CALL NO. 206

CONTRACT ID. 121354

MARSHALL - TRIGG COUNTIES

FED/STATE PROJECT NUMBER 121GR12D054-BRO

DESCRIPTION CADIZ-AURORA ROAD (US 68-KY 80)

WORK TYPE GRADE & DRAIN WITH BRIDGE

PRIMARY COMPLETION DATE 365 CALENDAR DAYS

LETTING DATE: October 19, 2012

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME October 19, 2012. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

ROAD PLANS

DBE CERTIFICATION REQUIRED - 2%

REQUIRED BID PROPOSAL GUARANTY: Not less than 5% of the total bid.

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PART I

SCOPE OF WORK

CONTRACT ID - 121354 ADMINISTRATIVE DISTRICT - 01

PROJECT(S) IDENTIFICATION AND DESCRIPTION:

COUNTY - MARSHALL, TRIGG
121GR12D054-BRO CADIZ-AURORA ROAD (US 68-KY 80)

COUNTY - MARSHALL PES - DE07900681254
BRO 0801 (093)
CADIZ-AURORA ROAD (US 68-KY 80) BRIDGE OVER LAGOON WEST OF KY LAKE AND KY LAKE CAUSEWAY RECONSTRUCT, WIDENING AND IMPROVEMENTS, A DISTANCE OF 0.48 MILES. GRADE & DRAIN WITH BRIDGE. SYP NO. 01-00180.75.
GEOGRAPHIC COORDINATES LATITUDE 36^46'21" LONGITUDE 88^07'18"

COUNTY - TRIGG PES - DE11100681254
BRO 0801 (093)
CADIZ-AURORA ROAD (US 68-KY 80) BRIDGE OVER LAGOON WEST OF KY LAKE AND KY LAKE CAUSEWAY RECONSTRUCT, WIDENING AND IMPROVEMENTS, A DISTANCE OF 0.48 MILES. GRADE & DRAIN WITH BRIDGE. SYP NO. 01-00180.75.
GEOGRAPHIC COORDINATES LATITUDE 36^46'21" LONGITUDE 88^07'18"

COMPLETION DATE(S):
365 CALENDAR DAYS
APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. (www.transportation.ky.gov/contract)

The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

The contractor is advised that the Underground Facility Damage Protection Act of 1994, became law January 1, 1995. It is the contractor's responsibility to determine the impact of the act regarding this project, and take all steps necessary to be in compliance with the provision of the act.

SPECIAL NOTE FOR PIPE INSPECTION

Contrary to Section 701.03.08 of the 2012 Standard Specifications for Road and Bridge Construction and Kentucky Method 64-114, certification by the Kentucky Transportation Center for prequalified Contractors to perform laser/video inspection is not required on this contract. It will continue to be a requirement for the Contractor performing any laser/video pipe inspection to be prequalified for this specialized item with the Kentucky Transportation Cabinet-Division of Construction Procurement.

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by KRS 14A.9-010 to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under KRS 14A.9-030 unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in KRS 14A.9-010, the foreign entity should identify the applicable exception. Foreign entity is defined within KRS 14A.1-070.

For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.

Businesses can register with the Secretary of State at https://secure.kentucky.gov/sos/ftbr/welcome.aspx .

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/contract). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004. (See attachment)

09/26/2012

Commonwealth of Kentucky
Finance and Administration Cabinet
OFFICE OF THE SECRETARY
Room 383, Capitol Annex
702 Capital Avenue
Frankfort, KY 40601-3462
(502) 564-4240
Fax (502) 564-6785

Steven L. Beshear
Governor

Lori H. Flanery
Secretary

SECRETARY'S ORDER 11-004

FINANCE AND ADMINISTRATION CABINET

Vendor Document Disclosure

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary to conduct a review of the records of a private vendor that holds a contract to provide goods and/or services to the Commonwealth; and

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary during the course of an audit, investigation or any other inquiry by an Executive Branch agency that involves the review of documents; and

WHEREAS, KRS 42.014 and KRS 12.270 authorizes the Secretary of the Finance and Administration Cabinet to establish the internal organization and assignment of functions which are not established by statute relating to the Finance and Administration Cabinet; further, KRS Chapter 45A.050 and 45A.230 authorizes the Secretary of the Finance and Administration Cabinet to procure, manage and control all supplies and services that are procured by the Commonwealth and to intervene in controversies among vendors and state agencies; and

NOW, THEREFORE, pursuant to the authority vested in me by KRS 42.014, KRS 12.270, KRS 45A.050, and 45A.230, I, Lori H. Flanery, Secretary of the Finance and Administration Cabinet, do hereby order and direct the following:

I. Upon the request of an Executive Branch agency, the Finance and Administration Cabinet ("FAC") shall formally review any dispute arising where the agency has requested documents from a private vendor that holds a state contract and the vendor has refused access to said documents under a claim that said documents are not directly pertinent or relevant to the agency's inquiry upon which the document request was predicated.

II. Upon the request of an Executive Branch agency, the FAC shall formally review any situation where the agency has requested documents that the agency deems necessary to

conduct audits, investigations or any other formal inquiry where a dispute has arisen as to what documents are necessary to conclude the inquiry.

III. Upon receipt of a request by a state agency pursuant to Sections I & II, the FAC shall consider the request from the Executive Branch agency and the position of the vendor or party opposing the disclosure of the documents, applying any and all relevant law to the facts and circumstances of the matter in controversy. After FAC's review is complete, FAC shall issue a Determination which sets out FAC's position as to what documents and/or records, if any, should be disclosed to the requesting agency. The Determination shall be issued within 30 days of receipt of the request from the agency. This time period may be extended for good cause.

IV. If the Determination concludes that documents are being wrongfully withheld by the private vendor or other party opposing the disclosure from the state agency, the private vendor shall immediately comply with the FAC's Determination. Should the private vendor or other party refuse to comply with FAC's Determination, then the FAC, in concert with the requesting agency, shall effectuate any and all options that it possesses to obtain the documents in question, including, but not limited to, jointly initiating an action in the appropriate court for relief.

V. Any provisions of any prior Order that conflicts with the provisions of this Order shall be deemed null and void.

FEDERAL CONTRACT NOTES

The Kentucky Department of Highways, in accordance with the Regulations of the United States Department of Transportation 23 CFR 635.112 (h), hereby notifies all bidders that failure by a bidder to comply with all applicable sections of the current Kentucky Standard Specifications, including, but not limited to the following, may result in a bid not being considered responsive and thus not eligible to be considered for award:

102.02 Current Capacity Rating 102.10 Delivery of Proposals
102.08 Irregular Proposals 102.14 Disqualification of Bidders
102.09 Proposal Guaranty

CIVIL RIGHTS ACT OF 1964

The Kentucky Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Federal Department of Transportation (49 C.F.R., Part 21), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin.

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free “hotline” Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the “hotline” to report such activities.

The “hotline” is part of the DOT’s continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

FHWA 1273

Contrary to Paragraph VI of FHWA 1273, contractors on National Highway System (NHS) projects of $1 million or more are no longer required to submit Form FHWA-47.

Contrary to Form FHWA-1273, Section V, paragraph 2.b personal addresses and full social

security numbers (SSN) shall not be included on weekly payroll submissions by contractors and subcontractors. Contractors and subcontractors shall include the last four digits of the employee's SSN as an individually identifying number for each employee on the weekly payroll submittal. This in no way changes the requirement that contractors and subcontractors maintain complete SSN and home addresses for employees and provide this information upon request of KYTC, FHWA, and the U.S. Department of Labor.

SECOND TIER SUBCONTRACTS

Second Tier subcontracts on federally assisted projects shall be permitted. However, in the case of DBE's, second tier subcontracts will only be permitted where the other subcontractor is also a DBE. All second tier subcontracts shall have the consent of both the Contractor and the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

It is the policy of the Kentucky Transportation Cabinet ("the Cabinet") that Disadvantaged Business Enterprises ("DBE") shall have the opportunity to participate in the performance of highway construction projects financed in whole or in part by Federal Funds in order to create a level playing field for all businesses who wish to contract with the Cabinet. To that end, the Cabinet will comply with the regulations found in 49 CFR Part 26, and the definitions and requirements contained therein shall be adopted as if set out verbatim herein.

The Cabinet, contractors, subcontractors, and sub-recipients shall not discriminate on the basis of race, color, national origin, or sex in the performance of work performed pursuant to Cabinet contracts. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted highway construction projects. The contractor will include this provision in all its subcontracts and supply agreements pertaining to contracts with the Cabinet.

Failure by the contractor to carry out these requirements is a material breach of its contract with the Cabinet, which may result in the termination of the contract or such other remedy as the Cabinet deems necessary.

DBE GOAL

The Disadvantaged Business Enterprise (DBE) goal established for this contract, as listed on the front page of the proposal, is the percentage of the total value of the contract.

The contractor shall exercise all necessary and reasonable steps to ensure that Disadvantaged Business Enterprises participate in a least the percent of the contract as set forth above as goals for this contract.

OBLIGATION OF CONTRACTORS

Each contractor prequalified to perform work on Cabinet projects shall designate and make known to the Cabinet a liaison officer who is assigned the responsibility of effectively administering and promoting an active program for utilization of DBEs.

If a formal goal has not been designated for the contract, all contractors are encouraged to consider DBEs for subcontract work as well as for the supply of material and services needed to perform this work.

Contractors are encouraged to use the services of banks owned and controlled by minorities and women.

CERTIFICATION OF CONTRACT GOAL

Contractors shall include the following certification in bids for projects for which a DBE goal has been established. BIDS SUBMITTED WHICH DO NOT INCLUDE CERTIFICATION OF DBE PARTICIPATION WILL NOT BE ACCEPTED. These bids will not be considered for award by the Cabinet and they will be returned to the bidder.

"The bidder certifies that it has secured participation by Disadvantaged Business Enterprises ("DBE") in the amount of ____ percent of the total value of this contract and that the DBE participation is in compliance with the requirements of 49 CFR 26 and the policies of the Kentucky Transportation Cabinet pertaining to the DBE Program."

The certification statement is located in the electronic bid file. All contractors must certify their DBE participation on that page. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted.

DBE PARTICIPATION PLAN

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request,* form TC 63-35 DBE, within 10 days of the letting. This is necessary before the Awards Committee will review and make a recommendation. **The project will not be considered for award prior to submission and approval of the apparent low bidder's DBE Plan/Subcontractor Request.**

The DBE Participation Plan shall include the following:

1 Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
2 Description of the work each is to perform including the work item , unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Project Code Number (PCN), Category Number, and the Project Line Number can be found in the "material listing" on the Construction Procurement website under the specific letting;
3 The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows; a) If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:

- The entire expenditure paid to a DBE manufacturer;
- 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
- The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.

b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;
c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;
4 Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and
5 Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

UPON AWARD AND BEFORE A WORK ORDER WIL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, the DBE's certificate of insurance, and an affidavit for bidders, offerors, and contractors from the DBE to the Division of Construction Procurement. The affidavit can be found on the Construction Procurement website. If the DBE is a supplier of materials for the project, a signed purchase order and an affidavit for bidders, offerors, and contractors must be submitted to the Division of Construction Procurement.

Changes to DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with

the bid, and/or other circumstances beyond the control of the prime contractor.

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set and nine (9) copies of this information must be received in the office of the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following:

1 Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
2 Whether the bidder provided solicitations through all reasonable and available means;
3 Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
4 Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainly whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the DBE Liaison in the Office of Minority Affairs to give notification of the bidder's inability to get DBE quotes;
5 Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;
6 Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
7 Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any

rejection should be so noted in writing with a description as to why an agreement could not be reached;

8 Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;

9 Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;

10 Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and

11 Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry our the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

The prime contractor will be required to pay the DBE within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to submit certified reports on monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at:
http://transportation.ky.gov/Construction/Pages/Subcontracts.aspx

Photocopied payments and completed form to be submitted to: Office of Civil Rights and Small Business Development 6th Floor West 200 Mero Street Frankfort, KY 40622

DEFAULT OR DECERTIFICATION OF THE DBE

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and

the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

09/14/11

TRAINEES

In Compliance with the "TRAINING SPECIAL PROVISION" included in Part III of the Proposal, the Contractor will be required to employ 2 trainee(s) (1 IRONWORKER AND 1 EQUIPMENT OPERATOR GROUP 1) for this contract.

SPECIAL NOTE FOR SUBSURFACE CONDITIONS

Marshall/Trigg Counties
Item No. 1-180.75

Bidders are cautioned to expect extremely difficult subsurface conditions at this site. Bidders are encouraged to consult available geological literature including but not necessarily limited to Fairdealing and Fenton Geologic Quadrangle Maps and the U.S. Geological Survey Professional Paper 1151-H, "The Geology of Kentucky -- A Text to Accompany the Geologic Map of Kentucky", Edited by Robert C. McDowell. Additionally, the project geotechnical report is or will be available via the KYTC Division of Construction Procurement Website under "Project Related Information". The referenced geological literature and geotechnical report are for information only and are not contract documents. However, available subsurface data are included in the roadway plans, lagoon bridge plans, and the Special Note for Pile Load Test Program, which are contract documents.

Dense chert and sand layers and residual chert interbedded with residual clay were encountered during geotechnical explorations. Some of this material was extremely difficult to penetrate using conventional geotechnical rotary drilling equipment with diamond-impregnated casing bits and carbide tricone roller bits. Although sand- and gravel-sized chert particles were sampled, it is possible that chert particles which are larger than gravel-sized will be encountered during the construction.

Contractors are urged expect to encounter significant difficulties penetrating the above-referenced material. Excessive wear and abrasion of tooling and equipment should be expected. Additionally, there is a risk that tooling and/or equipment may become lodged in the ground and contractors may have difficulties retrieving the tooling and/or equipment. Bidders are advised to factor any and all risks associated with the conditions at the site into their bids. All costs associated with these difficult subsurface conditions including, but not necessarily limited to excessive wear on and/or retrieval of tooling and/or equipment are incidental to applicable unit bid prices and the Department will not make direct payments for associated costs that result from the encountered subsurface conditions.

SPECIAL NOTE FOR WET DEEP SOIL MIXING
US 68 / KY 80 OVER KENTUCKY LAKE

Marshall and Trigg Counties; Item No. 01-180.75

1.0 Description. This work shall consist of using deep soil mixing (DSM) construction techniques to improve subsurface soils by mixing a binder material with in-situ soil to produce a DSM column composed of a soil-binder mixture that has increased compressive strength and stiffness properties compared to the original in-situ soil properties. A column is defined as the extent that the existing ground is improved by insertion and removal of the mixing tool to the full improvement depth required in the plans. The wet mixing method on a proposed grid pattern is described in further detail in subsection 1.1. The purpose for constructing DSM columns is to improve subsurface soils for liquefaction mitigation and to improve seismic slope stability analysis in three (3) end bent locations which are the following: Lagoon Bridge End Bent 2, Kentucky Lake End Bent 1, and Kentucky Lake End Bent 2.

The work shall consist of Wet Soil Mixing for soil improvement, within the following project limits; the Plan Column Tip being approximately 5' below the lowest liquefiable layer:

Station 974+60 to Station 976+04 (Proposed Toe of Embankment on Left to 60' Right);
Plan Column Tip = Elevation 303'

Station 987+40 to Station 989+56 (Proposed Toe of Embankment on Left to 80' Right);
Plan Column Tip = Elevation 279'

Station 1024+50 to Station 1026+02 (Proposed Toe of Embankment on Left to 70' Right);
Plan Column Tip = Elevation 295'

Exclusionary zones where pile foundations are to be constructed at Lagoon Bridge End Bent 2, Kentucky Lake Bridge End Bent 2, and Kentucky Lake Bridge End Bent 1 will also be utilized. See the plans for more information on the location of these exclusionary zones. Wet soil mixing will be performed prior to constructing the Granular Embankment up to Elevation 363' as detailed in the project plans. Also, some of the soil-cement columns will require installation from a barge over the water.

The work covered by this special note includes furnishing all necessary plant, labor, equipment, geotechnical investigation, pre-production laboratory testing, test section(s), in-situ testing, sampling/coring, QA/QC testing, reporting, and other work described below. The Contractor shall be familiar with the project geotechnical conditions especially the possibility of encountering chert. Based on the boring data at each of the three (3) locations, chert could be encountered above the plan column tip elevations especially at Lagoon Bridge End Bent 2.

1.1 <u>DSM Mixing Methods</u>: This special note contains specifications for construction of DSM columns by the mechanical wet mixing method. The Contractor shall use the DSM mechanical wet mixing method specified in the plans unless other methods are accepted in writing by the Engineer. The wet method consists of mixing a binder in slurry form (i.e. cement grout) with existing soils using auger-type equipment (paddles, augers, and other rigid mixing tools), without use of externally directed high pressure jets, to form a DSM column consisting of a homogeneous mixture of cement grout and in-situ soils. A soil-cement column formed by the wet mixing method is abbreviated herein as DSM-SCC.

2.0 Submittals. A minimum of 90 calendar days prior to beginning the DSM work, the Contractor shall submit the DSM Construction Plan and Shop Plans/Working Drawings for review and acceptance by the Engineer. The DSM Construction Plan and Shop Plans/Working Drawings shall be prepared, signed, and sealed by an agent/representative of the DSM Contractor that is a professional engineer licensed in the State of Kentucky. The Contractor shall not commence DSM installation without the acceptance of all submittals by the Engineer. Acceptance or approval by the Engineer will not relieve the Contractor of its responsibilities to provide materials and equipment necessary to install DSM columns in accordance with the plans and specifications. If, at any time, the Engineer considers that the Contractor's installation operation does not produce a satisfactory DSM column, the Contractor shall alter its method and/or equipment as necessary to comply with the plans and specifications at no additional cost to the Department. Submittal Reviews by the Engineer shall not cause delays in the schedule.

2.1 Qualifications: Evidence of six years of accumulated experience over a period of 10 years and competence to construct the required DSM columns by the wet mixing method required for the project shall be submitted. As a minimum, the Contractor shall submit a detailed description of three DSM projects completed using the wet mixing method within the previous six years that demonstrate the Contractor's experience and competence. Each DSM project submitted as proof of experience and competence shall have a minimum total treatment volume of not less than 20 percent of the DSM treatment volume for this project or 30,000 cubic yards of DSM treatment volume. Each DSM project submitted shall have the following information:

a. Project name, location, and completion date.
b. Current contact information (address, phone number, and email) of project client/owner, designer and geotechnical consultant (if different than designer).
c. Surface and subsurface conditions, and strength (average, ranges, and means used to determine strength) of DSM columns installed.
d. Minimum, maximum, and average rates of DSM installation.
e. Project cost and duration of DSM installation.
f. Average depths and ranges of depths of DSM columns installed. Provide total linear footage and volume (cubic yards) of DSM columns installed.
g. Percent of project total based on QA/QC testing that met the project Acceptance Criteria and percent of project total based on QA/QC testing that required remediation techniques after initial DSM installation.

The Contractor shall also submit resumes of management, supervisory and other key personnel. The Contractor's proposed DSM superintendent shall have a minimum of three years of accumulated experience with DSM construction equipment and construction management within the past six years. The DSM superintendent shall have been employed by the Contractor for the most recent three years. The proposed DSM superintendent shall have been superintendent for the Contractor on at least one of the three DSM projects submitted by the Contractor as evidence of their experience. Experience and training records shall be submitted for proposed DSM superintendent and operators of construction equipment. The DSM Contractor cannot claim a consultant's involvement or time on previous DSM projects as experience for the DSM Contractor. Any changes in DSM construction personnel shall require submittal of qualifications for approval.

2.2 DSM Construction Plan: The DSM Construction Plan shall document and provide, as a minimum, the following information:

1. *Protection of Utilities:* Location of all subsurface utilities in the area.

2. *Preparation of Staging Area:* A plan to remove all existing riprap material near the location of the three (3) end bents is required so as to not interfere with the construction of the DSM columns.

3. *Equipment and Procedures:* A detailed description of the equipment (include catalog cut sheets of equipment dimensions) and procedures to be used during all facets of the project including, but not limited to the conduct of the following:

    a. Test section(s)
    b. Site preparation including removal of existing riprap
    c. Stage construction of DSM test section(s) and production DSM (if required)
    d. Locating the DSM columns in the field
    e. DSM spoil containment, handling, and disposal
    f. Method to overcome concentrated zones of chert (if encountered)
    g. Confirming method to check that the DSM are installed plumb
    h. Quality control program
    i. Monitoring quality control parameters
    j. Sample collecting for laboratory confirmation testing

4. *DSM Test Section Subsurface Information and Location:* Pre-approval of the test section location(s) shall be required before commencing Pre-production field and laboratory testing (Section 4.0). Indicate on a plan drawing the location of the test section(s), dimensions, and layout of the test section(s), and number of DSM columns (include designation of each DSM column).

5. *Cement and Cement Grout Mix Design:* Proposed cement and cement grout mix design when DSM columns are constructed using the wet mixing method (DSM-SCC). The design shall include the following:

    a. Cement type and Cement manufacturer's certificate of compliance.
    b. Cement grout water-cement ratio, by weight. Include details to fully describe and illustrate the methods for grout proportioning to achieve the design mix.
    c. Cement Factor (also known as Residual Cement Factor) which is the amount of cement, dry weight in pounds, that remains in the ground after mixing, per cubic yard of in-situ soil-cement.

    These mix design parameters will be reviewed based on the pre-production field and laboratory testing results developed in accordance with Section 4.0. The acceptance of the proposed grout mix/soil/cement mix design shall be contingent on the test section(s) results meeting the acceptance criteria of Section 11.0. The Contractor may propose to expand the size of the test section to demonstrate that somewhat different grout water/cement ratio and/or cement factor is workable in achieving the required soil-cement strength under actual in-situ conditions. Provide documentation of calibration of the mixing plant.

6. *Independent Laboratory Testing:* Identification of all independent AASHTO certified materials laboratory testing facilities that will be used on the project and the type laboratory testing that will be conducted at each laboratory. All laboratory testing shall be performed at a materials laboratory that is pre-qualified by KYTC for Geotechnical Laboratory Testing as well as AASHTO Materials Reference (AMRL) Accredited for the type of test being conducted.

7. *Calibrations:* Calibration tests for all metering equipment, including mixing systems, delivery systems, alignment systems, mixing tool rotational and vertical speed, injection

pressure, rotation penetration/extraction rates, etc. that are applicable to the mixing method being used on the project.

8. *Runoff and Spoil Containment:* Details of all run-off and spoil containment structures will be required when DSM columns are constructed including construction that will be required from a barge in the waters of Kentucky Lake or the Kentucky Lake Lagoon. These structures will be used to prevent the migration of either cement grout or soil-cement return spoils, disturbed in-situ soils, or other soil material beyond the immediate limits of the soil-cement mixing operation. Also, provide description of processes and procedures to be used to collect and retain the soil-cement return, and other spoil materials, in such manner as to allow the spoils to solidify for the necessary time to become a hard, dry cohesive material.

   Spoils on the barge will likely have to be contained by the use of 54" diameter casing or by another method proposed by the contractor and accepted by the Engineer. Once the spoils are contained they must be legally transported to an approved off-site location or they could possibly be utilized for a portion of the embankment materials above Elevation 363 feet. Certain requirements have to be met as specified in the geotechnical notes for the project if the spoils are utilized for the embankment materials above Elevation 363 feet. These requirements include having a specified classification as well as meeting minimum strength parameters as determined from required triaxial testing. The hardened spoils shall be legally disposed of off-site, at no additional cost to the Department if not utilized in the embankment materials above Elevation 363 feet.

9. *Concentrated Zones of Chert:* To reach the required plan tip elevations, concentrated zones of chert, especially possible at Lagoon Bridge End Bent 2, are expected to be encountered. The contractor shall propose a plan of action prior to the beginning of construction which must be accepted by the Engineer to account for the zones of chert. The cost of penetrating through the zones of chert with the accepted plan of action is included in the contract unit bid price for Wet Soil Mixing. Potential contractors should take this cost into consideration when bidding.

10. *Daily Production Control Report and Installation Log*: Provide a sample report and installation log, in paper and electronic format that will be used to record the construction of all production DSM columns. The Daily Production Control Report/Log shall contain at least the following information:

    a. Project Name.
    b. DSM column number and reference drawing number.
    c. Date.
    d. Name of DSM Superintendent and equipment operator.
    e. Start/Finish time of DSM column installation.
    f. Machine/Rig Number.
    g. Type of mixing tool and indicate if single or multiple columns formed per stroke.
    h. DSM column(s) diameter/size.
    i. DSM column(s) total length (include top and bottom elevations).
    j. DSM column center-to-center spacing from adjacent DSM column.
    k. Verticality of mixing tool in two orthogonal planes for each DSM column.
    l. A description of obstructions, interruptions, DSM column construction out of tolerance or other difficulties encountered during installation of DSM column and how they were resolved.
    m. *Material Certifications:* Supplier's certifications of binder materials quality and other additives, if used.

n. Final current draw for the drilling equipment at the bottom 2 feet of penetration or final hydraulic pressure, if hydraulic motors are used to turn the mixing tools.
o. Grout injection pressure and volume
p. Estimate of spoil volume
q. Target and actual cement factors and grout specific gravity measurements per DSM-SCC column.
r. Date, time, plan location, and elevation and other details of all soil-cement wet grab samples and any other samples taken during work shift.
s. The following information shall be logged using automated computer technology for each DSM-SCC installed at intervals no greater than 4 feet and presented in table and graphical forms:
    - Elevation in feet.
    - Mixing tool rotation penetration and withdrawal speed in revolutions per minute vs. depth in feet.
    - Mixing tool rotation penetration and withdrawal rates in feet per minute vs. depth in feet.
    - Grout injection rate in gallons per minute vs. depth in feet.
    - Average quantity of grout injected in gallons per foot injected per vertical foot of DSM-SCC vs. depth in feet.

2.3 Shop Plan/Working Drawing: The Shop Plan/Working Drawing shall contain the location and extent of all production DSM columns that will be constructed as indicated in the plans. Designate DSM column spacing, including overall dimensions of ground improvement area. Provide the production DSM column numbering system/identification for each location where DSM columns will be constructed. The Shop Plan/Working Drawing shall be prepared, signed, and sealed by a professional engineer licensed in the State of Kentucky.

2.4 Construction Schedule: A construction schedule for the DSM work shall contain start dates and durations for all portions of the work, including equipment mobilization, equipment setup, test section(s) construction, production DSM construction at each location, and QC testing. It is worth noting that that all wet deep soil mixing be performed prior to the placement of the granular embankment up to a minimum elevation of 363' as shown in the project plans.

3.0 Pre-Construction Project Meeting. A separate Pre-Construction meeting for Wet Deep Soil Mixing is required prior to starting construction of the soil-cement columns. This would be necessary to discuss the soil mix process, the special note requirements and the anticipated work schedule.

4.0 Pre-Production Field and Laboratory Testing. A pre-production field and laboratory testing program will be required to develop the proposed DSM mix design prior to the construction of the test section(s). The field testing program consists of conducting a geotechnical subsurface investigation in accordance with subsection 4.1 of this special note. Soil samples obtained from the geotechnical subsurface investigation shall be used to develop and conduct the pre-production laboratory testing. The pre-production laboratory testing will be required to establish a "base line" of the degree of ground improvement that is possible under optimal construction circumstances for various DSM binder mixes for each distinct soil type that will be encountered during the DSM ground improvement. It is recognized that the pre-production laboratory testing will be used as a general indicator of ground improvement that may be obtained in-situ because of substantial differences inherent between laboratory and in-situ mixing conditions. The Contractor shall take appropriate account of these differences, based on published documents and the Contractor's experience, to develop a DSM binder mix design that can be used for constructing the test section(s) based on the results of the pre-production laboratory testing. A pre-production laboratory testing program shall be required

for each test section. A DSM binder mix design shall be developed for each major soil type encountered throughout the depth of ground improvement. As a minimum, two binder mix designs for two types of soil shall be required per test section. The minimum pre-production laboratory testing requirements are provided in subsection 4.2 of this special note.

The Contractor shall submit the geotechnical subsurface investigation plan of the proposed field sampling and laboratory testing to the Engineer for review and approval prior to commencing the geotechnical subsurface investigation. The Contractor shall submit the results of the geotechnical subsurface investigation and the pre-production laboratory testing plan to the Engineer for review and approval prior to commencing the pre-production laboratory testing. The results of the pre-production field and laboratory testing, along with the proposed DSM binder mix designs, shall be included in the Pre-Production Binder Mix Design Report as described in Section 4.3.

4.1 Geotechnical Subsurface Investigation: In-situ soils used for the pre-production laboratory testing shall be obtained from additional subsurface investigation conducted at or near the location of the approved test section(s) locations. The Contractor shall retain the services of a geotechnical consultant in the state of Kentucky that is pre-qualified by KYTC for Geotechnical Drilling Services and shall also submit resume(s) of the drill crew supervisor(s). Geotechnical Drilling Services are to include the drilling of a minimum of thirteen (13) 3-inch soil borings (minimum of three (3) for Lagoon Bridge End Bent 2, five (5) for Kentucky Lake End Bent 1 and five (5) for Kentucky Lake End Bent 2), sampling at a minimum of every 5 feet or at a more frequent interval to obtain sufficient material to perform the pre-production laboratory testing as detailed in subsection 4.2. The sampling shall be performed in such a manner that provides representative samples of the soil cement column. This can be effectively accomplished via Geo-probe sampling techniques, undisturbed sampling in fine-grained soils, split-spoon sampling, or any other sampling technique proposed by the Contractor and accepted by the Engineer. Refer to subsection 4.2 of this special note for more information regarding the soil test samples.

The contractor shall check for utility conflicts at boring locations with appropriate utility agencies, survey boring locations and survey locations tied to the project baseline alignment. The borings shall extend from the ground surface to the bottom elevation of the DSM columns shown in the plans to establish general soil and groundwater conditions in the vicinity of the work prior to construction of the test section(s). The geotechnical investigation shall be done in conformance with the latest version of the KYTC Geotechnical Manual.

All soil samples to be used for the pre-production laboratory testing shall be stored in a manner that prevents any loss of moisture and in accordance with ASTM. Do not allow field samples of the clay to lose moisture between the time of removal from ground and pre-production laboratory mixing/testing.

4.2 Pre-Production Laboratory Testing. Pre-Production laboratory testing will require the development of a DSM binder mix testing program for each type of soil where ground improvement will be performed to demonstrate that the required 28-day compressive strength is at least a minimum of 75 PSI. The soils obtained from the geotechnical subsurface investigation performed (Subsection 4.1) will be used to perform the laboratory testing.

The testing laboratory shall prepare the soil, mix the binder reagent (i.e. cement, etc.) and water to make grout, and then mix grout and soil together. A minimum of twenty (20) specimens shall be mixed per soil stratum at each end bent location using a minimum of four (4) different DSM binder mixes to provide insight into the relationship of cement factor and grout water/cement ratio on the 28-day compressive strength of the soil-binder specimens. Binder materials and

individual proportions of cement or admixtures (if used) used shall be documented for each specimen. The procedures outlined by Filz and Stewart (2005) may be used to provide guidance in developing a laboratory testing program.

All test specimens shall be prepared using the lab mixing energy level similar to energy levels used by the Contractor's field equipment. Test specimen cylinders shall be prepared according to procedures submitted to the Department and approved. Strength test three cylinders of soil-binder mixture at 7, 14 and 28 days following mixing. Strength testing shall be performed in accordance with subsection 9.3.

4.3 Pre-Production DSM Binder Mix Design Report: Final report of pre-production laboratory and field testing will be used to develop proposed wet mix design for the construction of the test section(s). The pre-production laboratory and field testing shall conform to Section 4.0 of this special note.

5.0 Materials.

Cement: Portland cement shall be low alkali Type I conforming to ASTM C150. Slag cement shall conform to ASTM C 989. All cement shall be homogeneous in composition and properties, and shall be manufactured using the same methods at one plant by one supplier. Tri-calcium aluminate content shall not exceed 7 percent.

Water: Fresh water, free of excessive amounts of deleterious substances that adversely affect the properties of grout shall be used to manufacture the grout.

Admixtures: Cement admixtures will not be allowed without written acceptance by the Engineer. Cement admixtures are ingredients that are used to permit efficient use of materials and proper workability of the binder material being mixed into the in-situ soils. The Contractor is required to submit any proposed admixtures and their intended effect when the binder mix design is submitted for acceptance by the Engineer.

Cement Grout: The cement grout shall be a stable homogeneous mixture of cement, admixtures (if accepted), and water in proportions determined by the results of the test section and accepted by the Engineer. The cement grout is mixed with the in-situ soils to form DSM-SCC columns.

Soil-Cement Mixture: The DSM column shall be composed of a stable and uniform soil-cement mixture of cement grout and in-situ soil that meets the project compressive strength and other requirements in the plans and this special note. The proposed ratios of concrete grout to in-situ soils and quantities of various components shall be determined by the results of the test section and accepted by the Engineer.

5.1 Delivery, Storage, and Handling of Materials: Portland cement shall be measured, handled, transported, and stored in bulk in accordance with the manufacturer's recommendations. Portland cement packaged in cloth or paper bags shall be sealed with plastic or rubber vapor barriers. The Portland cement shall be stored to prevent damage by moisture. Materials that become caked due to moisture absorption shall not be used. Bags of cement shall be stacked no more than ten bags high to avoid compaction. Cement containing lumps or foreign matter of a nature that may be deleterious to the grout mixing or delivery or injection operations shall not be used.

6.0 DSM Column Spacing. The DSM columns shall be spaced and arranged as indicated on the plans or as otherwise directed by the Engineer. DSM columns are to be put on a grid pattern with a minimum diameter of 4 feet and a center-to-center spacing of 8 feet.

6.1 DSM Column Construction Tolerances:

1. *Horizontal Alignment:* The location of the DSM column shown in the Plans shall be accurately staked by a licensed surveyor before beginning installation. The horizontal alignment of DSM columns with group column spacing (GCS) shall be within 4 inches of the planned DSM top location. The horizontal alignment of DSM columns with block column spacing (BCS) shall be within 20 percent of the DSM column diameter, not to less than four inches, of the planned DSM top location in order to obtain sufficient DSM column overlap.

2. *Vertical Alignment:* The equipment operator shall control vertical alignment of the equipment and constructed DSM column. Two measures of verticality shall be monitored, longitudinal and transverse to the DSM column alignment. The DSM column shall be installed plum as measured with the on board telemetry equipment on the drill. The tolerance for vertical plumbness shall not exceed two (2) percent.

3. *DSM Column Lengths:* The tops of the DSM columns shall begin at the ground surface. The top of DSM column elevations shown in the plans are approximate. Natural soils above the water table, at the completion of DSM installation, shall have been treated to produce the full column design strengths up to within 3f feet of the ground surface.

The bottom of DSM columns shall extend to the line and grades shown in the plans. The DSM column bottom elevations indicated in the Plans provide the minimum required penetration of the DSM columns. The Engineer may require the Contractor to shorten or deepen the bottom of DSM columns indicated in the plans.

7.0 Installation Equipment. The DSM column construction equipment and support equipment shall be equipped with mixing tools that are capable of thoroughly blending the in situ soils and binder material into a homogeneous column of soil-binder to the depths and size required in the plans. The DSM columns shall be constructed using computerized self-contained construction equipment.

7.1 Construction Equipment: The DSM-SCC construction equipment shall meet the following requirements:

1. DSM-SCC shall be constructed using real-time computerized self-contained DSM-SCC construction equipment capable of monitoring, controlling, and recording installation data. The DSM-SCC construction equipment shall be equipped with electronic sensors, built into the soil mixing equipment, to perform the following:
    a. Determine vertical alignment of the leads in two directions: fore-aft and left-right. The verticality shall be measured using instrumentation that is capable of measure deviations from verticality to a tolerance of 2 percent.
    b. Monitor cement and water proportioning, grout mixing, and water-cement ratios.
    c. Monitor the mixing tool depth, penetration/withdrawal speed, and rotation speed.
    d. Monitor injection quantities and pressure with flow meter and other measuring equipment having precision accuracy not less than 99.5 percent.
    e. All output from the sensors shall be routed to a console that is visible to the operator and the Engineer during penetration and withdrawal.

f. The sensors shall be calibrated at the beginning of the project and calibration data provided to the Engineer. The calibration shall be repeated at intervals not to exceed one month.
g. All of these monitored functions shall be fully adjustable during operation of the equipment.

2. The DSM-SCC construction equipment power source for driving the mixing tool shall be sufficient to maintain the required revolutions per minute (RPM) or injection pressure and penetration rate from a stopped position at the maximum depth required as determined from the test section(s) for DSM column spacing. The Contractor shall also consider the wide range of expected subsurface conditions, indicated by the geotechnical information at the project site.

3. The DSM-SCC construction equipment shall utilize sufficient mixing and injecting equipment to adequately produce a distribution of cement grout throughout the mixed in-situ soils that meet the acceptable criteria. The mixing tools shall uniformly inject cement grout through hollow stem, or other piping, at locations that distribute the grout across the full diameter of the mixing tools and such that the full auger/mixing paddle assembly passes through the column of soil after the grout is introduced, on both the insertion and withdrawal strokes. Grout shall only be injected in direction within the diameter of the augers or mixing paddles. If grout injection jets are used, they shall not spray beyond the auger diameter.

4. Continuous auger flights longer than 3 feet or with more than one full, uninterrupted revolution of auger are not allowed as part of the mixing tools. Auger flights and mixing paddles on a shaft shall all reach to the full column diameter, and shall have discontinuous lengths and be oriented as to thoroughly break up the in-situ soils, and disperse and blend soils with injected cement grout to form a homogeneous soil-cement mixture.

5. The auger mixing equipment shall form the required diameter and size of the DSM-SCC as submitted by the Contractor's accepted submittals.

6. Injection volume estimates shall be only made by precision inline flow meters. Counting or measuring grout pump strokes shall not be acceptable. Injection quantities must be measured in real time by direct measurements of volume and/or mass for each DSM column having injection capabilities, with flow meters and other measuring equipment having precision accuracy not less than 99.5%. Gauges and flow meters and other measuring equipment shall be calibrated and certified as precise and accurate before the start of the equipment's work on the project.

7. The DSM-SCC construction equipment shall be adequately marked to allow the Engineer to confirm the penetration depth to within 6 inches during construction.

8. The cement grout batching plant shall include all storage silos and sheds, pumps, scales, mixers, valves, gauges, and regulating devices required to continuously measure and mix cement grout in real time. Grout shall be mixed in a mixing plant, using a batch process, which combines dry materials and water in predetermined proportions. The plant mixer shall consist of grout mixer, grout agitator, grout pump, automatic batching scales, and a computer control unit. The mixing plant shall meet the following requirements:

a. To accurately control grout mix proportions, the addition of water and cement shall be determined by weight using automatic batch scales in the mixing plant.

b. Admixtures, if used, may be delivered to the mixing plant by calibrated auger provided the Contractor can demonstrate that the auger can deliver the material at the same accuracy as by weight.
c. The mixing components shall be calibrated prior to beginning the work and monthly thereafter. The calibration data shall be provided to the Engineer.
d. The mixing plant shall have tanks or silos with adequate storage for continuous production. The tanks shall be equipped with air filters.

9. All equipment shall have real time monitoring of all of the DSM parameters and the contractor shall provide a print out of these monitored for each column produced. The printouts shall be submitted to the Engineer within 3 business days after completing each column.

10. Progressive cavity pumps shall be used to transfer the grout from the mixing plant to the mixing tool. If the DSM-SCC construction equipment has multiple shafts and multiple mixing tools, the grout shall be delivered to each shaft by an individual positive displacement pump.

11. All gauges, flow meters, metering equipment, and other measuring equipment shall be calibrated and certified as precise and accurate before starting DSM column construction (i.e. test section(s) or production DSM columns), and then again every 4 months or at least every 325,000 feet of DSM column installed, whichever is sooner. The calibrations and certifications shall be supplied to the Engineer.

8.0 Construction Requirements. The Contractor shall furnish all materials, labor and equipment necessary to construct the DSM columns in accordance with the plans and this special note. The DSM columns shall be constructed to the lines, grades, and cross sections indicated in the Plans.

Production DSM shall be constructed using the same equipment and construction criteria (i.e. mix design, mixing parameters, etc.) established in the accepted test section construction (subsection 10.0). DSM construction that is out of tolerance (subsection 6.1) or is subject to unforeseen conditions (subsection 8.3) shall be evaluated and corrected as accepted by the Engineer with no additional cost or schedule impact to the Department.

8.1 Site Preparation: The presence and location of buried pipes, sewers, and other utilities shall be identified and precautions taken to protect the utilities from damage during the construction of the DSM columns. The Contractor shall be responsible for any damage resulting from the construction of the DSM columns. The site shall be cleared and grubbed in accordance with the Contract documents. Also, as mentioned previously, the existing riprap near the three (3) end bents must be removed prior to DSM installation.

Establish DSM column limits and locations by a licensed surveyor. Individual column locations shall be marked. Sufficient horizontal and vertical control shall be provided to establish DSM columns are located accurately and reach the required plan depths.

8.2 DSM-SCC Soil-Grout Mixing: Soil shall be broken up and blended with grout in place by the pugmill type action of the soil mixing equipment. The completed DSM-SCC shall be a uniform mixture of cement and the in situ soils. The soil-grout mixture shall achieve a minimum unconfined compressive strength in 28 days of 75 PSI. Soil mixing shall be performed with the following minimum requirements:

1. *Grout Preparation:* The dry materials shall be fed to the mixers for agitation and shearing. The mixing ratio of the grout shall be controlled by measuring the weight of grout components using automatic batch scales in the mixing plant. Grout mixture shall be mixed for a minimum of three minutes, with a maximum holding time of two hours, calculated from the beginning of initial mixing. The specific gravity of the grout (determined in the test section) shall be tested at least once per shift per rig, using the methods outlined in ASTM D 4380, and shall not deviate more than three percent from the calculated specific gravity for the design cement ratio. Additional tests may be required by the Engineer. If the specific gravity or density is lower than the design mix, the Contractor shall add additional cement, remix, and/or recalibrate batch scales and retest the grout until the design density is achieved, at no additional cost to the Department.

2. *Grout Injection:* The grout shall be pumped through and injected from the mixing tool. The grout injection rate per vertical foot of DSM-SCC shall be in accordance with the requirements of the design mix established during the test section. Injection rates falling below this requirement shall require the DSM-SCC to be remixed and additional grout injected (at the design grout-soil ratio) to a depth at least three feet below the deficient zone, at no additional cost to the Department.

3. *Rotation Speeds:* The mixing tool rotational speeds (measured in RPM) and penetration/withdrawal rates shall be in accordance with the parameters established during the test section(s). If these parameters are varied more than 15 percent from those determined during the test section(s), the DSM-SCC section shall be remixed while injecting grout at the design grout ratio to a depth at least three feet below the deficient zone, at no additional cost to the Department.

4. *On-Board Computer:* The preset data in the on-board computer shall be verified for each column as correct and adjusted if necessary. The operator shall monitor and adjust, as necessary during column installation, the feeding of material, grout injection rate, mixing tool rates of rotation, and penetration/withdrawal rates of the mixing tool.

5. *Changes in Grout Mix Design:* The Contractor may request that the established grout mix to be modified during the production DSM-SCC installation. To verify acceptable results for the modified mix design, the Engineer may require additional testing or a new test section, at no additional cost to the Department.

6. *Spoils:* During the course of soil-cement stabilization, return/spoil material shall not be dumped into or otherwise be allowed to enter the soil-cement column. The Contractor shall develop a spoil containment system that allows the channeling of the spoils to the temporary holding pit in such a direction and manner as to keep the spoils away from the site perimeter, and out of the traveled paths. Soil-cement return and spoil material shall be piped or channeled to holding ponds or other retention structures within the work area. The Contractor shall remove all excess grout and grout mixed soil generated from ground improvement activities from the construction site in accordance with the accepted DSM Installation Plan.

   The Contractor shall take all necessary precautions and implement measures to prevent any soil-cement return, other spoil material or stockpiled materials from entering the waters of Kentucky Lake or the Kentucky Lake Lagoon. In the event soil-cement return, spoil material or stockpiled materials enter the lake waters, the Contractor shall collect and remove all of these materials, and perform all other required/necessary remediation that may be directed by the Engineer or responsible environmental agency, at no

additional cost or schedule impact to the Department. The Contractor shall conduct all soil-cement operations to conform to sedimentation and turbidity control requirements of federal, state, and local agencies having jurisdiction over the work.

7. *Delays:* The installation of each DSM-SCC column shall be continuous without interruption. If an interruption of more than two hour occurs, the DSM-SCC shall be remixed for the entire column height using fresh cement grout as though there had not been any cement grout installed, or the column may be abandoned, at no cost or schedule impact to the Department. The Contractor shall install additional columns if the interrupted columns cannot be acceptably remixed.

8. *Instability:* Soil-cement column(s) which exhibit partial or total instability at any time, or collapse as a result of mechanical failure of any equipment; inadequacy of cement, water supplies, cement grout; improper drilling, injection or mixing procedures; or other cause, the Contractor shall halt DSM-SCC construction and backfill to ground surface with cement grout. After the backfill has attained sufficient strength to stabilize the ground, complete the required installation by re-drilling from ground surface, at no additional expense to the Department. The Engineer will evaluate the potential impacts of the instability and may require one or more additional re-drilled columns at overlapping or adjacent locations as determined by the Engineer, and at no additional expense to the Department.

9. *Daily Quality Control Report:* The Contractor shall submit a Daily Quality Control Report for each day that DSM-SCC work is performed. The log shall contain, at a minimum, the information listed in Section 2.2. The report shall be delivered to the Engineer by the end of the next working day following the report date.

10. *Protective Covers:* While working on land, immediately after completing a soil-cement column, the Contractor shall install protective covers or another method accepted by the Engineer to prevent persons from falling or stepping into the unhardened soil-cement column.

8.3 Unforeseen Conditions and Corrective Remediation: Unforeseen conditions that result in deficient DSM column construction shall be remediated by the Contractor at no additional cost to the Department. DSM column construction deficiencies, and how they were addressed, shall be noted in the DSM Daily Production Control Report and Installation Log. DSM column deficiencies that result from changes in rotation speeds of mixing tools, rate of penetration/withdrawal of mixing tools, changes in the rate of grout/binder injection, delays, or changes in binder mix shall be corrected as indicated in subsection 8.2.

If unforeseen conditions result in DSM column interruptions that do not meet the DSM construction requirements (subsection 8.2), the DSM column installation shall be re-drilled a minimum of 1 foot below the elevation of the interruption and the DSM column construction restarted.

When interruption of the installation process occurs because of unknown obstructions or a very dense or possible chert layer above the planned tip elevation, the Contractor shall document the interruption on the DSM Daily Production Control Report and Installation Log and notify the Engineer in writing by the end of that day of such encounter and shall provide all pertinent information relating to DSM column identification, plan location coordinates, depth, and expected extent of the obstruction. The Contractor shall be prepared to penetrate very dense layers by first removing mixing tools from the excavation and then using auger drilling equipment or other accepted methods to allow the installation of the DSM column. When unknown obstructions are encountered, the Contractor shall submit a proposal to the Engineer

for review that delineates the Contractor's proposed means and methods to overcome the unknown obstruction, including equipment and labor time estimated for this operation. Such construction to remove an unanticipated obstruction shall only be performed with the written authorization of the Engineer. When the obstruction cannot be penetrated or removed, the DSM column shall be completed to the maximum depth penetrated. The need for an alternate design or remedial construction shall then be determined by the Engineer.

Deficient DSM columns due to out of tolerances (subsection 6.1) or not in compliance with DSM construction acceptance (subsection 8.4) will require that the DSM Contractor to submit proposed remedial measures to the Engineer for review and acceptance. Remedial plans shall show the location, depth, construction exceptions requested, and proposed method of remediating the deficient DSM ground improved areas. Remedial plans, if accepted, shall be at no cost or schedule impact to the Department.

8.4 DSM Construction Acceptance: The QC reporting (logs), testing, and acceptance procedures for the DSM test section(s) and production DSM columns shall be the same. QC testing methods are described in Section 9.0 and Acceptance Criteria are provided in Section 11.0.

9.0 DSM Testing Methods. QC testing of DSM columns consists of using field and laboratory testing techniques to evaluate the integrity, consistency, and strength of the DSM column for the entire full depth of soil improvement. QC testing methods that will be used include coring and sampling (subsection 9.1) and wet grab sampling (subsection 9.2).

The results of the compressive testing shall be used to develop correlations for the design parameters which were based on the following correlation:

Soil-Cement Column Cohesion = 0.35 to 0.50 x Soil Mix Unconfined Compression

As mentioned previously, the minimum unconfined compression strength required is 75 PSI.

9.1 Coring and Sampling: Please refer to Section 4.1 for the drilling prequalification requirements.

1. Coring/sampling shall be made for every 2,000 cubic yards of treated soil or for 2% of elements should be cored, whichever produces more full depth cores.
2. Coring/sampling shall be performed in the presence of the Engineer, unless otherwise directed. The Contractor shall notify the Engineer at least seven calendar days in advance and confirmed 2-days (48 hours) prior to beginning coring/sampling operations.
3. High quality continuous core sampling shall be obtained after the soil-binder mixture has hardened sufficiently to approximately a compressive strength of 42 PSI (6,050 PSF).
4. Each core run shall be at least four feet in length and contain at least four acceptable test specimens. Three samples per core run are required to perform compressive strength testing with one reserve sample.
5. A minimum core run recovery of 80 percent for each 4-foot-long core run shall be achieved. During coring, the elevation of the bottom of the holes shall be measured after each core run in order that the core recovery for each run can be calculated. The core recovery and RQD for every core run shall be reported in the logs. Additional

cores may be required, at no additional cost to the Department, if core run recovery is less than 80 percent.

6. Upon retrieval, the samples shall be field logged and documented by taking pictures. Samples shall be selected for testing and submitted to the Engineer for approval.
7. Following logging and test specimen selection, the entire full-depth sample, including the designated test specimens, shall be immediately sealed in plastic wrap to prevent drying, placed in suitable core boxes, and transported to the materials testing laboratory by the Contractor within 24 hours. Please refer to subsection 2.2 for the geotechnical lab pre-qualifications.
8. All core holes shall be filled with cement grout that will obtain 28-day strength equal to or greater than the DSM column compressive design strength required in the plans.
9. Cores shall be transported by the Contractor to the AASHTO certified materials testing laboratory where the samples will be stored and tested. Samples shall be stored and cured in accordance with ASTM D 1632 until the test date. Please refer to subsection 2.2 the geotechnical lab pre-qualifications.

9.2 Wet Grab Sampling:

1. Wet Grab Samples should be obtained from discrete locations and cast and cured under consistent conditions.
2. Wet Grab Sampling shall be done for every 4,000 cubic yards of treated soil or for 0.5% of the elements, whichever produces more full depth cores. This testing is considered a minimum and more frequent testing can be done by the Contractor as deemed necessary.
3. Bailer type sampling tools, including tubes or boxes should be utilized to collect the samples.
4. Samples shall be placed into the appropriate cylinders at a minimum of 3 layers. After the placement of each layer, the sample must be tapped or vibrated to remove trapped air bubbles.
5. The samples should be sealed to prevent moisture from entering or leaving the samples.
6. Eight (8) test specimens should be prepared from each wet sample.
7. Test specimens should not be transported to an off-site testing facility or subjected to vibration before a curing age of 3 days to minimize sample disturbance.

9.3 Compressive Strength Testing of Samples:

1. All samples shall be kept out of sunlight, held at 70 to 75 degrees F, and under fully humid conditions throughout storage and curing, which prevents loss of sample moisture via evaporation.
2. Samples suitable for strength testing shall have a height to diameter ratio of 2.0.
3. Strength testing shall be performed by unconfined compression testing method per AASHTO specification T-208-96, but with strain rate not faster than 0.5% per minute, but not slower than 0.25%/minute, and with the test equipment set up to record in both tabular and graphical form the axial stress and strain constant increments of axial strain no larger than every 0.05% axial strain.
4. Unconfined compression testing may be performed at 7, 14, 28 and 56 days for both the cored samples and the wet grab samples.

5. Compressive strength testing results shall be transmitted to the Engineer for review within 24 hours of the compression test completion. The remaining portions of the full-depth samples that are not tested shall be retained by the Contractor, until completion and acceptance of the work, for possible inspection and confirmation testing by the Engineer.

10.0 DSM Test Section and QC Testing Program. The testing areas shall include, at a minimum, three (3) test sections – one at Lagoon Bridge End Bent 2, one at Kentucky Lake End Bent 1 and one at Kentucky Lake End Bent 2. The minimum size of the test location should be approximately 25' x 25'. The location of these test sections should be just outside of the proposed production areas.

The QC testing program for each test section will be submitted to the Engineer within 5 days after test section DSM column installation and shall be based on the results of DSM pre-production laboratory testing and review of samples obtained for strength testing. The approved compressive strength program (i.e. Plan location, sample depth, and elapsed time after construction to perform compressive testing) shall then be submitted to the Contractor's laboratory testing firm.

Unless otherwise directed by the Engineer, a minimum of four locations shall have QC testing, per test section. QC testing at each Plan location shall consist of continuous corings and wet grab sampling per subsections 9.1 and 9.2, respectively. A minimum of six samples at each QC testing Plan location shall be selected by the Contractor and approved by the Engineer for compressive strength testing. Compressive strength testing of cores, resulting from a continuous vertical column, (subsection 9.3) at QC testing Plan locations shall be conducted at 7, 14 and 28 days after test DSM column installation. A test DSM column compressive strength testing report shall be compiled by the independent testing company and submitted to the Contractor and the Engineer. The compressive strength testing report shall document the core sampling, wet grab sampling and compressive strength testing conducted on the cores.

The Contractor shall use the results of the test sections to establish the DSM production construction criteria. The DSM production construction criteria shall be developed to produce DSM columns that meet the Acceptance Criteria in Section 11.0. DSM production construction criteria for DSM columns shall include, at a minimum, the following criteria.

DSM-SCC Production Construction Criteria:

1. Grout mix design including ratios of all materials mixed to form the grout.
2. Grout specific gravity.
3. Grout injection rates.
4. Type of equipment.
5. Mixing tool penetration and withdrawal rates.
6. Mixing tool rotation speed.
7. Construction procedures and techniques.

The Contractor shall use the results of the test sections to establish the Production Quality Control (QC) testing program per Section 9.0.

Construction of production DSM columns may begin only after written acceptance by the Engineer of the "DSM Production Construction Criteria" and the "Production Quality Control (QC) Testing Program." If construction criteria, construction procedures, equipment, new mobilizations, or changes in personnel are made, following acceptance of the test sections, the

Department reserves the right to require the Contractor to construct a new test section at no additional cost to the Department.

11.0 Acceptance Criteria. Determination that the DSM columns meet the Acceptance Criteria (for DSM construction, DSM column continuity, and DSM compressive strength requirements) shall be evaluated solely by the Engineer based on a review of daily Quality Control Report/Log of the production DSM columns and QC testing results conducted by an independent testing company.

11.1 DSM Construction Acceptance Criteria: DSM columns shall be considered acceptable when daily Quality Control Report/Log of the production DSM columns and any remediation reports indicate that the:

1. Location of the top of the columns has been verified to be within design tolerances
2. Penetration of the column has been verified as correct by the Engineer.
3. Continuously recorded injection quantity of cement grout for DSM-SCC has been verified to be within 10% of the design (preset) value established for the production DSM construction criteria based on the results of accepted production DSM construction design criteria.

11.2 Design Compressive Strength Acceptance: Unless directed otherwise by the Engineer, strength testing shall confirm that a minimum of 90 percent of all strength samples shall meet or exceed the design compressive strength of 75 PSI at 28 days. Along with the acceptance testing at 28 days, DSM QC compressive strength testing at 7 days will help gauge early conformance or non-conformance of the columns. An early indication of conformance of the strength tests at 7 days is based on a minimum of 70% of the design compressive strength of 75 PSI (or 52.5 PSI). However, the acceptance of the DSM column will be based solely on the 28 day QC compressive strength testing requirements described earlier (i.e. a minimum of 90 percent of all strength samples shall meet or exceed the design compressive strength of 75 PSI).

Failure to meet the 28 day QC compressive strength testing criterion shall deem the DSM column to be in non-conformance. The Contractor may elect to conduct additional QC strength testing before and/or after 28 days, with approval of the Engineer, at no additional cost to the Department. Unless otherwise determined by the Engineer, the extent of the non-conformance QC test area shall be considered to include all DSM constructed during all rig shifts that occurred after construction when passing tests were achieved. Non-conforming DSM QC test areas shall be remedied by the Contractor at no additional cost to the Department. This remedy shall include but not limited to re-drilling all or a portion of the nonconforming DSM QC test area and mixing additional cement grout for DSM-SCC columns while raising the mixing tool. The Contractor shall submit a proposed plan for remixing or repair of failed sections for review and acceptance by the Engineer.

12.0 As-Built Plans. Following completion of the production DSM column construction, the Contractor shall furnish to the Engineer a set of as-built plans detailing the locations of the DSM columns in terms of project coordinates, top and bottom elevations, QC compressive strength testing results, and any other dimensions of the DSM columns that are pertinent to the project.

13.0 Measurement and Payment. DSM constructed using grid spacing will be measured by the total improved volume (in cubic yards) as accepted by the Engineer. Material used to remix an area found to be unacceptable by the Engineer will not be measured.

Payment will be based on the theoretical neat volume per foot for the minimum 4' diameter columns (cubic yards per foot). This factor is 0.47 cubic yards per foot of columns installed. The "bottom of column" will be the actual bottom elevation determined in the field, but for payment will be no lower than the plan tip elevation unless a lower elevation is specified by the Engineer. The encountered ground surface elevation will be the "top of column". The pay quantity for each column will be determined by subtracting the "bottom of column" elevation from the "top of column" elevation (both in feet) and then multiplying the difference by 0.47 (CY/foot) to obtain the pay quantity for a particular column in CY.

Payment for the DSM columns will be full compensation to perform all work as specified in this special note. This includes, but is not necessarily limited to, construction and testing of test sections, construction of DSM columns, obtaining samples for QC testing, QC testing, handling and hauling of excavated spoils and site cleanup. Separate measurements will not be made for additional quantities of soil-cement to overcome obstructions or for areas found unacceptable by the Engineer. Transportation and disposal of spoils will also not be a separate pay item. Payment will be made under:

CODE	PAY ITEM	PAY UNIT
	Wet Soil Mixing	CY

SPECIAL NOTE FOR PILE LOAD TEST PROGRAM

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

1.0 General Scope

The scope of the pile load test program includes furnishing and installing all test piles, testing equipment, instrumentation, labor, analyses, and reporting associated with the Dynamic and Static & Pseudo-Static Load Testing as outlined in this Special Note, the Special Note for Dynamic Load Testing, Special Note for Static and Pseudo-Static Load Testing and Special Note for Vibration Monitoring. Testing will conform to the applicable ASTM standards unless otherwise directed. The following sections provide a summary of the load test program, schedule requirements, test pile driving requirements, and Contractor/Department responsibilities.

1.1 Pile Load Test Program Objectives

Perform pile load testing for both constructability and performance purposes at the Lagoon Bridge, Kentucky Lake Bridge Shallow Water Test Area, and Kentucky Lake Bridge Deep Water Test Area.

Perform dynamic and axial static testing at the Lagoon Bridge to evaluate the performance of the piles and confirm satisfactory axial resistance has been achieved.

Install artificially plugged test piles at the Kentucky Lake Bridge Shallow Water Test Area. Perform dynamic, axial static, axial pseudo-static, and lateral pseudo-static testing at the Kentucky Lake Bridge Shallow Water Test Area. One pile of each outside diameter and wall thickness specified on the plans and a half-inch thinner wall thickness for the 48 and 72-inch piles. The purpose of this testing will be to evaluate the constructability of the test piles and evaluate the axial and lateral resistance and load distribution.

Install artificially plugged test piles at the Kentucky Lake Bridge Deep Water Test Area to evaluate the constructability of the piles in the deeper waters. In addition, perform dynamic testing on these piles to evaluate the axial resistance and load distribution.

Information obtained from the Kentucky Lake Bridge load tests will be used by the Department in completing the design of the bridge foundations**. It is imperative that the Kentucky Lake Bridge load tests be performed in a consistent and timely manner without delay to the Kentucky Lake bridge overall project design and letting schedule.** This requirement should be clearly reflected in the contractor's work schedule and progress. Refer to Section 1.3 for further details.

Vibration monitoring on the existing bridge will be required during pile driving, pseudo-static testing, and other vibration-inducing operations. Vibration monitoring is outlined in the Special Note for Vibration Monitoring.

1.2 Contractor/Department Responsibilities

For the purposes of this Special Note, "Department" refers to the Kentucky Department of Highways and/or consultants acting on behalf of the Department of Highways. A representative of the Department may be on hand for any dynamic, static and pseudo-static testing to monitor the contractor that the objectives of the test program are being achieved.

Contractor is generally responsible for, but not limited to, supplying and driving the test piles, supplying pile driving and testing equipment, instrumentation, and all labor and materials necessary to complete the pile load testing as outlined in these Special Notes. Contractor is responsible for the means and methods of installing the piles, subject to applicable requirements in this Special Note. Contractor or their independent testing agency is responsible for data collection and analysis. Contractor submittals will be made by email and will be simultaneously submitted to the Department. Contact names and email addresses will be provided by the Department to the Contractor prior to the beginning of testing. Detailed experience and qualification requirements for the Contractor or independent testing agency are provided in the Special Note for Dynamic Pile Testing and Special Note for Static and Pseudo-Static Load Testing.

Contractor will be responsible to perform wave equation analyses for selection of pile driving hammers required to meet the both the initial and extended driving criteria discussed in Section 1.4.2 of this Special Note for each of the Kentucky Lake test piles to be driven. Additional requirements for the wave equation analyses are outlined in Section 2.1 of the Special Note for Dynamic Testing. **Do**

not mobilize hammer(s) to site until the wave equation analyses and hammer selection has been reviewed and accepted by the Department.

The project Geotechnical Report is or will be available via the KYTC Division of Construction Procurement Website under “Project Related Information”. The Geotechnical Report is for information only and is not a contract document.

Refer to the available subsurface data within the Roadway and Lagoon Bridge plans and the subsurface data sheets attached to this document.

1.3 Schedule

It is imperative that the Kentucky Lake Bridge load tests be performed in a consistent and timely manner without delay to the overall project schedule. The Contractor will provide a detailed testing schedule within 30 days after contract Notice To Begin Work that meets the general schedule requirements listed below. Adjustments may be accepted to the following overall Kentucky Lake load test program schedule if the Contractor can show how adjustments improve testing efficiency and provide data in a timely manner.

Item	Test Pile No.	Calendar Days From Notice to Begin Work [1]
Submit Detailed Test Program Schedule, Testing Firms/Subcontractors, Test Locations, Artificial Plug Locations and Design [2]	K-1 to K-7	30
Start of Test Pile Driving [3]	K-1 to K-7	135
Completion of Testing on Piles That Receive Dynamic Testing Only	K-4, K-5, K-6, K-7	170
Completion of all Dynamic, Static, and Pseudo-Static Load Tests	K-1 to K-7	185
Final Submittal of ALL Test Results	K-1 to K-7	195

1. Calendar days will not be assessed from December 22, 2012 through January 1, 2013.
2. The Department will respond within 10 business days.
3. Sequence of test pile installation should designed so that test pile K-4 is driven before K-1 and K-2, and K-5 before K-3.
4. Specific submittal requirements for each test are included in the Special Notes for Dynamic Pile Testing and Static and Pseudo-Static Pile Testing.
5. For purposes of the Special Note for Pile Load Test Program, Special Note for Dynamic Pile Testing, and Special Note for Static and Pseudo-Static Pile Testing, “business days”

relative to Department response times include all days except Saturdays, Sundays, Holidays, as defined in Section 101.03 of the Standard Specifications, and December 22, 2012 through January 1, 2013.

The Department will assess the Contractor liquidated damages of $5000.00 per calendar day if the deadline for "Final Submittal of ALL Test Results" is not met. Submit any requests for time extensions of the calendar day deadline due to events and/or circumstances beyond the control of the Contractor in writing to the Engineer within 10 calendar days of the occurrence of the event or within 10 calendar days of becoming aware of any circumstances. "Beyond the control of the Contractor" is defined to mean beyond the control of the prime contractor, sub-contractor(s), material supplier(s), sub-consultant(s), or any other entity that is contractually under the control of the prime contractor. In the aforementioned written request for time extension(s), include justification to show how the events or circumstances will directly impact the contractor's schedule and adversely affect the ability of the contractor to complete the "Final Submittal of ALL Test Results" within the specified number of calendar days after the Notice to Begin Work. The Department will not consider any requests for time extensions which are not submitted within 10 calendar days and/or do not meet the above requirements.

If at any time during the course of the pile load test program, any work item other than "Final Submittal of ALL Test Results" in the table in Section 1.3 of this Special Note (or an adjusted schedule proposed by the Contractor and accepted by the Department) has not been completed within the specified number of calendar days after the Notice to Begin Work, submit a written explanation to the Engineer within 10 calendar days after the applicable deadline has not been met. In this written explanation, document the reason(s) that the deadline was not met and include any required action necessary to complete "Final Submittal of ALL Test Results" within the specified number of calendar days. Failure to complete this submittal within 10 calendar days may result in forfeiture of the Contractor's right to submit any future requests for time extensions to complete the "Final Submittal of ALL Test Results."

1.4 Pile & Testing Summary

Perform pile load testing at three areas; the Lagoon Bridge, Kentucky Lake Bridge Shallow Water Area, and Kentucky Lake Bridge Deep Water Area. Testing will occur in the areas summarized below. Contractor will provide the actual pile load test locations in a submittal for acceptance by the Department.

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

The Contractor will coordinate the test pile program with the deep soil mixing that will be occurring concurrently.

Test Area	Approx. Location
Lagoon Bridge – End Bent 1	969+00 – 969+50
Lagoon Bridge – Pier No. 2	973+00 – 973+50
Kentucky Lake– Shallow Water	982+00 – 987+00
Kentucky Lake – Deep Water	1009+00 – 1009+75 [1]

1. Confirm with the Department that test pile locations do not interfere with proposed bridge piers.

See attached Pile Load Test Program Drawings for test areas.

1.4.1 Pile Summary Table

Test Pile No.	Location	Pile Type	Pile Size	Nominal Pile Wall Thickness inches	Order Length ft.	Quantity	Initial Driving Criteria			Extended Driving Criteria		Pile Testing Summary			
							Estimated Pile Tip Elevation, ft.	Highest Anticipated Pile Tip Elevation, ft.	Target Nominal Axial Resistance kips	Approximate Pile Tip Elevation, ft.	Approximate Nominal Axial Resistance kips	Dynamic	Static	Pseudo-Static	Lateral
L-1	End Bent 1	H-Pile	HP 18x157	-	75	1	340	350	600	---	---	X	X		
L-2	Pier No. 2	OEPP	30”	1.0	95	1	275	305	1600	---	---	X	X		
K-1	Shallow Water	OEPP	48”	1.5	185	1	220	230	5000 [7]	205	6100	X	X		
K-2	Shallow Water	OEPP	48”	1.5	185	1	220	230	5000	205	6100	X		X	
K-3	Shallow Water	OEPP	72”	2.0	185	1	220	230	10000	205	11500	X		X	X
K-4	Shallow Water	OEPP	48”	1.0	185	1	220	230	5000	205	6100	X			
K-5	Shallow Water	OEPP	72”	1.5	185	1	220	230	10000	205	11500	X			
K-6	Deep Water	OEPP	72”	2.0	210	1	200	220	9500	180	11000	X			
K-7	Deep Water	OEPP	96”	2.0	210	1	200	210	12000	180	17500	X			

1. OEPP= Open Ended Pipe Pile
2. Target and Approximate Nominal Axial Resistances based on plugged condition and are anticipated after setup, not during initial driving.
3. Pile yield stress for Kentucky Lake Bridge (pipe piles) is 45 ksi.
4. Steel for pipe piles will conform to the requirements of ASTM A252, Grade 3 (minimum yield strength of 45 ksi), for welded or seamless steel pipe piles. Steel H-Piles will conform to ASTM A709 Grade 50, Current Specifications.
5. The wall thickness at any point shall not be more than 12.5 % under the specified nominal wall thickness. In order to meet the objectives of the test program, the nominal thickness of ordered piles will match the table above. Oversized nominal wall thicknesses are not permitted.
6. Pipe pile sizes are outside diameter.
7. Load test system to be designed to apply 6000-kip axial load to pile head.
8. Pile points and cutting shoes for the Lagoon Bridge piles will conform to the Lagoon Bridge Plan Sheets. Kentucky Lake test piles shall have an inside fit cutting shoe installed per the manufacturer’s recommendations to help penetrate the bedded chert zones and chert boulders encountered in the foundation soils. The cutting shoes shall conform to AASHTO M-103 Grade 65/35 or ASTM A-148. The Cutting Shoes shall be versa steel VS700, APF-14001, or approved equal.

1.4.2 Test Pile Driving Criteria

Dynamic pile testing will be performed on all test piles. Pile driving criteria for the Lagoon Bridge are shown on the Lagoon Bridge Plan Sheets. Use the following driving criteria for Kentucky Lake Bridge test piles:

1. Drive piles until one of the following occurs:
   - The End of Driving (EOD) Resistance is 70% of the Target Nominal Axial Resistance (TNAR) listed in the Initial Driving Criteria in Table 1.4.1 above. This assumes a setup factor (SF) of 1.4 (= 100% / 70%). This setup factor may be adjusted based on the actual setup observed as testing proceeds.
   - Driving stresses exceed 40.5 ksi (90% of yield stress).
   - A set of 0.1 inch/blow (i.e. a blow count of 10 blows per inch) is obtained.
2. Perform restrikes at 48 and 72 hours with dynamic pile testing. If the Beginning of Restrike (BOR) resistance is within 10% of or greater than the Target Nominal Axial Resistance (TNAR), stop driving and perform applicable static or pseudo-static testing or begin Extended Driving program. If driving was terminated based on either the driving stress or set (i.e. blow count) criterion and the BOR is not within 10% of or greater than the TNAR, contact the Department for direction.
3. If BOR is less than 10% of the TNAR, calculate a new setup factor (SF = BOR/EOD) and continue driving until one of the following occurs:
   - The EOD = TNAR / SF, based on dynamic pile testing.
   - Driving stresses exceed 40.5 ksi (90% of yield stress).
   - A set of 0.1 inch/blow (i.e. a blow count of 10 blows per inch) is obtained.
4. Perform restrikes at 48 and 72 hours with dynamic pile testing. If the Beginning of Restrike (BOR) resistance is within 10% of or greater than the Target Nominal Axial Resistance (TNAR), stop driving and perform applicable static or pseudo-static testing or begin Extended Driving program.
5. If BOR is not within 10% of or greater than the TNAR, contact the Department for direction.

As stated in Section 2.3.4 of the Special Note for Dynamic Pile Testing, the maximum number of blows during restrike testing is 5. **Excessive blows may**

require additional wait/setup time and additional restrike testing at no cost to the Department.

Upon completion of the initial driving and applicable static, lateral, and/or pseudo-static tests at the Kentucky Lake Bridge test sites, an Extended Pile Driving program will be performed to drive the pile tips deeper. The extended driving criteria will be performed using the following criteria:

1. A 72-hour wait period will be observed between the end of the static, pseudo-static, and lateral test and the start of the extended driving.
2. At the beginning of the extended driving, restrike data will be obtained from the initial hammer blows to the pile. For payment purposes, the cost of this restrike dynamic testing is incidental to the initial drive dynamic testing for the extended driving. The Dynamic Testing specialist will ensure that sufficient data is obtained and stored at the start of driving to obtain this restrike information.
3. If driving stresses greater than 50 ksi (~110% of the yield stress) are measured during driving based upon dynamic pile testing data generated in the field, terminate driving. Otherwise, drive until a blow count of 15 blows/inch or a set of 1/16 inch per blow (at the maximum power/fuel setting for the hammer) is achieved or until directed by the Department to stop.
4. Allow the pile to set up and perform additional dynamic testing at the beginning of restrike (BOR) at 96 hours after the end of extended driving.

1.4.3 Artificial Plug

An artificial plug will be required on each test pile of each diameter at the Kentucky Lake Bridge test areas to force the piles into a plugged condition. In the Shallow Water location, the plug will be installed within the pipe pile prior to driving at a distance of 12 feet below the mudline based on the Highest Allowable Pile Tip Elevation per Initial Driving Criteria in Table 1.4.1. In the Deep Water location, the plug will be installed 84 feet above the pile tip for K-6 and 82 feet above the pile tip for K-7. The plug will consist of a circular steel plate with a 12-inch diameter annulus in the center to allow soft sediments along the lake bottom to pass through (see detail sheet PL-4 attached to this document for a general example). The plug shall be designed by and/or for the Contractor at no additional cost to the Department and by a licensed professional engineer with a minimum of 5 years of structural design experience with piles. Artificial plug will

be designed with sufficient thickness and stiffeners to support the expected loads during pile driving and load testing. Plug design and locations will be included in the Contractors initial submittal.

1.5 Removal

Following completion of the test program, cut off all test piles, reaction piles, and any other temporary piles or temporary structures used to drive piles or perform the pile testing program at the level of the lake bottom or completely remove them where possible. These materials will become property of the contractor and shall be removed from the site. In the Shallow Water Test Area, grout interior of all test, reaction, and platform piles back to mudline (ground surface) elevation. All costs associated with cutting off test piles and removing them from the site are incidental to the applicable “Test Piles – Furnish” bid item. All costs associated with cutting off and grouting reaction piles, and any other temporary piles or temporary structures used to perform the pile testing program and removing these materials from the site are incidental to the applicable static test or pseudo-static test bid item.

1.6 Measurement

Kentucky Lake Bridge test pile items are summarized in the following sections. **Lagoon Bridge pile items are included in the lagoon bridge construction documents.** Pile Testing items are included in the Special Note for Dynamic Load Testing and Special Note for Static and Pseudo-Static Load Testing. Vibration monitoring is included in the Special Note for Vibration Monitoring.

1.6.1 FURNISH EQUIPMENT FOR PILE TEST PROGRAM

For the Kentucky Lake tests, the Contractor’s cost to supply and deliver all equipment for both pile driving and testing will be included under the Furnish Equipment for Pile Test Program pay item. Do not mobilize driving hammer(s) to the site until wave equation analyses and hammer selection has been reviewed and accepted by the Department.

1.6.2 TEST PILES – FURNISH

Furnishing test piles will be measured per linear foot. Payment for the furnished test piles includes all material, artificial plugs, driving shoes, cutting, welding, and

all splices necessary to achieve the extended driving criteria described in section 1.4.2, except for splices in section 1.6.4. The order lengths assume a water level elevation of 370 feet plus an additional 20 feet for instrumentation gages, leads/sleeves, and to provide sufficient stickup to perform pile testing. The Department will pay for the order lengths provided in Table 1.4.1 regardless of the quantity of test piles actually installed. All costs associated with removal and grouting as defined in Section 1.5 are incidental to the applicable "Test Piles – Furnish" bid item.

1.6.3 TEST PILES – INSTALL

Test pile installation will be measured per linear foot from the mudline to the final pile tip elevation. Assumed mudline elevations are approximately 345 feet at the Shallow Water Test Area and 290 feet at the Deep Water Test Area. However, the Department will pay for installation based on the actual mudline elevations encountered at each individual test pile location. **Bidders are strongly advised to consider that very hard driving with very high blow counts will be encountered and to include any associated costs in their bid prices.**

1.6.4 SPLICE TEST PILES

When cutting and splicing of the test piles is required to accomplish the pile testing and directed by the Department, the additional splices will be paid under the applicable Splice Test Piles pay item**.** The cost for cutting is incidental to the bid price for splices. **All other splices are incidental to the Test Piles-Furnish bid items.**

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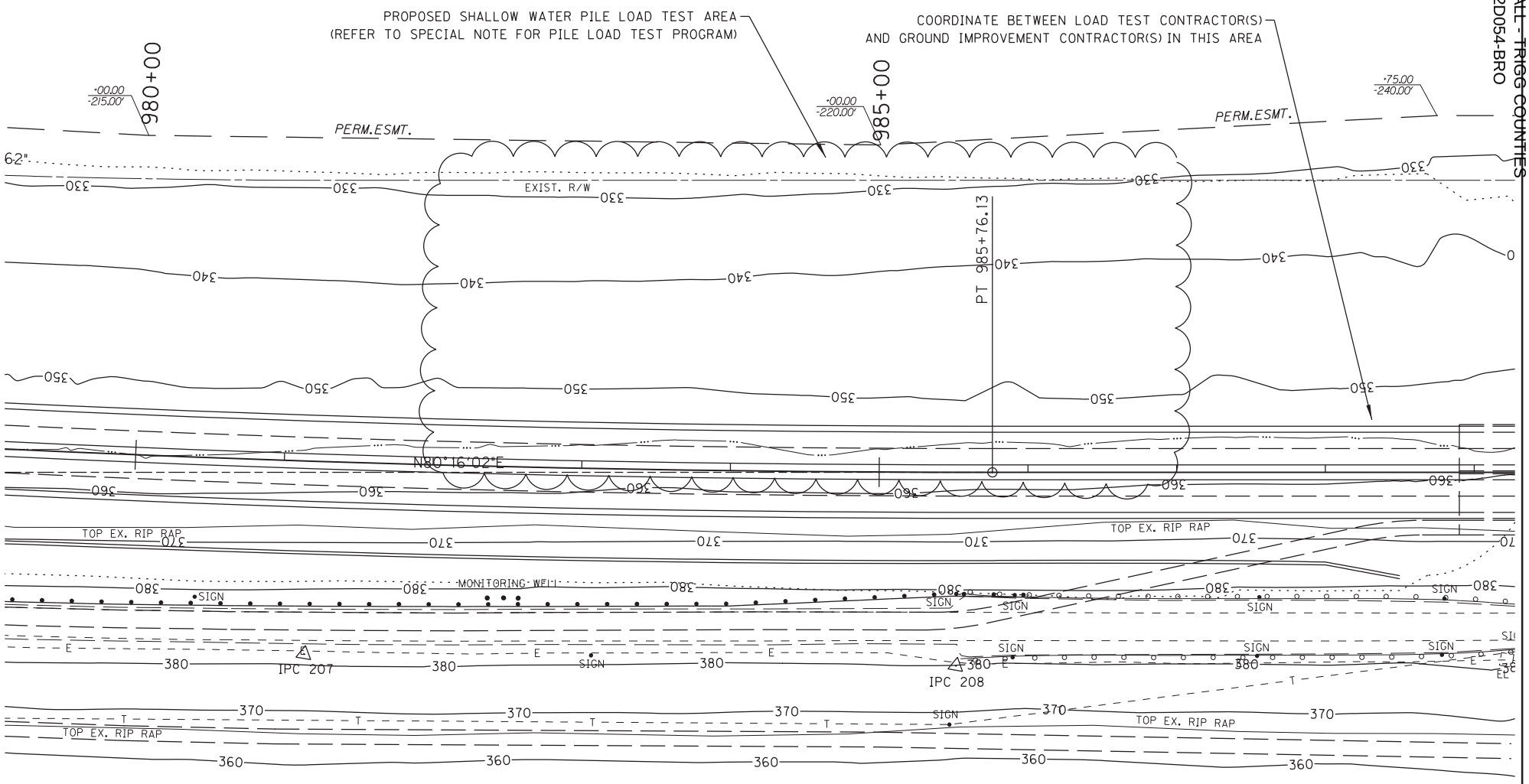
1.7 Payment

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
24548EC	FURNISH EQUIPMENT FOR PILE TEST PROGRAM	LS
8033	TEST PILES - FURNISH – 48 IN PIPE- 1 IN	LF
8033	TEST PILES - FURNISH – 48 IN PIPE- 1.5 IN	LF
8033	TEST PILES - FURNISH – 72 IN PIPE- 1.5 IN	LF
8033	TEST PILES - FURNISH – 72 IN PIPE- 2 IN	LF
8033	TEST PILES - FURNISH – 96 IN PIPE- 2 IN	LF
8033	TEST PILES - INSTALL - 48 IN PIPE -1 IN	LF
8033	TEST PILES - INSTALL - 48 IN PIPE -1.5 IN	LF
8033	TEST PILES - INSTALL - 72 IN PIPE - 1.5 IN	LF
8033	TEST PILES - INSTALL - 72 IN PIPE - 2 IN	LF
8033	TEST PILES - INSTALL - 96 IN PIPE - 2 IN	LF
24552EC	SPLICE TEST PILES - 48 IN PIPE- 1 IN	EACH
24552EC	SPLICE TEST PILES – 48 IN PIPE- 1.5 IN	EACH
24552EC	SPLICE TEST PILES - 72 IN PIPE- 1.5 IN	EACH
24552EC	SPLICE TEST PILES - 72 IN PIPE- 2 IN	EACH
24552EC	SPLICE TEST PILES - 96 IN PIPE- 2 IN	EACH



NOTES:
1) STEEPEST ALLOWABLE TEMPORARY SLOPE FROM PROPOSED TEST AREA TO PROPOSED CAUSEWAY IS 2H:1V.
2) TEMPORARY SLOPES SHALL NOT ENCROACH ON PROPOSED TEST AREA.

Plan Scale 1" = 100'

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

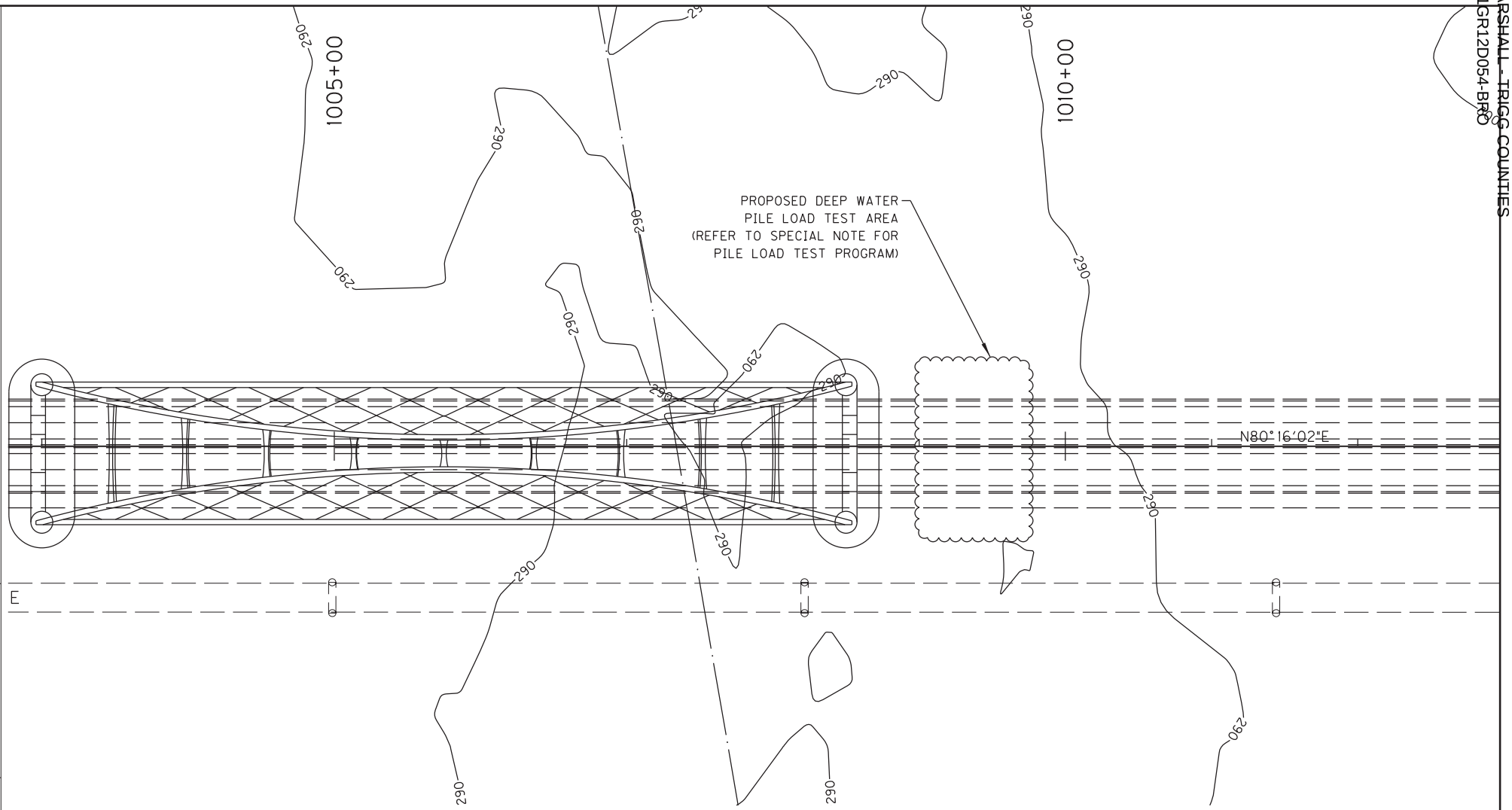
COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

PILE LOAD TEST PROGRAM LOCATIONS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	PL-1
		DRAWING NO.

USER: kjmankin
DATE PLOTTED: September 11, 2012
FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\111\111509?\LOAD TEST PROGRAM\KY LAKE GEOTECH 02.DGN
E-SHEET NAME:
MicroStation v8.11.9.292



Plan Scale 1" = 100'

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

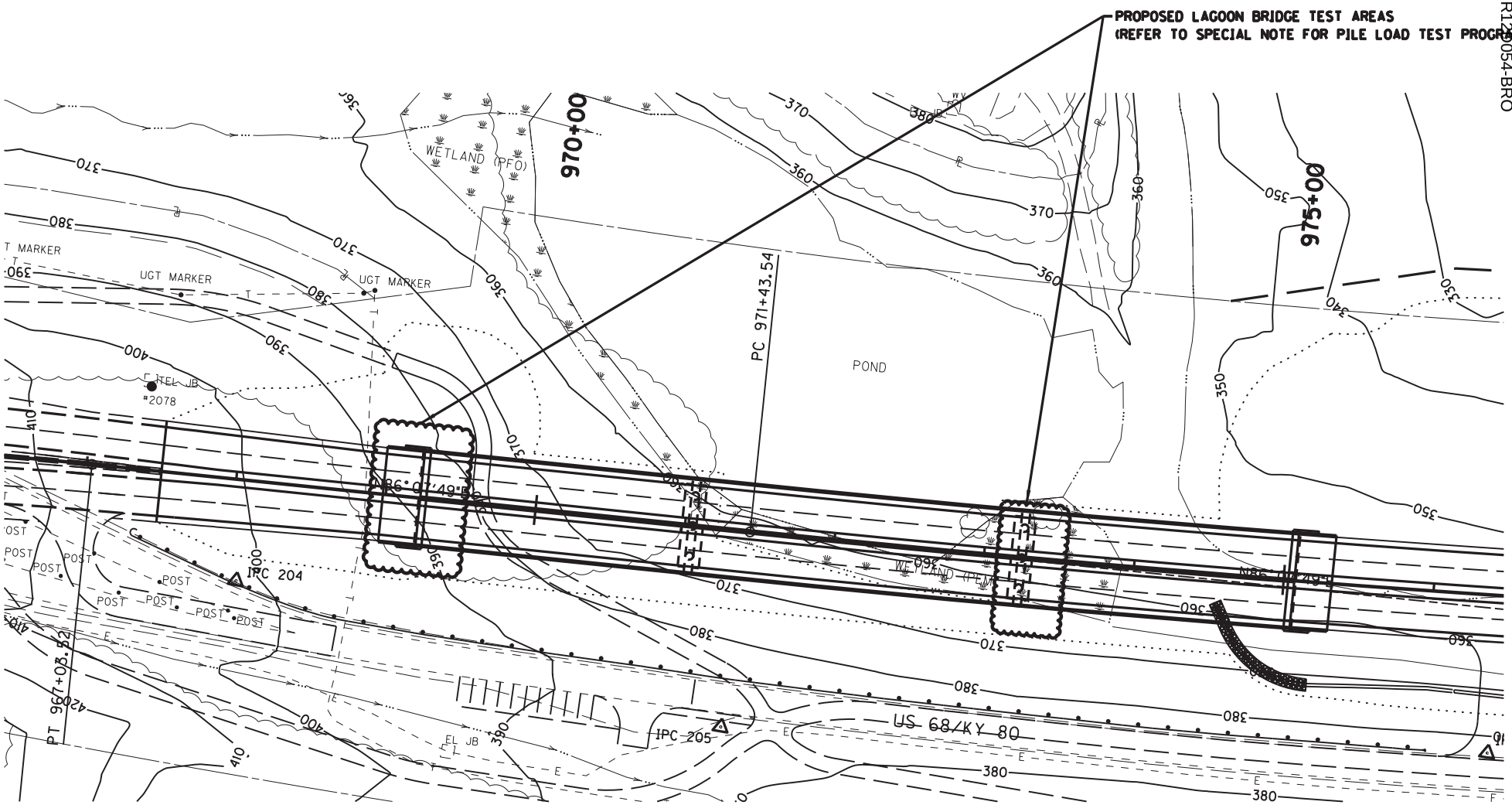
COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

PILE LOAD TEST PROGRAM LOCATIONS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	PL–2
		DRAWING NO.

MicroStation v8.11.9.292 | E-SHEET NAME: | USER: kjmankin | DATE PLOTTED: September 11, 2012 | FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\11\15097\LOAD TEST PROGRAM\KY LAKE GEOTECH 04.DGN



Plan Scale 1" = 100'

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

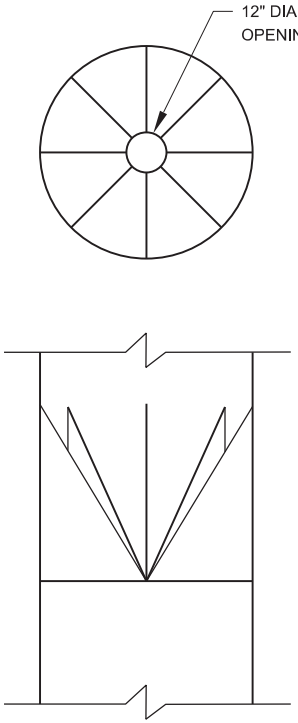
COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

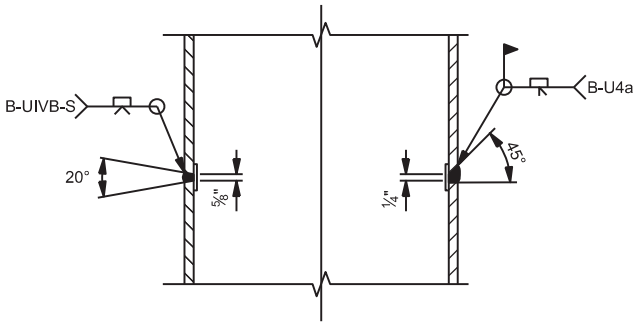
PILE LOAD TEST PROGRAM LOCATIONS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	PL-3
		DRAWING NO.

MicroStation v8.11.9.292 | E-SHEET NAME: | USER: kjmankin | DATE PLOTTED: September 6, 2012 | FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\111509?\LOAD TEST PROGRAM\KY LAKE GEOTECH 01.DGN

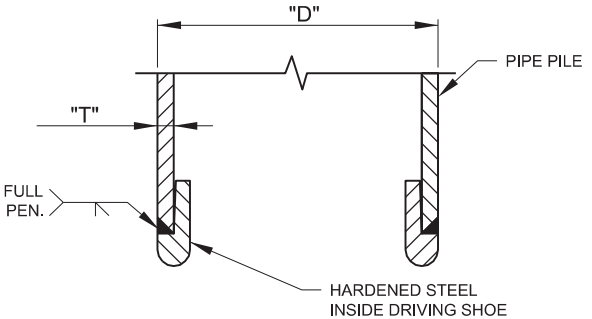


ARTIFICIAL PLUG
EXAMPLE
NOT TO SCALE



SHOP SPLICE FIELD SPLICE

DETAIL 4
PILE SPLICE DETAIL
NOT TO SCALE



DRIVING SHOE DETAIL
NOT TO SCALE

MicroStation v8.11.9.292
E-SHEET NAME:
USER: KJmankin
DATE PLOTTED: September 11, 2012
FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\III\H15097\DETAILS.DGN

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

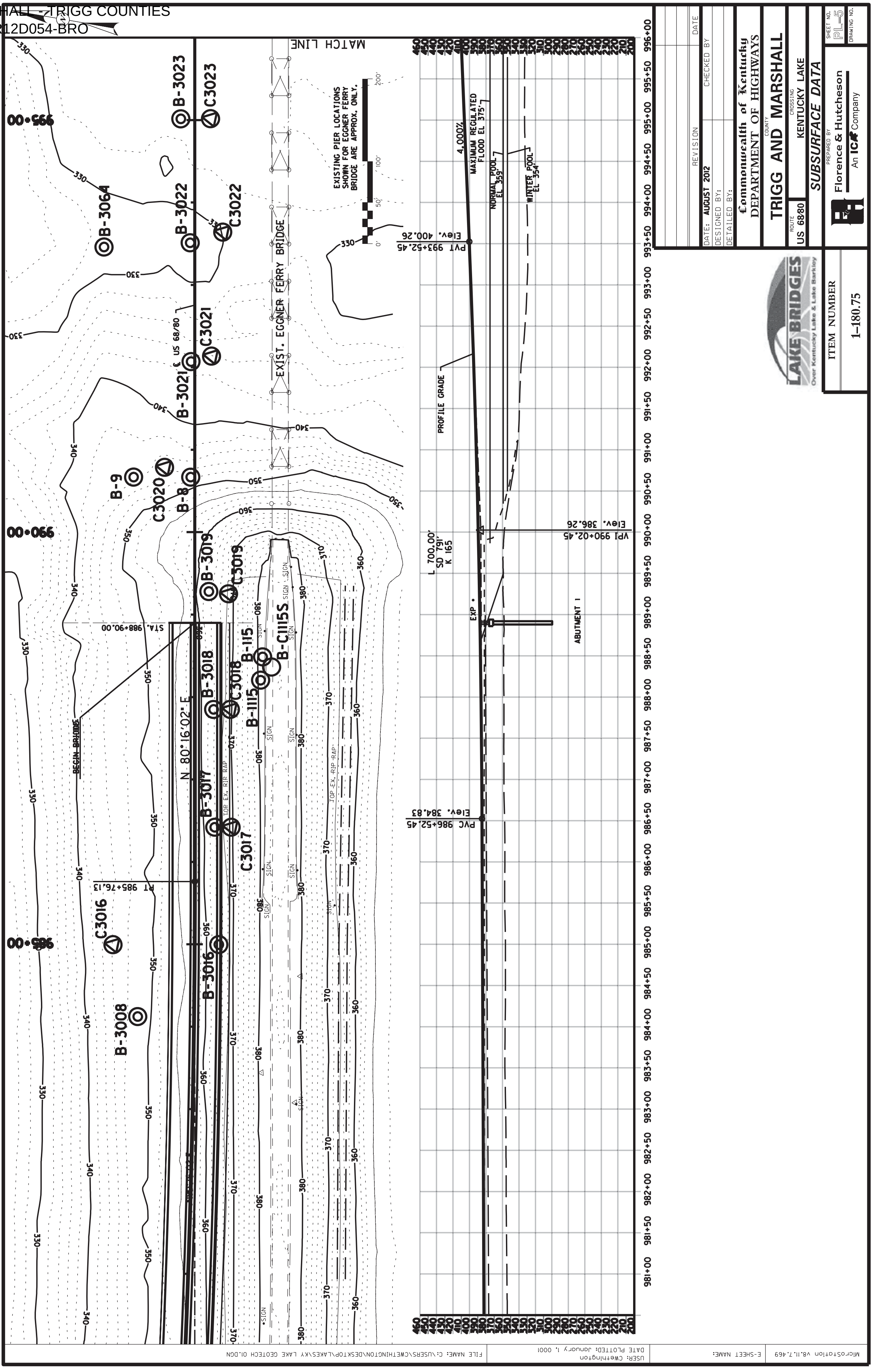
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

DETAILS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	PL–4
		DRAWING NO.


MATCH LINE
EXISTING PIER LOCATIONS SHOWN FOR EGGNER FERRY BRIDGE ARE APPROX. ONLY.
EXIST. EGGNER FERRY BRIDGE
℄ US 68/80
N 80°16'02" E
BEGIN BRIDGE
STA. 988+90.00
PT 985+76.13
B-3023
C3023
B-3064
B-3022
C3022
B-3021
C3021
B-9
B-8
C3020
B-3019
C3019
B-3018
C3018
B-115
B-1115
B-C115S
B-3017
C3017
C3016
B-3016
B-3008
PROFILE GRADE
4.000%
MAXIMUM REGULATED FLOOD EL 375'
NORMAL POOL EL 359'
WINTER POOL EL 354'
PVT 993+52.45
Elev. 400.26
VPI 990+02.45
Elev. 386.26
L 700.00'
SD 791'
K 165
PVC 986+52.45
Elev. 384.83
EXP
ABUTMENT 1
REVISION
DATE
CHECKED BY
DATE: AUGUST 2012
DESIGNED BY:
DETAILED BY:
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY
TRIGG AND MARSHALL
ROUTE
US 68/80
CROSSING
KENTUCKY LAKE
SUBSURFACE DATA
PREPARED BY
Florence & Hutcheson
An ICA Company
SHEET NO.
DRAWING NO.
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley
ITEM NUMBER
1-180.75
FILE NAME: C:\USERS\CWETHINGTON\DESKTOP\LAKES\KY LAKE GEOTECH 01.DGN
DATE PLOTTED: January 1, 0001
USER: CWethington
E-SHEET NAME:
MicroStation v8.11.7.469

PIER No.

Hole No.	C3022	3022	3064	3021	C3021	PIER No. 3023	C3023
Station	993+64	993+51	993+46	992+07	992+13	995+01	995+02
Offset	34' RT.	6' LT.	110' LT.	5' LT.	16' RT.	17' LT.	19' RT.
Elev.	329.3	328.3	327.6	336.8	334.9	332.7	332.7
Drilling Firm-Year	KYTC-2011	KYTC-2011	KYTC-2011	KYTC-2011	KYTC-2011	KYTC-2011	KYTC-2011
Sea Level Datum							

D_{95} (mm)	D_{50} (mm)	Description
17.697	4.502	N=27, A-1-b(0), GM, S+C=25
17.263	1.734	N=55, A-2-4(0), SM, S+C=30
18.840	1.971	N=43, A-2-4(0), SM, S+C=30
23.356	9.194	N=20, A-1-b(0), GM, S+C=23
34.577	7.219	N=40, A-1-b(0), GM, S+C=20
16.757	5.239	N=15, A-1-b(0), GM, S+C=18
42.714	7.344	N=40, A-1-b(0), GM, S+C=24
21.006	2.496	N=R/0.4, A-2-4(0), GM, S+C=26
16.481	0.834	N=99/1.0, A-2-4(0), SM, S+C=31
36.323	0.405	N=48, A-2-4(0), GM, S+C=33

NR

UU (psf)	D_{95} (mm)	D_{50} (mm)	w%	LI	Description
					NO RECOVERY
648	0.370	0.040	24	0.62	A-4(2), CL, S+C=56(34+22)
	0.255	0.010	35	1.58	N=4, A-4(7), CL, S+C=84(59+25)
	0.380	0.019	34	2.52	N=13, A-4(2), CL-ML, S+C=72(59+13)
	1.291	0.189	32		N=5, A-3(0), SP-SM, S+C=5
	0.982	0.190	29		N=31, A-3(0), SP, S+C=4
	40.417	0.141	29		N=20, A-4(0), SM, S+C=40
	18.685	0.240	23		N=45, A-4(0), SM, S+C=36
	11.810	0.217	23		N=27, A-2-4(0), SM, S+C=29
	5.363	0.794	23		N=51, A-1-b(0), SM, S+C=23
	22.083	6.446	21		N=24, A-1-b(0), GM, S+C=25
	28.774	0.586	18		N=33, A-4(0), GM, S+C=44
	18.351	2.730	18		N=50/0.4, A-2-4(0), GM, S+C=28
	40.148	12.069	12		N=50/0.1, A-1-a(0), GW-GM, S+C=9
	31.183	10.017	17		N=50/0.3, A-1-a(0), GM, S+C=15
	33.475	3.685	13		N=59, A-2-4(0), GM, S+C=27
	14.473	0.202	24		N=16, A-2-4(0), SM, S+C=18
	17.292	2.832	17		N=67, A-2-4(0), GM, S+C=28
	18.800	3.042	12		N=59/0.6, A-2-4(0), GM, S+C=28
	20.497	2.423	22		N=70/0.8, A-2-4(0), GM, S+C=34

NR

D_{95} (mm)	D_{50} (mm)	Description
		NO RECOVERY
29.704	0.264	N=26, A-2-4(0), SM, S+C=14
24.789	5.139	N=48, A-1-b(0), GM, S+C=25
24.406	1.740	N=57, A-2-4(0), GM, S+C=28
18.343	2.206	N=81/1.0, A-2-4(0), SM, S+C=29
24.037	2.686	N=46, A-2-4(0), GM, S+C=30

NR

D_{95} (mm)	D_{50} (mm)	w%	LI	Description
0.375	0.117	29		A-2-4(0), SM, S+C=33(18+15)
0.392	0.039	33	3.79	A-4(0), CL-ML, S+C=58(45+13)
0.399	0.172	33		N=2, A-3(0), SP-SM, S+C=6
7.405	0.251	28		N=8, A-3(0), SP-SM, S+C=9
1.728	0.336	26		N=19, A-3(0), SP, S+C=3
1.683	0.225	29		N=10, A-3(0), SP-SM, S+C=5
1.125	0.199	32		N=17, A-3(0), SP, S+C=2
4.666	0.244	26		N=33, A-2-4(0), SM, S+C=14
34.912	2.496	20		N=35, A-2-4(0), GM, S+C=28
19.793	2.683	22		N=56, A-2-4(0), GM, S+C=27
				NO RECOVERY
0.411	0.165	32		N=20, A-2-4(0), SP-SM, S+C=11
0.801	0.151	29		N=20, A-2-4(0), SM, S+C=21
1.397	0.203	27		N=22, A-3(0), SP, S+C=4
10.617	0.290	20		N=53, A-2-4(0), SM, S+C=21
45.979	14.432	9		N=75/0.6, A-1-b(0), GM, S+C=19
26.257	4.445	20		N=58, A-1-b(0), GM, S+C=25
38.562	3.313	13		N=52, A-2-4(0), GM, S+C=28
16.843	1.662	18		N=38, A-2-4(0), SM, S+C=28
15.793	0.800	21		N=40, A-4(0), GM, S+C=46
12.893	0.432	35		N=50/0.4, A-4(0), GM, S+C=8
28.257	0.435	35	8.01	N=50/0.4, A-4(0), GM, S+C=44(31+13)

NR

D_{95} (mm)	D_{50} (mm)	Description
16.064	1.569	N=61, A-2-4(0), SM, S+C=28
20.789	2.168	N=53, A-2-4(0), GM, S+C=28
21.103	2.709	N=35, A-2-4(0), GM, S+C=30
16.374	2.501	N=29, A-2-4(0), GM, S+C=28
35.612	0.232	N=48, A-2-4(0), SM, S+C=27

NR

UU (psf)	D_{95} (mm)	D_{50} (mm)	w%	LI	Description
1154	0.368	0.086	23	0.38	A-4(1), SC, S+C=46(26+20)
196	0.297	0.013	29	0.76	A-6(8), CL, S+C=78(57+21)
	0.126	0.007	43	1.97	A-6(11), CL, S+C=93(65+28)
					NO RECOVERY
	0.359	0.042	38	9.01	N=12, A-4(0), ML, S+C=57(45+12)
	0.409	0.164			N=28, A-2-4(0), SP-SM, S+C=11
	14.774	0.277			N=31, A-2-4(0), SM, S+C=27
	23.198	2.875			N=33, A-2-4(0), GM, S+C=27
	17.056	2.847			N=51, A-2-4(0), GM, S+C=28
	31.060	7.273			N=25, A-1-b(0), GM, S+C=17
	28.490	5.708			N=30, A-1-b(0), GM, S+C=22
	44.008	8.002			N=35, A-1-b(0), GM, S+C=20
	33.262	8.609			N=37, A-1-b(0), GM, S+C=23
	21.885	1.857			N=R/0.4, A-2-4(0), GM, S+C=29
	16.239	0.253			N=35, A-2-4(0), SM, S+C=27
	18.596	5.185			N=40, A-1-b(0), GM, S+C=22
	47.086	27.428			N=63, A-1-a(0), GW-GM, S+C=7
	7.072	0.160			N=40, A-2-4(0), SM, S+C=22
	21.404	2.244			N=39, A-2-4(0), GM, S+C=27
	19.349	2.267	29	0.90	N=61, A-1-b(0), SM, S+C=23(17+6)
	13.630	2.291			N=22, A-2-4(0), GM, S+C=34
	23.093	3.091	23	-0.31	N=38, A-2-4(0), GM, S+C=29(21+8)
	20.755	2.162			N=64, A-4(0), GM, S+C=37
	14.230	2.020			N=55, A-2-4(0), SM, S+C=34
	40.282	5.177			N=R/0.4, A-1-b(0), GM, S+C=23
	28.624	1.993	31	1.35	N=66, A-2-4(0), SC-SM, S+C=21(14+7)
	43.951	11.640			N=14, A-1-b(0), GM, S+C=24

D_{95} (mm)	D_{50} (mm)	Description
30.111	2.525	N=36, A-2-4(0), SM, S+C=28
33.341	3.519	N=23, A-2-4(0), GM, S+C=29
18.391	4.838	N=25, A-1-b(0), GM, S+C=25
39.110	3.363	N=26, A-2-4(0), GM, S+C=27

NR

SUMMARY of TRIAXIAL TEST DATA

STATION	993+51
OFFSET	6' LT.
DEPTH	7.9'-8.4'
$\bar{c}$	230 psf
$\bar{\phi}$	22.1°

SUMMARY of TRIAXIAL TEST DATA

STATION	995+01	995+01
OFFSET	17' LT.	17' LT.
DEPTH	5.3'-5.8'	15.3'-15.7'
$\bar{c}$	259 psf	0 psf
$\bar{\phi}$	34.3°	27.1°

MATCHLINE

35.239	2.239	19	-0.44		N=50/0.3, A-2-4(0), GM, S+C=33(23+10)
4.234	0.011	29	0.24		N=50/0.3, A-4(5), ML, S+C=81(59+22)
8.537	0.017	52	2.93		N=30, A-4(6), ML, S+C=74(58+16)
UC (psi)	KY ROD	REC			
18.297	13.035				N=R/0.3, A-1-a(0), GP, S+C=3
13650	74	94			Limestone: Dark gray, interval dark gray to lt. gray and white, fresh to v. sev. weathered, microcrystalline, argillaceous, massive bedding.
8520	96	98			

Top of rock elev. = 111.8
Base of weathered rock elev. = 111.8

MATCHLINE

CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)
SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined in Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

Datum Elev.=160

VERTICAL 1"=10'
HORIZONTAL N.T.S.

DATE: AUGUST, 2012 | CHECKED BY
DESIGNED BY:
DETAILED BY:

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL/TRIGG

ROUTE: US 68/80 | CROSSING: KENTUCKY LAKE

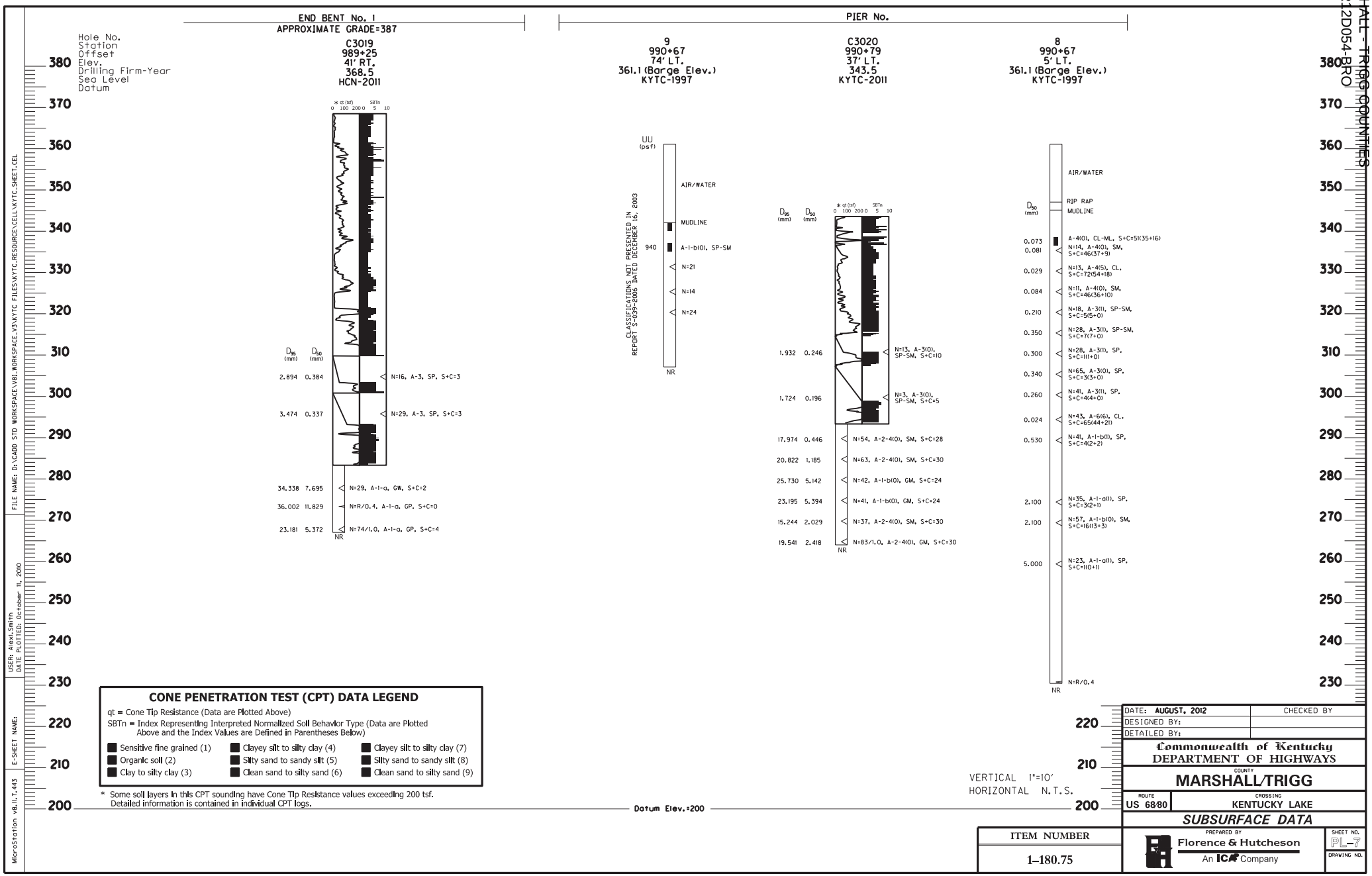
SUBSURFACE DATA

ITEM NUMBER: 1-180.75

PREPARED BY: Florence & Hutcheson, An ICA Company

SHEET NO. PL-6
DRAWING NO.

FILE NAME: D:\CADD STD WORKSPACE\V8I.WORKSPACE.V3\KYTC FILES\KYTC.RESOURCES\CELL\KYTC_SHEET.CEL
USER: Alex.Smith
DATE PLOTTED: October 11, 2010
E-SHEET NAME:
MicroStation v8.11.7.443



CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)

SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined in Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

VERTICAL 1"=10'
HORIZONTAL N.T.S.

DATE: AUGUST, 2012	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL/TRIGG

ROUTE: US 68/80 | CROSSING: KENTUCKY LAKE

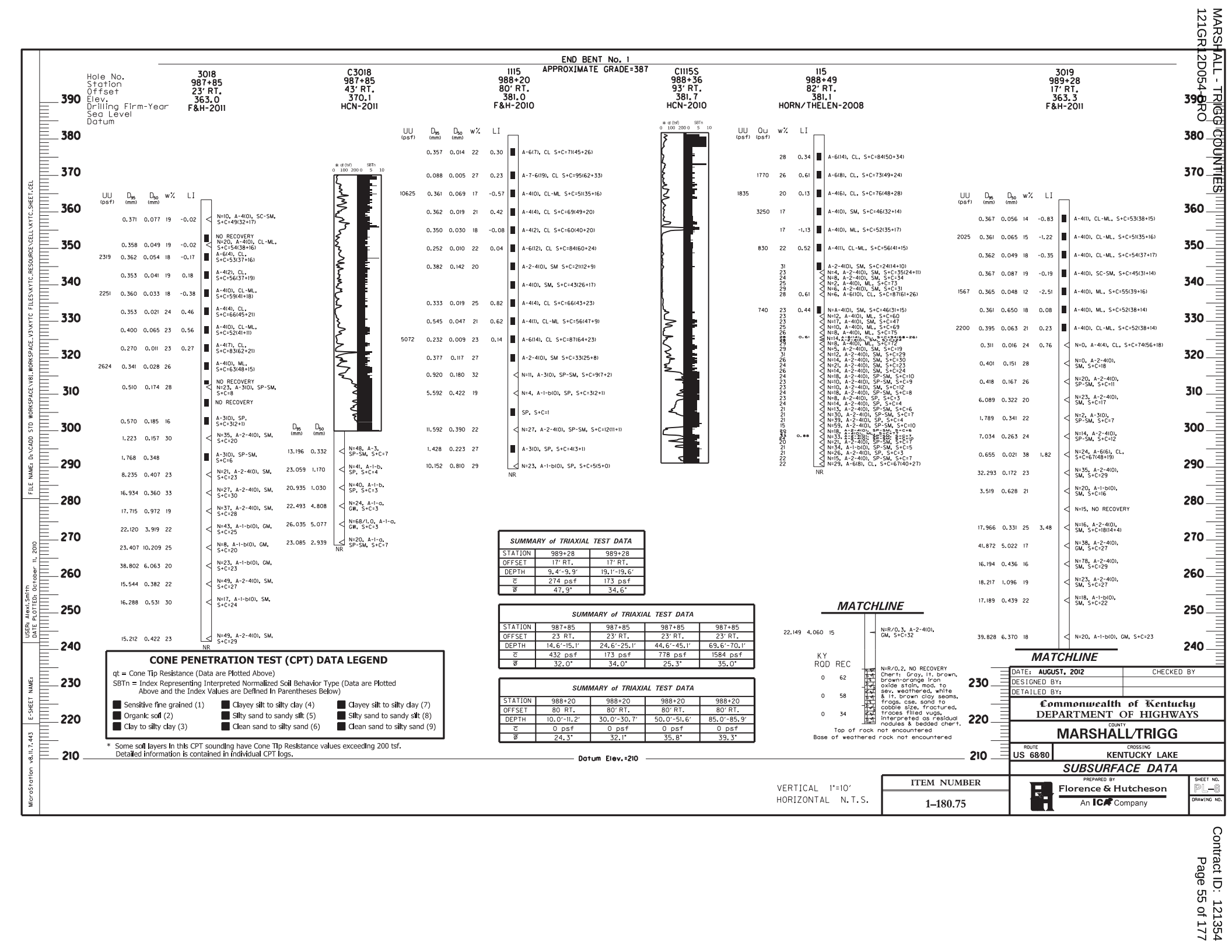
SUBSURFACE DATA

ITEM NUMBER	PREPARED BY	SHEET NO.
1-180.75	Florence & Hutcheson, An ICA Company	PL-7
		DRAWING NO.

FILE NAME: D:\CADD STD WORKSPACE\V8i_WORKSPACE_V3\KYTC FILES\KYTC_RESOURCE\CELL\KYTC_SHEET.CEL
USER: Alexi.Smith
DATE PLOTTED: October 11, 2010
E-SHEET NAME:
MicroStation v8i_7.443

END BENT No. 1
APPROXIMATE GRADE=387

	3018	C3018	1115	C1115S	115	3019
Hole No.						
Station	987+85	987+85	988+20	988+36	988+49	989+28
Offset	23' RT.	43' RT.	80' RT.	93' RT.	82' RT.	17' RT.
Elev.	363.0	370.1	381.0	381.7	381.1	363.3
Drilling Firm-Year	F&H-2011	HCN-2011	F&H-2010	HCN-2010	HORN/THELEN-2008	F&H-2011
Sea Level Datum						



SUMMARY of TRIAXIAL TEST DATA

STATION	989+28	989+28
OFFSET	17' RT.	17' RT.
DEPTH	9.4'-9.9'	19.1'-19.6'
c̄	274 psf	173 psf
ø̄	47.9°	34.6°

SUMMARY of TRIAXIAL TEST DATA

STATION	987+85	987+85	987+85	987+85
OFFSET	23 RT.	23' RT.	23' RT.	23' RT.
DEPTH	14.6'-15.1'	24.6'-25.1'	44.6'-45.1'	69.6'-70.1'
c̄	432 psf	173 psf	778 psf	1584 psf
ø̄	32.0°	34.0°	25.3°	35.0°

SUMMARY of TRIAXIAL TEST DATA

STATION	988+20	988+20	988+20	988+20
OFFSET	80 RT.	80' RT.	80' RT.	80' RT.
DEPTH	10.0'-11.2'	30.0'-30.7'	50.0'-51.6'	85.0'-85.9'
c̄	0 psf	0 psf	0 psf	0 psf
ø̄	24.3°	32.1°	35.8°	39.3°

CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)

SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined In Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

VERTICAL 1"=10'
HORIZONTAL N.T.S.

ITEM NUMBER
1-180.75

DATE: AUGUST, 2012 | CHECKED BY
DESIGNED BY:
DETAILED BY:

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL/TRIGG

ROUTE US 68/80 | CROSSING KENTUCKY LAKE

SUBSURFACE DATA

PREPARED BY
Florence & Hutcheson
An ICA Company

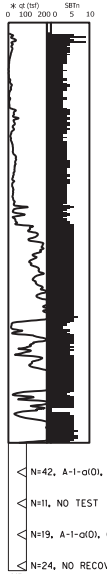
SHEET NO. PL-8
DRAWING NO.

END BENT No. 1
APPROXIMATE GRADE=387

Hole No.	C3016	3008	3016	3017	C3017
Station	984+99	984+12	985+00	986+42	986+42
Offset	99' LT.	68' LT.	29' RT.	24' RT.	44' RT.
Elev.	346.4	345.3	364.1	363.6	369.7
Drilling Firm-Year		KYTC-2011	F&H-2011	F&H-2011	HCN-2011
Sea Level Datum	HCN-2011				

SUMMARY of TRIAXIAL TEST DATA

STATION	984+12	984+12	984+12
OFFSET	68' LT.	68' LT.	68' LT.
DEPTH	11.5'-12.0'	16.5'-17.0'	46.5'-47.0'
$\bar{c}$	72 psf	0 psf	58 psf
$\bar{\phi}$	21.3°	24.2°	34.0°



D_{95} (mm)	D_{50} (mm)	
22.613	6.056	N=42, A-1-a(0), GW, S+C=2
		N=11, NO TEST
24.041	8.164	N=19, A-1-a(0), GW, S+C=1
		N=24, NO RECOVERY

UU (psf)	D_{95} (mm)	D_{50} (mm)	w%	LI	
	0.666	0.010	27	0.50	A-6(10), CL, S+C=78(51+27)
1380	0.357	0.013	23	0.23	A-6(7), CL, S+C=73(47+26)
444	0.573	0.015	28	0.89	A-6(6), CL, S+C=70(45+25)
					NO RECOVERY
					NO RECOVERY
	1.106	0.186	28		N=10, A-3(0), SP-SM, S+C=8
	1.398	0.219	24		A-3(0), SP, S+C=3(2+1)
	0.872	0.186	26		N=15, A-3(0), SP-SM, S+C=5
398	1.887	0.384			A-3(0), SP, S+C=4
	3.597	0.342	26		N=11, A-2-4(0), SM, S+C=13
	0.417	0.178	30		N=12, A-3(0), SP, S+C=6
	1.126	0.194	26		N=35, A-3(0), SP, S+C=5
	11.972	0.266			A-2(4), SM, S+C=22
	18.652	5.938	27		N=17, A-2-4(0), GM, S+C=29
	35.973	7.967	21		N=28, A-1-b(0), GM, S+C=20
	22.113	10.209	17		N=29, A-1-a(0), GP-GM, S+C=12
	23.536	11.174	14		N=R/0.4, A-1-a(0), GW-GM, S+C=7
	23.925	0.288	21		N=43, A-12-4(0), SM, S+C=31
	23.244	7.524	18		N=50, A-1-b(0), GM, S+C=19
	18.244	12.659	11		N=50/0.4, A-1-a(0), GP, S+C=4
	41.188	17.698	10		N=50/0.3, A-1-a(0), GW, S+C=2

NR

UU (psf)	D_{95} (mm)	D_{50} (mm)	w%	LI	
1300	0.370	0.073	19	-0.06	A-4(0), CL-ML, S+C=50(34+16)
	0.369	0.082	18	0.15	A-4(0), SC-SM, S+C=47(32+15)
	0.377	0.068	15	-0.45	A-4(0), CL-ML, S+C=51(35+16)
1252	0.369	0.014	21	0.17	A-6(11), CL, S+C=73(49+24)
	0.404	0.015	14	-0.31	A-6(8), CL, S+C=70(46+24)
970	0.350	0.020	21	0.24	A-6(5), CL, S+C=66(43+23)
1668	0.319	0.010	22	0.15	A-6(11), CL, S+C=80(55+25)
					NO RECOVERY
3092	1.187	0.013	23	0.23	A-6(10), CL, S+C=70(40+30)
	0.235	0.009	26	0.50	A-6(11), CL, S+C=87(65+22)
	1.096	0.176			N=2, A-2-4(0), SM, S+C=13
	1.076	0.182			A-2-4(0), SP-SM, S+C=11
	1.868	0.357			N=3, A-3(0), SP-SM, S+C=9
	2.497	0.279			N=3, A-2-4(0), SM, S+C=15
	1.831	0.697			N=8, A-1-b(0), SW-SM, S+C=5
	1.478	0.181			N=26, A-2-4(0), SM, S+C=13
	19.946	0.203			N=29, A-2-4(0), SM, S+C=23
	17.624	0.173			N=27, A-2-4(0), SM, S+C=33
	23.218	6.464			N=24, A-1-b(0), GM, S+C=22
	0.240	0.010	36	0.97	N=10, A-6(13), CL, S+C=89(69+20)
	42.433	10.887			N=25, A-1-b(0), GM, S+C=19
	30.859	9.050			N=29, A-1-b(0), GM, S+C=16
	36.501	3.766			N=37, A-2-4(0), GM, S+C=26
	1.957	0.192			N=34, A-2-4(0), SM, S+C=14

NR

UU (psf)	D_{95} (mm)	D_{50} (mm)	w%	LI	
816	0.366	0.055	17	-0.37	A-4(0), CL-ML, S+C=53(36+17)
	0.369	0.036	16	-0.96	A-4(0), CL-ML, S+C=54(18+36)
710	0.351	0.019	20	0.18	A-6(5), CL, S+C=67(45+22)
	0.358	0.041	20	-0.01	A-4(1), CL-ML, S+C=57(42+15)
	0.360	0.029	21	0.24	A-4(3), CL, S+C=60(39+21)
1000	0.369	0.022	26	0.89	A-4(4), CL, S+C=65(44+21)
	0.822	0.025	22	0.50	A-4(3), CL, S+C=65(49+16)
3008	0.899	0.023	23	0.35	A-6(6), CL, S+C=66(48+18)
1078	0.325	0.012	23	0.37	A-6(9), CL, S+C=78(56+22)
	0.398	0.171			A-3(0), SP-SM, S+C=6
					NO RECOVERY
	1.680	0.171	22		N=26, A-2-4(0), SM, S+C=16
	1.987	0.264	20		N=29, A-2-4(0), SM, S+C=13
	1.746	0.186	30		N=14, A-2-4(0), SM, S+C=13
	42.694	0.146	24		N=25, A-4(0), SM, S+C=36
	6.761	0.294	26		N=20, A-2-4(0), SM, S+C=20
	15.964	0.640	22		N=23, A-4(0), SM, S+C=30
	11.547	2.276	26		N=20, A-2-4(0), GM, S+C=29
	21.540	3.594	1	-1.52	N=8, A-2-6(0), GC, S+C=25(19+6)
	21.704	6.001	22		N=20, A-1-b(0), GM, S+C=20
	19.740	0.286	24		N=29, A-2-4(0), SM, S+C=29
	21.186	3.399	23		N=12, A-2-4(0), GM, S+C=26
	15.419	4.661	21		N=29, A-1-b(0), GM, S+C=25

NR

D_{95} (mm)	D_{50} (mm)	w%	LI	
0.224	0.032	21	0.19	N=34, A-4(3), CL, S+C=63(44+19)
2.171	0.275	21		N=31, A-2-4(0), SM, S+C=14(12+2)
35.887	0.126	31		A-4(0), SM, S+C=42(29+13)
13.588	0.076	28		N=R/0.4, A-4(0), SM, S+C=50(33+17)
18.655	1.914			N=69, A-1-b, SP-SM, S+C=6
21.282	9.310			N=50/0.1, A-1-a, GW, S+C=2
28.698	6.708			N=40, A-1-a, GW, S+C=3
32.483	11.142			N=47, A-1-a, GW, S+C=1
5.224	0.202			A-3, SP-SM, S+C=10

NR

SUMMARY of TRIAXIAL TEST DATA

STATION	985+00	985+00	985+00	985+00	985+00
OFFSET	29' RT.	29' RT.	29' RT.	29' RT.	29' RT.
DEPTH	4.2'-4.7'	29.2'-31.2'	34.2'-34.7'	44.2'-44.7'	59.2'-59.7
$\bar{c}$	274 psf	86 psf	230 psf	288 psf	1858 psf
$\bar{\phi}$	35.5°	40.0°	33.2°	22.4°	27.2°

SUMMARY of TRIAXIAL TEST DATA

STATION	986+42	986+42	986+42	986+42	986+42
OFFSET	24' RT.	24' RT.	24' RT.	24' RT.	24' RT.
DEPTH	4.7'-5.2'	14.7'-15.2'	29.7'-30.2'	44.7'-45.2'	49.7'-50.2'
$\bar{c}$	58 psf	216 psf	144 psf	605 psf	533 psf
$\bar{\phi}$	42.3°	46.3°	25.5°	29.9°	30.1°

CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)

SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined In Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

Datum Elev.=200

VERTICAL 1"=10'
HORIZONTAL N.T.S.

DATE: AUGUST, 2012	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL/TRIGG

ROUTE: US 68/80 | CROSSING: KENTUCKY LAKE

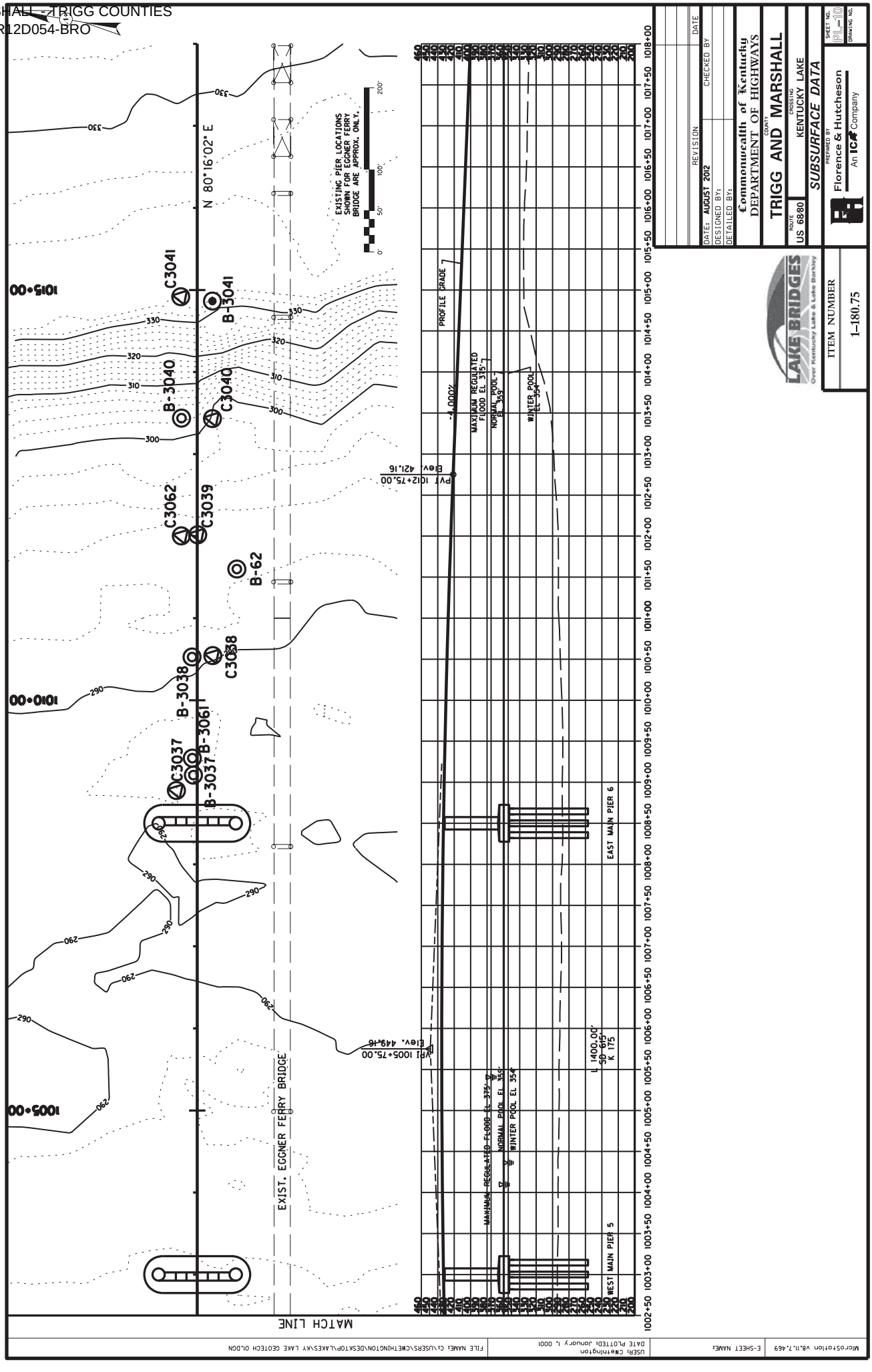
SUBSURFACE DATA

ITEM NUMBER: 1-180.75

PREPARED BY: Florence & Hutcheson, An ICA Company

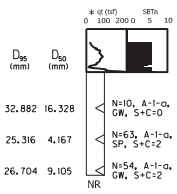
SHEET NO.: PL-9

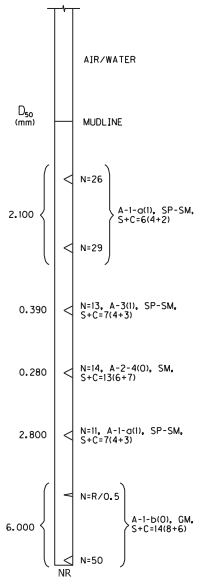
DRAWING NO.

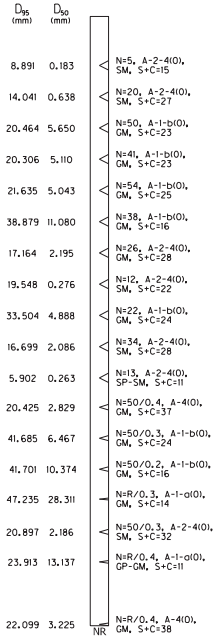

N 80°16'02" E
EXISTING PIER LOCATIONS SHOWN FOR EGGNER FERRY BRIDGE ARE APPROX. ONLY.
200'
100'
50'
0'
C3041
B-3041
B-3040
C3040
C3062
C3039
B-62
C3038
B-3038
B-3061
C3037
B-3037
EXIST. EGGNER FERRY BRIDGE
PROFILE GRADE
-4.000%
MAXIMUM REGULATED FLOOD EL 375'
NORMAL POOL EL 359'
WINTER POOL EL 354'
PVT 1012+75.00
Elev. 421.16
PVI 1005+75.00
Elev. 449.16
L 1400.00'
SD 615°
K 175
EAST MAIN PIER 6
WEST MAIN PIER 5
MATCH LINE
REVISION
DATE
CHECKED BY
DATE: AUGUST 2012
DESIGNED BY:
DETAILED BY:
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY
TRIGG AND MARSHALL
CROSSING
KENTUCKY LAKE
ROUTE
US 68/80
SUBSURFACE DATA
PREPARED BY
Florence & Hutcheson
An ICA Company
SHEET NO.
DRAWING NO.
ITEM NUMBER
1-180.75
LAKE BRIDGES
Over Kentucky Lake & Lake Barkley
MicroStation V8.11.7.469
E-SHEET NAME:
USER: CWethington
DATE PLOTTED: January 1, 0001
FILE NAME: G:\USERS\CWETHINGTON\DESKTOP\LAKES\KY LAKE GEOTECH 01.DGN

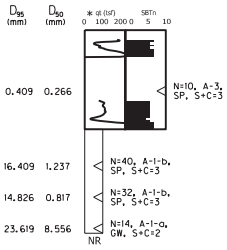
PIER No.

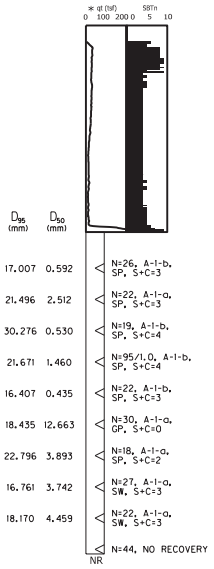
	C3062	62	3040	C3040	C3041	3041
Hole No.						
Station	1012+00	1010+60	1013+44	1013+43	1014+92	1014+86
Offset	19' LT.	48' RT.	19' LT.	19' RT.	20' LT.	19' RT.
Elev.	291.4	361.2 (Barge Elev.)	301.6	297.8	334.4	334.4
Drilling Firm-Year	HCN-2011	KYTC-1997	KYTC-2011	HCN-2011	HCN-2011	KYTC-2011
Sea Level Datum						

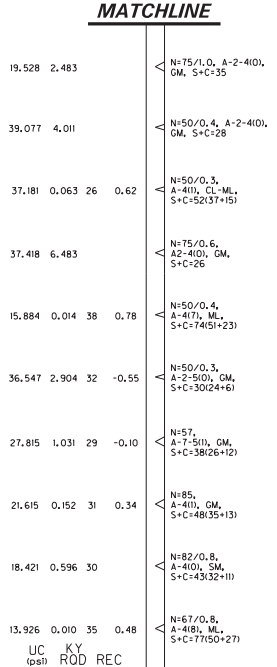


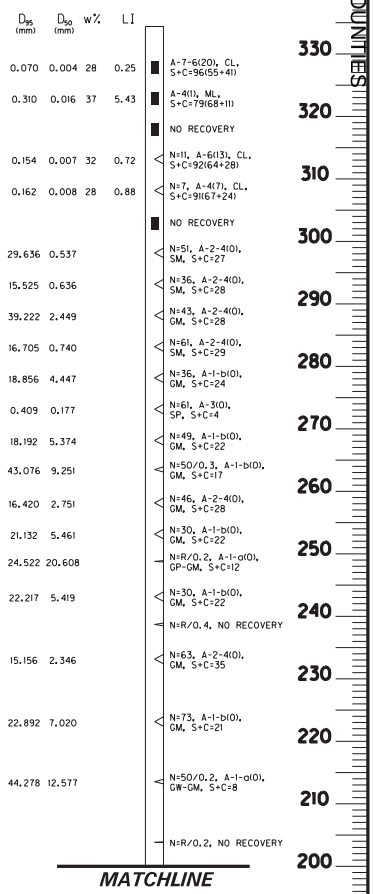












CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)

SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined in Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

SUMMARY of TRIAXIAL TEST DATA	
STATION	1014+86
OFFSET	19' RT.
DEPTH	5.5'-6.0'
$\bar{c}$	274 psf
$\bar{\phi}$	26.1°

Datum Elev.=170

VERTICAL 1"=10'
HORIZONTAL N.T.S.

ITEM NUMBER
1-180.75

DATE: AUGUST, 2012 | CHECKED BY
DESIGNED BY:
DETAILED BY:

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
MARSHALL/TRIGG

ROUTE
US 68/80

CROSSING
KENTUCKY LAKE

SUBSURFACE DATA

PREPARED BY
Florence & Hutcheson
An ICA Company

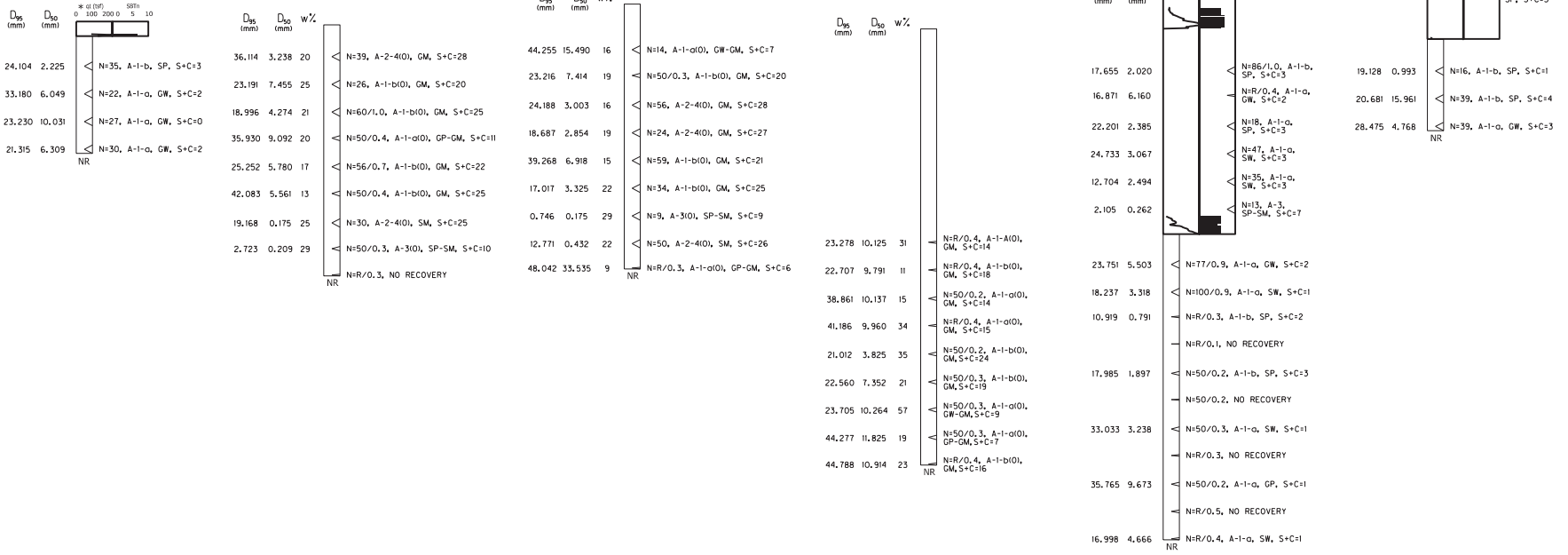
SHEET NO.
PL-11

DRAWING NO.

FILE NAME: D:\CADD STD WORKSPACE\V8I_WORKSPACE_V3\KYTC FILES\KYTC_RESOURCE\CELL\KYTC_SHEET.CEL
USER: Alex.Smith
DATE PLOTTED: October 11, 2010
E-SHEET NAME:
MicroStation v8.11.7.443

PIER No.

Hole No. / Station / Offset / Elev. / Drilling Firm-Year / Sea Level Datum	C3037 1008+90 25' LT. 285.8 HCN-2011	3037 1009+09 5' LT. 285.2 KYTC-2011	3038 1010+53 6' LT. 288.1 KYTC-2011	3061 1009+29 6' LT. 283.6 KYTC-2011	C3038 1010+54 19' RT. 289.3 HCN-2011	C3039 1012+02 1' RT. 291.3 HCN-2011



CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)

SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined in Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
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- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

Datum Elev.=140

VERTICAL 1"=10'
HORIZONTAL N.T.S.

DATE: AUGUST, 2012	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: MARSHALL/TRIGG

ROUTE: US 68/80 | CROSSING: KENTUCKY LAKE

SUBSURFACE DATA

ITEM NUMBER: 1-180.75

PREPARED BY: Florence & Hutcheson, An ICA Company

SHEET NO.: PL-12

DRAWING NO.:

COUNTY OF	ITEM NO.	SHEET
MARSHALL TRIGG	1-180.75	

DATUM

SUMMARY of TRIAXIAL TEST DATA

STATION	983+01	983+01	983+01	983+01	983+01	983+01
OFFSET	85' RT.	85' RT.	85' RT.	85' RT.	85' RT.	85' RT.
DEPTH	10.0'-10.8'	30.0'-30.7'	40.0'-40.9'	70.0'-71.2'	78.0'-79.3'	83.0'-84.3'
c̄	0 psf	0 psf	0 psf	0 psf	0 psf	0 psf
ø̄	28.6°	31.6°	29.9°	33.8°	34.9°	38.0°

SUMMARY of TRIAXIAL TEST DATA

STATION	985+00	985+00	985+00	985+00	985+00
OFFSET	29' RT.	29' RT.	29' RT.	29' RT.	29' RT.
DEPTH	4.2'-4.7'	29.2'-31.2'	34.2'-34.7'	44.2'-44.7'	59.2'-59.7
c̄	274 psf	86 psf	230 psf	288 psf	1858 psf
ø̄	35.5°	40.0°	33.2°	22.4°	27.2°

SUMMARY of TRIAXIAL TEST DATA

STATION	986+42	986+42	986+42	986+42	986+42
OFFSET	24' RT.	24' RT.	24' RT.	24' RT.	24' RT.
DEPTH	4.7'-5.2'	14.7'-15.2'	29.7'-30.2'	44.7'-45.2'	49.7'-50.2'
c̄	58 psf	216 psf	144 psf	605 psf	533 psf
ø̄	42.3°	46.3°	25.5°	29.9°	30.1°

SUMMARY of TRIAXIAL TEST DATA

STATION	987+85	987+85	987+85	987+85
OFFSET	23' RT.	23' RT.	23' RT.	23' RT.
DEPTH	14.6'-15.1'	24.6'-25.1'	44.6'-45.1'	69.6'-70.1'
c̄	432 psf	173 psf	778 psf	1584 psf
ø̄	32.0°	34.0°	25.3°	35.0°

SUMMARY of TRIAXIAL TEST DATA

STATION	988+20	988+20	988+20	988+20
OFFSET	80' RT.	80' RT.	80' RT.	80' RT.
DEPTH	10.0'-11.2'	30.0'-30.7'	50.0'-51.6'	85.0'-85.9'
c̄	0 psf	0 psf	0 psf	0 psf
ø̄	24.3°	32.1°	35.8°	39.3°

EX. CAUSEWAY GRADE (RT) PROJECTED TO PROP. ℄

MAXIMUM REGULATED FLOOD EL 375'

NORMAL POOL EL 359'

B-1109
983+01, 85' RT.

B-3016
PROJECTED AHEAD FROM
985+00, 29' RT.

B-3017
PROJECTED AHEAD FROM
986+42, 24' RT.

C3017
PROJECTED AHEAD FROM
986+42, 44' RT.

3018
PROJECTED AHEAD FROM
987+85 23' RT.

C3018
PROJECTED AHEAD FROM
987+85 43' RT.

B-1115
PROJECTED AHEAD FROM
988+20, 80' RT.

C-3016
984+99, 99' LT.

CONE PENETRATION TEST (CPT) DATA LEGEND

qt = Cone Tip Resistance (Data are Plotted Above)
SBTn = Index Representing Interpreted Normalized Soil Behavior Type (Data are Plotted Above and the Index Values are Defined in Parentheses Below)

- Sensitive fine grained (1)
- Organic soil (2)
- Clay to silty clay (3)
- Clayey silt to silty clay (4)
- Silty sand to sandy silt (5)
- Clean sand to silty sand (6)
- Clayey silt to silty clay (7)
- Silty sand to sandy silt (8)
- Clean sand to silty sand (9)

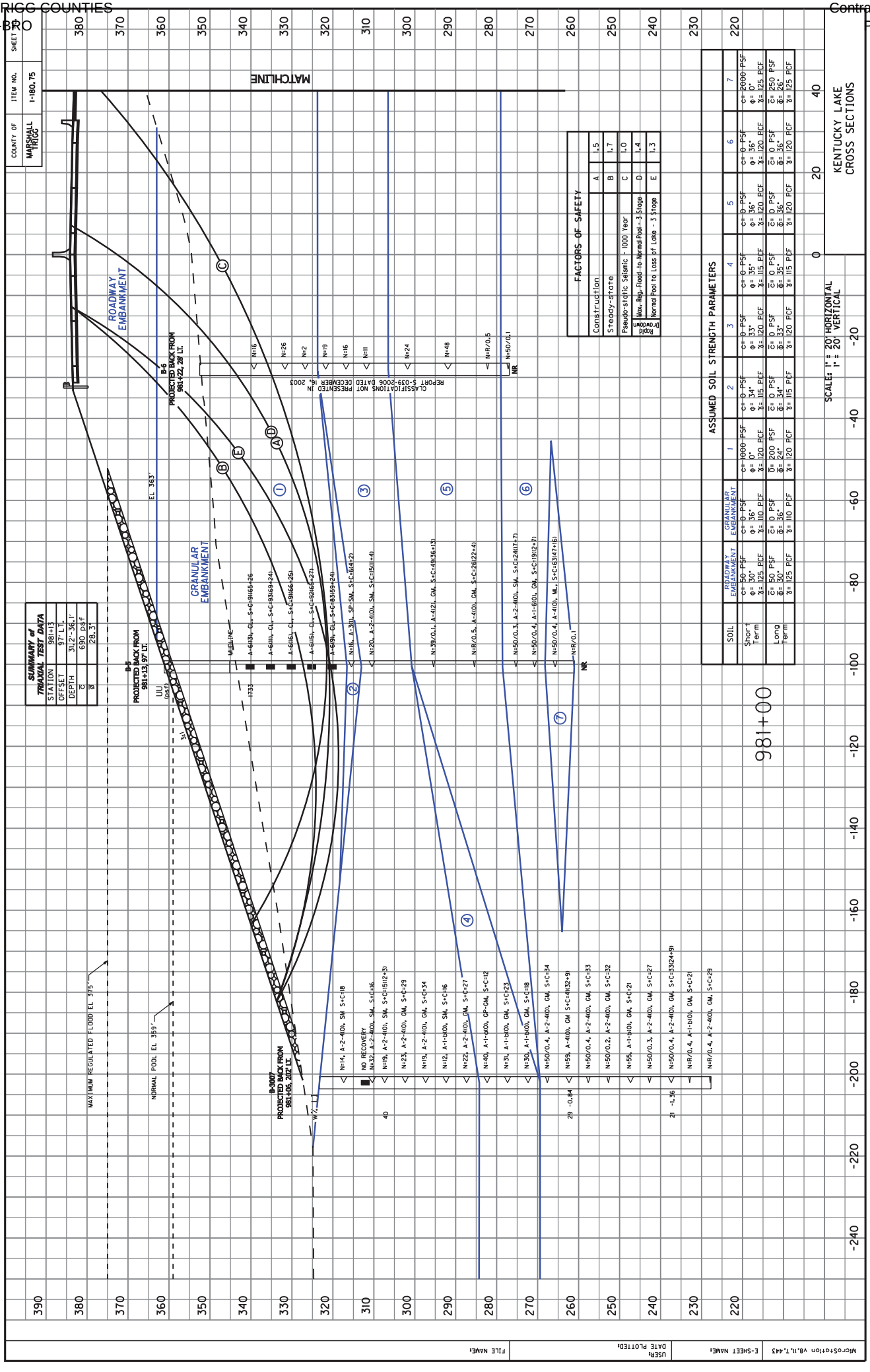
* Some soil layers in this CPT sounding have Cone Tip Resistance values exceeding 200 tsf. Detailed information is contained in individual CPT logs.

982+00 983+00 984+00 985+00 986+00 987+00 988+00 989+00 990+00 991+00 992+00

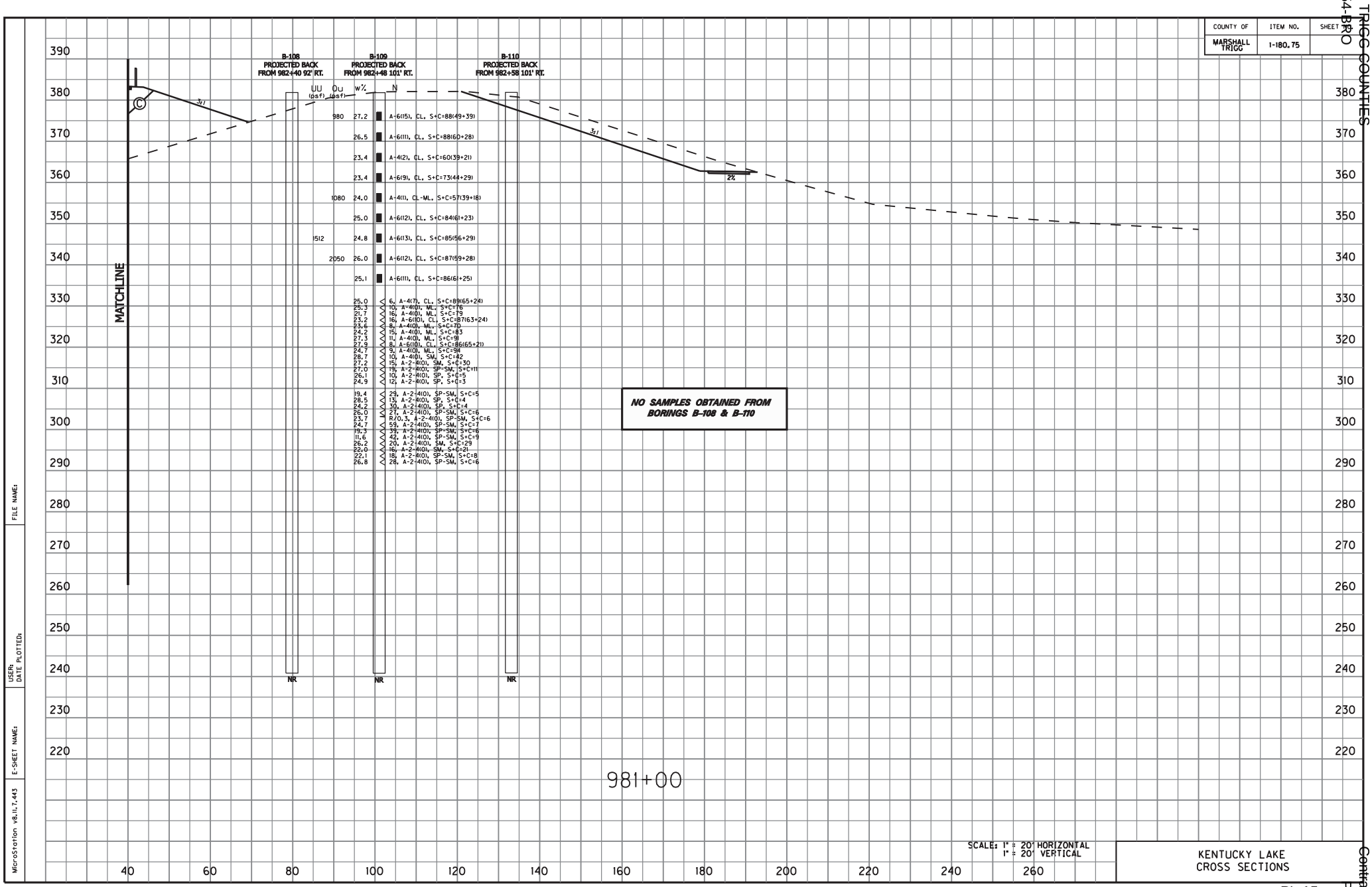
KENTUCKY LAKE
WEST CAUSEWAY PROFILE

PL-13

DATE
DATE
CHECKED BY
APPROVED BY
Cell Name: sp1
DD-MMM-YYYY HH:MM


COUNTY OF
MARSHALL
TRIGG
ITEM NO.
1-180.75
SHEET
KENTUCKY LAKE
CROSS SECTIONS
SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL
MATCHLINE
ROADWAY EMBANKMENT
GRANULAR EMBANKMENT
B-5
PROJECTED BACK FROM
981+15, 97' LT.
B-6
PROJECTED BACK FROM
981+22, 28' LT.
B-3007
PROJECTED BACK FROM
981+06, 202' LT.
CLASSIFICATIONS NOT PRESENTED IN REPORT S-039-2006 DATED DECEMBER 16, 2003
NORMAL POOL EL 359'
MAXIMUM REGULATED FLOOD EL 375'
EL 363'
981+00
SUMMARY of TRIAXIAL TEST DATA
STATION 981+13
OFFSET 97' LT.
DEPTH 31.2'-36.1'
C 690 psf
Ø 28.3°
ASSUMED SOIL STRENGTH PARAMETERS
SOIL
ROADWAY EMBANKMENT
GRANULAR EMBANKMENT
1 2 3 4 5 6 7
Short Term
Long Term
FACTORS OF SAFETY
Construction A 1.5
Steady-state B 1.7
Pseudo-static Seismic - 1000 Year C 1.0
Rapid Drawdown Max. Reg. Flood to Normal Pool - 3 Stage D 1.4
Normal Pool to Loss of Lake - 3 Stage E 1.3

COUNTY OF	ITEM NO.	SHEET
MARSHALL TRIGG	1-180.75	



UU (psf)	Ou (psf)	w%	N	
		27.2		A-6(15), CL, S+C=88(49+39)
		26.5		A-6(11), CL, S+C=88(60+28)
		23.4		A-4(2), CL, S+C=60(39+21)
		23.4		A-6(9), CL, S+C=73(44+29)
1080		24.0		A-4(11), CL-ML, S+C=57(39+18)
		25.0		A-6(12), CL, S+C=84(61+23)
1512		24.8		A-6(13), CL, S+C=85(56+29)
2050		26.0		A-6(12), CL, S+C=87(59+28)
		25.1		A-6(11), CL, S+C=86(61+25)
		25.0	<	6, A-4(7), CL, S+C=89(65+24)
		25.3	<	10, A-4(0), ML, S+C=76
		21.7	<	16, A-4(0), ML, S+C=79
		23.2	<	16, A-6(10), CL, S+C=87(63+24)
		23.6	<	8, A-4(0), ML, S+C=70
		24.2	<	15, A-4(0), ML, S+C=83
		27.3	<	11, A-4(0), ML, S+C=91
		27.9	<	8, A-6(10), CL, S+C=86(65+21)
		24.7	<	9, A-4(0), ML, S+C=94
		28.7	<	10, A-4(0), SM, S+C=42
		27.2	<	15, A-2-4(0), SM, S+C=30
		27.0	<	19, A-2-4(0), SP-SM, S+C=11
		26.1	<	10, A-2-4(0), SP, S+C=5
		24.9	<	12, A-2-4(0), SP, S+C=3
		19.4	<	29, A-2-4(0), SP-SM, S+C=5
		28.5	<	13, A-2-4(0), SP, S+C=4
		24.2	<	30, A-2-4(0), SP, S+C=4
		26.0	<	27, A-2-4(0), SP-SM, S+C=6
		23.7		R/O.3, A-2-4(0), SP-SM, S+C=6
		24.7	<	59, A-2-4(0), SP-SM, S+C=7
		19.3	<	39, A-2-4(0), SP-SM, S+C=6
		11.6	<	42, A-2-4(0), SP-SM, S+C=9
		26.2	<	20, A-2-4(0), SM, S+C=29
		22.0	<	16, A-2-4(0), SM, S+C=21
		22.1	<	18, A-2-4(0), SP-SM, S+C=8
		26.8	<	26, A-2-4(0), SP-SM, S+C=6

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COUNTY OF	ITEM NO.	SHEET
MARSHALL TRIGG	1-180.75	

ASSUMED SOIL STRENGTH PARAMETERS

SOIL		ROADWAY EMBANKMENT	GRANULAR EMBANKMENT	1	2	3	4	5
Short Term		c= 50 PSF ϕ= 30° γ= 125 PCF	c= 0 PSF ϕ= 36° γ= 110 PCF	c= 900 PSF ϕ= 0° γ= 125 PCF	c= 900 PSF ϕ= 0° γ= 120 PCF	c= 3000 PSF ϕ= 0° γ= 125 PCF	c= 0 PSF ϕ= 34° γ= 125 PCF	c= 0 PSF ϕ= 36° γ= 125 PCF
Long Term		c̄= 50 PSF ϕ̄= 30° γ= 125 PCF	c̄= 0 PSF ϕ̄= 36° γ= 110 PCF	c̄= 180 PSF ϕ̄= 27° γ= 125 PCF	c̄= 125 PSF ϕ̄= 25° γ= 120 PCF	c̄= 190 PSF ϕ̄= 25° γ= 125 PCF	c̄= 0 PSF ϕ̄= 34° γ= 125 PCF	c̄= 0 PSF ϕ̄= 36° γ= 125 PCF

SUMMARY of TRIAXIAL TEST DATA

STATION	984+12	984+12	984+12
OFFSET	68' LT.	68' LT.	68' LT.
DEPTH	11.5'-12.0'	16.5'-17.0'	46.5'-47.0'
c̄	72 psf	0 psf	58 psf
ϕ̄	21.3°	24.2°	34.0°

MAXIMUM REGULATED FLOOD EL 375'

NORMAL POOL EL 359'

EL 363'

ROADWAY EMBANKMENT

GRANULAR EMBANKMENT

MATCHLINE

B-43A PROJECTED BACK FROM 984+28, 115' LT.

B-43 PROJECTED BACK FROM 984+21, 48' LT.

B-3016 PROJECTED BACK FROM 985+00, 29' RT.

C-3016 PROJECTED BACK FROM 984+99, 99' LT

B-3008 PROJECTED BACK FROM 984+12, 68' LT

B-3009 PROJECTED BACK FROM 984+05, 213' LT

AIR/WATER

MUDLINE

NO DATA

NR

NO RECOVERY

N=8, A-3(0), SP, S+C=4

A-3(0), SP-SM, S+C=7

N=35, A-2-4(0), SC-SM, S+C=30(22+8)

N=18, A-3(0), SP-SM, S+C=6

N=17, A-2-4(0), SM, S+C=18

N=56, A-1-b(0), GM, S+C=17

N=22, A-1-a(0), GM, S+C=6

N=32, A-2-4(0), GM, S+C=26

N=20, A-2-4(0), GM, S+C=27

N=37, A-2-4(0), GM, S+C=28

N=30, A-1-b(0), GM, S+C=22

N=86/1.0, A-2-4(0), GM, S+C=35

N=84/1.0, A-2-4(0), GM, S+C=26(18+8)

N=50/0.4, A-2-4(0), GM, S+C= 2

N=73/1.0, A-1-b(0), GM, S+C=18

N=68, A-2-4(0), GM, S+C=33

N=97/1.0, A-1-a(0), SP-SC, S+C=11(8+3)

N=42, A-1-a(0), GW, S+C=2

N=11, NO TEST

N=19, A-1-a(0), GW, S+C=1

N=24, NO RECOVERY

N=2, A-6(11), CL, S+C=80(54+26)

N=17, A-6(16), CL, S+C=85(55+30)

N=10, A-3(0), SP-SM, S+C=8

A-3(0), SP, S+C=3(2+1)

N=15, A-3(0), SP-SM, S+C=5

N=23, A-3(1), SP, S+C=4(4+0)

A-3(0), SP, S+C=4

N=11, A-2-4(0), SM, S+C=13

N=12, A-3(0), SP, S+C=6

N=35, A-3(0), SP, S+C=5

N=15, A-1-b(0), SC-SM, S+C=24(16+8)

A-2(4), SM, S+C=22

N=17, A-2-4(0), GM, S+C=29

N=28, A-1-b(0), GM, S+C=20

N=29, A-1-a(0), GP-GM, S+C=12

N=R70.4, A-1-a(0), GW-GM, S+C=7

N=43, A-12-4(0), SM, S+C=31

N=50, A-1-b(0), GM, S+C=19

N=50/0.4, A-1-a(0), GP, S+C=4

N=60, A-4(0), GM, S+C=41(31+10)

N=50/0.3, A-1-a(0), GW, S+C=2

A-6(10), CL, S+C=78(51+27)

A-6(7), CL, S+C=73(47+26)

A-6(6), CL, S+C=70(45+25)

A-4(0), CL-ML, S+C=50(34+16)

A-4(0), SC-SM, S+C=47(32+15)

A-4(0), CL-ML, S+C=51(35+16)

A-6(11), CL, S+C=73(49+24)

A-6(8), CL, S+C=70(46+24)

A-6(5), CL, S+C=66(43+23)

A-6(11), CL, S+C=80(55+25)

NO RECOVERY

A-6(10), CL, S+C=70(40+30)

A-6(11), CL, S+C=87(65+22)

N=2, A-2-4(0), SM, S+C=13

A-2-4(0), SP-SM, S+C=11

N=3, A-3(0), SP-SM, S+C=9

N=3, A-2-4(0), SM, S+C=15

N=8, A-1-b(0), SW-SM, S+C=5

N=26, A-2-4(0), SM, S+C=13

N=29, A-2-4(0), SM, S+C=23

N=27, A-2-4(0), SM, S+C=33

N=24, A-1-b(0), GM, S+C=22

N=10, A-6(13), CL, S+C=89(69+20)

N=25, A-1-b(0), GM, S+C=19

N=29, A-1-b(0), GM, S+C=16

N=37, A-2-4(0), GM, S+C=26

N=34, A-2-4(0), SM, S+C=14

FACTORS OF SAFETY

Construction		A	1.3
Steady-state		B	1.7
Pseudo-static Seismic - 1000 Year		C	1.0
Rapid Drawdown	Max. Reg. Flood to Normal Pool - 3 Stage	D	1.4
	Normal Pool to Loss of Lake - 3 Stage	E	1.3

REFER TO CONE PENETRATION TEST (CPT) DATA LEGEND ON THE LAGOON BRIDGE END BENT 1 SLOPE STABILITY SHEET FOR SBTn & qt DEFINITION

984+00

SUMMARY of TRIAXIAL TEST DATA

STATION	985+00	985+00	985+00	985+00	985+00
OFFSET	29' RT.	29' RT.	29' RT.	29' RT.	29' RT.
DEPTH	4.2'-4.7'	29.2'-31.2'	34.2'-34.7'	44.2'-44.7'	59.2'-59.7'
c̄	274 psf	86 psf	230 psf	288 psf	1858 psf
ϕ̄	35.5°	40.0°	33.2°	22.4°	27.2°

SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL

KENTUCKY LAKE
CROSS SECTIONS

FILE NAME:
USER:
DATE PLOTTED:
E-SHEET NAME:
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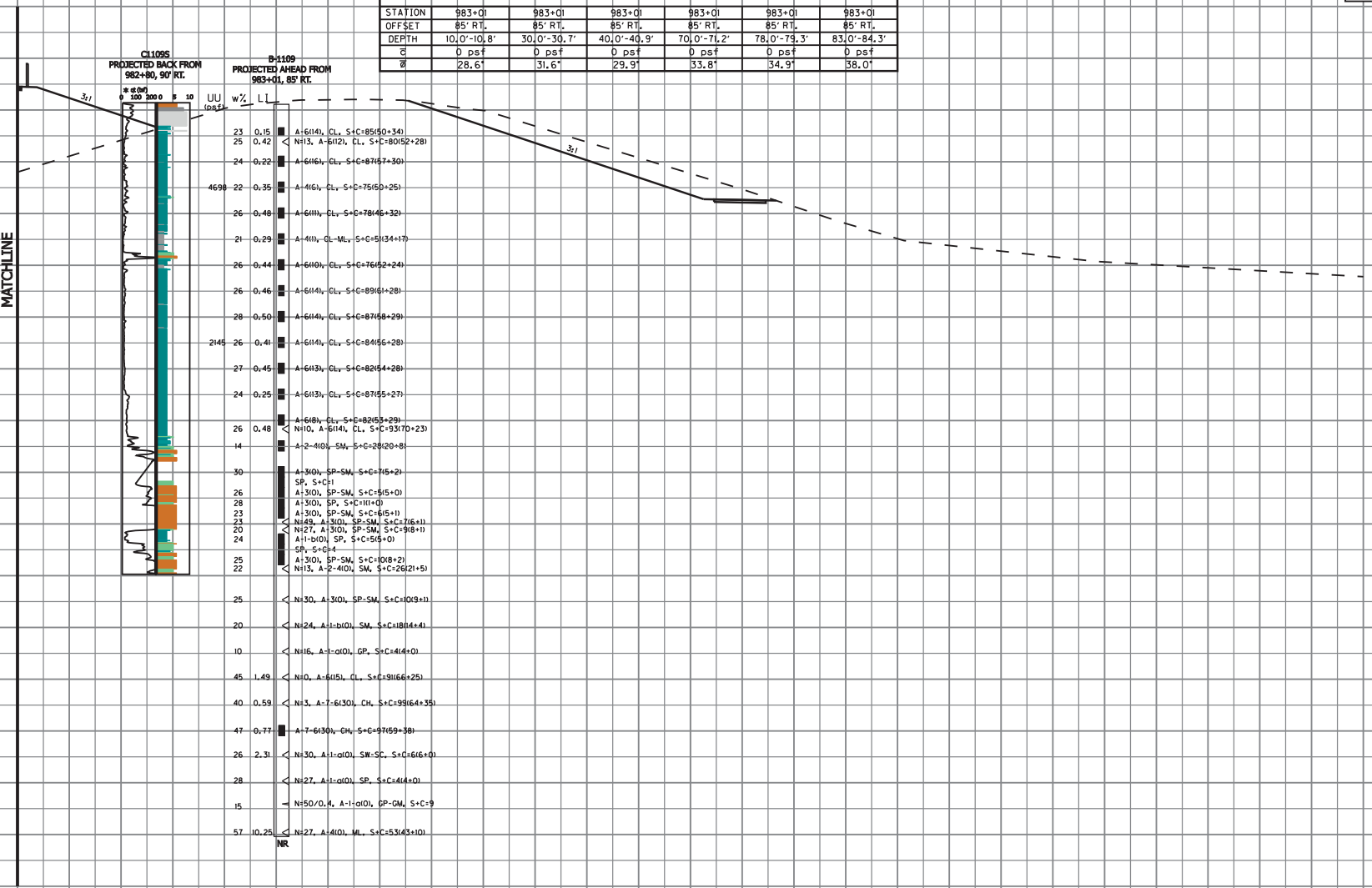
COUNTY OF	ITEM NO.	SHEET
MARSHALL TRIGG	1-180.75	

SUMMARY of TRIAXIAL TEST DATA

STATION	983+01	983+01	983+01	983+01	983+01	983+01
OFFSET	85' RT.	85' RT.	85' RT.	85' RT.	85' RT.	85' RT.
DEPTH	10.0'-10.8'	30.0'-30.7'	40.0'-40.9'	70.0'-71.2'	78.0'-79.3'	83.0'-84.3'
C̄	0 psf	0 psf	0 psf	0 psf	0 psf	0 psf
Ø	28.6°	31.6°	29.9°	33.8°	34.9°	38.0°



SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL

KENTUCKY LAKE
CROSS SECTIONS

FILE NAME:
USER:
DATE PLOTTED:
E-SHEET NAME:
MicroStation v8.11.7.443

SPECIAL NOTE FOR DYNAMIC PILE TESTING

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

1.0 GENERAL

1.1 Scope of Work

The scope of work includes furnishing all labor, equipment and analyses associated with dynamic testing of driven piles as specified in this Special Note and in general accordance with ASTM D4945, High-Strain Dynamic Testing of Piles. Dynamic testing involves attaching at least two strain transducers and two accelerometers to the pile near the pile head during initial driving or at an appropriate location during restrike testing. A cable or wireless transmission connects the sensors near the pile head with the Pile Driving Monitoring Hardware located a safe distance from the pile. The piles that are to be tested must be of sufficient extra length to ensure that sensors are not driven into the ground or water.

1.2 Test Locations

Testing will be performed on dedicated test piles prior to construction and on selected production piles. Dedicated test piles may be subjected to static or pseudo-static pile load testing as outlined in the Special Note for Pile Load Test Program in addition to the dynamic testing. Coordinate dynamic testing with static and pseudo-static testing. Perform dynamic pile testing at the following locations.

- Preconstruction Dedicated Test Piles
    - Lagoon Bridge
        - End Bent No. 1
            - One, HP18x157 Pile (L-1)
        - Pier No. 2
            - One, 30-inch diameter pipe pile open-ended (L-2)
        - Excavate to the bottom of footing elevation, as indicated on the project drawings, prior to performing dynamic testing at pier locations
- Design Test Piles
    - Kentucky Lake Bridge
        - Shallow Water Area
            - Two each of 48 and 72-inch diameter pipe piles (K-2, K-3, K-4, and K-5).

        - One, 48-inch diameter plugged pipe pile receiving static testing (K-1)
        - All dedicated test piles will be driven with artificial plug installed.
    - Deep Water Area
        - One each of 72-inch and 96-inch diameter pipe piles (K-6 and K-7)
        - Drive both dedicated test piles with artificial plug installed.
- Production Piles – Lagoon Bridge Only
    - Minimum of two production piles for each substructure or as directed by the Department. See Table 2 and Lagoon Bridge Plans for additional details.

1.3 Personnel Qualifications

Perform dynamic pile testing utilizing the services of an independent Dynamic Pile Testing Consultant with qualified personnel assigned to this project as described below.

1.3.1 Lagoon Bridge Piles

- Pile Driving Monitoring – An engineer with a minimum of 3 years dynamic pile testing and analysis experience or who has achieved Basic or better certification under the High-Strain Dynamic Pile Testing Examination or Certification process of the Pile Driving Contractors Association or Foundation QA.
- Wave Equation and Pile Driving Analyses – A licensed professional engineer with a minimum of 5 years dynamic pile testing and analysis experience or who has achieved Advanced or better certification under the High-Strain Dynamic Pile Testing Examination or Certification process of the Pile Driving Contractors Association or Foundation QA.

1.3.2 Kentucky Lake Bridge Piles

- Pile Driving Monitoring – A licensed professional engineer with a minimum of 5 years dynamic pile testing and analysis experience or who has achieved Advanced or better certification under the High-Strain Dynamic Pile Testing Examination or Certification process of the Pile Driving Contractors Association or Foundation QA.
- Wave Equation and Pile Driving Analyses – A licensed professional engineer with a minimum of 10 years dynamic pile testing and analysis

experience or who has achieved Master or better certification under the High-Strain Dynamic Pile Testing Examination or Certification process of the Pile Driving Contractors Association or Foundation QA.

1.4 Equipment

Supply equipment such as sensors, cables or wireless transmitters, etc. conforming to ASTM D4945, High-Strain Dynamic Testing of Piles and furnished by the dynamic testing consultant. Submit the product name and manufacturer of the hardware and software components below for approval by the Department in Submittal Number 2. If requested by the Department, submit additional information including technical specifications, etc.

- Pile Driving Modeling – Wave Equation Software
- Pile Driving Monitoring – Hardware & Software
- Pile Driving Analysis – Signal Matching Software

1.5 Submittals and General Testing & Analysis Requirements

See Tables 1 and 2 below. The Department will respond to the Contractor regarding acceptability of submittals within 5 business days.

Table 1 – Schedule of Dynamic Pile Testing Submittals

Submittal Number	Submittal Item	Calendar Days	Event
1	Proposed independent dynamic pile testing consultant, and a listing of assigned personnel and their experience and qualifications.	30 After	Notice to Begin Work
2	Details of the hardware and software components, method of testing, and materials to be used. Include method for correlating signal matching and static/pseudo-static results. Include pile hammer warm-up procedure for Kentucky Lake restrike tests.	45 Before	Start of Pile Driving/Monitoring
3	Complete *Pile and Driving Equipment Data Form* (Figure 1 of the Special Note) and the results of wave equation analyses.	30 Before	Start of Pile Driving/Monitoring
4	Preliminary report(s) as defined in Section 3.1 of this Special Note.	1 After (24 hrs.)	Completion of Each Field Test
5	Summary Report(s) as defined in Section 3.2 of this Special Note.	10 After	Completion of All Field Tests
Provide all submittals and reports in .pdf format			

Table 2 – General Testing and Analysis Requirements	
Item	Requirements
Wave Equation Analysis	Minimum of one per dedicated test pile and sufficient additional analyses as needed to define performance for all combinations of piles, driving systems, and subsurface conditions anticipated.
End of Initial Driving Test Frequency	Minimum of two production piles for each substructure of the Lagoon Bridge or as directed by the Department. Perform on all dedicated test piles during initial driving and during extended driving program.
Beginning of Restrike Test Frequency	Minimum of two production piles for each substructure of the Lagoon Bridge or as directed by the Department. Restrike testing will be performed on dedicated test piles after both the initial driving and after the extended driving program.
Time Interval between End of Initial Driving and Restrike Tests	Perform restrike tests on dynamically tested production piles of the Lagoon Bridge at 72 hours after driving unless directed otherwise by the Department. Perform restrike tests on dedicated test piles at 48 and 72 hours after initial driving. Following completion of static, pseudo-static, and lateral testing perform the extended driving program as outlined in the Special Note for Pile Load Test Program after a wait period of 72 hours. During the initial blows of the extended driving obtain restrike data on the pile. Perform an additional restrike test 96 hours after the extended driving is complete.
Pile Driving Analyses using Signal Matching Techniques	For each End of Initial Driving Test and each Restrike Test
Perform testing and analyses in accordance with this table and ASTM D4945, *High-Strain Dynamic Testing of Piles.*	

2.0 TESTING AND ANALYSES

2.1 Preconstruction Wave Equation Analyses

At least 30 calendar days before beginning pile driving submit to the Department the completed Pile and Driving Equipment Data Form (Figure 1 of this Special Note) and preconstruction wave equation analyses performed by the Dynamic Pile Testing Consultant in accordance with Table 2 in this Special Note and a summary report of the results. The required resistance and driving criteria is outlined in section 1.4.1 and 1.4.2 of the Special Note for Pile Load Test Program.

The purpose of the wave equation analyses is to assess the ability of all proposed pile driving systems to install piles per the outlined driving criteria. Hammers selected shall have the following characteristics:

- Initial Driving
    - Will be capable of producing 0.5 to 0.1 inches of set (2 to 10 blows per inch) when verifying the target nominal axial resistance at the end of initial drive and after setup, and
    - Produce driving stresses not exceeding 90% of the yield stress of the steel based on wave equation analysis.
- Extended Driving
    - Will be capable of producing 1/16 inch of set (15 blows per inch) when verifying the approximate nominal axial resistance at the end of extended drive, and
    - Produce driving stresses not exceeding 110% of the yield stress of the steel based on wave equation analysis.

For the identified “extended driving criteria”, the Contractor will make an effort to achieve the “extended drive” estimated pile tip elevation. The extended driving will include driving the piles in a plugged condition and significant additional effort and time will be required. Wave equation analysis will be performed as outlined in the Special Note for Dynamic Testing. **Do not mobilize hammer(s) to site until the wave equation analysis and hammer selection has been reviewed and accepted by the Department.**

In the Wave Equation Summary Report, include:

- drivability graph relating pile resistance (i.e. capacity), blow count and driving stresses to depth;
- bearing graph relating the pile resistance (i.e. capacity) to the pile driving resistance which indicates blow count versus resistance (i.e. capacity) and stroke; and

- constant resistance (i.e. capacity) analysis or inspectors chart to assist the Department in determining the required driving resistance at other field-observed strokes.
- discussion and interpretation of the results.

2.1.1 Approval by the Department of the proposed pile driving system will be based upon the wave equation analyses indicating that the proposed system can meet the driving criteria outlined in Section 1.4.2 of the Special Note for Pile Load Test Program.

2.1.2 If any changes or modifications are made to the approved pile driving system, additional wave equation analyses in accordance with Section 2.1 of this Special Note will be required.

2.2 High-Strain Dynamic Pile Testing

2.2.1 Perform dynamic pile testing at the locations and frequency required in accordance with Table 2 and Section 1.2 in this Special Note.

2.2.2 Dynamic pile testing involves monitoring the response of a pile subjected to heavy impact applied by the pile hammer at the pile head. The testing will provide information on the driving stresses, pile resistance (i.e. capacity), structural integrity, and hammer efficiency.

2.2.3 Engage an independent dynamic pile testing consultant and qualified personnel in accordance with Section 1.3 of this Special Note. Prior to testing, the Department will review and approve the proposed independent dynamic pile testing consultant, the experience and qualifications of assigned personnel, details of the method of testing, a list of equipment, and the method of analysis of test results.

2.2.4 Perform all field testing and measurements in the presence of the Department or authorized representative.

2.2.5 Remote Dynamic Pile Testing where data is collected in the field and sent to the office of the Dynamic Pile Testing Consultant will not be allowed on this project. The testing consultant is required to have at least one person meeting the requirements for “Pile Driving Monitoring” as defined in Section 1.3 of the Special Note for Dynamic Pile Testing in the field during all dynamic pile testing.

However, “wireless” technology that eliminates cables from the test pile to the data acquisition equipment will be allowed.

2.3 Field Testing

2.3.1 Equipment

Perform dynamic pile testing field measurements using equipment, software and recording equipment approved in accordance with Section 1.4 of this Special Note. Analyze the data collected at the end of initial driving and the beginning of restrike using approved signal matching techniques and software.

2.3.2 Monitoring During Driving

During pile driving, instrument the piles and monitor them with testing equipment satisfying the requirements of Section 1.4 of this Special Note. Prior to lifting the pile to be dynamically tested in to place, provide a minimum of 3 feet of clearance to the gage locations on the pile for pile preparation, then drill and prepare holes for sensor attachment. Attach sensors a minimum of two diameters below the pile head.

- Install strain transducers and accelerometers near the head of each pile to be tested, and use a compatible measuring and recording system to record the data during driving.
- A minimum of four sets of transducers/accelerometers (arranged at a 90 degree spacing around the pile) should be installed for piles 48 inches or larger in diameter. A minimum of two sets of transducers/accelerometers will be installed for piles smaller than 48 inches in diameter.
- Appropriately position and fix the equipment required to be attached to the pile to the satisfaction of the Department.
- Use the testing equipment to monitor pile stresses during driving to prevent pile damage and ensure pile integrity and resistance (i.e. capacity).
    - Lagoon Bridge- do not exceed 90% of steel yield stress during driving (45 ksi for H-Piles and 40.5 ksi for pipe piles).
    - Kentucky Lake Bridge- initial driving do not exceed 90% of steel yield stress during driving (40.5 ksi for pipe piles).

- Kentucky Lake Bridge Extended Driving Program- terminate driving if driving stresses exceed 50 ksi (~110% of the yield stress) are measured during dynamic pile testing.

2.3.3 Preparation of the Pile Head

Preparation of the pile head for the application of dynamic test load may involve, where appropriate, trimming the head, cleaning, and building up the pile using materials that, at the time of testing, safely withstand the impact stresses. Provide an impact surface that is flat and at right angles to the pile axis.

2.3.4 Dynamic Measurement and Analysis

Monitor pile driving when pile driving begins unless otherwise approved by the Department. Record and process the data immediately in the field by the pile driving monitoring equipment and software. Unless monitoring indicates that additional driving will damage the pile, continue pile driving and monitoring until the driving criteria outlined in section 1.4.2 of the Special Note for Pile Load Test Program is satisfied. When the level of the sensors is within 1 foot of any obstruction endangering the survival of sensors or cables, halt driving and remove sensors from the pile. If additional driving is required, remove the obstruction or splice the pile and reattach the sensors near the head of the next pile segment prior to resuming driving. For each pile tested, perform pile driving analysis using signal matching techniques for up to 3 selected blows the end of driving (EOD) and beginning of restrike (BOR) to determine the relative capacities from end bearing and skin friction along the length of the pile. Contractor will correlate the signal matching analyses with the results of the Static and Pseudo-Static tests. Submittal 2 shall include the plan to perform this correlation.

- Perform beginning of restrike (BOR) tests at the frequency indicated in Table 2 of this Special Note with the time interval between end of initial driving and beginning of restrike in accordance with Table 2 of this Special Note. During restrike, instrument and monitor the pile in a manner similar to that used during initial driving. For each restrike test, perform pile driving analysis using signal matching techniques for selected blows from the beginning of restrike to determine the relative

capacities from end bearing and skin friction along the length of the pile.

- Perform restrike tests with a warmed-up hammer by striking the pile a maximum of 5 blows unless testing equipment indicates overstressing or damage to the pile. Hammer warm-up procedure will be provided in Submittal No. 2. If such overstressing or damage to the pile is indicated, immediately discontinue driving and notify the Department. If the contractor overdrives the pile during restrike testing, additional wait/setup time may be required by the Department. In the event initial restrike testing indicates a pile resistance below the specified resistance, additional driving may be required as directed by the Department.

- Department may request use of pile driving monitoring equipment and software on additional piles if inconclusive results are obtained or unusual driving conditions are encountered.

- Evaluate pile resistance and integrity based on the standard procedure used in practice.

- Immediately provide the Department with tabular records of the dynamic pile testing field measurements obtained at the end of initial driving and at the beginning of restrike.

3.0 DYNAMIC PILE TEST REPORTS

3.1 Preliminary Dynamic Pile Test Reports

Submit a preliminary test report for each pile tested (for both EOD and BOR tests) for review by the Department. In the reports, include tabular as well as graphical presentation of the dynamic test results versus depth of the pile tested. Also include the following:

- Maximum force applied to the pile head.
- Maximum pile head velocity.
- Maximum energy imparted to the pile.
- Assumed soil damping factor and wave speed.
- Static resistance (i.e. capacity) estimate.

- Maximum compressive and tensile forces in the pile.
- Pile integrity.
- Blows per inch.
- Stroke length.

Provide data files of the results for independent analyses by the Department.

The Department will use the results of the preliminary reports to provide pile driving criteria for production piles to the Contractor.

3.2 Dynamic Pile Test Summary Report

Submit a summary report, including signal matching, for each dedicated test pile (Lagoon Bridge and Kentucky Lake Bridge) and for each substructure for Lagoon Bridge production piles for review by the Department. Include the results of hammer performance, pile driving stresses, and pile resistance during initial driving and restrike for all piles tested. Also include the following for both EOD and BOR tests:

- Pile number and location.
- Date of testing and date of pile installation.
- Pile identification number and location.
- All information given in preliminary reports as follows:
    - Length of pile below the ground surface or mudline and depth of water
    - Total length of pile, including projection above the surface at time of test.
    - Length of pile from instrumentation position to tip.
- Hammer type, stroke length, and other relevant details.
- Blow selected for signal matching analysis.
- Maximum compressive and tensile stresses, stroke, and resistance (i.e. capacity) versus penetration depth.
- Temporary compression.
- Pile integrity and location of damage, if any.
- Force/velocity versus time trace.
- Force/velocity match curve.
- Resistance distribution along the pile.
- Detailed graphical and tabular results from blow analyzed using signal matching techniques and software.
- Correlation of the signal matching analyses with the results of the Static and Pseudo-Static tests.
- Narrative describing the data, results, and their interpretation.

4.0 INCIDENTAL EQUIPMENT

Prior to the beginning of dynamic testing, provide one electronic device to aid in recording pile hammer blows, stroke, and energy such as an “E-Saximeter” or approved equivalent meeting the specifications in the Appendix to this Special Note. This device will immediately become property of the Department for use on this project.

Provide field training by someone proficient in the use of the device to ensure that approximately 3 to 5 employees of the Department are competent in the use of the device. This training may be performed by a representative of the independent Dynamic Pile Testing Consultant who is proficient in the use of the device or a manufacturer’s representative. The required training time is anticipated to be no more than one day.

The cost of furnishing this device and providing the training is incidental to the contract price for the “Dynamic Pile Testing” items and no separate payment will be made.

5.0 MEASUREMENT

DYNAMIC PILE TESTING

Dynamic pile testing on selected production piles of the Lagoon Bridge and dedicated test piles will be measured per each. Payment for each restrike test performed will be separate from payment for each test performed during initial driving. The cost of any restrike dynamic testing performed immediately prior to driving piles deeper is incidental to the initial drive testing for the deeper or extended driving. Payment for each test will include pile driving monitoring and pile driving analysis (including wave equation and signal matching work) performed. Payment for the above described work, including all material, equipment, tools, labor, reporting and any other incidental work necessary to complete this item.

6.0 PAYMENT

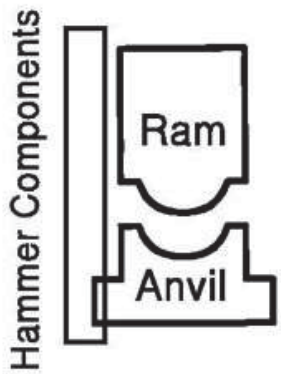
Payment will be made under:

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

BID ITEM CODE	ITEM	UNIT
23233EC	DYNAMIC PILE TESTING - ON WATER – INITIAL	EACH
23233EC	DYNAMIC PILE TESTING - ON WATER – RESTRIKE	EACH
23233EC	DYNAMIC PILE TEST ON LAND INITIAL	EACH
23233EC	DYNAMIC PILE TEST ON LAND RESTRIKE	EACH

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

Contract No.: _____ Structure Name and/or No.: _____
Project: _____ _____
_____ Pile Driving Contractor or Subcontractor: _____
County: _____ _____
(Piles driven by)



Hammer
Manufacturer: _____ Model No.: _____
Hammer Type: _____ Serial No.: _____
Manufacturers Maximum Rated Energy: _____ (ft-lbs)
Stroke at Maximum Rated Energy: _____ (ft)
Range in Operating Energy: _____ to _____ (ft-lbs)
Range in Operating Stroke: _____ to _____ (ft)
Ram Weight: _____ (lbs)
Modifications: _____
_____
_____

Striker Plate
Weight: _____ (lbs) Diameter: _____ (in)
Thickness: _____ (in)

Hammer Cushion

	Material #1	Material #2 (for Composite Cushion)
Name:	_____	_____
Area:	_____ (in^2)	_____ (in^2)
Thickness/Plate:	_____ (in)	_____ (in)
No. of Plates:	_____	_____

Total Thickness of Hammer Cushion: _____

Helmet (Drive Head)
Weight: _____ (lbs)

Pile Cushion
Material: _____
Area: _____ (in^2) Thickness/Sheet: _____ (in)
No. of Sheets: _____
Total Thickness of Pile Cushion: _____ (in)

Pile
Pile Type: _____
Wall Thickness: _____ (in) Taper: _____
Cross Sectional Area: _____ (in^2) Weight/Meter: _____

Ordered Length: _____ (ft)
Design Load: _____ (kips)
Ultimate Pile Capacity: _____ (kips)

Description of Splice: _____
_____
Driving Shoe/Closure Plate Description: _____
_____
Submitted By: _____ Date: _____
Telephone No.: _____ Fax No.: _____

Figure 1
Pile and Driving Equipment Data Form (From FHWA-HI-097-014)

E-Saximeter Specifications

Physical:

Size: Weight:	1OOmm X 190mm X 50mm (4 inches X 7.5 inches X 2 inches)
Temperature range:	0.7 kg (1.5 lb.)
Power:	-10 to 50°C (14 to 104°F) operating
Display:	built-in rechargeable battery w/ 8 hour min duration
	LCD, 4 Lines x 16 characters, viewing area 62 mm by 26 mm (2.5 inches
Keypad:	by 1 inch)
	Large key (1.27 mm^2), non tactile

Electronic:

32 bit microcontroller up to 20.97 MHz
12 bit digital to analog converter 8 bit 4 channel analog to digital converter
Internal microphone 70 to 115 dB
RS232 connector for data transfer
4 MB internal memory

Functional and Other:

Maximum blow detection rate: 68 bpm for open end diesel hammers; 300 bpm for all others
Furnished with SAXLINK program for data transfer in text format
Operates in English or SI units
Full one year warranty
Technical manual included

SPECIAL NOTE FOR STATIC AND PSEUDO-STATIC PILE TESTING

Marshall/Trigg Counties Item No. 1-180.75
Lagoon and Kentucky Lake Bridge

SECTION 1: STATIC AXIAL PILE TESTING

1.1.0 GENERAL

1.1.1 Scope of Work

The scope of work includes furnishing all materials, reaction piles, labor, equipment and instrumentation associated with static axial pile testing of driven piles as specified in this Special Note and in general accordance with ASTM D1143, *Standard Test Methods for Deep Foundations Under Static Axial Compressive Load* (modified Quick Load Test Method for Lagoon Bridge and modified Maintained Load Test Method for Kentucky Lake). Static axial pile testing involves axially loading the pile using hydraulic jacks and reaction piles to provide information used to assess the magnitude and distribution of side shear resistance along the pile, the amount of end bearing developed at the pile toe, and the long-term load-movement behavior.

1.1.2 Test Locations

Testing will be performed on test piles prior to construction for both confirmatory and design purposes. Test piles will be subject to dynamic testing during initial driving and restrike testing as specified in the Special Note for Dynamic Pile Testing. Coordinate static testing with the dynamic testing. Perform static pile testing at the following locations. A total of three (3) tests will be performed.

- Preconstruction Test Piles
    - Lagoon Bridge
        - End Bent No. 1 (L-1)
            - One, HP18x157 Pile
        - Pier No. 2 (L-2)
            - One, 30-inch diameter Open End Pipe Pile
- Test Pile for Design Purposes
    - Kentucky Lake Bridge Shallow Water Area
        - 48-inch diameter pipe pile, open ended with artificial plug (K-1)

1.1.3 Personnel Qualifications

Perform static pile testing utilizing the qualified personnel as described below.

- A qualified professional engineer licensed in the State of Kentucky, with five years of structural design experience, and experience on a minimum of two large, deep foundation static axial compressive load test reaction systems, will design all loading apparatus, loaded members, and support frames.
- A qualified and licensed professional engineer, with at least five years of geotechnical engineering experience, and experience on a minimum of three instrumented pile load tests, will design the required instrumentation and instrumentation protection and supervise the instrumentation installation.
- Load test data collection and reduction will be performed by the Contractor's subconsultant.

1.1.4 Submittals and General Testing Requirements

See Table 1. The Department will respond to the Contractor regarding acceptability of submittals within 5 business days.

Table 1- Schedule of Static Pile Testing Submittals

Submittal Number	Submittal Item	Calendar Days Before/After Event	Event
1	Detailed testing firm and testing personnel information.	30 After	Notice to Begin Work
2	Details of the equipment, artificial plug, reaction frame setup and calculations, telltale installation details, strain gage specifications, calibrations, strain gage protection and attachment details, load cell and jack calibrations, safety plan, and test schedule.	45 Before	Start of Test Pile Driving
3	Test and reaction pile installation logs.	7 Before	Start of Pile Load Test
4	Pile load test report	7 After	End of Pile Load Test

Provide all submittals and reports in .pdf format

Contractor will submit a safety plan as part of Submittal 2, detailing the steps that will be taken to ensure the safety of personnel, existing structures, and the general public during the load tests. Consideration should be made to the use of gages and load application equipment that allows testing personnel to be stationed a safe distance from the load test apparatus.

1.2.0 TESTING APPARATUS

1.2.1 Equipment & Test Pile Setup

Supply all equipment necessary for the performance of the load test. Required equipment may include, but not necessarily be limited to:

- Hydraulic Jack(s)
- Load Cell(s)
- Bearing Plates
- Hemispherical Bearing
- Test and Reaction Beams
- Cribbing
- Reference Beams,
- Displacement Indicators, Wireline & Mirror
- Strain gages
- Tell tales
- Survey Equipment
- Compatible Readout Devices for Instrumentation

The safety of the testing apparatus, components, and personnel is the responsibility of the Contractor. Contractor will provide a safety plan in Submittal 2.

Provide apparatus for applying compressive loads to the test pile similar to that shown in Figure 1 and the example provided in the attached drawings. Design of apparatus shall be performed by a professional engineer meeting the requirements outlined in Section 1.1.3 of this Special Note. Apparatus will be designed to a minimum of 1.5 times the maximum expected test load (6000 kips for Pile K-1, 600 kips for L-1, and 1600 kips for L-2) The design and construction of the reaction system will be included in the applicable unit bid item for Static Pile Testing.

Provide apparatus for measuring movement of the test and reaction piles similar to the typical setup shown in Figure 2. Loading and measuring apparatus to conform to ASTM D1143 with the following additions:

- Use a minimum of four displacement indicators at the pile head.
- Installation of strain gages as outlined in Section 1.2.2 of this Special Note.
- Installation of telltales within the piles as outlined in Section 1.2.3 of this Special Note.
- Survey measurements of all reaction piles to measure uplift deflection.

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

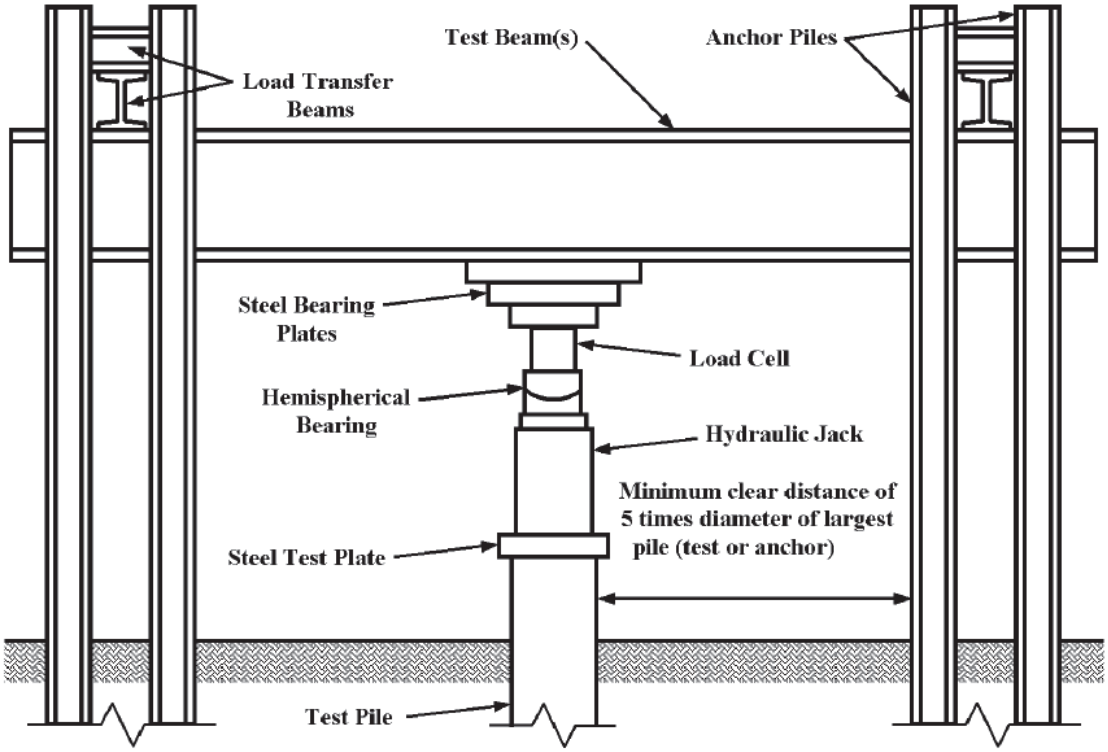


Figure 1- Schematic of Reaction Frame Setup (from ASTM D1143)

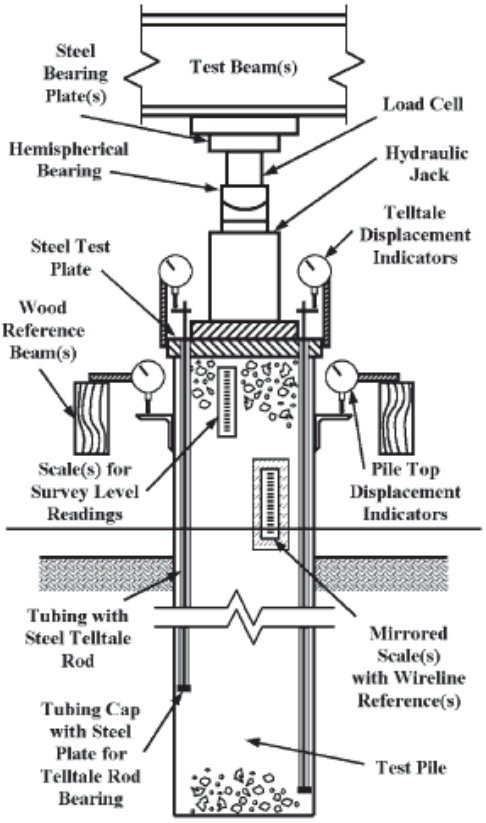


Figure 2- Schematic of Apparatus for Measuring Axial Pile Movements

1.2.2 Strain Gages

Install strain gages along the test piles prior to driving to obtain shaft versus toe resistance distribution data. Include strain gage details in Submittal 2. Install sets of strain gages at 90-degree spacing around the pile (180-degrees for H-pile) at ten equally spaced depths between the pile toe and pile head. Weld strain gages to the steel pile. Protect strain gages and cabling to prevent damage during handling and pile driving. Gages will consist of arc-weldable vibrating wire strain gages with a minimum 3000 microstrain range and 1 microstrain resolution. Provide the selected strain gage manufacturer/model, gage and equipment calibrations/manuals, gage/cable protection details for approval as part of Submittal 2. Obtain readings of the strain gages at the following times:

- Prior to and after installation on the piles
- Before and after installation of gage and cable protection
- Immediately before beginning of pile driving
- Immediately after completion of pile driving
- Before and after each restrike test
- Immediately before start of pile load test
- At each load increment during the pile load test

Strain gage readout devices should be provided by Contractor.

Strain gages and protection will be inspected by the Department prior to lifting the pile.

All strain gages will be tested and in working condition immediately prior to driving. The Contractor may decide to install additional gages to account for any incidental or installation related damage.

1.2.3 Telltale Rods

Install three rods oriented at 120 degree spacing around the pipe piles and equidistant from the pile axis. A pair of telltales will be used for the H-Pile. Terminate all telltales near the pile bottom. The telltales will be unrestrained within steel pipe. Provide telltale rods that have a rounded tip that bear on a clean steel plate affixed to the pile or that are threaded into a nut affixed to the pile. See Figure 3 for a typical telltale installation and ASTM D1143 for further details. Include telltale installation details in Submittal 2.

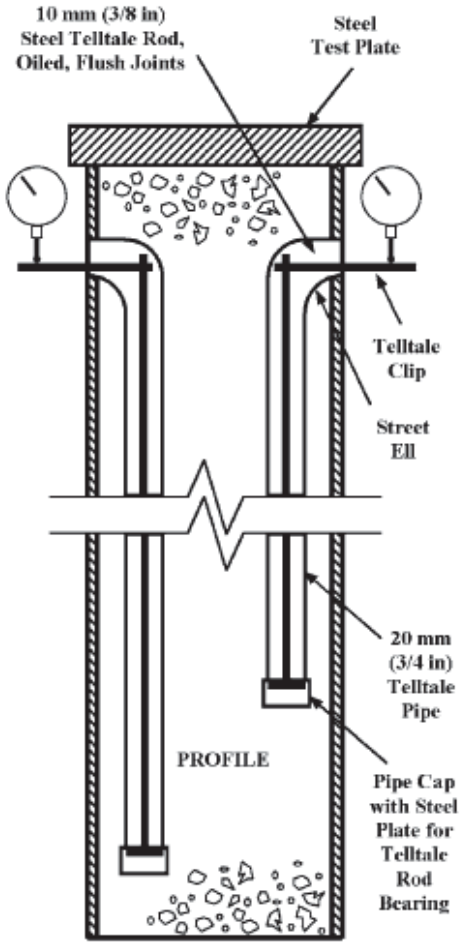


Figure 3- Typical Installation of Telltales for Pipe Piles (from ASTM D1143)

1.2.4 Site Protection

Provide adequate protection at all times for the pile supports and reference beam from wind, direct sunlight, frost action, and other disturbances which may influence the load test results. It may be necessary to provide heat and to construct a suitable test enclosure of fiber board, polyethylene, canvas, or other materials acceptable to the Department. Provide adequate lighting for the duration of the test.

1.3.0 TESTING PROCEDURE

1.3.1 Waiting Period

Observe a minimum waiting period of seven days between installing the last pile in the load test system and starting the test to account for soil set-up. Concurrently, a waiting period of 96 hours between the final restrike test and the beginning of the static test will be observed. Completion of the load test system and measurement apparatus setup may be performed during this period. The final restrike test will be performed as soon as practical following the static pile load test and removal of the test apparatus. Contractor will provide notification of the start of the static test to Department at least 72 hours prior to beginning the test.

1.3.2 Load Testing Procedure

Load the test pile as outlined in the following sections. The test loads are provided in Section 1.4.1 of the Special Note for Pile Load Test Program. Record readings of the displacement gages, wireline scale, telltale rods, and strain gages before and after the application of each load increment or decrement. Survey the reference beams and reaction frame before applying any test load, at the proposed design load, at the maximum test load, and after the removal of all load. Intermediate readings of the reference beams and reaction frame are recommended to provide additional quality assurance and detect potential failure of the load reaction system. Data collection will be performed by the Contractor's subconsultant. A representative of the Department may be present during each test.

1.3.2.1 Lagoon Bridge- Load Test Sequence

Apply the test load in increments of 5% of the test load (Target Nominal Resistance shown in Table 1.4.1 in the Special Note for Pile Load Test Program). During each load interval, maintain the load for a time interval of 10 minutes, using the same time interval for all loading increments except at 50% of the test load maintain the load for 30 minutes and at 100% of the test load hold the load for 1 hour. Add load increments until reaching a failure load (the load at which rapid continuing, progressive movement occurs or as specified by the department). Do not exceed the safe structural capacity of the pile or loading apparatus specified by the load frame designer. Remove the load in ten approximately equal decrements, maintain the load constant for 15 minutes,

using the same time interval for all unloading decrements. Continue to take readings for 30 minutes after unloading the test pile completely.

1.3.2.2 Kentucky Lake Bridge- Load Test Sequence

Apply the test load in increments of 10% of the test load (Target Nominal Resistance shown in Table 1.4.1 in the Special Note for Pile Load Test Program). During each load interval, maintain the load for a time interval of 1 hour, using the same time interval for all loading increments except at 100% of the test load hold the load for 8 hours. If failure occurs during loading, maintain the failure load, or the maximum load possible, until the total axial movement equals 15% the pile diameter or width. If failure does not occur during loading, upon completion of the 100% load hold continue to add load in 250 kip increments to a maximum test load of 6000 kips. Maintain each load increment for a period of 1 hour. After completing the final load increment, remove the load in decrements of 25% of the maximum test load with 1 hour holds between decrements. Continue to take readings for 30 minutes after unloading the test pile completely.

1.4.0 STATIC PILE TEST REPORTS

1.4.1 Pile Installation Report

Submit a pile installation report for each test and reaction pile for review by the Department. In the report include, at a minimum, the following information:

- Include a description of the test setup, installation of instruments, test schedule and general narrative regarding test details
- Identification and location of test and reaction piles
- Target Nominal Resistance
- Type, material, and dimensions of test and reaction piles
- Location of test pile splices, details, and methods
- Driving records for test and reaction piles
- Strain gage locations, calibration procedure and results, and pre- and post- driving readings
- Telltale locations
- Initial dynamic testing reports

1.4.2 Load Test Result Report

The load test result report provided by the Contractor's subconsultant will include, at a minimum, the following information:

- Temperature and weather conditions during tests
- Brief description of load application apparatus
- Description of and diagram showing instrumentation used to measure pile movement including location of indicators, scales, and other reference points with respect to pile top
- Description of and diagram showing special instrumentation such as tell-tale rods or strain gages including location of such with reference to pile top
- Tabulation of all time, load (jack and load cell), and movement (dial gages, strain gages, and tell-tales) readings
- Details of all protective covers used to protect strain gages, cables, and telltales. Details to include cover dimensions and thicknesses and method of attaching to pile.
- Identification and location sketch of all gages, scales, and reference points
- Load and deflection plots, detailed analysis and interpretation
- Description and explanation of adjustments made to instrumentation or field data, or both
- Notation of any unusual occurrences during testing,
- Suitable photographs showing the test instrumentation and set-up

Further review of the load test data, results, and report will be performed by the Department and/or its consultants.

1.5.0 MEASUREMENT

1.5.1 Static Pile Testing

Static pile testing will be measured per each test. Payment for the above described work includes all labor, equipment, reaction piles, reaction frame, jacks, and instrumentation and any other incidental work necessary to complete this item. This item will include everything necessary to assemble, install and remove the load test apparatus. Data collection and reduction will be performed by the Contractor's subconsultant.

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

1.6.0 PAYMENT

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
08040	LOADING TESTS - STATIC – 48 IN PIPE	EACH
08040	STATIC LOAD TEST HP 18X157	EACH
08040	STATIC LOAD TEST 30” PIPE PILES	EACH

SECTION 2: PSEUDO-STATIC AXIAL PILE LOAD TESTING

2.1.0 GENERAL

2.1.1 Scope of Work

The scope of work includes furnishing all materials, equipment and labor necessary for conducting the Pseudo-static Axial Load Tests and reporting the results as specified in this Special Note and in general accordance with ASTM D7383, *Axial Compressive Force Pulse (Rapid) Testing of Deep Foundations*. Supply all material and labor as hereinafter specified and include prior to, during and after the load test.

2.1.2 Test Locations

Testing will be performed on test piles prior to construction of the Kentucky Lake Bridges for design purposes. Coordinate Pseudo-static testing with the dynamic testing as outlined in the Special Note for Pile Load Test Program. Perform pseudo-static pile testing at the following locations.

- Kentucky Lake Bridge Shallow Water Area
    - One 48-inch and one 72-inch diameter pipe pile (K-2 and K-3)
    - Artificial plugs will be installed in both test piles.
    - Pseudo-static testing will be performed on a different test pile from the Static Load Test.

2.1.3 Personnel Qualifications

Employ a qualified licensed Professional Engineer experienced in the conducting and reporting of a Pseudo-static load test to design, setup, perform and prepare a report of the Pseudo-static load test. Submit qualifications of the testing personnel to the Department for review and approval in Submittal 1. The testing personnel shall have successfully completed no less than five Pseudo-static load tests on piles of similar dimensions and capacities in the past three years.

2.1.4 Equipment

Contractor's testing firm to supply all equipment necessary for the performance and monitoring of the load test. Contractor will supply equipment and labor required for the installation, support, and removal of the load test apparatus as required by the testing firm. Required equipment for installation and removal may include, but not necessarily be limited to:

- A crane or other lifting equipment capable of lifting the Pseudo-static components, operator and labor for unloading Pseudo-static trucks during mobilization and demobilization, and for assembling and disassembling the Pseudo-static load test.
- Power source adequate for electronic equipment as required in the approved working plans (minimum 5000 watts).
- Clam shell bucket or loader and concrete bucket for gravel.
- Gravel and containment device for gravel

Contractor's testing firm to design and supply instrumentation to provide soil response curves along the pile length and at the pile tip. Instrumentation, calibration and installation details and instrumentation protection details will be provided in Submittal 2 for Department review and acceptance. Instrumentation, at a minimum, is expected to include strain gages at a minimum of ten locations along the pile length. Strain gages will be installed in sets of 4 spaced at 90 degrees around the pile.

2.1.5 Submittals

See Table 1. The Department will respond to the Contractor regarding acceptability of submittals within 5 business days.

Table 1- Schedule of Pseudo-Static Pile Testing Submittals

Submittal Number	Submittal Item	Calendar Days	Event
1	Details of the testing firm and personnel.	30 After	Notice to Begin Work
2	Details of the equipment, personnel, instrumentation, notification plan, safety plan, test setup, and procedures.	45 Before	Start of Test Pile Driving
3	Preliminary data report. See 2.2.0 Testing and Reporting	4 After	End of Each Pile Load Test
4	Final data report. See 2.2.0 Testing and Reporting	7 After	End of Each Pile Load Test

Provide all submittals and reports in .pdf format

Submittal 2 will include a plan, to be reviewed by the District 1 Public Information Officer, to notify the general public of the tests and provide traffic control/closure on the existing bridge during the tests. Notifications to organizations such as Kenlake State Park, U.S. Forest Service, U.S. Coast Guard, U.S. Army Corps of Engineers - Navigation Branch, and local authorities may also be required as directed by the Engineer.

Contractor will submit a safety plan as part of Submittal 2, detailing the steps that will be taken to ensure the safety of personnel, existing structures, and the general public during the load tests. Consideration should be made to the use of gages and load application equipment that allows testing personnel to be stationed a safe distance from the load test apparatus.

2.2.0 TESTING AND REPORTING

Observe a minimum waiting period of seven days between installing the last pile in the load test system and starting the test to account for soil set-up. Concurrently, a waiting period of 96 hours between the final restrike test and the beginning of the pseudo-static test will be observed. Completion of the setup of the load test system and set up of measurement apparatus may be performed during this period. Contractor will provide notification of pseudo-static test to Department at least 72 hours prior to beginning the test. The target nominal resistances are provided in Section 1.4.1 of the Special Note for Pile Load Test Program.

Contractor's testing firm to acquire the test data during testing and summarize the Pseudo-static data in a report submitted to the Department. All required electronic equipment for the recording, processing and storage of the Pseudo-static test data will be operated by the testing personnel. Install sufficient instrumentation on the test piles to determine the distribution of the toe and side resistance along the pile length and determine the load versus displacement relationships along the side of the pile and at the tip of the pile.

Submit a report providing all data readings and plots of the readings, as well as a determination of the toe and side resistance of the pile to the Department for review. Submit an initial data report containing the load-movement curves and test data to the Department to allow for evaluation of the test results. At a minimum, include the following in a final report of Pseudo-static Load Testing:

- As-installed location of the test pile.
- Installation records of test pile showing locations of all instrumentation.
- Summary of the load test procedure and data collected during load testing.
- Details of instrumentation covers or plates; including dimensions, thickness, and method of attachment; used to protect the instrumentation.
- Analysis and plots of toe resistance and side resistance distribution along the pile.

- Data files for independent analysis.

2.3.0 MEASUREMENT

Measure the “Pseudo-static Axial Load Testing” by the actual number of test(s) completed and accepted, and include materials, labor and equipment necessary for the Pseudo-static load testing of the pile(s). This item will include everything necessary to assemble, install and remove the load test apparatus, conduct and report results of the load test.

2.4.0. PAYMENT

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
24549EC	PSEUDO-STATIC LOAD TEST - AXIAL – 48 IN PIPE	EACH
24549EC	PSEUDO-STATIC LOAD TEST - AXIAL – 72 IN PIPE	EACH

SECTION 3: PSEUDO-STATIC LATERAL PILE LOAD TESTING

3.1.0 GENERAL

3.1.1 Scope of Work

The scope of work includes furnishing all materials, equipment and labor necessary for conducting the Pseudo-static Lateral Load Tests and reporting the results. Supply all material and labor as hereinafter specified and include prior to, during and after the load test.

3.1.2 Test Locations

Testing will be performed prior to construction for design purposes. The test pile will be subjected to dynamic and Pseudo-static axial testing prior to the Pseudo-static lateral testing. Coordinate Pseudo-static lateral testing with the dynamic and Pseudo-static axial testing as outlined in the Special Note for Pile Load Test Program. Perform Pseudo-static lateral pile testing at the following location.

- Kentucky Lake Bridge Shallow Water Area
    - One 72-inch diameter, open-ended pipe pile (K-3)
    - Lateral testing will be performed on same pile as dynamic and axial pseudo-static testing.

3.1.3 Personnel Qualifications

Employ a qualified registered Professional Engineer experienced in the conducting and reporting of a Pseudo-static load test to design, setup, perform and prepare a report of the Pseudo-static load test. Submit qualifications of the testing personnel to the Department for review and approval. The testing personnel shall have successfully completed no less than three Pseudo-static lateral load tests on piles of similar dimensions and capacities in the past five years.

3.1.4 Equipment

Contractor's testing firm will supply all equipment necessary for the performance and monitoring of the load test. Supply pile instrumentation necessary to provide the pile deflection profile including resistance type strain gages, accelerometers, and inclinometer(s)/lateral motion sensors. Contractor will supply equipment and labor required for the installation and removal of the load test apparatus as required by the

testing firm. Required equipment for installation and removal may include, but not necessarily be limited to:

- A crane or other lifting equipment capable of lifting the Pseudo-static components, operator and labor for unloading Pseudo-static trucks during mobilization and demobilization, and for assembling and disassembling the Pseudo-static load test.
- Power source adequate for electronic equipment as required in the approved working plans (minimum 5000 watts).
- Clam shell bucket or loader and concrete bucket for gravel.

Contractor's testing firm will supply instrumentation (inclinometer(s)/lateral motion sensors, strain gages, accelerometers) to provide pile deflection along the pile length to allow the design team to develop p-y curves for the use in final pile design. Instrumentation will include at a minimum strain gages at ten depths along the pile and one inclinometer/lateral motion sensor string. Strain gages will be installed in sets of 4 spaced at 90 degree spacing around the pile. Instrumentation and instrumentation protection details will be provided in Submittal 2.

3.1.5 Submittals

See Table 1. The Department will respond to the Contractor regarding acceptability of submittals within 5 business days.

Table 1- Schedule of Lateral Pseudo-Static Pile Testing Submittals

Submittal Number	Submittal Item	Calendar Days	Event
1	Details of testing firm and personnel.	30 After	Notice to Begin Work
2	Details of the equipment, test setup, notification plan, safety plan, and procedures	45 Before	Start of Test Pile Driving
3	Preliminary data report. See 3.2.0 Testing and Reporting	4 After	End of Each Pile Load Test
4	Final data report. See 3.2.0 Testing and Reporting	7 After	End of Each Pile Load Test

Provide all submittals and reports in .pdf format

Submittal 2 will include a plan, to be reviewed by the District 1 Public Information Officer, to notify the general public of the tests and provide traffic control/closure on the existing bridge during the tests. Notifications to organizations such as Kenlake State Park, U.S. Forest Service, U.S. Coast Guard, U.S. Army Corps of Engineers -

Navigation Branch, and local authorities may also be required as directed by the Engineer.

Contractor will submit a safety plan as part of Submittal 2, detailing the steps that will be taken to ensure the safety of personnel, existing structures, and the general public during the load tests. Consideration should be made to the use of gages and load application equipment that allows testing personnel to be stationed a safe distance from the load test apparatus.

3.2.0 TESTING AND REPORTING

Observe a minimum waiting period of 96 hours between the previous testing (axial pseudo-static and dynamic testing) and the beginning of the lateral test. Completion of the setup of the load test system and set up of measurement apparatus may be performed during this period. Contractor will provide notification of lateral test to Department 72 hours prior to beginning the test.

Contractor's testing firm shall acquire the test data during testing and summarize the lateral Pseudo-static data into a report presented to the Department. All required electronic equipment for the recording, processing and storage of the Pseudo-static lateral test will be operated by the testing personnel.

Submit a report providing all data readings and plots of the readings to the Department for review. Provide an initial data report containing the load-movement curves and test data to the Department to allow for evaluation of the test results. At a minimum, include the following in a final report of Pseudo-static Lateral Load Testing:

- As-installed location of the test pile.
- Installation records of test pile showing locations of all instrumentation.
- Summary of instrumentation calibration and installation details
- Details of instrumentation covers or plates; including dimensions, thickness, and method of attachment; used to protect the instrumentation.
- Summary of the load test procedure and data collected during load testing.
- Data files for independent analysis.

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

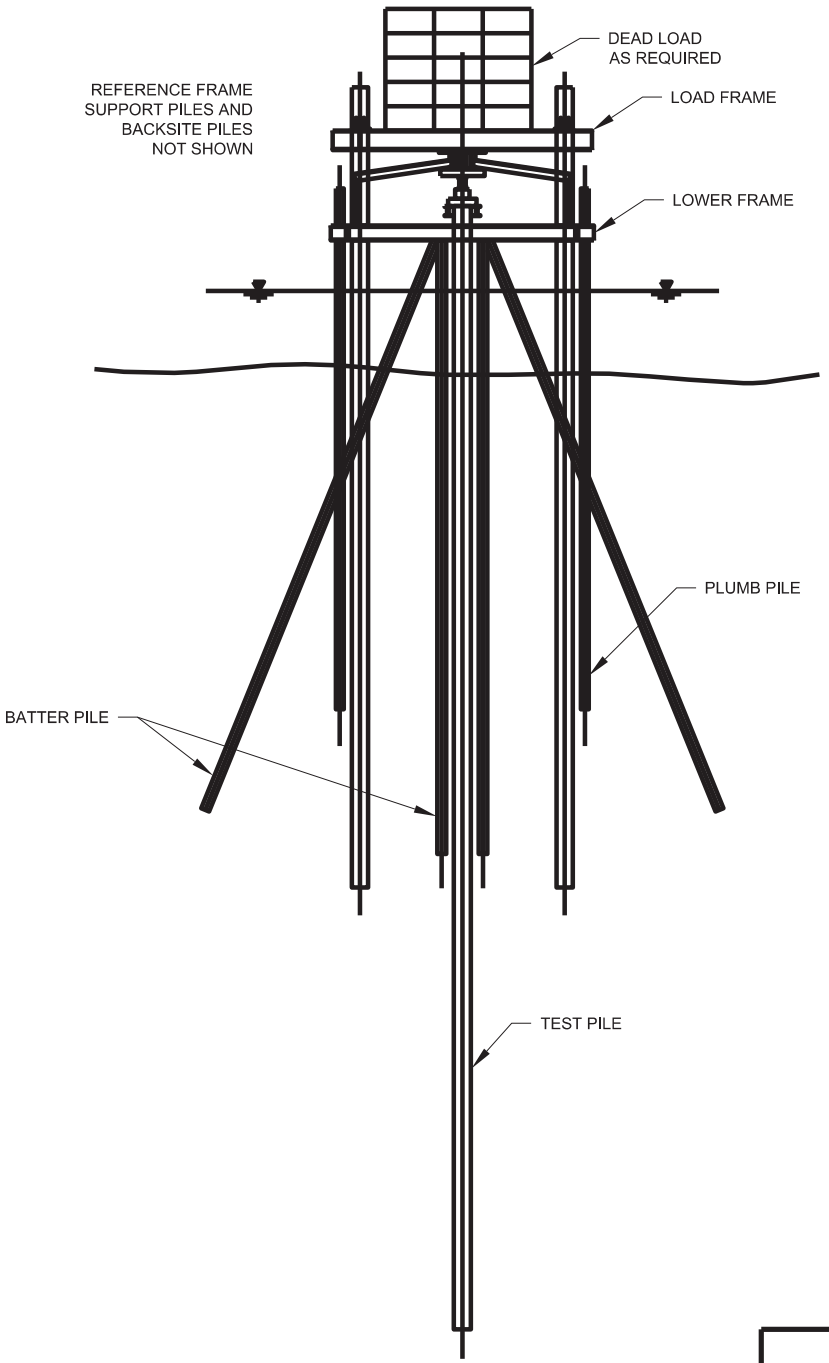
3.3.0 MEASUREMENT

Measure the “Pseudo-static Lateral Load Test” by the actual number of test(s) completed and accepted, and include materials, labor and equipment necessary for the Pseudo-static lateral load testing of the pile(s). This item will include everything necessary to assemble, install and remove the load test apparatus, conduct test, and report results of the load test.

3.4.0 PAYMENT

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
24549EC	PSEUDO-STATIC LOAD TEST - LATERAL – 72 IN PIPE	EACH



EXAMPLE LOAD TEST PROFILE
NOT TO SCALE

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

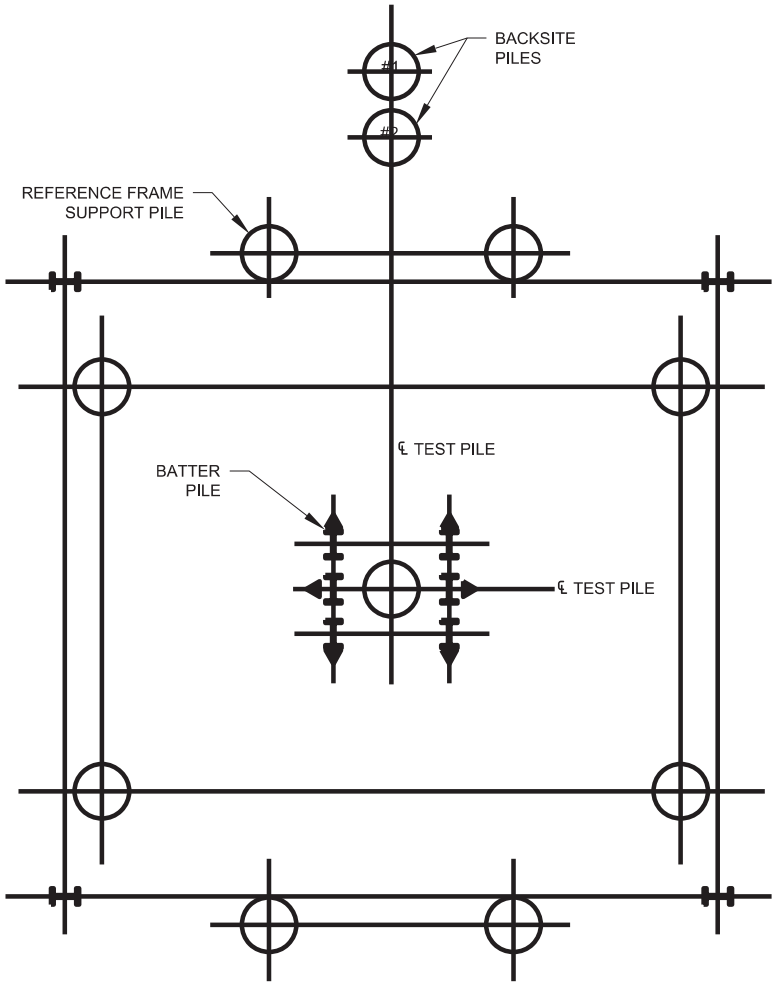
COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

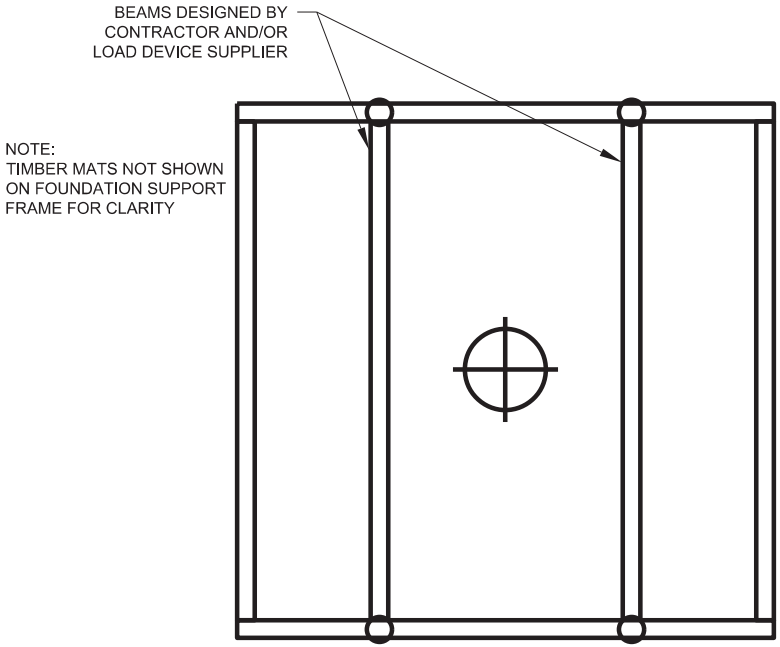
DETAILS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	SP-1
		DRAWING NO.

MicroStation v8.11.9.292 | E-SHEET NAME: | USER: kjmankin | DATE PLOTTED: September 6, 2012 | FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\IIN\III5097\DETAILS.DGN



EXAMPLE PILE LAYOUT
NOT TO SCALE



EXAMPLE FOUNDATION SUPPORT FRAME
PLAN VIEW
NOT TO SCALE

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

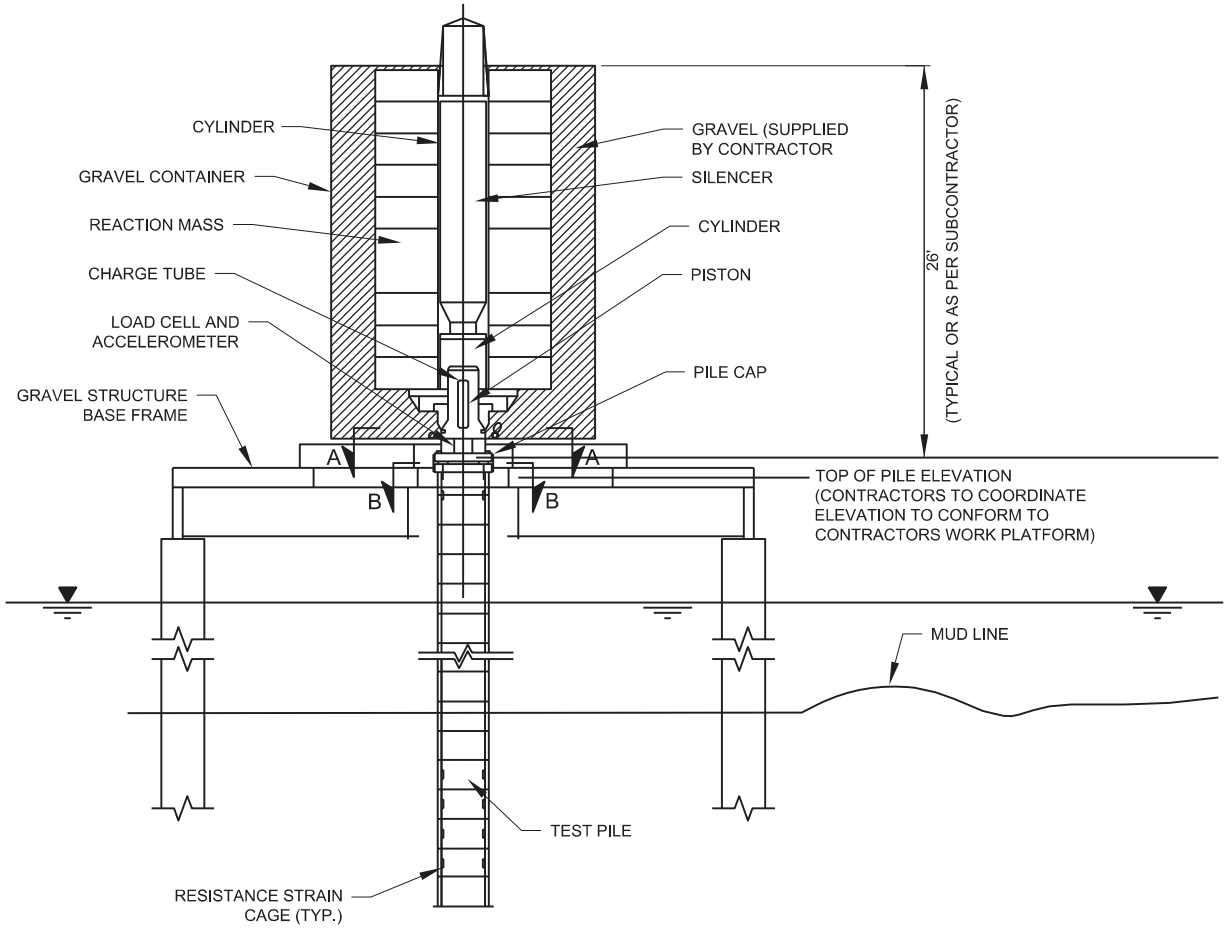
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

DETAILS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	SP-2
		DRAWING NO.



EXAMPLE PSEUDO-STATIC LOAD TEST SETUP
NOT TO SCALE

MicroStation v8.11.9.292
E-SHEET NAME:
USER: kjmankin
DATE PLOTTED: September 11, 2012
FILE NAME: N:\HCNPROJECTS\AUTOCAD\2011\11\115097\DETAILS.DGN

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

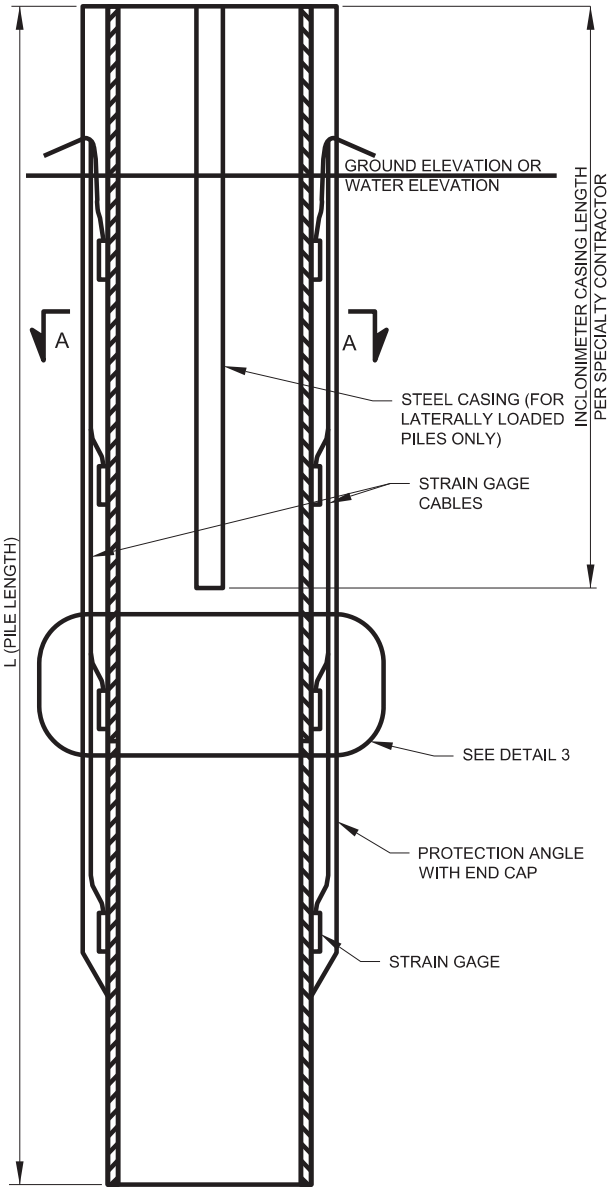
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
TRIGG AND MARSHALL

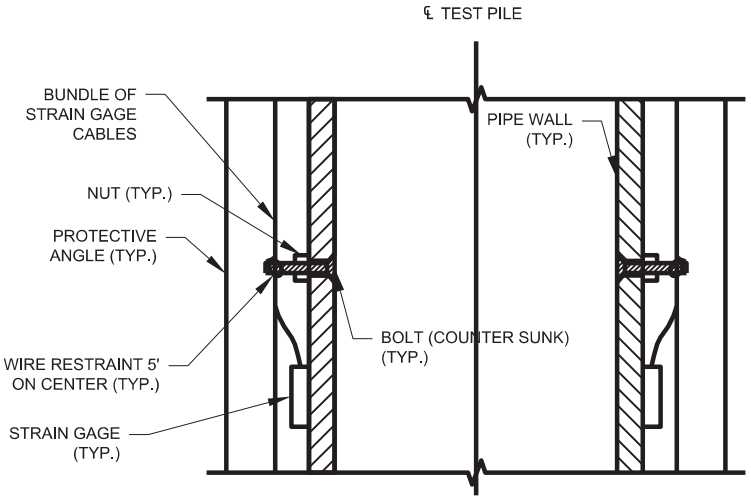
ROUTE	CROSSING
US 68	KENTUCKY LAKE

DETAILS

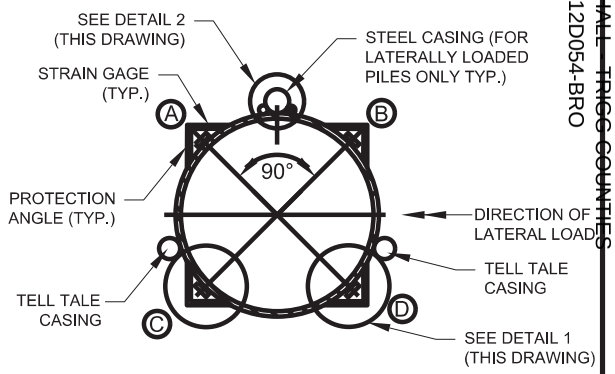
ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	SP–3
		DRAWING NO.



ELEVATION
INSTRUMENTATION SCHEME
NOT TO SCALE

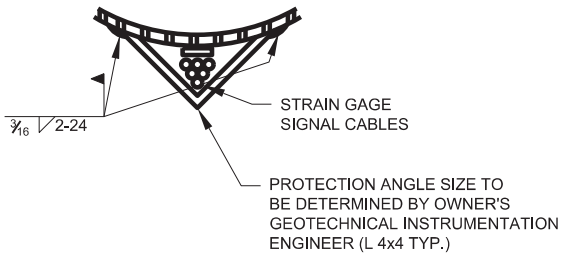


DETAIL 3
STRAIN GAGE CABLE ATTACHMENT
NOT TO SCALE

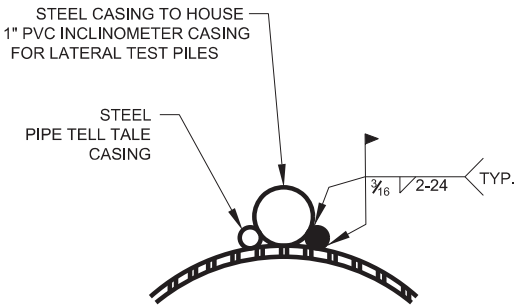


TOP SEGMENT

SECTION A
INSTRUMENTATION SCHEME FOR AXIAL AND
LATERALLY LOADED STEEL PIPE PILES
NOT TO SCALE



DETAIL 1
TYPE IA AND IB SURFACE MOUNTED, ARC WELDED
STRAIN GAGE WITH CABLE PROTECTION
NOT TO SCALE



DETAIL 2
INCLINOMETER AND TELL TALE CASING
NOT TO SCALE

DETAILS PROVIDED ON THIS SHEET
ARE PROVIDED ONLY AS EXAMPLES.
CONTRACTOR TO DESIGN ALL ITEMS SHOWN.

DATE: 9/6/12	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
TRIGG AND MARSHALL

ROUTE	CROSSING
US 68	KENTUCKY LAKE

DETAILS

ITEM NUMBER	PREPARED BY	SHEET NO.
01–180.75	Terracon Consulting Engineers and Scientists	SP-4
		DRAWING NO.

SPECIAL NOTE FOR VIBRATION MONITORING

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake and Lagoon Bridges

Vibration-producing activities (such as pile driving, vibratory compaction, or operation of heavy construction equipment) will be required during the construction and testing activities related to the Kentucky Lake portion of the Pile Load Test Program until the construction and testing equipment associated with the Pile Load Test Program has been demobilized from the project site. The Contractor is advised that existing bridge structures are located close to the proposed work and that construction activities shall be conducted so as to preclude damage to same. The Contractor shall be responsible for any damage caused by his activities.

Within 60 days after receiving a Notice To Begin Work, the Contractor shall provide a written plan to the Engineer, which shall include, but not be limited to the following: vibration monitoring plan (including the format for reporting the vibration readings), anticipated vibration levels at the closest structures, condition survey format, and communications activities. A copy of all reports shall be provided to the Engineer within 14 days after completing the Pile Load Test Program field activities.

1. Condition Survey

A Pre-Construction Condition Survey (PCS) shall be conducted by the Contractor on the Eggner Ferry Bridge Span D Piers and West End Bent, prior to the commencement of any vibration-producing activity. The survey will include documentation of the Span D Piers as viewed from the waterline and of the End Bent as viewed from the adjacent ground surface. It will detail (by engineering sketches, video, photographs, and/or notes) any existing structural or cosmetic damage. The survey will be conducted by a licensed Professional Engineer with at least 4 years of experience in pre-construction condition surveys, and who has conducted a minimum of 4 pre-construction survey projects on transportation facilities.

A Pre-Construction Condition Survey report shall be issued that will summarize the pre-construction condition of the structure(s) and will identify areas of concern, including potential personnel hazards (falling debris) and structural elements that may require support or repair such as, but not limited to, existing visible cracks.

Crack displacement monitoring gages will be installed as appropriate across any significant existing cracks as defined by the Pre-Construction Condition Survey (PCS) engineer to help verify any additional structure distress if it should develop. The appropriate location, number, and type of gages will be established by the Contractor and/or the Department. The gages will be read prior to vibration-producing activities, as well as during these activities. Data shall be obtained on a weekly basis for as long as vibration-producing activities are being conducted. A report shall be submitted which summarizes the data on a weekly basis. The Department shall be alerted if any significant movement as defined by the PCS engineer is detected by the monitoring gages.

A Post-Construction Condition Survey shall be conducted within 10 calendar days after the field activities for the Pile Load Test Program have been completed. The survey will

follow the same procedures, and the report will have the same format, as the Pre-Construction Survey.

2. Vibration Controls

The Contractor shall employ a qualified vibration specialist to establish a safe vibration level for the existing Eggner Ferry Bridge Span D piers and the Eggner Ferry Bridge West End Bent. The Contractor's vibration-monitoring personnel shall include a qualified Vibration Instrumentation Engineer who is a licensed Professional Engineer, and who has at least 4 years of experience in the installation and use of vibration-monitoring instrumentation and in interpreting instrumentation data for ground vibrations caused by heavy construction, and who has conducted a minimum of 8 vibration monitoring projects for ground vibrations caused by heavy construction. This specialist shall also supervise the Contractor's vibration-monitoring program. During all vibration-producing activities, the Contractor shall monitor vibration levels at the Span D piers and the West End Bent, and shall not exceed the safe level established in the Contractor's Vibration Monitoring Plan to preclude damage to these structures. A Vibration Monitoring Plan which shows planned location of the vibration monitors, vibration monitoring equipment to be used, safe vibration levels (which may be established from a baseline monitoring program), and expected schedule for monitoring shall be submitted to the Department for approval.

The vibration monitoring equipment shall be capable of continuously recording the peak particle velocity and providing a permanent record of the entire vibration event. The vibration monitoring equipment shall have the following minimum features:

2.1. Seismic range: 0.01 to 4 inches per second with an accuracy of +5 percent of the measured peak particle velocity or better at frequencies between 10 Hertz and 100 Hertz, and with a resolution of 0.01 inches per second or less.
2.2. Frequency response (+3 dB points): 2 to 200 Hertz.
2.3. Three channels for simultaneous time-domain monitoring of vibration velocities in digital format on three perpendicular axes.
2.4. Two power sources: internal rechargeable battery and charger and backup power source.
2.5. Capable of internal, dynamic calibration.
2.6. Capability to transfer data from memory to permanent digital storage. Instruments must be capable of transmitting vibration data readings to the Contractor within 15 minutes of obtaining the readings. Provide computer software to perform analysis and produce reports of continuous monitoring.
2.7. Continuous monitoring mode must be capable of recording single-component peak particle velocities, and frequency of peaks with an interval of one minute or less.

A report shall be submitted which summarizes the data collected on a weekly basis. Copies of all vibration records and associated construction activity (pile driving) data shall be provided to the Engineer in a format approved by the Engineer in a final report to be submitted within 14 calendar days of completing vibration monitoring.

The Contractor's Vibration Instrumentation Engineer shall interpret the data collected, including making correlations between seismograph data and specific construction activities. The data shall be evaluated to determine whether the measured vibrations can be reasonably attributed to construction activities.

Marshall/Trigg Counties Item No. 1-180.75
Kentucky Lake Bridge

Unless otherwise provided for in the Vibration Monitoring Plan, the Response Values for vibration shall include a Threshold Value of 0.4 inches per second and a Limiting Value of 0.5 inches per second. The actions associated with these Response Values are defined below. Plans for such actions are referred to herein as plans of action, and actual actions to be implemented are referred to herein as response actions. Response Values are subject to adjustment by the Engineer as indicated by prevailing conditions or circumstances.

If a Threshold Value is reached, the Contractor shall:

1. Immediately notify the Engineer.
2. Meet with the Engineer to discuss the need for response action(s).
3. If directed by the Engineer during the above meeting that a response action is needed, submit within 24 hours a detailed specific plan of action based as appropriate on the generalized plan of action submitted previously as part of the vibration-monitoring plan specified in Article 2.
4. If directed by the Engineer, implement response action(s) within 24 hours of submitting a detailed specific plan of action, so that the Limiting Value is not exceeded.

If a Limiting Value is reached, the Contractor shall:

1. Immediately notify the Engineer and suspend activities in the affected area, with the exception of those actions necessary to avoid exceeding the Limiting Value.
2. Meet with the Engineer to discuss the need for response action(s).
3. If directed by the Engineer during the above meeting that a response action is needed, submit within 24 hours a detailed specific plan of action based as appropriate on the generalized plan of action submitted previously as part of the vibration-monitoring plan specified in Article 2.
4. If directed by the Engineer, implement response action(s) within 24 hours of submitting a detailed specific plan of action, so that the Limiting Value is not exceeded.

3. Communications

The Contractor shall maintain a log of any complaints and make this available to the Engineer on request. The Department shall be notified by the Contractor at least 2 weeks prior to commencement of any vibration-producing activity that might affect the structure.

4. Measurement

Payment for Vibration Monitoring is for all work described in this special note including but not necessarily limited to surveys, instrumentation, monitoring, and reports.

5. Pay Items

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
24550EC	VIBRATION MONITORING	LS

SPECIAL NOTE FOR ENGINEERING-RELATED CONSULTING SERVICES

Marshall/Trigg Counties
Item No. 1-180.75

The Contractor will be required to retain companies pre-qualified by the Department in the categories of Geotechnical Drilling and Geotechnical Laboratory Testing to perform services on this project. Additionally, personnel meeting applicable licensure and/or experience requirements will be required to perform other related services including but not necessarily limited to telltale surveying, condition surveys, vibration monitoring, and pile testing. Specific requirements for drilling, laboratory testing, and other related services are provided elsewhere in the contract documents.

Because of their ongoing involvement with this project as consultants to the Department, Michael Baker Corporation, Palmer Engineering, Terracon, and Florence & Hutcheson will not be permitted to perform any services as consultants to the Contractor on this project due to the potential for a conflict of interest. Other firms who have previously performed consulting services for the Department on this project may perform services for the Contractor, subject to meeting applicable pre-qualification, experience, and/or other requirements.

SPECIAL PROVISION FOR WASTE AND BORROW SITES

Obtain U.S. Army Corps of Engineer's approval before utilizing a waste or borrow site that involves "Waters of the United States". The Corps of Engineers defines "Waters of the United States" as perennial or intermittent streams, ponds or wetlands. The Corps of Engineers also considers ephemeral streams, typically dry except during rainfall but having a defined drainage channel, to be jurisdictional waters. Direct questions concerning any potential impacts to "Waters of the United States" to the attention of the appropriate District Office for the Corps of Engineers for a determination prior to disturbance. Be responsible for any fees associated with obtaining approval for waste and borrow sites from the U.S. Army Corps of Engineer or other appropriate regulatory agencies.

1-296 Waste & Borrow Sites
01/02/2012

Right-of-Way Certification Form

Revised 2/22/11

☑ Federal Funded ☐ State Funded

☑ Original ☐ Re-Certification

This form must be completed and submitted to FHWA with the PS&E package for federal-aid funded Interstate, Appalachia, and Major projects. This form shall also be submitted to FHWA for all federal-aid projects that fall under Conditions No. 2 or 3 outlined elsewhere in this form. When Condition No. 2 or 3 apply, KYTC shall resubmit this ROW Certification prior to construction contract Award. For all other federal-aid projects, this form shall be completed and retained in the KYTC project file.

Date: September 19, 2012

Project Name: Cadiz-Aurora Bridge Improvements
Letting Date: October 19, 2012
Project #:
County: Marshall
Item #: 01-180.75
Federal #: BRO 0801 (088)

Description of Project: Cadiz-Aurora; Bridge over Lagoon West of KY Lake and KY Lake Causeway Widening/Improvements.

Projects that require NO new or additional right-of-way acquisitions and/or relocations

☑ The proposed transportation improvement will be built within the existing rights-of -way and there are no properties to be acquired, individuals, families, and businesses ("relocatees") to be relocated, or improvements to be removed as a part of this project.

Projects that require new or additional right-of-way acquisitions and/or relocations

☐ Per 23 CFR 635.309, the KYTC hereby certify that all relocatees have been relocated to decent, safe, and sanitary housing or that KYTC has made available to relocatees adequate replacement housing in accordance with the provisions of the current FHWA directive(s) covering the administration of the Highway Relocation Assistance Program and that at least one of the following three conditions has been met. (Check those that apply.)

☐ **Condition 1.** All necessary rights-of-way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Fair market value has been paid or deposited with the court.

☐ **Condition 2.** Although all necessary rights-of-way have not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Trial or appeal of some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Fair market value has been paid or deposited with the court for most parcels. Fair market value for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract. (See note 1 below.)

Note 1: The KYTC shall re-submit a right-of-way certification form for this project prior to AWARD of **all** Federal-Aid construction contracts. Award must not to be made until after KYTC has obtained full legal possession and fair market value for all parcels has been paid or deposited with the court and FHWA has concurred in the re-submitted right-of-way certification.

Right-of-Way Certification Form

Revised 2/22/11

☐ **Condition 3.** The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. However, all remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. The KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary rights-of-way will not be fully acquired, and/or some occupants will not be relocated, and/or the fair market value will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction A full explanation and reason for this request, including identification of each such parcel and dates on which acquisitions, payments, and relocations will be completed, is attached to this certification form for FHWA concurrence. (See note 2.)

Note 2: The KYTC may request authorization on this basis only in unique and unusual circumstances. Proceeding to bid letting shall be the exception and never become the rule. In all cases, the KYTC shall make extraordinary efforts to expedite completion of the acquisition, payment for all affected parcels, and the relocation of all relocatees prior to AWARD of all Federal-Aid construction contracts or force account construction.

Approved:	Greg L. Morgan Printed Name		9/19/12 Signature	Right-of-Way Supervisor
Approved:	Keith McDonald Printed Name		9/21/12 Signature	KYTC, Director of ROW &Utilities
Approved:	DAVID WHITWORTH Printed Name		9/25/12 Signature	FHWA, ROW Officer (when applicable)

Right-of-Way Certification Form

Revised 2/22/11

Date: September 19, 2012

Project Name: Cadiz-Aurora Bridge Improvements
Project #:
Item #: 01-180.75
Letting Date: October 19, 2012

County: Marshall
Federal #: BRO 0801 (088)

This project has 0 total number of parcels to be acquired, and 0 total number of individuals or families to be relocated, as well as 0 total number of businesses to be relocated.

0 Parcels where acquired by a signed fee simple deed and fair market value has been paid

0 Parcels have been acquired by IOJ through condemnation and fair market value has been deposited with the court

0 Parcels have not been acquired at this time (*explain below for each parcel*)

0 Parcels have been acquired or have a "right of entry" but fair market value has not been paid or has not been deposited with the court *(explain below for each parcel)*

0 Relocatees have not been relocated from parcels ____, ____, ____, ____, ____, ____, and ____ *(explain below for each parcel)*

Parcel #	Name/Station	Explanation for delayed acquisition, delayed relocation, or delayed payment of fair market value	Proposed date of payment or of relocation

There are 0 billboards and/or 0 cemeteries involved on this project.

There are 0 water or monitoring wells on parcels ____, ____, ____, ____, and ____. All have been acquired and are the responsibility of the project contractor to close/cap.

Form Effective Date: April 1, 2006
Last Revised: February 22, 2011

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80
LAGOON BRIDGE & CAUSEWAYS
ITEM NO. 1-180.70

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Utility coordination efforts determined that no significant utility relocation work is required to complete the project.

NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

AT&T TELECOMMUNICATIONS has communications lines located at Approximate Sta. 968+90
This line is not to be disturbed.

AT&T TELECOMMUNICATIONS
810 Kentucky Avenue

Paducah, KY 42003

Neil Lindsey

(270) 444-5047

The Contractor is fully responsible for protection of all utilities listed above

THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

N/A .

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY'S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

N/A

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

NA.

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80
LAGOON BRIDGE & CAUSEWAYS
ITEM NO. 1-180.70

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs.

The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

BEFORE YOU DIG

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80
LAGOON BRIDGE & CAUSEWAYS
ITEM NO. 1-180.70

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
AT&T Kentucky	Neil Lindsey	270-444-5047
Pennyrile RECC	Gary Bradden	270-886-2555
West KY RECC	Chad Freeman	270-705-1783

KyTC BMP Plan for Project PCN ## - ####

Kentucky Transportation Cabinet

Highway District 1

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System Permit KYR10 Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For Reconstruct US68/KY80 Marshall/ Trigg County, Kentucky

Project: PCN ## -

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District 1

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) US 68/KY 80

6. Latitude/Longitude (project mid-point) 36^46’20”, 88^07’13”

7. County (project mid-point) Marshall/Trigg

8. Project start date (date work will begin): (2)

9. Projected completion date: (2)

KyTC BMP Plan for Project PCN ## - ####

A. Site description:

1. Nature of Construction Activity (from letting project description): This project is the reconstruction of US68/KY80 in Marshall and Trigg Counties including the construction of the new lagoon bridge and the east and west causeways for the new Kentucky Lake Bridge.

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved: 172,268 cubic yards

4. Estimate of total project area (acres): 48.4 acres

5. Estimate of area to be disturbed (acres): 13.19 acres

6. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information.

7. Data describing existing soil condition: The majority of soil horizons and slopes on this project are subject to erosion.

8. Data describing existing discharge water quality (if any): There is no information for this item.

9. Receiving water name: Tennessee River

10. TMDLs and Pollutants of Concern in Receiving Waters: No TMDLs were involved on this project.

11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. Potential sources of pollutants:

    The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

   Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as “Do Not Disturb” until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP’s shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA’s as the work progresses. <u>All DDA’s will have adequate BMP’s in place before being disturbed.</u>

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

   - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.

- At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
    - Leaving areas undisturbed when possible.
    - Silt basins to provide silt volume for large areas.
    - Silt Traps Type A for small areas.
    - Silt Traps Type C in front of existing and drop inlets which are to be saved
    - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
    - Brush and/or other barriers to slow and/or divert runoff.
    - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
    - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
    - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
    - Silt Traps Type B in ditches and/or drainways as they are completed
    - Silt Traps Type C in front of pipes after they are placed
    - Channel Lining
    - Erosion Control Blanket
    - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
    - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
    - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
    - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
    - Additional Channel Lining and/or Erosion Control Blanket.
    - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
    - Special BMP's such as Karst Policy

- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
  - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
  - Permanent Seeding and Protection
  - Placing Sod
  - Planting trees and/or shrubs where they are included in the project

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

- **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

- **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum

products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials.

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance.

F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.

- Water form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

_____ 2. (e) land treatment or land disposal of a pollutant;

_____ 2. (f) Storing, …, or related handling of hazardous waste, solid waste or special waste, …, in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ 2. (g) …. Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ 2. (j) Storing or related handling of road oils, dust suppressants, …., at a central location;

_____ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

KyTC BMP Plan for Project PCN ## - ####

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

(a) General information about this project is covered in the Project information;
(b) Activities that require a groundwater protection plan have been identified above;
(c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
(d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
(e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
(f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
(g) Certification (see signature page.)

KyTC BMP Plan for Project PCN ## -

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:
Address:
Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KPDES FORM NOI-SW

Kentucky Pollutant Discharge Elimination System (KPDES)

Notice of Intent (NOI)
for Storm Water Discharges
Associated with Industrial Activity Under the KPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with industrial activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Instructions on back)

I. Facility Operator Information

Name:	KYTC District One	**Phone:**	(270) 898-2431
Address:	5501 Kentucky Dam Road	**Status of Owner/Operator:**	S
City, State, Zip Code:	Paducah, KY 42003		

II. Facility/Site Location Information

Name:	SYP Item # 01-180.75		
Address:	US 68/KY 80		
City, State, Zip Code:	Hardin, KY 42048, Canton, KY 42211		
County:	Marshall and Trigg County		
Site Latitude: (degrees/minutes/seconds)	36^46'20	**Site Longitude: (degrees/minutes/seconds)**	88^07'13

III. Site Activity Information

MS4 Operator Name:	n/a						
Receiving Water Body:	Tennessee River						
Are there existing quantitative data?	**Yes** ☐ **If Yes, submit with this form.** **No** ☒						
SIC or Designated Activity Code Primary	**1611**	**2nd**	**1622**	**3rd**		**4th**	
If this facility is a member of a Group Application, enter Group Application Number:							
If you have other existing KPDES Permits, enter Permit Numbers:							

IV. Additional Information Required FOR CONSTRUCTION ACTIVITIES ONLY

Project Start Date:		**Completion Date:**	
Estimated Area to be disturbed (in acres):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	**Yes** ☒ **No** ☐		

V. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed or Typed Name:	**James E. LeFevre, PE**		
Signature:		**Date:**	

Kentucky Pollutant Discharge Elimination System (KPDES)
Instructions
Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity
To Be Covered Under The KPDES General Permit

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the **Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.**

WHERE TO FILE NOI FORM

NOIs must be sent to the following address:

Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601

COMPLETING THE FORM

Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the **Storm Water Contact, Industrial Section, at (502) 564-3410.**

SECTION I - FACILITY OPERATOR INFORMATION

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal M = Public (other than federal or state)
S = State P = Private

SECTION II - FACILITY/SITE LOCATION INFORMATION

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

SECTION III - SITE ACTIVITY INFORMATION

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges. If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY

Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

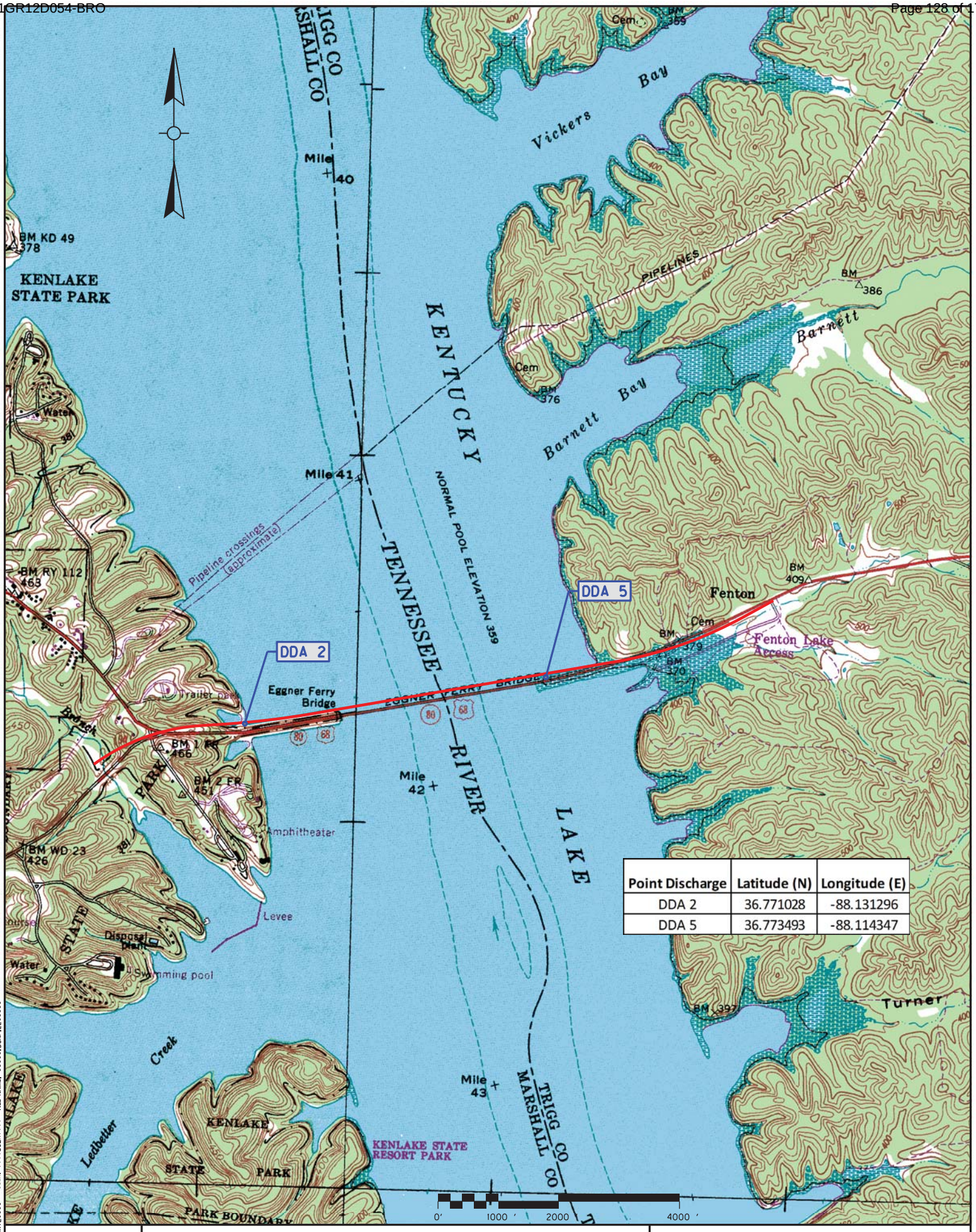
SECTION V - CERTIFICATION

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer,which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authroity to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.



Point Discharge	Latitude (N)	Longitude (E)
DDA 2	36.771028	-88.131296
DDA 5	36.773493	-88.114347

Kentucky Transportation	SITE: US 68 /KY 80 OVER KENTUCKY LAKE		STREAM: KENTUCKY LAKE (TENNESSEE RIVER)		
	COUNTY: MARSHALL /TRIGG	STATE: KY	NEAR: AURORA /FENTON	ITEM: 1–180.75	SHEET: 1 OF 1

DATE: $$$$DATE$$$$ USER: $$$$USER$$$$ FILE NAME: $$$$$.DGNFILE$$$$$

KENTUCKY TRANSPORTATION CABINET

COMMUNICATING ALL PROMISES (CAP)

MARSHALL-TRIGG COUNTIES

1-180.75

(NO CAPS INVOLVED IN PROJECT)

September 18, 2012

MATERIAL SUMMARY CONTRACT ID: 121354

BRO 0801 (093) PES NO: DE07900681254
CADIZ-AURORA ROAD (US 68-KY 80) BRIDGE OVER LAGOON WEST OF KY LAKE AND KY LAKE CAUSEWAY RECONSTRUCT, WIDENING AND IMPROVEMENTS , A DISTANCE OF 0.480000 MILES.

LINE NO	BID CODE	DESCRIPTION	QUANTITY	UNIT
1001	00443	ENTRANCE PIPE-24 IN	64.00	LF
1002	01982	DELINEATOR FOR GUARDRAIL M/W	18.00	EACH
1003	02014	BARRICADE-TYPE III	1.00	EACH
1004	02159	TEMP DITCH	2,142.00	LF
1005	02160	CLEAN TEMP DITCH	4,284.00	LF
1006	02223	GRANULAR EMBANKMENT	105,431.00	CUYD
1007	02230	EMBANKMENT IN PLACE	118,320.00	CUYD
1008	02351	GUARDRAIL-STEEL W BEAM-S FACE	1,687.50	LF
1009	02367	GUARDRAIL END TREATMENT TYPE 1	2.00	EACH
1010	02369	GUARDRAIL END TREATMENT TYPE 2A	1.00	EACH
1011	02545	CLEARING AND GRUBBING (5.93 ACRES IN MARSHALL COUNTY)	1.00	LS
1012	02562	SIGNS	99.50	SQFT
1013	02596	FABRIC-GEOTEXTILE TYPE I	9,593.00	SQYD
1014	02598	FABRIC-GEOTEXTILE TYPE III	36,969.00	SQYD
1015	02599	FABRIC-GEOTEXTILE TYPE IV	20,355.00	SQYD
1016	02650	MAINTAIN & CONTROL TRAFFIC (MARSHALL COUNTY)	1.00	LS
1017	02653	LANE CLOSURE	1.00	EACH
1018	02701	TEMP SILT FENCE	4,284.00	LF
1019	02703	SILT TRAP TYPE A	10.00	EACH
1020	02704	SILT TRAP TYPE B	10.00	EACH
1021	02706	CLEAN SILT TRAP TYPE A	30.00	EACH
1022	02707	CLEAN SILT TRAP TYPE B	30.00	EACH
1023	02709	CLEAN TEMP SILT FENCE	8,568.00	LF
1024	02726	STAKING (MARSHALL COUNTY)	1.00	LS
1025	05950	EROSION CONTROL BLANKET	3,560.00	SQYD
1026	05952	TEMP MULCH	44,300.00	SQYD
1027	05953	TEMP SEEDING AND PROTECTION	44,300.00	SQYD
1028	05966	TOPDRESSING FERTILIZER	1.70	TON
1029	05985	SEEDING AND PROTECTION	32,625.00	SQYD
1030	08019	CYCLOPEAN STONE RIP RAP	25,991.00	TON
1031	08020	CRUSHED AGGREGATE SLOPE PROT	130.00	TON
1032	20209EP69	GRANULAR PILE CORE	2,399.00	CUYD
1033	24553ED	TELLTALE SURVEYING	8.00	EACH
1034	24554ED	WET SOIL MIXING	42,550.00	CUYD
2008	02231	STRUCTURE GRANULAR BACKFILL	640.00	CUYD
2009	02998	MASONRY COATING	2,472.00	SQYD
2012	03299	ARMORED EDGE FOR CONCRETE	129.00	LF
2005	08001	STRUCTURE EXCAVATION-COMMON	851.00	CUYD
2014	08033	TEST PILES (HP 18 X 157)	485.00	LF
2016	08033	TEST PILES (30 IN PILE)	475.00	LF
2026	08039	PRE-DRILLING FOR PILES (30 IN PIPE PILE)	1,002.00	LF
2025	08039	PRE-DRILLING FOR PILES (HB 18 X 157)	1,043.00	LF
2019	08040	LOADING TESTS (STATIC HP 18 X 157)	1.00	EACH
2020	08040	LOADING TESTS	1.00	EACH

MATERIAL SUMMARY CONTRACT ID: 121354

		(STATIC 30 IN PIPE PILE)		
2001	08100	CONCRETE-CLASS A	724.00	CUYD
2002	08104	CONCRETE-CLASS AA	1,400.00	CUYD
2003	08150	STEEL REINFORCEMENT	127,819.00	LB
2004	08151	STEEL REINFORCEMENT-EPOXY COATED	428,248.00	LB
2010	08160	STRUCTURAL STEEL	1.00	LS
		(1,565,339 LBS)		
2011	08170	SHEAR CONNECTORS	1.00	LS
		(10,332 LBS)		
2006	08500	APPROACH SLAB	358.00	SQYD
2017	23233EC	DYNAMIC PILE TESTING	10.00	EACH
		(ON LAND INITIAL)		
2018	23233EC	DYNAMIC PILE TESTING	14.00	EACH
		(ON LAND RESTRIKE)		
2029	23699EC	STEEL ENCASEMENT PIPE-30 IN	100.00	LF
2007	24532ED	EXPANSION DAM-3 1/2 IN NEOPRENE	129.00	LF
2013	24533ED	PILES-STEEL HP18X157	1,155.00	LF
2015	24534ED	PIPE PILE-30"	1,510.00	LF
2023	24535ED	PILE PREPROBING	794.00	LF
		(HP 18 X 157)		
2024	24535ED	PILE PREPROBING	765.00	LF
		(30 IN PIPE PILE)		
2027	24536ED	PILE POINTS-18"	19.00	EACH
2028	24537ED	OPEN END INSIDE FIT CUTTING SHOE-30"	25.00	EACH
2030	24538ED	RAIL SYSTEM TYPE 11	1,268.00	LF
2022	24544EC	REMOVE	500.00	LF
		(SOIL PLUG 30 IN PIPE PILES)		
2021	24545EC	BACKFILL	141.00	TON
		(PIPE PILE)		
3007	08033	TEST PILES	150.00	LF
		(INSTALL-48 IN PIPE-1 IN)		
3010	08033	TEST PILES	150.00	LF
		(INSTALL-72 IN PIPE-2 IN)		
3009	08033	TEST PILES	150.00	LF
		(INSTALL-72 IN PIPE-1.5 IN)		
3008	08033	TEST PILES	300.00	LF
		(INSTALL-48 IN PIPE-1.5 IN)		
3002	08033	TEST PILES	185.00	LF
		(FURNISH-48 IN PIPE-1 IN)		
3003	08033	TEST PILES	370.00	LF
		(FURNISH-48 IN PIPE-1.5 IN)		
3004	08033	TEST PILES	185.00	LF
		(FURNISH-72 IN PIPE-1.5 IN)		
3005	08033	TEST PILES	185.00	LF
		(FURNISH-72 IN PIPE-2 IN)		
3019	08040	LOADING TESTS	1.00	EACH
		(STATIC-48 IN PIPE)		
3018	23233EC	DYNAMIC PILE TESTING	20.00	EACH
		(ON WATER-RESTRIKE)		
3017	23233EC	DYNAMIC PILE TESTING	15.00	EACH
		(ON WATER-INITIAL)		
3001	24548EC	FURNISH EQUIPMENT FOR PILE TEST PROGRA	1.00	LS
		(MARSHALL COUNTY)		
3022	24549EC	PSEUDO-STATIC LOAD TEST	1.00	EACH
		(LATERAL-72 IN PIPE)		
3021	24549EC	PSEUDO-STATIC LOAD TEST	1.00	EACH
		(AXIAL-72 IN PIPE)		
3020	24549EC	PSEUDO-STATIC LOAD TEST	1.00	EACH
		(AXIAL-48 IN PIPE)		
3023	24550EC	VIBRATION MONITORING	1.00	LS
		(MARSHALL COUNTY)		
3012	24552EC	SPLICE TEST PILE	1.00	EACH
		(48 IN PIPE-1 IN)		
3013	24552EC	SPLICE TEST PILE	4.00	EACH
		(48 IN PIPE-1.5 IN)		
3014	24552EC	SPLICE TEST PILE	1.00	EACH
		(72 IN PIPE-1.5 IN)		
3015	24552EC	SPLICE TEST PILE	3.00	EACH
		(72 IN PIPE-2 IN)		
4001	02568	MOBILIZATION	1.00	LS
4002	02569	DEMOBILIZATION	1.00	LS
4004	02742	TRAINEE PAYMENT REIMBURSEMENT	1,600.00	HOUR
		1 EQUIPMENT OPERATOR GROUP 1		
4003	02742	TRAINEE PAYMENT REIMBURSEMENT	1,400.00	HOUR

BRO 0801 (093) PES NO: DE11100681254
CADIZ-AURORA ROAD (US 68-KY 80) BRIDGE OVER LAGOON WEST OF KY LAKE AND KY LAKE CAUSEWAY RECONSTRUCT, WIDENING AND IMPROVEMENTS , A DISTANCE OF 0.480000 MILES.

LINE NO	BID CODE	DESCRIPTION	QUANTITY	UNIT
1002	01982	DELINEATOR FOR GUARDRAIL M/W	15.00	EACH
1004	02159	TEMP DITCH	948.00	LF
1005	02160	CLEAN TEMP DITCH	1,896.00	LF
1006	02223	GRANULAR EMBANKMENT	50,504.00	CUYD
1007	02230	EMBANKMENT IN PLACE	53,948.00	CUYD
1008	02351	GUARDRAIL-STEEL W BEAM-S FACE	1,462.50	LF
1009	02391	GUARDRAIL END TREATMENT TYPE 4A	1.00	EACH
1011	02545	CLEARING AND GRUBBING (2.72 ACRES IN TRIGG COUNTY)	1.00	LS
1012	02562	SIGNS	89.50	SQFT
1013	02596	FABRIC-GEOTEXTILE TYPE I	5,192.00	SQYD
1014	02598	FABRIC-GEOTEXTILE TYPE III	18,207.00	SQYD
1015	02599	FABRIC-GEOTEXTILE TYPE IV	10,276.00	SQYD
1016	02650	MAINTAIN & CONTROL TRAFFIC (TRIGG COUNTY)	1.00	LS
1017	02653	LANE CLOSURE	1.00	EACH
1018	02701	TEMP SILT FENCE	1,896.00	LF
1019	02703	SILT TRAP TYPE A	4.00	EACH
1020	02704	SILT TRAP TYPE B	4.00	EACH
1021	02706	CLEAN SILT TRAP TYPE A	12.00	EACH
1022	02707	CLEAN SILT TRAP TYPE B	12.00	EACH
1023	02709	CLEAN TEMP SILT FENCE	3,792.00	LF
1024	02726	STAKING (TRIGG COUNTY)	1.00	LS
1025	05950	EROSION CONTROL BLANKET	1,229.00	SQYD
1026	05952	TEMP MULCH	19,503.00	SQYD
1027	05953	TEMP SEEDING AND PROTECTION	19,503.00	SQYD
1028	05966	TOPDRESSING FERTILIZER	0.70	TON
1029	05985	SEEDING AND PROTECTION	13,636.00	SQYD
1030	08019	CYCLOPEAN STONE RIP RAP	12,034.00	TON
1032	20209EP69	GRANULAR PILE CORE	1,266.00	CUYD
1033	24553ED	TELLTALE SURVEYING	7.00	EACH
1034	24554ED	WET SOIL MIXING	14,950.00	CUYD
3011	08033	TEST PILES (INSTALL-96 IN PIPE-2 IN)	120.00	LF
3010	08033	TEST PILES (INSTALL-72 IN PIPE-2 IN)	120.00	LF
3006	08033	TEST PILES (FURNISH-96 IN PIPE-2 IN)	210.00	LF
3005	08033	TEST PILES (FURNISH-72 IN PIPE-2 IN)	210.00	LF
3018	23233EC	DYNAMIC PILE TESTING (ON WATER-RESTRIKE)	8.00	EACH
3017	23233EC	DYNAMIC PILE TESTING (ON WATER-INITIAL)	6.00	EACH
3001	24548EC	FURNISH EQUIPMENT FOR PILE TEST PROGRA (TRIGG COUNTY)	1.00	LS
3023	24550EC	VIBRATION MONITORING (TRIGG COUNTY)	1.00	LS
3015	24552EC	SPLICE TEST PILE (72 IN PIPE-2 IN)	1.00	EACH
3016	24552EC	SPLICE TEST PILE (96 IN PIPE-2 IN)	1.00	EACH
4001	02568	MOBILIZATION	1.00	LS
4002	02569	DEMOBILIZATION	1.00	LS

SPECIAL NOTE
FOR
MANDATORY PRE-BID MEETING
DISTRICT 1
Marshall-Trigg Counties
US 68 Over Tennessee River
FD52 079 0068 027-028/FD52 111 0068 000-001

The Department of Highways will conduct a Mandatory Pre-Bid Meeting and field review for the subject project. The project consists of the construction of the structure over the lagoon west of Kentucky Lake and the widening of the existing Kentucky Lake causeways. The project will also include pile load testing for both constructability and performance purposes at the Lagoon Bridge, Kentucky Lake Bridge Shallow Water Test Area, and Kentucky Lake Bridge Deep Water Test Area. Additionally, the project will include ground improvement consisting of Wet Soil Mixing. This project does not include the basket handle tied-arch span and associated approach spans. The Pre-Bid Meeting is scheduled for October 4, 2012 at 10:00 a.m. Central Daylight Time.

Department of Highways,
District One Office
5501 Kentucky Dam Road
Paducah, KY 42003
Phone: (270) 898-2431

Any company that is interested in bidding on the subject project or being part of a joint venture must be represented at the Pre-Bid Meeting and field review by at least one person of sufficient authority to bind the company. No individual can represent more than one company. At the meeting a roster will be taken of the representatives present. Only companies represented at the meeting will be eligible to have their bids opened at the date of the letting.

During the field review, the company representatives and the Department of Highways officials will travel to the project site. The field review is not intended for bid estimation. The contractor shall be required to furnish approved High Visibility Apparel for all of their representatives present at the field review.

The purpose of the meeting and field review is to familiarize all prospective bidders with the contract requirements.

Department of Highways officials will be present at the meeting to answer questions concerning the project.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2012* and *Standard Drawings, Edition of 2012 with the 2012 Revision.*

Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 2012 Edition

(Effective with the August 17, 2012 Letting)

Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilites.
Number:	4) Density.
Revision:	Replace the second sentence of the Option A paragraph with the following: Perform coring by the end of the following work day.
Subsection:	606.03.17 Special Requirements for Latex Concrete Overlays.
Part:	A) Existing Bridges and New Structures.
Number:	1) Prewetting and Grout-Bond Coat.
Revision:	Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection:	609.03 Construction.
Revision:	Replace Subsection 609.03.01 with the following: 609.03.01 A) Swinging the Spans. Before placing concrete slabs on steel spans or precast concrete release the temporary erection supports under the bridge and swing the span free on its supports. 609.03.01 B) Lift Loops. Cut all lift loops flush with the top of the precast beam once the beam is placed in the final location and prior to placing steel reinforcement. At locations where lift loops are cut, paint the top of the beam with galvanized or epoxy paint.

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

EMPLOYMENT REQUIREMENTS
RELATING TO
NONDISCRIMINATION OF EMPLOYEES
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)

AN ACT OF THE KENTUCKY GENERAL ASSEMBLY TO PREVENT DISCRIMINATION IN EMPLOYMENT

KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy). The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age (between forty and seventy), in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

REVISED: 12-3-92

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

> KRS 11A.040 (6) provides:
>
> No present or former public servant shall, within six (6) months of following termination of his office or employment, accept employment, compensation or other economic benefit from any person or business that contracts or does business with the state in matters in which he was directly involved during his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved in state government. This subsection shall not prohibit the performance of ministerial functions, including, but not limited to, filing tax returns, filing applications for permits or licenses, or filing incorporation papers.
>
> KRS 11A.040 (8) states:
>
> A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, for a period of one (1) year after the latter of:
> a) The date of leaving office or termination of employment; or
> b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled ``Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under these special provisions and in this contract is shown in “Special Notes Applicable to Project” in the bid proposal.

In the event that a contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction the contractor shall submit to the Kentucky Transportation Cabinet, Department of Highways for its approval, an acceptable training program on forms provided by the Cabinet indicating the number of trainees to be trained in each selected classification. Failure to provide the Cabinet with the proper documentation evidencing an acceptable training program prior to commencing construction shall cause the Cabinet to suspend the operations of the contractor with (if applicable) working days being charged as usual against the contract time or (if applicable), no additional contract time being granted for the suspension period. The Cabinet will not be liable for the payment of any work performed during the suspension period due to the failure of the contractor to provide an acceptable training program. Said suspension period shall be terminated when an acceptable training program is received by the Cabinet. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case. The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Kentucky Transportation Cabinet, Department of Highways and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed for each hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

1-1-93

General Decision Number: KY120127 09/28/2012 KY127

Superseded General Decision Number: KY20100214

State: Kentucky

Construction Type: Highway

Counties: Allen, Ballard, Butler, Caldwell, Calloway, Carlisle, Christian, Crittenden, Daviess, Edmonson, Fulton, Graves, Hancock, Henderson, Hickman, Hopkins, Livingston, Logan, Lyon, Marshall, McCracken, McLean, Muhlenberg, Ohio, Simpson, Todd, Trigg, Union, Warren and Webster Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number	Publication Date
0	01/06/2012
1	01/13/2012
2	02/10/2012
3	05/18/2012
4	05/25/2012
5	06/01/2012
6	06/15/2012
7	07/06/2012
8	07/13/2012
9	07/20/2012
10	08/03/2012
11	08/10/2012
12	08/24/2012
13	08/31/2012
14	09/28/2012

BRIN0004-002 06/01/2011

BALLARD, BUTLER, CALDWELL, CARLISLE, CRITTENDEN, DAVIESS, EDMONSON, FULTON, GRAVES, HANCOCK, HENDERSON, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN, MCLEAN, MUHLENBERG, OHIO, UNION, and WEBSTER COUNTIES

	Rates	Fringes
BRICKLAYER		
Ballard, Caldwell, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, and McCracken Counties	$ 24.11	10.30
Butler, Edmonson, Hopkins, Muhlenberg, and Ohio Counties	$ 24.61	10.22

Daviess, Hancock,
Henderson, McLean, Union,
and Webster Counties.....$ 28.47 12.78

BRTN0004-005 05/01/2009

ALLEN, CALLOWAY, CHRISTIAN, LOGAN, SIMPSON, TODD, TRIGG, and WARREN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 24.52	1.83

CARP0357-002 07/01/2012

	Rates	Fringes
CARPENTER	$ 26.40	13.91
Diver	$ 39.98	13.91
PILEDRIVERMAN	$ 26.65	13.91

ELEC0369-006 05/30/2012

BUTLER, EDMONSON, LOGAN, TODD & WARREN COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 29.32	13.78

ELEC0429-001 02/01/2010

ALLEN & SIMPSON COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 21.85	10.35

ELEC0816-002 06/01/2011

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON (Except a 5 mile radius of City Hall in Fulton), GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 29.47	25.5%+5.35

Cable spicers receive $.25 per hour additional.

ELEC1701-003 06/01/2012

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO, UNION & WEBSTER COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 29.52	13.66

Cable spicers receive $.25 per hour additional.

ELEC1925-002 06/01/2012

FULTON COUNTY (Up to a 5 mile radius of City Hall in Fulton):

	Rates	Fringes
CABLE SPLICER	$ 25.00	10.27
ELECTRICIAN	$ 25.00	10.43

ENGI0181-017 07/01/2012

	Rates	Fringes
Operating Engineer:		
GROUP 1	$ 27.35	13.40
GROUP 2	$ 24.87	13.40
GROUP 3	$ 25.26	13.40
GROUP 4	$ 24.60	13.40

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - A-Frame Winch Truck; Auto Patrol; Backfiller; Batcher Plant; Bituminous Paver; Bituminous Transfer Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-All Scoop; Carry Deck Crane; Central Compressor Plant; Cherry Picker; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching & Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Overhead Crane; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Rough Terrain Crane; Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment

GROUP 2 - Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft.); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (When used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Conrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher;

Tractor (50 H.P. or Over); Truck Crane Oiler; Tugger; Welding Machine; Well Points;& Whirley Oiler

GROUP 3 -All Off Road Material Handling Equipment, including Articulating Dump Trucks; Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4 - Bituminous Distributor; Burlap & Curing Machine; Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler; Paving Joint Machine; Power Form Handling Equipment; Pump; Roller (Earth); Steerman; Tamping Machine; Tractor (Under 50 H.P.); & Vibrator

CRANES - with booms 150 ft. & Over (Including JIB), and where the length of the boom in combination with the length of the piling equals or exceeds 150 ft. - $1.00 above Group 1 rate

EMPLOYEES ASSIGNED TO WORK BELOW GROUND LEVEL ARE TO BE PAID 10% ABOVE BASIC WAGE RATE. THIS DOES NOT APPLY TO OPEN CUT WORK.

IRON0070-005 06/01/2012

BUTLER COUNTY (Eastern eighth, including the Townships of Decker, Lee & Tilford);
EDMONSON COUNTY (Northern three-fourths, including the Townships of Asphalt, Bee Spring, Brownsville, Grassland, Huff, Kyrock, Lindseyville, Mammoth Cave, Ollie, Prosperity, Rhoda, Sunfish & Sweden)

	Rates	Fringes
Ironworkers: Structural; Ornamental; Reinforcing; Precast Concrete Erectors	$ 26.34	18.58

IRON0103-004 04/01/2011

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, OHIO, UNION & WEBSTER COUNTIES
BUTLER COUNTY (Townships of Aberdeen, Bancock, Casey, Dexterville, Dunbar, Elfie, Gilstrap, Huntsville, Logansport, Monford, Morgantown, Provo, Rochester, South Hill & Welchs Creek);
CALDWELL COUNTY (Northeastern third, including the Township of Creswell);
CHRISTIAN COUNTY (Northern third, including the Townships of Apex, Crofton, Kelly, Mannington & Wynns);
CRITTENDEN COUNTY (Northeastern half, including the Townships of Grove, Mattoon, Repton, Shady Grove & Tribune);
MUHLENBERG COUNTY (Townships of Bavier, Beech Creek Junction, Benton, Brennen, Browder, Central City, Cleaton, Depoy, Drakesboro, Eunis, Graham, Hillside, Luzerne, Lynn City, Martwick, McNary, Millport, Moorman, Nelson, Paradise, Powderly, South Carrollton, Tarina & Weir)

	Rates	Fringes
Ironworkers:	$ 28.25	14.475

IRON0492-003 05/01/2012

ALLEN, LOGAN, SIMPSON, TODD & WARREN COUNTIES
BUTLER COUNTY (Southern third, including the Townships of Boston, Berrys Lick, Dimple, Jetson, Quality, Sharer, Sugar Grove & Woodbury);
CHRISTIAN COUNTY (Eastern two-thirds, including the Townships of Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
EDMONSON COUNTY (Southern fourth, including the Townships of Chalybeate & Rocky Hill);
MUHLENBERG COUNTY (Southern eighth, including the Townships of Dunnior, Penrod & Rosewood)

	Rates	Fringes
Ironworkers:	$ 23.00	10.70

IRON0782-006 05/01/2012

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES
CALDWELL COUNTY (Southwestern two-thirds, including the Townships of Cedar Bluff, Cider, Claxton, Cobb, Crowtown, Dulaney, Farmersville, Fredonia, McGowan, Otter Pond & Princeton);
CHRISTIAN COUNTY (Western third, Excluding the Townships of Apex, Crofton, Kelly, Mannington, Wynns, Bennettstown, Casky, Herndon, Hopkinsville, Howell, Masonville, Pembroke & Thompsonville);
CRITTENDEN COUNTY (Southwestern half, including the Townships of Crayne, Dycusburg, Frances, Marion, Mexico, Midway, Sheridan & Told)

	Rates	Fringes
Ironworkers:		
Projects with a total contract cost of $20,000,000.00 or above	$ 26.00	18.91
All Other Work	$ 24.66	17.65

LABO0189-005 07/01/2012

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL & MCCRACKEN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 20.75	11.81
GROUP 2	$ 21.00	11.81

GROUP 3	$ 21.05	11.81
GROUP 4	$ 21.65	11.81

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

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LABO0189-006 07/01/2012

ALLEN, BUTLER, CALDWELL, CHRISTIAN, DAVIESS, EDMONSON, HANCOCK, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, SIMPSON, TODD, TRIGG & WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 21.96	10.60
GROUP 2	$ 22.21	10.60
GROUP 3	$ 22.26	10.60
GROUP 4	$ 22.86	10.60

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

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LABO0561-001 07/01/2012

CRITTENDEN, HENDERSON, UNION & WEBSTER COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 20.86	11.70
GROUP 2	$ 21.11	11.70
GROUP 3	$ 21.16	11.70
GROUP 4	$ 21.76	11.70

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail

& Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

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PAIN0032-002 05/01/2012

BALLARD COUNTY

	Rates	Fringes
Painters:		
Bridges	$ 30.56	14.20
All Other Work	$ 28.26	14.20

Spray, Blast, Steam, High & Hazardous (Including Lead Abatement) and All Epoxy - $1.00 Premium

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PAIN0118-003 05/01/2010

EDMONSON COUNTY:

	Rates	Fringes
Painters:		
Brush & Roller	$ 18.50	10.30
Spray, Sandblast, Power Tools, Waterblast & Steam Cleaning	$ 19.50	10.30

PAIN0156-006 04/01/2010

DAVIESS, HANCOCK, HENDERSON, MCLEAN, OHIO, UNION & WEBSTER COUNTIES

	Rates	Fringes
Painters:		
BRIDGES		
GROUP 1	$ 25.60	10.05
GROUP 2	$ 25.85	10.05
GROUP 3	$ 26.60	10.05
GROUP 4	$ 27.60	10.05
ALL OTHER WORK:		
GROUP 1	$ 25.60	11.30
GROUP 2	$ 25.85	11.30
GROUP 3	$ 26.60	11.30
GROUP 4	$ 27.60	11.30

PAINTER CLASSIFICATIONS

GROUP 1 - Brush & Roller

GROUP 2 - Plasterers

GROUP 3 - Spray; Sandblast; Power Tools; Waterblast; Steamcleaning; Brush & Roller of Mastics, Creosotes, Kwinch Koate & Coal Tar Epoxy

GROUP 4 - Spray of Mastics, Creosotes, Kwinch Koate & Coal Tar Epoxy

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PAIN0456-003 07/01/2011

ALLEN, BUTLER, LOGAN, MUHLENBERG, SIMPSON, TODD & WARREN COUNTIES:

	Rates	Fringes
Painters:		
BRIDGES		
Brush & Roller	$ 22.55	9.65
Spray; Sandblast; Power Tools; Waterblast & Steam Cleaning	$ 23.55	9.65
ALL OTHER WORK		
Brush & Roller	$ 17.55	9.65
Spray; Sandblast; Power Tools; Waterblast & Steam Cleaning	$ 18.55	9.65

ALL OTHER WORK - HIGH TIME PAY
Over 35 feet (up to 100 feet) - $1.00 above base wage
100 feet and over - $2.00 above base wage

DURING SPRAY PAINTING AND SANDBLASTING OPERATIONS, POT TENDERS SHALL RECEIVE THE SAME WAGE RATES AS THE SPRAY PAINTER OR NOZZLE OPERATOR

PAIN0500-002 07/01/2012

CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN

& TRIGG COUNTIES:

	Rates	Fringes
Painters:		
Bridges	$ 25.25	11.90
All Other Work	$ 19.00	11.90

Waterblasting units with 3500 PSI and above - $.50 premium
Spraypainting and all abrasive blasting - $1.00 premium
Work 40 ft. and above ground level - $1.00 premium

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* PLUM0184-002 07/01/2012

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN and TRIGG COUNTIES

	Rates	Fringes
Plumber; Steamfitter	$ 32.31	14.43

PLUM0502-004 08/01/2011

ALLEN, BUTLER, EDMONSON, SIMPSON & WARREN

	Rates	Fringes
Plumber; Steamfitter	$ 31.00	16.13

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* PLUM0633-002 07/01/2012

DAVIESS, HANCOCK, HENDERSON, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, TODD, UNION & WEBSTER COUNTIES:

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 29.42	13.50

TEAM0089-003 04/01/2012

Zone 1: ALLEN, BUTLER, EDMONSON, LOGAN, SIMPSON, & WARREN COUNTIES
Zone 2: BALLARD, CALLOWAY, CALDWELL, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN, TODD, & TRIGG COUNTIES
Zone 3: DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO, & WEBSTER COUNTIES

	Rates	Fringes
Truck drivers:		
Zone 1:		
Group 1	$ 19.38	16.15
Group 2	$ 19.56	16.15
Group 3	$ 19.64	16.15

Group 4	$ 19.66	16.15
Zone 2:		
Group 1	$ 19.38	16.15
Group 2	$ 19.56	16.15
Group 3	$ 19.56	16.15
Group 4	$ 19.66	16.15
Group 5	$ 19.64	16.15
Zone 3:		
Group 1	$ 19.38	16.15
Group 2	$ 19.56	16.15
Group 3	$ 19.56	16.15
Group 4	$ 19.66	16.15

TRUCK DRIVER CLASSIFICATIONS FOR ZONE 1:

GROUP 1 - Greaser; Tire Changer

GROUP 2 - Truck Mechanic; Single Axle Dump; Flat Bed; All Terrain Vehicles when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors

GROUP 3 - Mixer All Types

GROUP 4 - Winch and A-Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker; Euclid and Other Heavy Earth Moving Equipment; Low Boy; Articulator Cat; Five Axle Vehicle

TRUCK DRIVER CLASSIFICATIONS FOR ZONE 2:

GROUP 1 - Greaser; Tire Changer

GROUP 2 - Truck Mechanic

GROUP 3 - Single Axle Dump; Flat Bed; all Terrain Vehicles when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors

GROUP 4 - Euclid and Other Heavy Earth Moving Equipment; Low Boy; Articulator Cat; Five Axle Vehicle; Winch and A-Frame when used in transporting materials; Ross Carrier

GROUP 5 - Mixer All Types

TRUCK DRIVER CLASSIFICATIONS FOR ZONE 3:

GROUP 1 - Greaser, Tire Changer

GROUP 2 - Truck Mechanic

GROUP 3 - Single Axle Dump; Flat Bed; all Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors; Mixer All Types

GROUP 4 - Euclid and Other Heavy Earth moving Equipment; Lowboy; Articulator Cat; 5 Axle Vehicle; Winch and A-Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may

include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

These rates are listed pursuant to the Kentucky Determination No. CR-III-I-HWY dated September 5, 2012.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Ryan Griffith, Director
Division of Construction Procurement
Frankfort, Kentucky 40622

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
5.2%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Marshall County.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
12.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Trigg County.

PART IV

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

1) Commercial General Liability-Occurrence form – not less than $2,000,000 General aggregate, $2,000,000 Products & Completed Aggregate, $1,000,000 Personal & Advertising, $1,000,000 each occurrence.

2) Automobile Liability- $1,000,000 per accident

3) Employers Liability:

   a) $100,000 Each Accident Bodily Injury
   b) $500,000 Policy limit Bodily Injury by Disease
   c) $100,000 Each Employee Bodily Injury by Disease

4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
   a) "policy contains no deductible clauses."
   b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
FRANKFORT, KY 40622

CONTRACT ID: 121354 PAGE: 1
COUNTY: MARSHALL, TRIGG LETTING: 10/19/12
PROPOSAL: 121GR12D054-BRO CALL NO: 206

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
	SECTION 0001	ROADWAY			
0010	00443	ENTRANCE PIPE-24 IN	64.000 LF		
0020	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONA	WHITE 33.000 EACH		
0030	02014	BARRICADE-TYPE III	1.000 EACH		
0040	02159	TEMP DITCH	3,090.000 LF		
0050	02160	CLEAN TEMP DITCH	6,180.000 LF		
0060	02223	GRANULAR EMBANKMENT	155,935.000 CUYD		
0070	02230	EMBANKMENT IN PLACE	172,268.000 CUYD		
0080	02351	GUARDRAIL-STEEL W BEAM-S FACE	3,150.000 LF		
0090	02367	GUARDRAIL END TREATMENT TYPE 1	2.000 EACH		
0100	02369	GUARDRAIL END TREATMENT TYPE 2A	1.000 EACH		
0110	02391	GUARDRAIL END TREATMENT TYPE 4A	1.000 EACH		
0120	02545	CLEARING AND GRUBBING (2.72 ACRES IN TRIGG COUNTY)	(1.00) LS		
0130	02545	CLEARING AND GRUBBING (5.93 ACRES IN MARSHALL COUNTY)	(1.00) LS		
0140	02562	SIGNS	189.000 SQFT		
0150	02596	FABRIC-GEOTEXTILE TYPE I	14,785.000 SQYD		
0160	02598	FABRIC-GEOTEXTILE TYPE III	55,176.000 SQYD		
0170	02599	FABRIC-GEOTEXTILE TYPE IV	30,631.000 SQYD		
0180	02650	MAINTAIN & CONTROL TRAFFIC (MARSHALL COUNTY)	(1.00) LS		
0190	02650	MAINTAIN & CONTROL TRAFFIC (TRIGG COUNTY)	(1.00) LS		
0200	02653	LANE CLOSURE	2.000 EACH		

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
FRANKFORT, KY 40622

CONTRACT ID: 121354 PAGE: 2
COUNTY: MARSHALL, TRIGG LETTING: 10/19/12
PROPOSAL: 121GR12D054-BRO CALL NO: 206

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0210	02701	TEMP SILT FENCE	6,180.000	LF		
0220	02703	SILT TRAP TYPE A	14.000	EACH		
0230	02704	SILT TRAP TYPE B	14.000	EACH		
0240	02706	CLEAN SILT TRAP TYPE A	42.000	EACH		
0250	02707	CLEAN SILT TRAP TYPE B	42.000	EACH		
0260	02709	CLEAN TEMP SILT FENCE	12,360.000	LF		
0270	02726	STAKING (MARSHALL COUNTY)	(1.00)	LS		
0280	02726	STAKING (TRIGG COUNTY)	(1.00)	LS		
0290	05950	EROSION CONTROL BLANKET	4,789.000	SQYD		
0300	05952	TEMP MULCH	63,803.000	SQYD		
0310	05953	TEMP SEEDING AND PROTECTION	63,803.000	SQYD		
0320	05966	TOPDRESSING FERTILIZER	2.400	TON		
0330	05985	SEEDING AND PROTECTION	46,261.000	SQYD		
0340	08019	CYCLOPEAN STONE RIP RAP	38,025.000	TON		
0350	08020	CRUSHED AGGREGATE SLOPE PROT	130.000	TON		
0360	20209EP69	GRANULAR PILE CORE	3,665.000	CUYD		
0370	24553ED	TELLTALE SURVEYING	15.000	EACH		
0380	24554ED	WET SOIL MIXING	57,500.000	CUYD		
	SECTION 0002	BRIDGE				
0390	02231	STRUCTURE GRANULAR BACKFILL	640.000	CUYD		
0400	02998	MASONRY COATING	2,472.000	SQYD		

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
FRANKFORT, KY 40622

CONTRACT ID: 121354 PAGE: 3
COUNTY: MARSHALL, TRIGG LETTING: 10/19/12
PROPOSAL: 121GR12D054-BRO CALL NO: 206

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0410	03299	ARMORED EDGE FOR CONCRETE	129.000	LF		
0420	08001	STRUCTURE EXCAVATION-COMMON	851.000	CUYD		
0430	08033	TEST PILES (30 IN PILE)	475.000	LF		
0440	08033	TEST PILES (HP 18 X 157)	485.000	LF		
0450	08039	PRE-DRILLING FOR PILES (30 IN PIPE PILE)	1,002.000	LF		
0460	08039	PRE-DRILLING FOR PILES (HB 18 X 157)	1,043.000	LF		
0470	08040	LOADING TESTS (STATIC 30 IN PIPE PILE)	1.000	EACH		
0480	08040	LOADING TESTS (STATIC HP 18 X 157)	1.000	EACH		
0490	08100	CONCRETE-CLASS A	724.000	CUYD		
0500	08104	CONCRETE-CLASS AA	1,400.000	CUYD		
0510	08150	STEEL REINFORCEMENT	127,819.000	LB		
0520	08151	STEEL REINFORCEMENT-EPOXY COATED	428,248.000	LB		
0530	08160	STRUCTURAL STEEL (1,565,339 LBS)	(1.00)	LS		
0540	08170	SHEAR CONNECTORS (10,332 LBS)	(1.00)	LS		
0550	08500	APPROACH SLAB	358.000	SQYD		
0560	23233EC	DYNAMIC PILE TESTING (ON LAND INITIAL)	10.000	EACH		
0570	23233EC	DYNAMIC PILE TESTING (ON LAND RESTRIKE)	14.000	EACH		
0580	23699EC	STEEL ENCASEMENT PIPE-30 IN	100.000	LF		
0590	24532ED	EXPANSION DAM-3 1/2 IN NEOPRENE	129.000	LF		
0600	24533ED	PILES-STEEL HP18X157	1,155.000	LF		
0610	24534ED	PIPE PILE-30"	1,510.000	LF		

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0620	24535ED	PILE PREPROBING (30 IN PIPE PILE)	765.000	LF		
0630	24535ED	PILE PREPROBING (HP 18 X 157)	794.000	LF		
0640	24536ED	PILE POINTS-18"	19.000	EACH		
0650	24537ED	OPEN END INSIDE FIT CUTTING SHOE-30"	25.000	EACH		
0660	24538ED	RAIL SYSTEM TYPE 11	1,268.000	LF		
0670	24544EC	REMOVE (SOIL PLUG 30 IN PIPE PILES)	500.000	LF		
0680	24545EC	BACKFILL (PIPE PILE)	141.000	TON		
	SECTION 0003	PILE LOAD TESTING				
0690	08033	TEST PILES (FURNISH-48 IN PIPE-1 IN)	185.000	LF		
0700	08033	TEST PILES (FURNISH-48 IN PIPE-1.5 IN)	370.000	LF		
0710	08033	TEST PILES (FURNISH-72 IN PIPE-1.5 IN)	185.000	LF		
0720	08033	TEST PILES (FURNISH-72 IN PIPE-2 IN)	395.000	LF		
0730	08033	TEST PILES (FURNISH-96 IN PIPE-2 IN)	210.000	LF		
0740	08033	TEST PILES (INSTALL-48 IN PIPE-1 IN)	150.000	LF		
0750	08033	TEST PILES (INSTALL-48 IN PIPE-1.5 IN)	300.000	LF		
0760	08033	TEST PILES (INSTALL-72 IN PIPE-1.5 IN)	150.000	LF		
0770	08033	TEST PILES (INSTALL-72 IN PIPE-2 IN)	270.000	LF		
0780	08033	TEST PILES (INSTALL-96 IN PIPE-2 IN)	120.000	LF		
0790	08040	LOADING TESTS (STATIC-48 IN PIPE)	1.000	EACH		
0800	23233EC	DYNAMIC PILE TESTING (ON WATER-INITIAL)	21.000	EACH		
0810	23233EC	DYNAMIC PILE TESTING (ON WATER-RESTRIKE)	28.000	EACH		

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CONTRACT ID: 121354 PAGE: 5
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LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
0820	24548EC	FURNISH EQUIPMENT FOR PILE TEST PROGRAM (MARSHALL COUNTY)	(1.00) LS		
0830	24548EC	FURNISH EQUIPMENT FOR PILE TEST PROGRAM (TRIGG COUNTY)	(1.00) LS		
0840	24549EC	PSEUDO-STATIC LOAD TEST (AXIAL-48 IN PIPE)	1.000 EACH		
0850	24549EC	PSEUDO-STATIC LOAD TEST (AXIAL-72 IN PIPE)	1.000 EACH		
0860	24549EC	PSEUDO-STATIC LOAD TEST (LATERAL-72 IN PIPE)	1.000 EACH		
0870	24550EC	VIBRATION MONITORING (MARSHALL COUNTY)	(1.00) LS		
0880	24550EC	VIBRATION MONITORING (TRIGG COUNTY)	(1.00) LS		
0890	24552EC	SPLICE TEST PILE (48 IN PIPE-1 IN)	1.000 EACH		
0900	24552EC	SPLICE TEST PILE (48 IN PIPE-1.5 IN)	4.000 EACH		
0910	24552EC	SPLICE TEST PILE (72 IN PIPE-1.5 IN)	1.000 EACH		
0920	24552EC	SPLICE TEST PILE (72 IN PIPE-2 IN)	4.000 EACH		
0930	24552EC	SPLICE TEST PILE (96 IN PIPE-2 IN)	1.000 EACH		
	SECTION 0004	TRAINEES			
0940	02742	TRAINEE PAYMENT REIMBURSEMENT 1 EQUIPMENT OPERATOR GROUP 1	1,600.000 HOUR		
0950	02742	TRAINEE PAYMENT REIMBURSEMENT 1 IRONWORKER	1,400.000 HOUR		
	SECTION 0005	MOBILIZATION / DEMOBILIZATION			
0960	02568	MOBILIZATION (NO MORE THAN 5%)	LUMP		
0970	02569	DEMOBILIZATION (AT LEAST 1.5%)	LUMP		
		TOTAL BID			