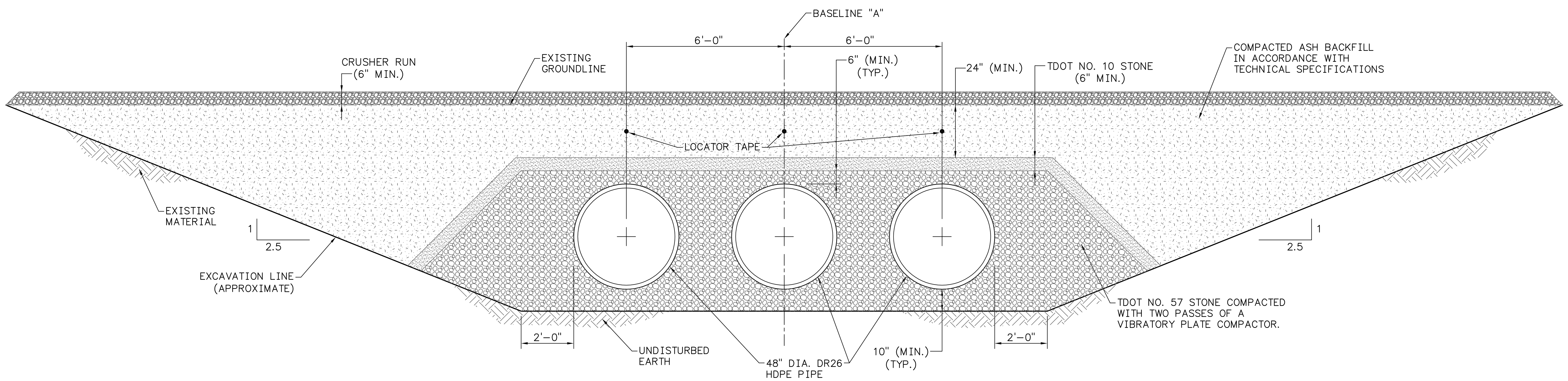
STANTEC | 0
TASK COMPLETED BY: | REV NO.

PLOT FACTOR:30
W_TVA

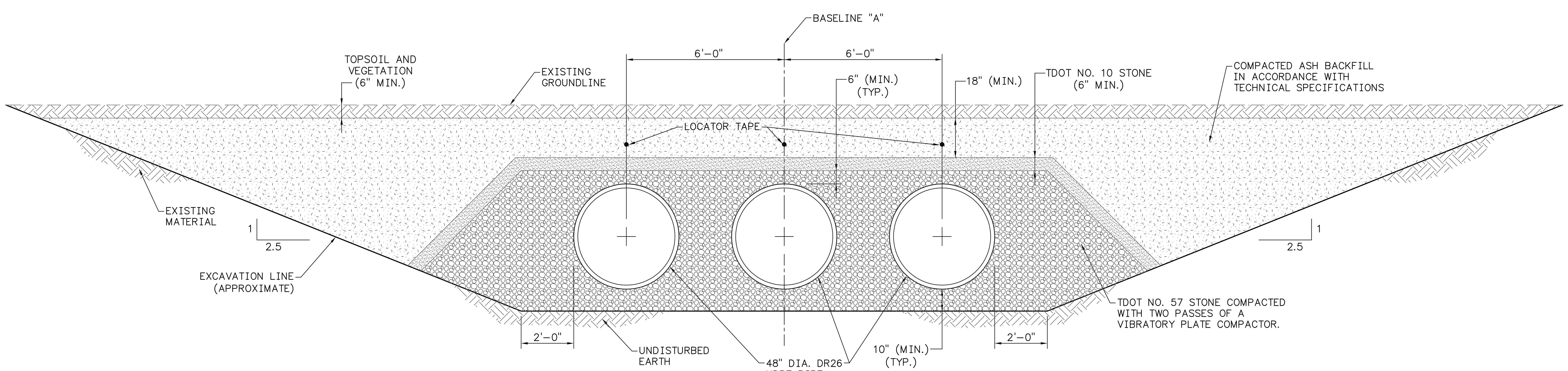
C.A.D. DRAWING
DO NOT ALTER MANUALLY



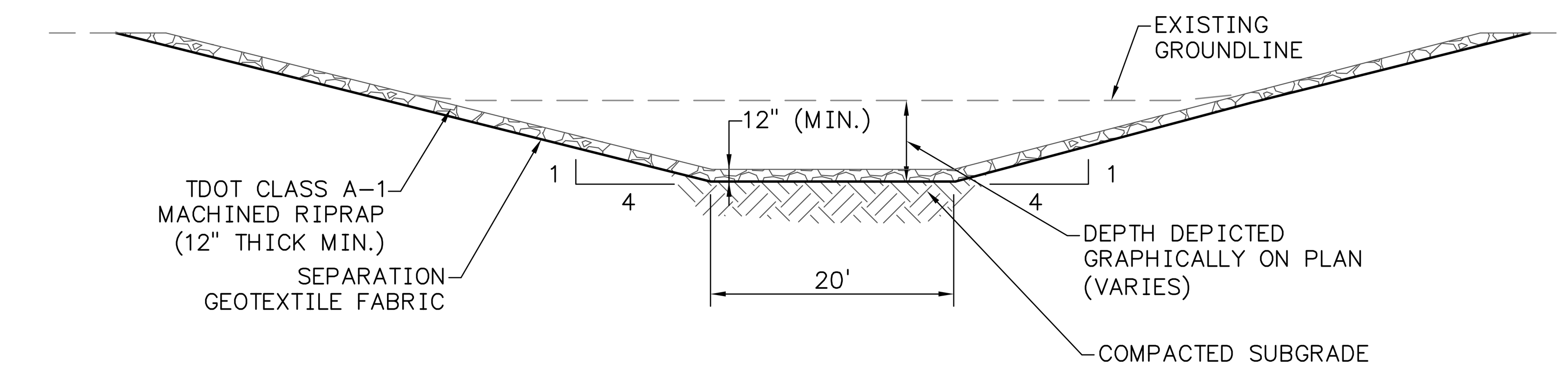
1 10W424-07 SECTION – CLSM PIPE BEDDING (APPROXIMATE STA 1+74 THRU 1+94)
SCALE: 1/2"= 1'



2 10W424-07 SECTION – PIPE BEDDING (TYPICAL IN AREAS SUBJECT TO TRAFFIC, APPROXIMATE STA. 1+94 THRU 3+80)
SCALE: 1/2"= 1'



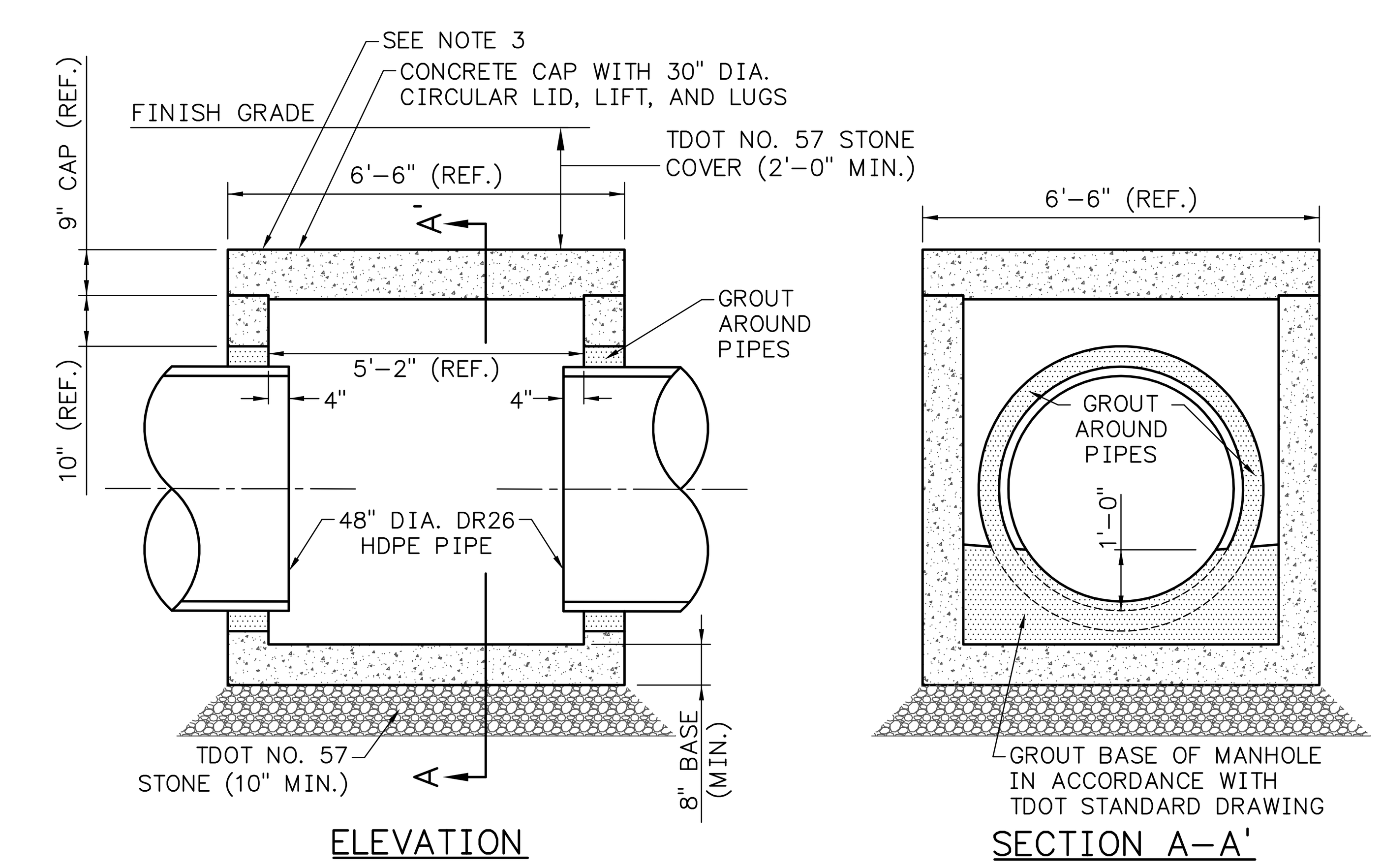
3 10W424-07 SECTION – PIPE BEDDING (TYPICAL IN AREAS NOT SUBJECT TO TRAFFIC, APPROXIMATE STA 3+80 THRU 9+00)
SCALE: 1/2"= 1'



4 10W424-07 SECTION – RIPRAP LINED CHANNEL (TYP.)
SCALE: 1"=10'

CONCRETE MANHOLE NOTES:

1. DETAIL FOR REFERENCE ONLY. MANHOLE TO BE IN ACCORDANCE WITH TDOT DRAWING D-MH-5.
2. ALL JOINTS ARE MORTAR FILLED UNLESS OTHERWISE SPECIFIED.
3. ALL FRAMES AND COVERS SHALL BE R-35 LIVE LOAD RATED WITH A MINIMUM OF 2-FOOT COVER OF TDOT NO. 57 STONE.
4. PRIOR TO MORTAR OF VENTS, VERIFY LINE AND GRADES OF INLET AND OUTLET PIPES.
5. SHOP DRAWINGS OF CONCRETE MANHOLES SHALL BE APPROVED BY QC MANAGER PRIOR TO MANUFACTURING.
6. REINFORCEMENT STEEL NOT SHOWN. USE ASTM C478 REINFORCEMENT, IN ACCORDANCE WITH TDOT DRAWING D-MH-5.
7. SOFT FOUNDATION CONDITIONS SHALL BE IMPROVED AS APPROVED BY THE QC MANAGER.
8. CONNECTION OF HDPE PIPE TO MANHOLE SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SUCH CONNECTION SHALL FORM A WATERTIGHT SEAL.
9. SAFETY CLIMB SYSTEM TO BE INSTALLED IN ACCORDANCE WITH SECTION 05 50 00 OF THE TECHNICAL SPECIFICATIONS.
10. FOUR OUTER CORNERS OF EACH MANHOLE TO BE SURVEYED AND RECORDED ON RECORD DRAWINGS.



5 10W424-07 DETAIL – CONCRETE MANHOLE
1/2" = 1'

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGKIFFESCDX00000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST
R –	–	–	–	–	–	–	–	–	–	–
R B	05/31/12	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–
	ISSUED FOR REVIEW – REVISED 90% SUBMITTAL									

SCALE: AS SHOWN EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING DETAILS
RDP-0114-H

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

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NOT FOR CONSTRUCTION

AUTOCAD R 2000 | DATE 05/31/12 | 36 | C | 10W424-07 | R B

STANTEC | 0
TASK COMPLETED BY: | REV NO.

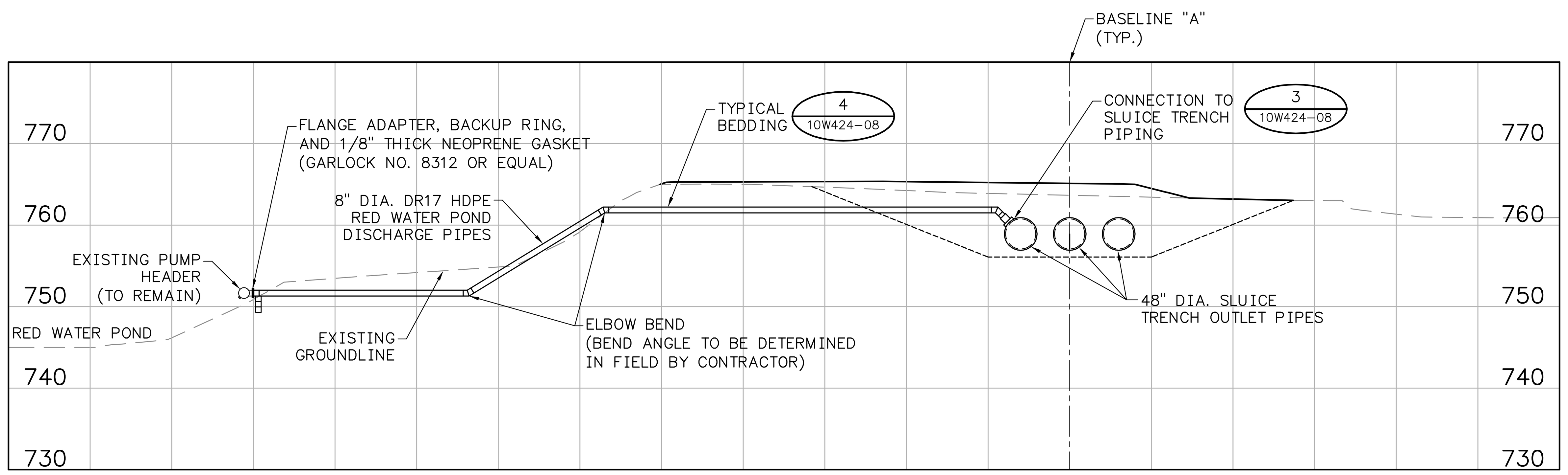
PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

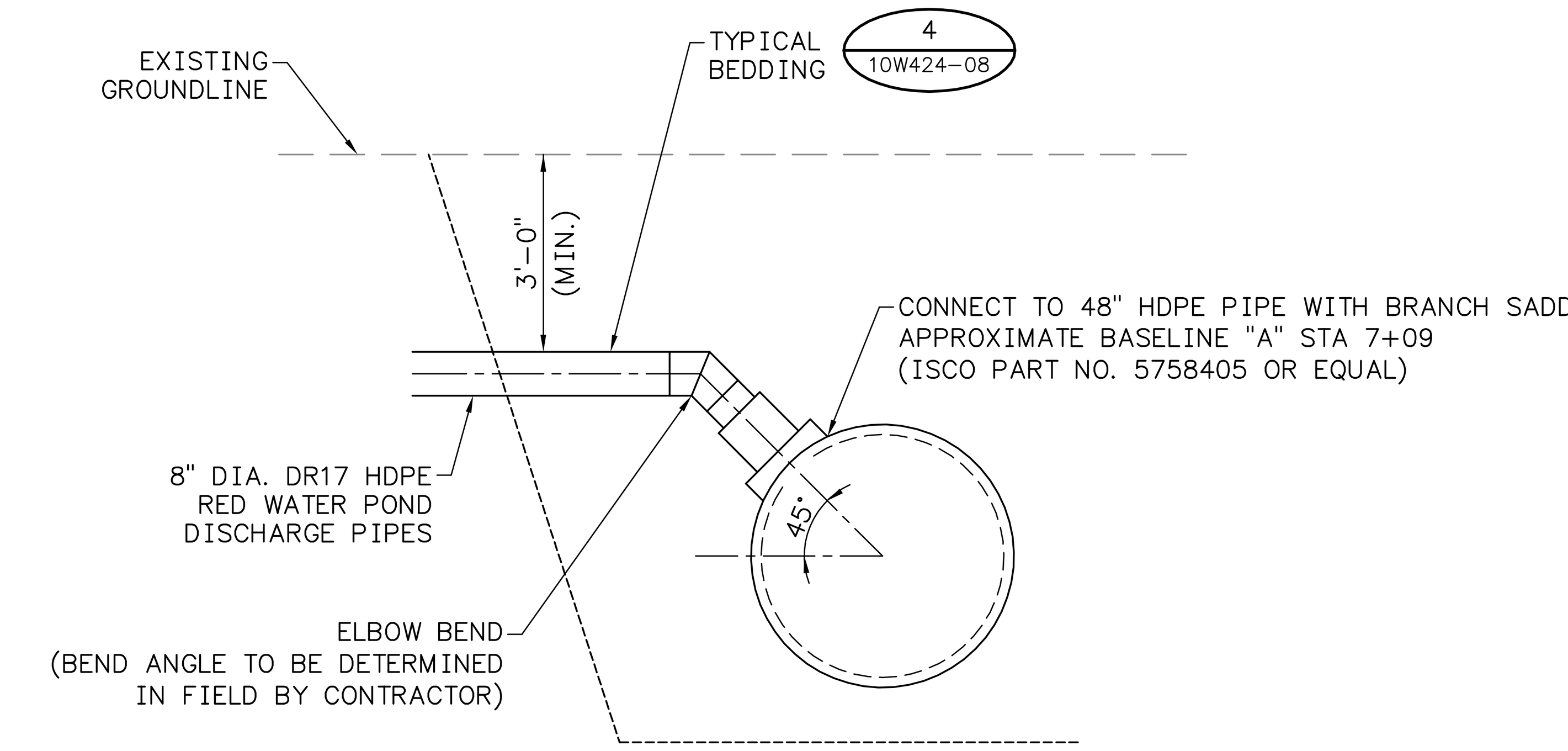
36 C 10W424-08

NOTE:

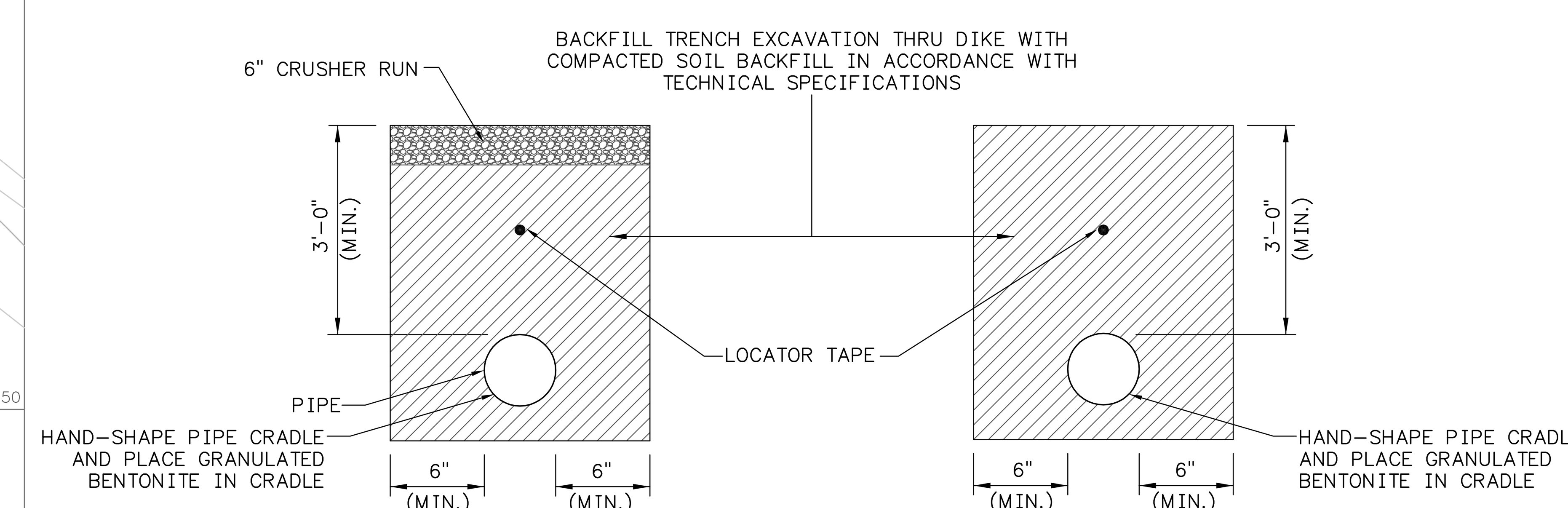
1. THE SUMP DISCHARGE PIPING SHALL BE INSPECTED FOR LEAK TIGHTNESS AND VERIFIED ACCEPTABLE PRIOR TO PIPE TRENCH BEING BACKFILLED. ALL TESTS SHALL BE WITNESSED BY THE QC MANAGER.



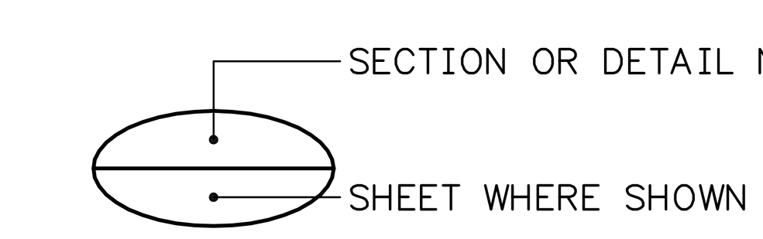
1 10W424-08 SECTION – DISCHARGE PIPE (APPROX. TIE IN AT STA. 7+09 OF BASELINE "A")
SCALE: 1"=10'



3 10W424-08 DETAIL – CONNECTION TO SLUICE TRENCH PIPING
NOT TO SCALE



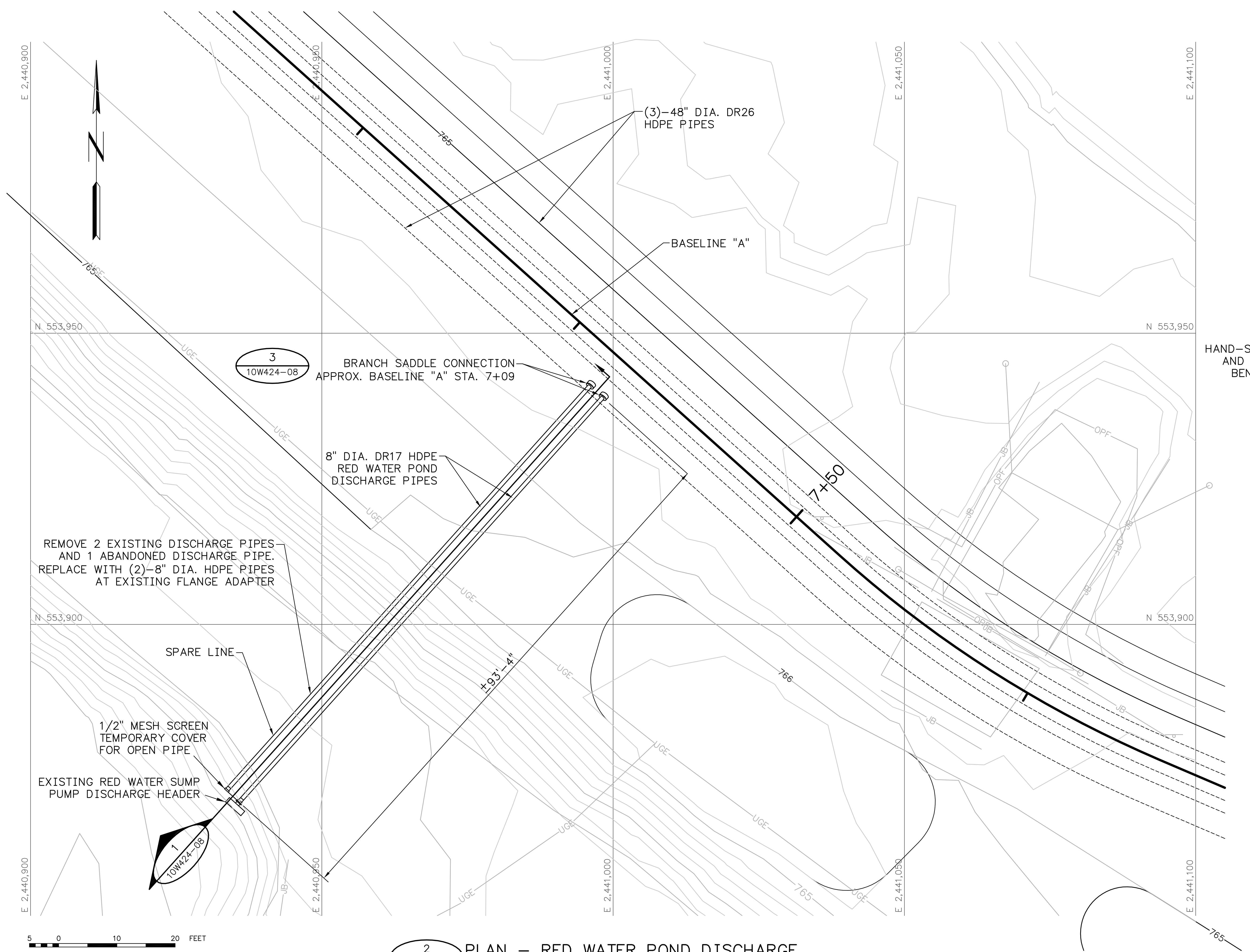
4 10W424-08 DETAIL – TYPICAL BEDDING DETAIL
NOT TO SCALE



REFERENCE KEY

LEGEND

—390—	EXISTING CONTOURS
---350---	EXISTING HYDROGRAPHIC CONTOURS
	BASELINE
—SF—	SILT FENCE
—JB—JB—	EXISTING JERSEY BARRIER
—OPF—OPF—	EXISTING ORANGE PLASTIC FENCE
—UGE—UGE—	EXISTING ELECTRIC
—UGC—UGC—	EXISTING COMMUNICATIONS
—UGW—UGW—	EXISTING WATER
—SD—SD—	EXISTING STORM PIPE
—X—X—	EXISTING FENCE
—SF—SF—	EXISTING SILT FENCE



2 10W424-08 PLAN – RED WATER POND DISCHARGE
SCALE: 1"=10'

MAPPING NOTE:

THESE DRAWINGS WERE COMPILED USING SURVEY INFORMATION PROVIDED BY TVA. TOPOGRAPHIC SURVEY FILE "TOPO 3-01-12.DWG" DATED 03/01/2012. SITE FEATURES OBTAINED FROM TVA SURVEY PROVIDED BY TVA DATED 02/02/2012. HORIZONTAL COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NAD 27. ELEVATIONS ARE BASED ON NGVD 29.

SURVEY CONTROL NOTE:

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REVISED 90% SUBMITTAL
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

NOTE:

ITEMS TO BE RELOCATED SHOWN ON 10W424-03.

FOR SUPPORTING DESIGN CALCULATIONS SEE FPGKIFFESCDX00000020120002

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV CD
R –	–	–	–	–	–	–	–	–	–	–	–
R B	05/31/18	TWW	TMM	DEH	MAH	VJD	MST	JCK	–	–	–

ISSUED FOR REVIEW – REVISED 90% SUBMITTAL

DISCIPLINE INTERFACE 1 2 3 4

SCALE: 1"=10' EXCEPT AS NOTED

YARD
ASH POND

SLUICE TRENCH OUTLET PIPING
RED WATER POND DISCHARGE
RDP-0114-H

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.W. WARD	T.M. MYERS	D.E. HERRON	M.A. HOY	V.J. DOTSON	M.S. TURNBOW	J.C. KAMMEYER

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FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000 | DATE 05/31/12 | 36 | C | 10W424-08 | R B

STANTEC | 0
TASK COMPLETED BY: | REV NO.

PLOT FACTOR:10
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

NOTES:

1. CSH DENOTES "CONSTRUCTION STARTS HERE."
2. ALL PIPE LINES SHALL BE TESTED AT A PRESSURE OF 100 PSI BEFORE BEING PLACED IN SERVICE.
3. ALL FIBERGLASS PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. FOR DETAILED INFORMATION ON FIBERGLASS PIPING, REFER TO SPEC, TVA CONTR.
5. ALL FIBERGLASS PIPE LINES SHALL BE LAID IN A TRENCH DWG IN UNDISTURBED OR THOROUGHLY CONSOLIDATED GROUND AND INSTALLED ON A BED OF WELL-COMPACTED SAND CAREFULLY SHAPED TO FIT THE LOWER PART OF THE PIPE EXTERIOR FOR A WIDTH OF AT LEAST 60% OF THE PIPE BREADTH. THE REMAINDER OF THE PIPE SHALL BE ENTIRELY SURROUNDED TO A HEIGHT OF AT LEAST 1' ABOVE TOP OF THE PIPE WITH WELL-COMPACTED SAND.
6. THE FIELD SHALL PROVIDE A SOLID CONCRETE THRUST BLOCK AGAINST FIRM EARTH WHERE THE STATION SUMP DISPOSAL LINE CHANGES DIRECTION. SEE DETAIL B1. AIR PREHEATER WASH AND ACID CLEANING DISPOSAL ELBOWS THAT EXCEED 15° SHALL BE ENCASED IN CONCRETE.
7. THE EXTERIOR SURFACE OF ALL UNDERGROUND FIELD WELDED JOINTS SHALL BE CLEANED AND COATED WITH A COLD APPLICATION OF BITUMASTIC NO. 50 ENAMEL WITH A BONDED ASBESTOS FELT WRAPPER.
8. ABOVE GROUND INTERMEDIATE PIPE SUPPORTS SHALL BE CREOSOTED TIMBERS SUPPLIED BY FIELD AND SPACED 20' ± OC FOR STATION SUMP DISPOSAL AND 15' ± OC FOR AIR PREHEATER WASH AND ACID CLEANING DISPOSAL LINES.
9. GUIDE SUPPORTS SHALL BE SPACED 100' ± OC ALONG STRAIGHT RUNS AND 5' ± ON EACH SIDE OF BENDS THAT EXCEED 15. SEE DETAIL K1, DETAIL N2 AND DETAIL P2.
10. FOR STATION SUMP DISCHARGE EXTENSION TO ASH POND NOTES, REFERENCE DRAWINGS AND BILL OF MATERIAL SEE DRAWING 17W410-4.
11. FOR BILL OF MATERIAL ITEMS SHOWN (XXX) SEE DRAWING 17W410-4.

REFERENCE DRAWINGS:

17BM410 -------- BILL OF MATERIAL
17BM410-1 ------ BILL OF MATERIAL

: DEMOLISH

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NOT FOR CONSTRUCTION

COMPANION DRAWINGS: 17W410-2

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST
R 0	05/31/12	TWW	TMM		MAH	VJD	MST	JCK		
ISSUED FOR RDP-0114-H SLUICE TRENCH OUTLET PIPING										

SCALE: ¼"=1'-0" EXCEPT AS NOTED

YARD
UNITS 1-9

MECHANICAL-STATION SUMP
AIR PREHTR WASH & ACID
CLEANING DISPOSAL (NLDF) DEMOLITION

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
J.L.WILSON S.R.CATHEY	S.R.CATHEY	J.L.WILSON	H.B.HENRY			

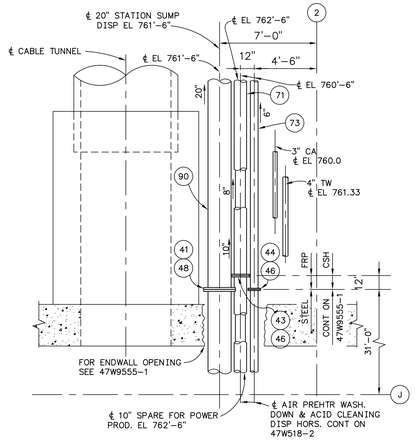
KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R2K | DATE 12-22-76 | 36 | M | 17W410-1X | R 0

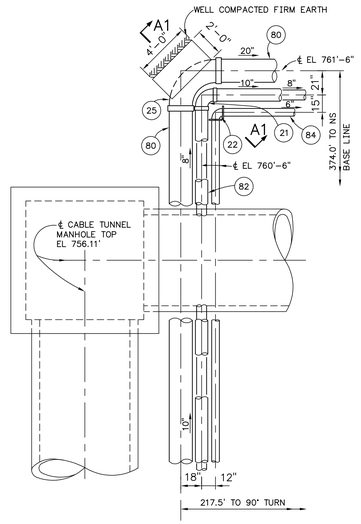
PLOT FACTOR:48
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

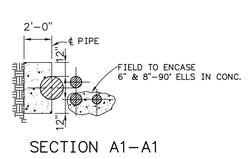
TASK COMPLETED BY: | REV NO.



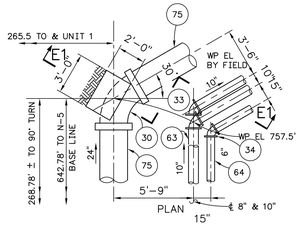
DETAIL A1



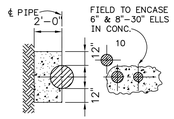
DETAIL-B1
THRUST BLOCK
1/4" = 1'-0"



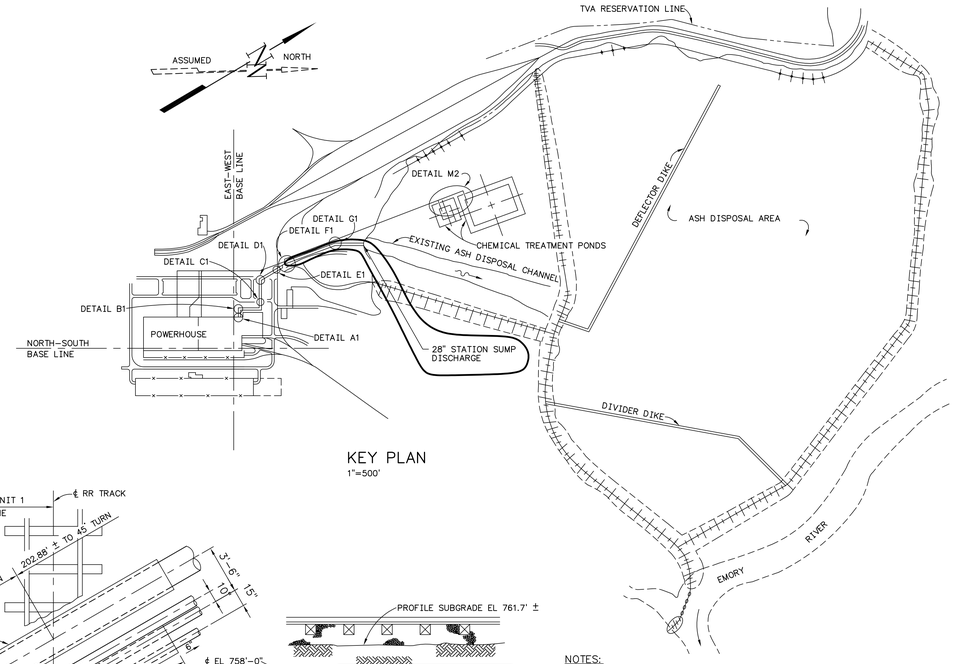
SECTION A1-A1



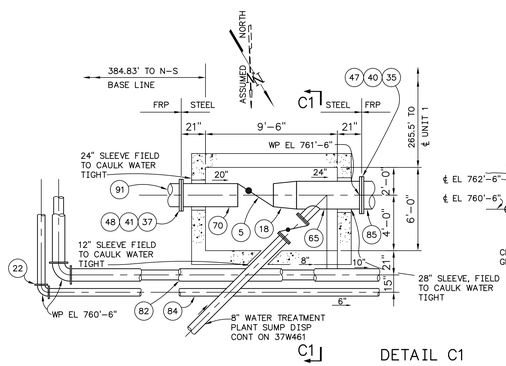
DETAIL D1



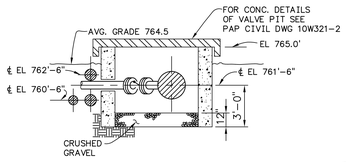
SECTION EL-EL



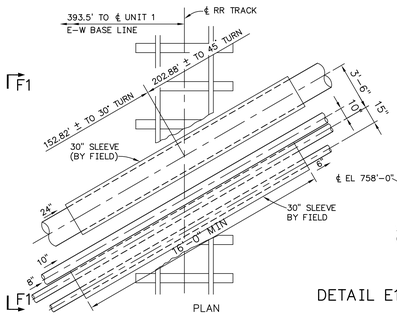
KEY PLAN
1"=500'



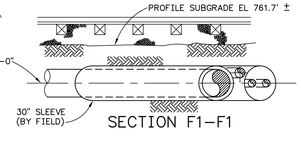
DETAIL C1
VALVE PIT
1/4" = 1'-0"



SECTION C1-C1



DETAIL E1



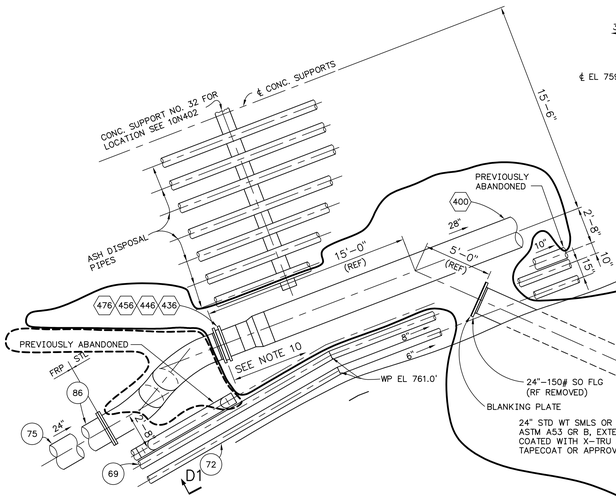
SECTION F1-F1

NOTES:

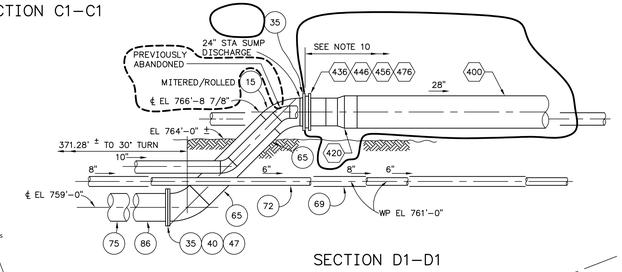
1. CSH DENOTES "CONSTRUCTION STARTS HERE."
2. ALL PIPE LINES SHALL BE TESTED AT A PRESSURE OF 100 PSI BEFORE BEING PLACED IN SERVICE.
3. ALL FIBERGLASS PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. FOR DETAILED INFORMATION ON FIBERGLASS PIPING, REFER TO SPEC, TVA CONTR.
5. ALL FIBERGLASS PIPE LINES SHALL BE LAID IN A TRENCH DWG IN UNDISTURBED OR THOROUGHLY CONSOLIDATED GROUND AND INSTALLED ON A BED OF WELL-COMPACTED SAND CAREFULLY SHAPED TO FIT THE LOWER PART OF THE PIPE EXTERIOR FOR A WIDTH OF AT LEAST 60% OF THE PIPE BREADTH. THE REMAINDER OF THE PIPE SHALL BE ENTIRELY SURROUNDED TO A HEIGHT OF AT LEAST 1' ABOVE TOP OF THE PIPE WITH WELL-COMPACTED SAND.
6. THE FIELD SHALL PROVIDE A SOLID CONCRETE THRUST BLOCK AGAINST FIRM EARTH WHERE THE STATION SUMP DISPOSAL LINE CHANGES DIRECTION. SEE DETAIL B1. AIR PREHEATER WASH AND ACID CLEANING DISPOSAL ELBOWS THAT EXCEED 15° SHALL BE ENCASED IN CONCRETE.
7. THE EXTERIOR SURFACE OF ALL UNDERGROUND FIELD WELDED JOINTS SHALL BE CLEANED AND COATED WITH A COLD APPLICATION OF BITUMASTIC NO. 50 ENAMEL WITH A BONDED ASBESTOS FELT WRAPPER.
8. ABOVE GROUND INTERMEDIATE PIPE SUPPORTS SHALL BE CREOSOTED TIMBERS SUPPLIED BY FIELD AND SPACED 20' ± OC FOR STATION SUMP DISPOSAL AND 15' ± OC FOR AIR PREHEATER WASH AND ACID CLEANING DISPOSAL LINES.
9. GUIDE SUPPORTS SHALL BE SPACED 100' ± OC ALONG STRAIGHT RUNS AND 5' ± ON EACH SIDE OF BENDS THAT EXCEED 15°. SEE DETAIL K1, DETAIL N2 AND DETAIL P2.
10. FOR BILL OF MATERIAL ITEMS SHOWN (XXX) SEE DRAWING 17W410-3.

REFERENCE DRAWINGS:

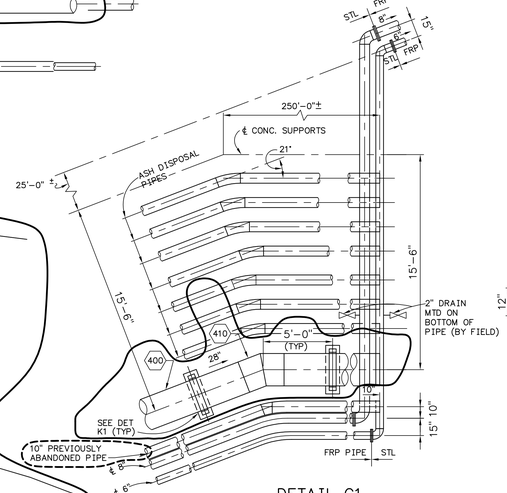
17BM410 -------- BILL OF MATERIAL
17BM410-1 ------- BILL OF MATERIAL



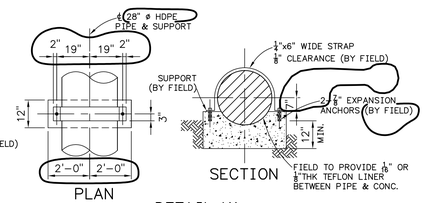
DETAIL F1



SECTION D1-D1



DETAIL G1



DETAIL K1
1/2"=1'-0"

REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

: DWG R5 CHANGE

: DOC ONLY CHANGE

COMPANION DRAWINGS: 17W410-2, 17W410-3

REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV. CD
R 5	05/31/12	TWW	TMM		MAH	VJD	MST	JCK			D
REVISED FOR RDP-0114-H SLUICE TRENCH OUTLET PIPING											
R 3	10-14-99	SRC	FPR	SRC	JEB		JEB				H
ELECTRONICALLY RESTORED - NO MODIFICATIONS											

SCALE: 1/4"=1'-0" EXCEPT AS NOTED

YARD
UNITS 1-9

MECHANICAL-STATION SUMP AIR PREHTR WASH & ACID CLEANING DISPOSAL (NLDF)

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
J.L.WILSON S.R.CATHEY	S.R.CATHEY	J.L.WILSON	H.B.HENRY			

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R2K	DATE 12-22-76	36	M	17W410-1	R 5

TASK COMPLETED BY:	REV NO.

PLOT FACTOR:48
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

NOTES:

1. DRAWING BILL OF MATERIAL AND NOTES APPLICABLE TO THIS DRAWING, AND PORTIONS OF DRAWING 17W410-1 AS INDICATED.
2. ALL PIPING AND SPECIALTIES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS UNLESS OTHERWISE SPECIFIED.
3. THE STATION SUMP DISCHARGE PIPING SHALL BE INSPECTED FOR LEAK TIGHTNESS PRIOR TO BEING PLACED INTO SERVICE. ALL TESTS SHALL BE WITNESSED BY QC MANAGER.
4. CONTRACTOR TO PROVIDE TEMPORARY SECURED COVERS FOR OPEN ENDS OF PIPING TO PREVENT DEBRIS FROM ENTERING THE PIPING SYSTEM DURING THE PERFORMANCE OF OTHER WORK.
5. FABRICATED HDPE FITTINGS DESCRIBED IN B/M AS "FULL PRESS RATED TO SDR17" SHALL BE PRODUCED FROM PIPE WITH SMALLER SDR (THICKER WALL) THAN THE PIPE TO WHICH THE FABRICATED FITTING IS JOINED. THIS IS TO ALLOW THE FABRICATED FITTING TO OPERATE AT THE DESIGN PRESSURE OF THE PIPE.
6. HDPE PIPING MAY BE COLD BENT TO A MINIMUM RADIUS OF 26 TIMES THE PIPE OUTSIDE DIAMETER. IF FITTINGS ARE PRESENT WITHIN THE BEND, CONSULT THE MANUFACTURER FOR THE MINIMUM BEND RADIUS.
7. HDPE PIPE AND FITTINGS SHALL BE JOINED BY A HEAT/BUTT FUSION METHOD, RESULTING IN FULLY RESTRAINED JOINTS. ALL OTHER JOINT TYPES IN THIS SYSTEM MODIFICATION ARE FLANGED OR BUTT WELDED WHICH ARE ALSO FULLY RESTRAINED. THEREFORE, THRUST BLOCK ARE NOT NORMALLY REQUIRED. HOWEVER INTERFACES TO SYSTEMS WITH UNRESTRAINED JOINTS OR MATERIAL TYPES THAT CANNOT HANDLE EXPECTED LOADS (e.g. FIBERGLASS PIPE) MAY REQUIRE THRUST BLOCKS. THE CONTRACTOR IS RESPONSIBLE TO DESIGN AND INSTALL THESE THRUST BLOCKS IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. THRUST BLOCK DESIGNS TO BE REVIEWED BY ENGINEERING.

~~8. FOR STATION SUMP DISCHARGE EXTENSION PROJECT NOTES, REFERENCE DRAWINGS AND BILL OF MATERIAL SEE DRAWING 17W410-4.~~

ITEM NO.	QTY	MATERIAL DESCRIPTION FOR DRAWING NUMBER/SERIES	CONTRACT NUMBER
400	170 FEET	PIPE – HIGH DENSITY POLYETHYLENE (HDPE), ASTM D3350, CELL CLS 345464C (PE 3408), TO ASTM F714, PE, SDR 17, IPS. 28"	
410	1 EA	FITTING – HIGH DENSITY POLYETHYLENE (HDPE), FABRICATED ELBOW, ASTM D3350, CL 345464C (PE 3408), PE, FULL PRESS RATED TO SDR 17, IPS, FAB FROM LOWER SDR. 22.5° FABRICATED ELBOW 28"	
420	1 EA	CONCENTRIC REDUCER 28" x 24"	
436	1 EA	FLANGE ADAPTER – HIGH DENSITY POLYETHYLENE (HDPE), ASTM D3350, CELL CLS 345464C (PE 3408), TO ASTM D3261, PE, FULL PRESS RATED TO SDR 17, IPS. 24"	
446	1 EA	BACK-UP RING – DI, ASTM A536 GR RANGE 60/40/18 TO 65/45/12, AWWA C207 CLASS 150 PATTERN, RATED FOR 150 PSIG, IPS, EPOXY COATED. 24"	
456	1 EA	GASKETS – $\frac{1}{8}$" THICK, NEOPRENE, GARLOCK NO. 8312, OR EQUAL. (FULL FACE TYPE, BOLT HOLES FOR 150-POUND ANSI.) 24"	
476	20 EA	STUD BOLTS – W/2 HEAVY HEX NUTS & 2 WASHERS, ASTM A193 GR B8M CLS 1, ASTM A194 GR 8M 1 1/4" x 6 3/4" LG (24"-150# FLG HDPE JT)	

REVISED 90% SUBMITTAL
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION

: DEMOLISH

REFERENCE DRAWINGS:
10W200-1 _____ GENERAL PLAN
47W9852-4 _____ FLOW DIAGRAM STATION DRAINAGE

COMPANION DRAWINGS:
SEE DRAWING 17W410-1

REV NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST
R										
0	05/31/12	TWW	TMM		MAH	VJD	MST	JCK		D

ISSUED FOR RDP-0114-H SLUICE TRENCH OUTLET PIPING

DISCIPLINE INTERFACE

SCALE: 1" = 100' EXCEPT AS NOTED

YARD
UNITS 1-9

MECHANICAL
STATION SUMP DISCHARGE DEMOLITION

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R2K	DATE	36	M	17W410-3	R 0

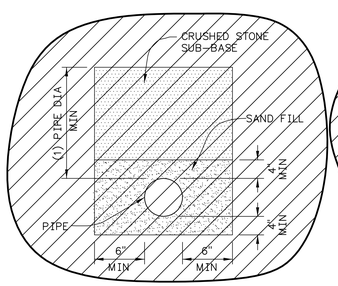
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:1200
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY

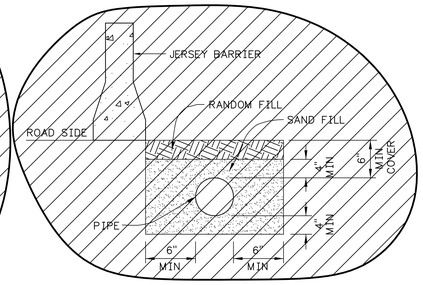
ITEM NO.	QTY	MATERIAL DESCRIPTION FOR DRAWING NUMBER/SERIES	CONTRACT NUMBER
		PIPE – CARBON STEEL, STANDARD WEIGHT, SEEMLESS OR WELDED, ASTM A53 GR B	
300	20 FEET	6"	
305	480 FEET	24" (SEE NOTE 14)	
		FITTING – CARBON STEEL, BUTT WELD, STANDARD WEIGHT, ASTM A234 GR WPB	
		45° ELBOW	
310	4 EA	24"	
		CONCENTRIC REDUCER	
320	1 EA	36" x 24"	
		FLANGES – 150 LB, RAISED FACE REMOVED, SLIP-ON, STANDARD WEIGHT BORE, ASTM A105	
334	3 EA	24"	
336	1 EA	36"	
		GASKETS – $\frac{1}{8}$" THICK, NEOPRENE, GARLOCK NO. 8312, OR EQUAL. (FULL FACE TYPE, BOLT HOLES FOR 150-POUND ANSI.)	
354	2 EA	24"	
356	1 EA	36"	
		STUD BOLTS – W/2 HEAVY HEX NUTS & 2 WASHERS, ASTM A193 GR B8M CLS 1, ASTM A194 GR 8M	
374	40 EA	1 1/4" x 6 3/4" LG (24"-150# FLG JT)	
376	32 EA	1 1/2" x 15" LG (36"-150# FLG HDPE JT)	

ITEM NO.	QTY	MATERIAL DESCRIPTION FOR DRAWING NUMBER/SERIES	CONTRACT NUMBER
		PIPE – HIGH DENSITY POLYETHYLENE (HDPE), ASTM D3350, CELL CLS 345464C (PE 3408), TO ASTM F714, PE, SDR 17, IPS.	
400	1900 FEET	42"	
		FITTING – HIGH DENSITY POLYETHYLENE (HDPE), FABRICATED ELBOW, ASTM D3350, CL 345464C (PE 3408), PE, FULL PRESS RATED TO SDR 17, IPS, FAB FROM LOWER SDR.	
		45° FABRICATED ELBOW	
410	4 EA	42"	
		CONCENTRIC REDUCER	
420	1 EA	42" x 36"	
		FLANGE ADAPTER – HIGH DENSITY POLYETHYLENE (HDPE), ASTM D3350, CELL CLS 345464C (PE 3408), TO ASTM D3261, PE, FULL PRESS RATED TO SDR 17, IPS.	
436	1 EA	36"	
		BACK-UP RING – DI, ASTM A536 GR RANGE 60/40/18 TO 65/45/12, AWWA C207 CLASS 150 PATTERN, RATED FOR 150 PSIG, IPS, EPOXY COATED.	
446	1 EA	36"	



DETAIL A4
SCALE: NONE

TYPICAL BEDDING DETAIL FOR AREAS SUBJECT TO TRAFFIC



DETAIL B4
SCALE: NONE

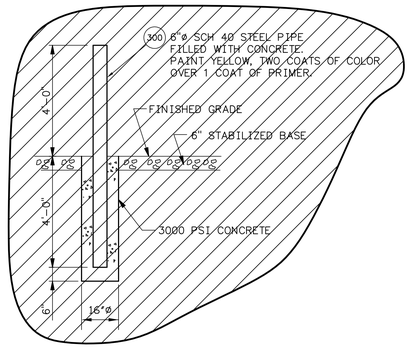
TYPICAL BEDDING DETAIL FOR AREAS NOT SUBJECT TO TRAFFIC

BEDDING NOTES:

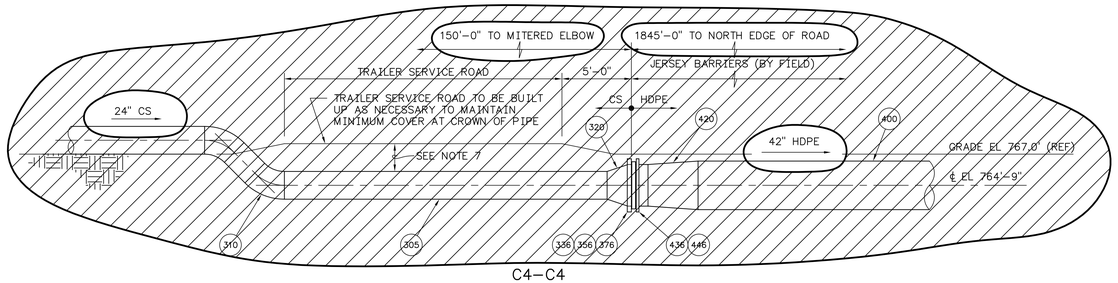
A. SAND FILL TO BE PLACED IN MAXIMUM 6" LIFTS WITH EACH LIFT RECEIVING A MINIMUM OF THREE PASSES WITH A PLATE COMPACTOR.

B. CRUSHED STONE SUB-BASE TO BE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY (ASTM D1557).

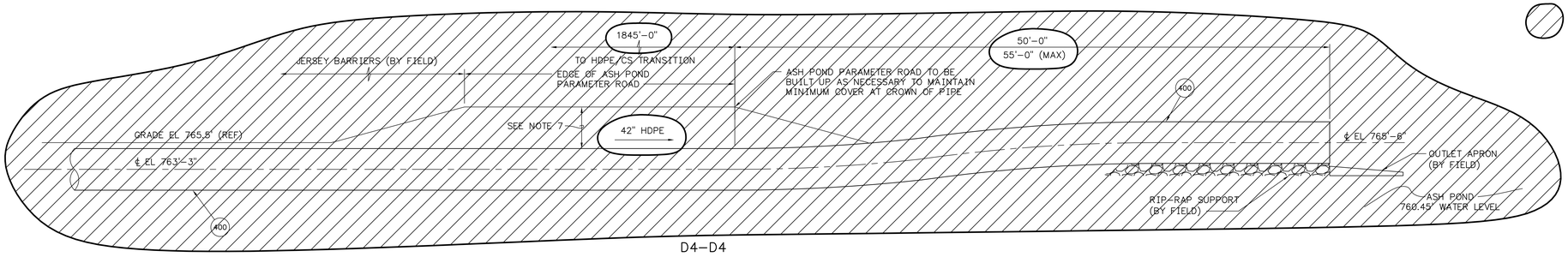
C. RANDOM FILL TO BE COMPACTED TO 90% OF MODIFIED PROCTOR DENSITY (ASTM D1557).



DETAIL E4
PIPE BOLLARD
SCALE: NONE



C4–C4



D4–D4

: DEMOLISH

COMPANION DRAWINGS:
SEE DRAWING 17W410-1

NOTES:

1. DRAWING BILL OF MATERIAL AND NOTES APPLICABLE TO THIS DRAWING, DRAWING 17W410-3 AND PORTIONS OF DRAWING 17W410-1 DETAIL F1 AS INDICATED.
2. ALL PIPING AND SPECIALTIES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS UNLESS OTHERWISE SPECIFIED.
3. ALL WELDING TO BE IN ACCORDANCE WITH TVA POWER WELDING MANUAL. ALL WELDS TO RECEIVE A FINAL VISUAL INSPECTION PER THE ABOVE NOTED MANUAL.
4. THE STATION SUMP DISCHARGE PIPING SHALL BE INSPECTED FOR LEAK TIGHTNESS AND VERIFIED ACCEPTABLE PRIOR TO PIPE TRENCH BEING BACKFILLED. ALL TESTS SHALL BE WITNESSED BY THE OWNER'S ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.
5. FIELD TO PROVIDE TEMPORARY SECURED COVERS FOR OPEN ENDS OF PIPING TO PREVENT DEBRIS FROM ENTERING THE PIPING SYSTEM DURING THE PERFORMACE OF OTHER WORK.
6. CARBON STEEL PIPING SHALL BE CLEANED FREE OF SCALE, DIRT, RUST AND WELDING ICICLES.
7. ALL BURIED PIPE SHALL BE BEDDED AND BACKFILLED PER DETAIL A4 OR B4 UNLESS OTHERWISE NOTED. PIPING CENTERLINE ELEVATIONS ARE NOTED FOR REFERENCE, DEPTH OF PIPE TO BE GOVERNED BY LOCAL GRADE & MINIMUM COVER NOTED.
8. ALL EXCAVATIONS FOR INSTALLATION OF UNDERGROUND PIPING SHALL BE PROTECTED BY TRENCHBOX, SHORING, BRACING, OR SHEET PILING AS REQUIRED TO PREVENT CAVE-IN OF LOOSE SOIL INTO EXCAVATION IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART B-EXCAVATION.
9. FIELD SHALL PLACE DETECTABLE MARKING TAPE FOR PROTECTION OF UNDERGROUND PIPING. TAPE SHALL BE PLACED 18" BELOW GRADE DIRECTILY ABOVE ALL BURIED NON-METALLIC PIPE. TAPE TO BE CONSTRUCTED OF A CORROSION RESISTANT, CHEMICALLY INERT MATERIAL. TAPE TO BE 6" IN WIDTH AND HAVE A SOLID FOIL CORE TO PROVIDE DETECTIBILITY BY USE OF EITHER INDUCTIVE OR CONDUCTIVE METHODS OF UNDERGROUND LOCATION. TERRA-TAPE PART NO. 42-0117 (GREEN) OR EQUAL.
10. FABRICATED HDPE FITTINGS DESCIRBED IN B/M AS "FULL PRESS RATED TO SDR17" SHALL BE PRODUCED FROM PIPE WITH SMALLER SDR (THICKER WALL) THAN THE PIPE TO WHICH THE FABRICATED FITTING IS JOINED. THIS IS TO ALLOW THE FABRICATED FITTING TO OPERATE AT THE DESIGN PRESSURE OF THE PIPE.
11. HDPE PIPING MAY BE COLD BENT TO A MINIMUM RADIUS OF 40 TIMES THE PIPE OUTSIDE DIAMETER. IF FITTINGS ARE PRESENT WITHIN THE BEND, CONSULT THE MANUFACTURER FOR THE MINIMUM BEND RADIUS.
12. HDPE PIPE AND FITTINGS SHALL BE JOINED BY A HEAT/BUTT FUSION METHOD, RESULTING IN FULLY RESTRAINED JOINTS. ALL OTHER JOINT TYPES IN THIS SYSTEM MODIFICATION ARE FLANGED OR BUTT WELDED WHICH ARE ALSO FULLY RESTRAINED. THEREFORE, THRUST BLOCK ARE NOT NORMALLY REQUIRED. HOWEVER INTERFACES TO SYSTEMS WITH UNRESTRAINED JOINTS OR MATERIAL TYPES THAT CANNOT HANDLE EXPECTED LOADS (e.g. FIBERGLASS PIPE) MAY REQUIRE THRUST BLOCKS. THE CONTRACTOR IS RESPONSIBLE TO DESIGN AND INSTALL THESE THRUST BLOCKS IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. THRUST BLOCK DESIGNS TO BE REVIEWED BY ENGINEERING.
13. PREPARE EXPOSED CARBON STEEL PIPE BOLLARDS AND DRAINAGE PIPING FOR PAINTING PER STEEL STRUCTURES PAINTING COUNCIL SP6. COMMERCIAL BLAST CLEAN AND APPLY ONE COAT INORGANIC ZINC PRIMER, 3 MILS DFT. APPLY TWO COATS OF FINAL COLOR (GREEN) TO DRAINAGE PIPING, (YELLOW) TO BOLLARDS, 3 MILS DFT EACH.
14. ALL BURIED CARBON STEEL PIPING SHALL BE EXTERNALLY COATED WITH X-TRU COAT, TAPECOAT, OR ENGINEER APPROVED EQUAL BY MANUFACTURER. FIELD SHALL COAT ALL FIELD JOINTS AND FITTINGS WITH 2 LAYERS OF SPIRAL-WRAPPED HOT ASPHALTIC TAPE (TAPECOAT OR ENGINEER APPROVED EQUAL).

REFERENCE DRAWINGS:

10W200-1 _____ GENERAL PLAN
47W9852-4 ____ FLOW DIAGRAM STATION DRAINAGE

REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

R													
R 0	05/31/12	TWW	TMM		MAH	VJD	MST	JCK					D
ISSUED FOR RDP-0114-H SLUICE TRENCH OUTLET PIPING													DISCIPLINE INTERFACE
REV NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST	REV NO.		
SCALE: $\frac{1}{4}$" = 1'-0"										EXCEPT AS NOTED			

YARD
UNITS 1-9

MECHANICAL
STATION SUMP DISCHARGE DEMOLITION

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:

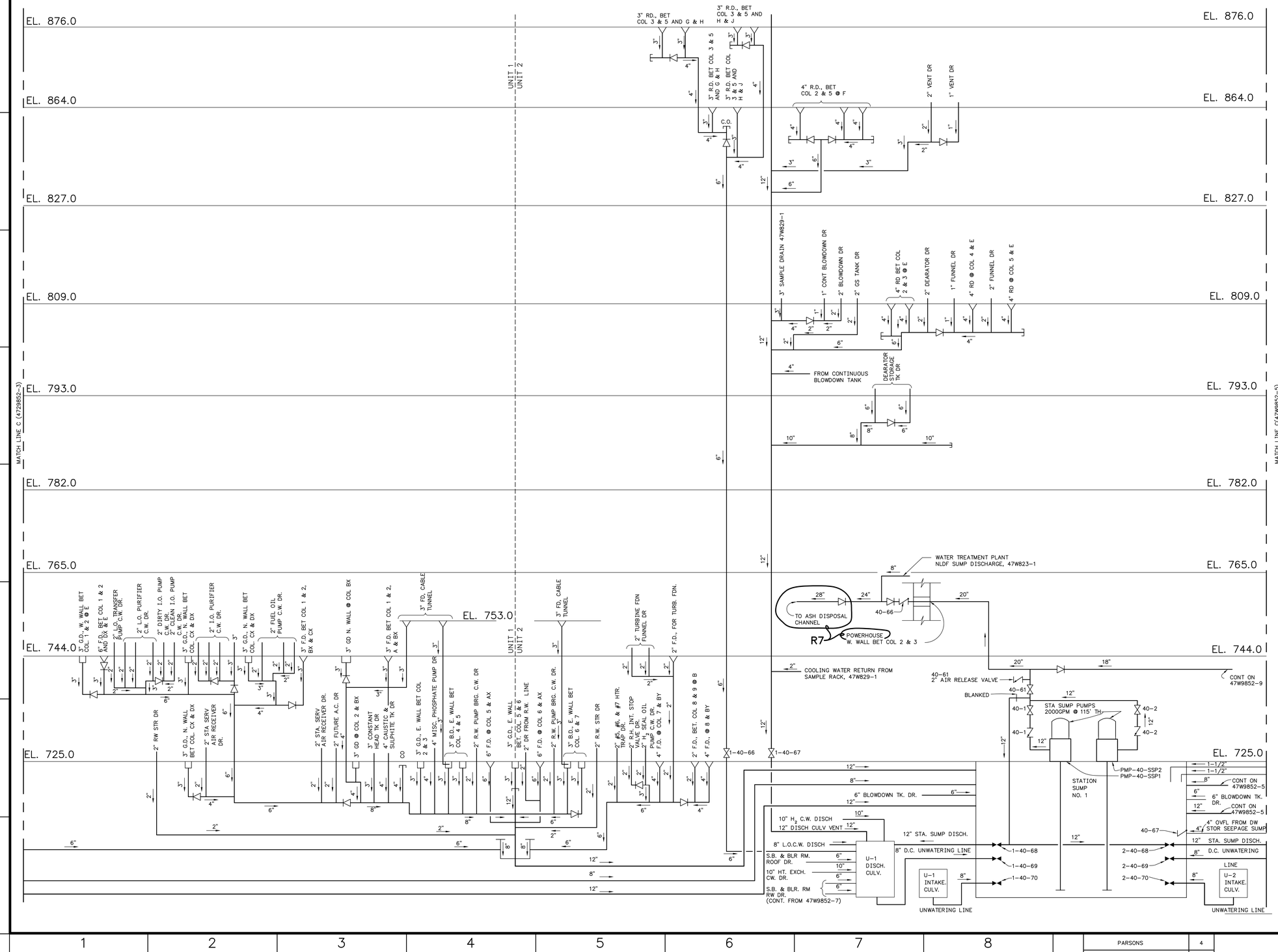
KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R2K	DATE	36	M	17W410-4X	R 0

TASK COMPLETED BY:	REV NO.

PLOT FACTOR:48
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY



REVISED 90% SUBMITTAL ISSUED FOR REVIEW NOT FOR CONSTRUCTION

REV NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT ID	AS CONST
R 7	05/31/12	TWW	TMM		MAH	VJD	MST	JCK		D
	REVISED FOR RDP-0114-H, SLUICE TRENCH OUTLET PIPING									
R 6	3-19-05	WWO	DRD	RLR	SRC	LJP	DLL			J
	REVISED TO INCORPORATE CHANGES PER WO #03-017719 & 03-017720									

DISCIPLINE INTERFACE

SCALE: NONE — EXCEPT AS NOTED

POWERHOUSE
UNITS 1 & 2

FLOW DIAGRAM
STATION DRAINAGE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
JLW	RFC	JLW	HBH		WMB	

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14	DATE 4-6-78	36	M	47W9852-4	R 7

PARSONS	4
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY