CALL NO. 200

CONTRACT ID. 131212

MARSHALL - TRIGG COUNTIES

FED/STATE PROJECT NUMBER 121GR13D012 - NHPP 0801 (098)

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

WORK TYPE BRIDGE WITH GRADE, DRAIN & SURFACE

PRIMARY COMPLETION DATE 5/31/2016

LETTING DATE: December 20,2013

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME December 20,2013. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 8%

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

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SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 01

CONTRACT ID - 131212

121GR13D012 - NHPP 0801 (098)

COUNTY - MARSHALL

PCN - DE07900681312
FD52 079 0068 027-029

CADIZ-AURORA ROAD (US 68/KY 80) (MP 27.801) CADIZ-AURORA; BRIDGE OVER KENTUCKY LAKE. (MP 28.146), A DISTANCE OF 0.95 MILES.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 01-00180.70.

GEOGRAPHIC COORDINATES LATITUDE 36:46:21.00 LONGITUDE 88:07:18.00

COUNTY - TRIGG

PCN - DE11100681312
FD52 111 0068 000-001

CADIZ-AURORA ROAD (US 68/KY 80) (MP 0.00) CADIZ-AURORA; BRIDGE OVER KENTUCKY LAKE. (MP 0.378), A DISTANCE OF 0.95 MILES.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 01-00180.70.

GEOGRAPHIC COORDINATES LATITUDE 36:47:00.00 LONGITUDE 87:55:00.00

COMPLETION DATE(S):

COMPLETED BY 10/31/2015	SEE NOTE FOR SPECIFIED INTERMEDIATE MILESTONE
COMPLETED BY 05/31/2016	APPLIES TO ENTIRE CONTRACT
COMPLETED BY 02/28/2016	SEE NOTE FOR SPECIFIED INTERMEDIATE MILESTONE

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/construction-procurement)

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.

HARDWOOD REMOVAL RESTRICTIONS

The Kentucky Division of Forestry has imposed a quarantine in Anderson, Boone, Bourbon, Boyd, Boyle, Bracken, Campbell, Carroll, Fayette, Franklin, Gallatin, Garrard,

Grant, Greenup, Hardin, Harrison, Henry, Jefferson, Jessamine, Kenton, Oldham, Owen, Pendleton, Scott, Shelby, Trimble, and Woodford Counties to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the county of its origin. Chipping or burning on site is the preferred method of disposal.

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)

10/29/12

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.

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 WILL 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

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

DGA BASE

Unless otherwise noted, the Department estimates the rate of application for DGA Base to be 115 lbs/sy per inch of depth.

DGA BASE FOR SHOULDERS

Unless otherwise noted, the Department estimates the rate of application for DGA Base for Shoulders to be 115 lbs/sy per inch of depth. The Department will not measure necessary grading and/or shaping of existing shoulders prior to placing of DGA Base, but shall be incidental to the Contract unit price per ton for DGA Base.

Accept payment at the Contract unit price per ton as full compensation for all labor, materials, equipment, and incidentals for grading and/or shaping of existing shoulders and furnishing, placing, and compacting the DGA Base.

INCIDENTAL SURFACING

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

ASPHALT PAVEMENT RIDE QUALITY CATEGORY A

The Department will apply Pavement Rideability Requirements on this project in accordance with Section 410, Category A.

OPTION A

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

10-31-2013

Special Roadway Plan Notes

For

New Bridge and Approaches carrying US 68 and KY 80 over Kentucky Lake
Marshall/Trigg Counties
Item No 1-180.70

CONSTRUCTION NOISE

THE CONTRACTOR IS REQUIRED TO USE EQUIPMENT THAT IS OUTFITTED WITH DEVICES THAT RESTRICT THE TRANSMISSION OF NOISE AND TAKE OTHER MEASURES NECESSARY TO RESTRICT THE TRANSMISSION OF NOISE IN THE IMMEDIATE VICINITY OF THE PROJECT.

FIRE AND SPILL PREVENTION/CONTAINMENT

PRIOR TO THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A SPILL PREVENTION/CONTAINMENT PLAN AND A FIRE PREVENTION/CONTAINMENT PLAN TO THE U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE (USFS). THE SPILL PREVENTION PLAN SHALL INCLUDE MEASURES TO PREVENT OR CONTROL SPILLS OF FUELS, LUBRICANTS, OR ANY OTHER MATERIALS USED IN CONSTRUCTION FROM ENTERING KENTUCKY LAKE OR ITS TRIBUTARIES.

HERBICIDE USAGE

HERBICIDE USAGE WILL BE MINIMIZED. THE USFS REQUIRES THAT CONTRACTORS USE ONLY THOSE HERBICIDES APPROVED BY THE US EPA FOR USE IN AND AROUND WATER.

CLEARING AND GRUBBING

CLEARING AND GRUBBING WILL BE LIMITED TO THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. PRIOR TO ANY DISTURBANCE, THE ENGINEER AND CONTRACTOR WILL MEET AT THE PROJECT SITE TO DETERMINE WHICH VEGETATION WILL BE REMOVED IN ORDER TO MINIMIZE DISTURBANCE.

DO NOT ALLOW DEBRIS TO ENTER THE WATERS OF KENTUCKY LAKE. DEBRIS THAT DOES ENTER THE WATERS OF KENTUCKY LAKE WILL BE REMOVED BY THE CONTRACTOR IMMEDIATELY.

INVASIVE PLANT SPECIES CONTAINMENT PLAN

THE CONTRACTOR WILL WORK WITH KYTC AND THE USFS TO MINIMIZE OR ELIMINATE THE SPREAD OF INVASIVE AND NOXIOUS WEEDS. BY ITS NATURE EARTH MOVING ACTIVITIES AS WELL AS THE USE OF CONTAMINATED CONSTRUCTION FILL, SEED, AND EROSION-CONTROL PRODUCTS CONTRIBUTE TO THE SPREAD OF WEEDS. UNDER KRS 176.051 THE KENTUCKY TRANSPORTATION CABINET IS INSTRUCTED TO KEEP THE RIGHT-OF-WAY FREE OF:

JOHNSON GRASS
GIANT FOXTAIL
CANADA THISTLES

NODDING THISTLES
MULTIFLORA ROSE
KUDZU
WILD CUCUMBER
BLACK NIGHTSHADE

THREE OF THESE SPECIES JOHNSON GRASS, MULTI-FLORA ROSE AND KUDZU WERE IDENTIFIED WITHIN THE PROJECT AREA DURING THE NEPA PHASE. THERE ARE 28 SPECIES FROM THE FOREST SERVICE REGION 8 EXOTIC/INVASIVE LIST KNOW TO OCCUR WITH LBL, 18 OF WHICH WERE IDENTIFIED ALONG US68/KY80 AS PART OF A USFS CONTRACTED STUDY IN 2004. CONSIDERING THESE AND OTHERS NOT ON THE FS R8 LIST, SPECIES WHICH PROPAGATE PRIMARILY BY SEXUAL MEANS (I.E., SEED DISPERSAL) THAT ARE CONSIDERED A SEVERE OR SERIOUS THREAT TO NATIVE VEGETATION IN DISTURBED AND/OR UNDISTURBED HABITATS INCLUDED TREE-OF-HEAVEN, JAPANESE STILTGRASS, SERICEA LESPEDEZA, EUROPEAN PRIVET, LOBLOLLY PINE, MULTIFLORA ROSE, CROWN VETCH, AUTUMN OLIVE, TALL FESCUE, BUSH HONEYSUCKLE AND JAPANESE HONEYSUCKLE. ADDITIONAL SPECIES WHICH PROPAGATE PRIMARILY THROUGH ASEXUAL MEANS (I.E., ROOT SHOOTS AND RUNNERS) THAT ARE CONSIDERED A SEVERE OR SERIOUS THREAT TO NATIVE VEGETATION IN DISTURBED AND/OR UNDISTURBED HABITATS INCLUDE KUDZU, COMMON PERIWINKLE AND LARGE PERIWINKLE. THESE SPECIES IDENTIFIED AS SERIOUS THREAT WILL BE THE FOCUS OF THE INVASIVE PLANT SPECIES CONTAINMENT PLAN.

GIVEN THE EXTENDED TIMEFRAMES THAT ARE SOMETIMES REQUIRED TO ERADICATE AN INVASIVE SPECIES FROM AN AREA, IT IS NOT FEASIBLE TO ATTEMPT TO REMOVE SUCH SPECIES FROM WITHIN THE CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION. THEREFORE, THE FOLLOWING PLAN HAS BEEN DEVELOPED TO BOTH PREVENT THE INTRODUCTION OF EXOTIC/INVASIVE SPECIES FROM OUTSIDE THE PROJECT AREA AND TO MINIMIZE THE POTENTIAL OF SPREADING EXISTING INFESTATIONS OF EXOTIC/INVASIVE SPECIES ANYWHERE WITHIN THE PROJECT AREA.

PRIOR TO CONSTRUCTION, THE CONTRACTOR WILL:

STAGE THE PROJECT IN SUCH A MANNER AS TO MINIMIZE THE AREA OF DISTURBANCE WITHIN THE PERMANENT EASEMENT, TEMPORARY EASEMENT AND STAGING ZONES AS MUCH AS POSSIBLE.

IDENTIFY, MAP AND FIELD MARK AREAS WITHIN THE DISTURBED LIMITS THAT HAVE NOXIOUS AND INVASIVE WEED POPULATIONS OF CONCERN. THIS EFFORT WILL RELY HEAVILY UPON THE STUDY CONDUCTED BY SOUTHEASTERN BOTANICAL SURVEY FOR USFS IN 2004.

TREAT THE IDENTIFIED AREAS WHERE THE WEED POPULATION EXISTS WITH CHEMICAL APPLICATION, INCINERATION, OR OTHER MEANS TO CONTAIN THE WEED POPULATION. THIS MAY NOT BE PRACTICAL IF THE WEED SEEDS CANNOT BE ERADICATED.

TRAIN THE ON-SITE CONSTRUCTION MANAGERS, CONSTRUCTION WORKERS, AND EQUIPMENT OPERATORS IN THE IDENTIFICATION OF THE WEEDS TO BE AVOIDED

INSPECT THE GRAVEL, ROCK, BORROW MATERIAL AND OTHER SUPPLIES USED IN THE CONSTRUCTION TO MINIMIZE WEEDS

USE ONLY CERTIFIED WEED-FREE STRAW AND MULCH

WASH AND INSPECT ALL EQUIPMENT OUTSIDE OF THE PROJECT SITE FOR WEED SEEDS AND PLANT PARTS PRIOR TO BRINGING THEM ONTO THE PROJECT SITE.

INSTITUTE BEST MANAGEMENT PRACTICES TO PREVENT EROSION AND THE POSSIBILITY OF WEEDY MATERIAL TRANSPORT

DURING CONSTRUCTION THE CONTRACTOR WILL:

MINIMIZE THE DISTURBANCE TO THE GROUND AND AVOID ANY UNNECESSARY REMOVAL OF VEGETATION AS MUCH AS PRACTICAL.

POWER WASH OR USING AN AIR COMPRESSOR, BLOW CLEAN ALL VEHICLES BEFORE THEY LEAVE AREAS IDENTIFIED AS SUPPORTING INVASIVE SPECIES.

GATHER AND PROPERLY DISPOSE OF (I.E. INCINERATE) WEEDS AND WEED SEEDS THAT ARE REMOVED FROM THE VEHICLES

RESTRICT ALL VEHICLES FROM ENTERING THE FLAGGED AREAS THAT ARE NOT NECESSARY FOR THE CONSTRUCTION

SOIL GENERATED FROM CUT MATERIAL THAT MAY CONTAIN EXOTIC/INVASIVE SPECIES ROOT MATERIAL OR SEED WILL NOT BE TRANSPORTED ELSEWHERE WITHIN THE PROJECT AREA FOR USE AS FILL MATERIAL UNLESS IT IS PLACED AT SUFFICIENT DEPTH THAT SEED GERMINATION OR NEW SHOOTS FROM ROOT MATERIAL IS NOT POSSIBLE.

ZEBRA MUSSEL PREVENTION PLAN

THE TENNESSEE RIVER IS KNOWN TO HARBOR POPULATIONS OF THE ZEBRA MUSSEL WITHIN KENTUCKY. ALTHOUGH THE SPECIES IS ESTABLISHED WITHIN KENTUCKY LAKE, EFFORTS TO REDUCE THE POTENTIAL FOR INTRODUCTION OF THE SPECIES LOCALLY WITHIN THE PROJECT AREA ARE RECOMMENDED.

ALL HEAVY EQUIPMENT REQUIRED FOR THE PROJECT THAT HAS BEEN PREVIOUSLY (WITHIN THE LAST TWO WEEKS) USED ELSEWHERE MUST BE THOROUGHLY CLEANED AND MAINTAINED IN A DRY STATE FOR A PERIOD OF AT LEAST TWO WEEKS PRIOR TO MOBILIZATION ONTO THE US-68/KY-80 PROJECT SITE.

TO REDUCE THE RISK OF POTENTIALLY TRANSPORTING ZEBRA MUSSELS WITHIN THE US68/KY80 PROJECT AREA TO OTHER SITES OUTSIDE THE TENNESSEE RIVER, OR UPPER REACHES WHERE THE SPECIES HAS NOT YET BECOME ESTABLISHED, CONSTRUCTION EQUIPMENT WILL BE CLEANED AND MAINTAINED IN A DRY STATE FOR A PERIOD OF AT LEAST TWO WEEKS BOTH DURING CONSTRUCTION AND AT THE CONCLUSION OF CONSTRUCTION PHASE.

WORKING HOUR RESTRICTIONS

CONSTRUCTION ACTIVITIES (EXCLUDING BRIDGE DECK POURING) WILL OCCUR ONLY DURING DAYLIGHT HOURS IN AND NEAR KENTUCKY LAKE DURING THE SEASON OF POTENTIAL OCCUPATION BY GRAY BATS (APRIL 1 – NOVEMBER 14). EXCEPTIONS MUST BE APPROVED BY THE ENGINEER.

SEED MIXTURE FOR PERMANENT SEEDING

CONTRARY TO SECTION 212.03.03, USE THE FOLLOWING SEED MIXTURE, AT A RATE OF 40 POUNDS PER ACRE, FOR PERMANENT SEEDING:

75% - WILDFLOWER MIX CONSISTING OF RYE, LITTLE BLUESTEM, CANADA WILD RYE, SWITCHGRASS, AUTUMN BENTGRASS, PURPLE TOP, LANCE LEAVED COREOPSIS, TICKLEGRASS (ROUGH BENTGRASS), VIRGINIA WILD RYE, TALL WHITE BEARD TONGUE, WILD BERGAMOT
12.5% - HEAVY CONEFLOWER
12.5% - BLACK-EYED SUSAN

MOT RESTRICTIONS

NO LANE CLOSURES WILL BE ALLOWED DURING THE OBSERVANCE OF ALL NATIONAL HOLIDAYS IDENTIFIED IN SECTION 101 OF THE STANDARD SPECIFICATIONS. SPECIAL EVENTS ARE ALSO HELD IN THE LBL AREA AND AT KENLAKE STATE PARK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SCHEDULE CONSTRUCTION ACTIVITIES SUCH THAT IMPACTS TO THE EVENTS ARE AVOIDED. A CALENDAR OF EVENTS CAN BE OBTAINED FROM THE USFS AND KENLAKE STATE PARK. KYTC RESERVES THE RIGHT TO RESTRICT THE USE OF LANE CLOSURES DUE TO UNFORESEEN SPECIAL EVENTS.

CONSTRUCTION IN AND NEAR THE WATERS OF KENTUCKY LAKE

DISTURBANCE WITHIN THE WATERS OF KENTUCKY LAKE, INCLUDING THE LAGOON UNDER THE LAGOON BRIDGE, SHALL BE MINIMIZED TO LIMIT THE POTENTIAL IMPACTS TO AQUATIC LIFE.

IN THOSE INSTANCES WHERE WORK WITHIN THE WATERS OF KENTUCKY LAKE IS UNAVOIDABLE, THEN IT SHALL BE PERFORMED IN SUCH A MANNER AND DURATION AS TO MINIMIZE RESUSPENSION OF SEDIMENTS AND DISTURBANCE TO SUBSTRATES AND BANK OR RIPARIAN VEGETATION.

TO THE MAXIMUM EXTENT PRACTICABLE, ALL WORK SHALL BE PERFORMED DURING LOW FLOW CONDITIONS.

ALL EARTHWORK OPERATIONS SHALL BE CARRIED OUT IN SUCH A WAY THAT SEDIMENT RUNOFF AND SOIL EROSION TO KENTUCKY LAKE ARE CONTROLLED AND MINIMIZED.

SPOIL MATERIALS SHALL NOT BE DUMPED INTO KENTUCKY LAKE, AS SPECIFIED UNDER SECTION 404 GUIDELINES OF THE CLEAN WATER ACT.

EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT RUNOFF FROM THESE AREAS WILL NOT DIRECTLY ENTER THE WATER. FILTRATION OF EFFLUENT FROM EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT EFFLUENT WILL BE FILTERED THROUGH VEGETATED AREAS AND/OR PROPER SEDIMENT CONTROL STRUCTURES LOCATED BETWEEN THE STAGING AREA AND THE WATER; THEREFORE, MINIMIZING THE POTENTIAL FOR IMPACTS SUCH AS SEDIMENTATION AND POLLUTION.

MITIGATION OF IMPACTS TO THREATENED/ENDANGERED SPECIES

GRAY BAT

IN ORDER TO MINIMIZE OR NULLIFY THE POTENTIAL MYOTIS GRISESCENS IMPACTS, THE KENTUCKY TRANSPORTATION CABINET DOCUMENTS HEREIN, SEVERAL EFFORTS DESIGNED TO MINIMIZE AND MITIGATE.

THE KENTUCKY TRANSPORTATION CABINET DESIGN EXECUTIVE SUMMARY (LANHAM 2005) CONTAINED WITHIN THE PRELIMINARY DRAINAGE DESIGN ADVANCE FOLDER (PALMER ENGINEERING COMPANY 2010) SHOWS THE FOLLOWING REGARDING MINIMIZATION AND MITIGATION ISSUES RELATED TO THE WATER RESOURCES, WHICH WOULD ALSO BE OF VALUE FOR NEGATING IMPACTS TO POTENTIAL FORAGING AREAS BY M. GRISESCENS:

AVOIDANCE ALTERNATIVES FOR WATER RELATED IMPACTS

THE PROPOSED ROADWAY CROSSES THE KENTUCKY LAKE, LAKE BARKLEY, AND A NUMBER OF SMALL STREAMS. AVOIDANCE OF THESE CROSSINGS IS NOT POSSIBLE, AS THE MAIN OBJECTIVE OF THE PROJECT IS TO REPLACE THE EXISTING, STRUCTURALLY DEFICIENT BRIDGES AND RESTRUCTURE THE ALIGNMENT. THE BRIDGE SPANS WILL BE ARRANGED SO AS TO KEEP THE MAIN CHANNELS OPEN AND UNOBSTRUCTED TO FLOW. THE ABUTMENTS MAY BE SKEWED SLIGHTLY TO THE FLOW DIRECTION, BUT PERPENDICULAR TO THE ROADWAY, TO MIMIC THE CURRENT FOOTPRINT OF THE EXISTING BRIDGE. THE USE OF RIP RAP WILL BE LIMITED TO THE CHANNEL BANKS, AND USED ONLY IN THE IMMEDIATE VICINITY OF THE STRUCTURE. ALL IN-LAKE CONSTRUCTION WILL CONTAIN EROSION PREVENTION AND SEDIMENTATION CONTROL (EPSC) MEASURES TO INCLUDE BUT NOT BE LIMITED TO:

ALL WATER LEAVING THE CONSTRUCTION SITE VIA DITCH OR SHEET FLOW WILL BE CONTROLLED BY SEDIMENT TRAPS OR SILT FENCE TO LIMIT SEDIMENT THAT MIGHT REACH THE STREAMS. EROSION CONTROL PLANS WILL BE DEVELOPED AND INCLUDED WITH THE PLAN SET. THESE PLANS WILL BE UPDATED BY THE CONTRACTOR AS CONSTRUCTION PROCEEDS. ALL EROSION AND SEDIMENT DEVICES WILL BE SIZED TO PROPERLY PREVENT OR RETAIN SEDIMENT FROM LEAVING THE PROJECT SITE.

ADDITIONAL MITIGATION AND MINIMIZATION PROCEDURES WILL BE:

1) IN AREAS NOT TREATED WITH RIP-RAP OR OTHERWISE STABILIZED, RE-VEGETATION OF STREAM BANK AND RIPARIAN ZONES SHALL OCCUR CONCURRENTLY WITH THE PROJECT PROGRESSION. SPECIES OF GRASSES, SHRUBS, AND TREES THAT ARE INDIGENOUS TO THE AREA OR THOSE RECOMMENDED BY THE DIVISION OF ENVIRONMENTAL ANALYSIS BIOLOGIST FOR DISTRICT 1, COMMONWEALTH OF KENTUCKY TRANSPORTATION CABINET, SHOULD BE PLANTED.

2) TO THE MAXIMUM EXTENT PRACTICABLE, ALL WORK SHALL BE PERFORMED DURING LOW FLOW CONDITIONS.

3) THE FILL CREATED BY DISCHARGE AND/OR DEPOSITION OF ANY DREDGED OR EXCAVATED MATERIALS ONSHORE, AND ALL EARTHWORK OPERATIONS, SHALL BE CARRIED OUT IN SUCH A WAY THAT SEDIMENT RUNOFF AND SOIL EROSION TO THE WATERCOURSE ARE CONTROLLED

AND MINIMIZED. BEST MANAGEMENT PRACTICES FOR WATER POLLUTION CONTROL SHALL BE INCORPORATED INTO PROJECT DESIGN PLANS ACCORDING TO SECTION
213.03.01 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

4) HEAVY EQUIPMENT (BULLDOZERS, CRANES, BACKHOES, DRAG LINES, ETC.), IF REQUIRED FOR THIS PROJECT, SHOULD NOT BE USED OR OPERATED WITHIN THE STREAM CHANNEL. IN THOSE INSTANCES WHERE SUCH IN-STREAM WORK IS UNAVOIDABLE, THEN IT SHALL BE PERFORMED IN SUCH A MANNER AND DURATION AS TO MINIMIZE RE-SUSPENSION OF SEDIMENTS AND DISTURBANCE TO SUBSTRATES AND BANK OR RIPARIAN VEGETATION.

5) SPOIL MATERIALS FROM THE WATERCOURSE OF ON-SHORE OPERATIONS, INCLUDING SLUDGE DEPOSITS, SHALL NOT BE DUMPED INTO WATERCOURSES AS SPECIFIED UNDER SECTION 404 GUIDELINES OF THE CLEAN WATER ACT. DURING THE DREDGING OF APPROXIMATELY 100,000 CUBIC YARDS OF MATERIAL FROM THE KENTUCKY LAKE BOTTOM, A TURBIDITY CURTAIN OR SIMILAR MEASURE WILL BE USED TO REDUCE SILTATION. AREA FOR DEPOSIT OF DREDGED MATERIALS SHALL BE PROVIDED WITH TEMPORARY DIKES OR BULKHEADS FOR SEPARATION AND RETENTION OF SETTLEABLE SOLIDS. DREDGE SPOIL WILL BE DEPOSITED IN A LOCATION THAT IS TO BE APPROVED BY THE TENNESSEE VALLEY AUTHORITY, U.S. ARMY CORPS OF ENGINEERS, AND KENTUCKY DIVISION OF WATER PRIOR TO DEPOSITION.

6) MEASURES SHALL BE TAKEN TO PREVENT OR CONTROL SPILLS OF FUELS, LUBRICANTS, OR ANY OTHER MATERIALS USED IN CONSTRUCTION FROM ENTERING THE WATERCOURSE.

7) ANY FILL OR RIP-RAP SHALL BE OF SUCH COMPOSITION THAT IT WILL NOT ADVERSELY AFFECT THE BIOLOGICAL, CHEMICAL, OR PHYSICAL PROPERTIES OF THE RECEIVING WATERS AND/OR CAUSE VIOLATION VOLUME 1 OF 1 PAGE 11 OF 119 OF WATER QUALITY STANDARDS. IF RIP-RAP IS UTILIZED, IT IS TO BE OF SUCH SIZE AND WEIGHT THAT BANK STRESS OR SLUMP CONDITIONS WILL NOT BE CREATED BECAUSE OF ITS PLACEMENT, AS SPECIFIED IN SECTION 703 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

ADDITIONALLY, THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING MEASURES SPECIFICALLY AIMED AT THE USE OF HABITAT BY BATS:

* SEASONAL RESTRICTIONS PLACED UPON THE DECONSTRUCTION OF THE OLD BRIDGES ONCE THE NEW BRIDGES ARE OPERATIONAL. CONTRACTOR WILL DECONSTRUCT THE EXISTING BRIDGE DURING THE PERIOD OF TIME WHEN BATS AND OSPREY ARE NOT PRESENT (NOVEMBER 1-FEBRUARY 28).
* CONSTRUCTION ACTIVITIES (EXCLUDING BRIDGE DECK POURING) WILL OCCUR ONLY DURING DAYLIGHT HOURS IN AND NEAR THE STREAM DURING THE SEASON OF POTENTIAL OCCUPATION BY BATS (APRIL 1- NOVEMBER 14). BECAUSE OF INCREASED HEAT AND HUMIDITY EXPERIENCED DURING THE SUMMER MONTHS, DECK POURING MAY NEED TO OCCUR DURING TIMES WHEN M. GRISESCENS ACTIVELY FORAGE. POURING OF CONCRETE DURING NIGHT-TIME HOURS ALLOWS FOR PROPER CURATION TO INCREASE STRUCTURAL INTEGRITY AND LONG-

TERM SUSTAINABILITY OF THE BRIDGE DECK. THE KENTUCKY TRANSPORTATION CABINET FEELS THAT DECK-POURING ACTIVITIES OCCURRING AT NIGHT WILL NOT ALTER THE BEHAVIORAL PATTERNS OF M. GRISESCENS POTENTIALLY FORAGING OVER THE LARGE LAKES AND STREAM NETWORKS DURING THESE PERIODS.

* TO REDUCE EROSION AND SEDIMENTATION EFFECTS OF HIGHWAY CONSTRUCTION PROJECTS, CONTRACTOR IS BOUND BY THE TENETS OF KPDES PERMIT NO. KYR10 FOR ALL CONSTRUCTION PROJECTS INVOLVING SOIL DISTURBANCE. FOR THE SUBJECT PROJECT, A SITE SPECIFIC EROSION CONTROL PLAN (ECP), HAS BEEN DEVELOPED IN ORDER TO OUTLINE POTENTIAL WATER QUALITY ISSUES BY DETERMINING INDIVIDUAL DISTURBED DRAINAGE AREAS (DDA) WHERE CONSTRUCTION SITE EFFLUENT WILL BE DISCHARGED OFF-SITE OR INTO WATERS OF THE COMMONWEALTH (SEE APPENDIX C). WITHIN THE ECP, SEDIMENT CONTROL STRUCTURES HAVE BEEN MARKED AT EACH DDA DISCHARGE POINT. THESE STRUCTURES ARE SUGGESTIONS BASED ON ENGINEERING PRACTICES DEVELOPED BY THE DESIGN ENGINEER.

* ACCORDING TO SECTION 213.03.01 OF THE KENTUCKY TRANSPORTATION CABINET STANDARD SPECIFICATIONS, A BEST MANAGEMENT PRACTICES (BMP) PLAN (IN ACCORDANCE WITH KPDES PERMIT NO. KYR10) WILL BE DEVELOPED JOINTLY BY THE RESIDENT ENGINEER AND THE CONTRACTOR PRIOR TO THE PRECONSTRUCTION CONFERENCE. THE BMP PLAN WILL BE DEVELOPED UTILIZING INFORMATION CONTAINED WITHIN THE ECP. THROUGH PROGRESSION OF THE PROJECT, THE BMP PLAN WILL BE UPDATED IN ORDER TO ADDRESS THE EVER-CHANGING ON-SITE CONDITIONS TO ASSURE THE OVERALL GOAL OF EROSION CONTROL AND SEDIMENT CONTAINMENT. THE BMP PLAN SHALL BE MODIFIED WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF THE SITE WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS TO WATERS OF THE COMMONWEALTH. THE BMP SHALL ALSO BE AMENDED IF ANY ASPECT (DURING INSPECTIONS CONDUCTED BY THE RESIDENT ENGINEER AND CONTRACTOR SIMULTANEOUSLY EVERY 7 DAYS OR AFTER RAIN EVENTS GREATER THAN 0.5") IS DETERMINED TO BE INEFFECTIVE IN CONTROLLING THE DISCHARGE OF POLLUTANTS TO WATERS OF THE COMMONWEALTH. ANY CHANGES IN THE BMP PLAN SHALL BE IMPLEMENTED WITHIN 7 DAYS OF THE MONITORING OR ACTION EVENT. APPROPRIATE DOCUMENTATION OF CHANGES IN THE BMP PLAN WILL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. FURTHER, APPROPRIATE DOCUMENTATION (PICTURES, MONITORING LOG, ETC.) OF INSPECTIONS WILL BE MAINTAINED ON THE CONSTRUCTION SITE.

* IT IS EXPECTED THAT IMPACTS TO THE RIPARIAN CORRIDOR WILL BE NEGLIGIBLE-TO-NONEXISTENT AS THE VAST MAJORITY WORK WILL BE PERFORMED ON THE EXISTING ROADBED. PRIOR TO ANY DISTURBANCE OF VEGETATION (IF ANY) WILL BE REMOVED IN ORDER TO MINIMIZE RIPARIAN DISTURBANCE. ALL AREAS WILL BE REPLANTED WITH NATIVE SPECIES AS NECESSARY. PLANTING LISTS WILL BE DEVELOPED FOR CONSTRUCTION PERSONNEL BY THE DEC AND THE KYTC BIOLOGIST.

* A PREMIUM WILL BE PLACED ON KEEPING DEBRIS ATTRIBUTED TO PHASE I AND II REMOVAL OUT OF THE WATER. DEBRIS THAT DOES ENTER THE STREAM WILL BE REMOVED IMMEDIATELY. DUE TO ON-SITE RESTRAINTS, EQUIPMENT WILL BE USED ON THE BARGES, BANKS, AND IF NECESSARY VIA A PAD AT THE EDGE OF THE WATER.

* PLACING OF CONCRETE FOR PIERS AND/OR DECKING WILL BE DONE SUCH THAT SPILLS INTO THE STREAM DO NOT OCCUR. IN THE UNFORESEEN EVENT THAT SPILLAGE DOES OCCUR, THE FRANKFORT USFWS OFFICE WILL BE NOTIFIED AND THE RESIDENT ENGINEER SHALL HALT THE ACTIVITY IMMEDIATELY AND NOT RESUME UNTIL APPROPRIATE REMEDIAL ACTIONS HAVE BEEN IMPLEMENTED.

* EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT RUNOFF FROM

THESE AREAS WILL NOT DIRECTLY ENTER THE WATER. FILTRATION OF EFFLUENT FROM EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT EFFLUENT WILL BE FILTERED THROUGH VEGETATED AREAS AND/OR PROPER SEDIMENT CONTROL STRUCTURES LOCATED BETWEEN THE STAGING AREA AND THE WATER; THEREFORE, MINIMIZING THE POTENTIAL FOR IMPACTS SUCH AS SEDIMENTATION AND POLLUTION.

* THE PROPOSED BRIDGES HAVE BEEN DESIGNED TO REDUCE IMPACTS TO THE WATER BY MINIMIZING THE NUMBER OF NEW PIERS IN THE LAKES. ALL OF THE EXISTING PIERS WILL BE REMOVED.

* DURING FOOTER/PIER CONSTRUCTION, COFFER DAMS, SEDIMENT CURTAINS, AND/OR SANDBAGS AND PUMPS MAY BE UTILIZED IN ORDER TO BE ABLE TO PLACE CONCRETE IN THE FOOTERS. IF SO, WATER REMOVED FROM INSIDE THE COFFER DAMS OR SANDBAGGED AREAS WILL BE FILTERED USING AN APPROVED SEDIMENT FILTRATION METHOD PRIOR TO RELEASE INTO THE WATER.

* USFWS AND THE KYTC BIOLOGIST SHALL BE CONTACTED BY THE KYTC DISTRICT 1 ENVIRONMENTAL COORDINATOR AT LEAST ONE WEEK PRIOR TO THE START OF CONSTRUCTION FOR THE PROPOSED PROJECT.

ARCHAELOGICAL MATERIALS

IF ARCHAELOGICAL MATERIALS ARE UNCOVERED DURING CONSTRUCTION, ALL CONSTRUCTION WORK IN THE AREA OF THE FIND(S) WOULD CEASE. STAFF ARCHAEOLOGISTS EITHER KYTC (502-564-7250) OR KHC SHPO (502-564-7005) OFFICE WOULD BE CONTACTED IMMEDIATELY SO THAT REPRESENTATIVES OF THAT OFFICE MAY HAVE THE OPPORTUNITY TO EXAMINE AND EVALUATE THE MATERIALS. IF HUMAN REMAINS ARE DISCOVERED DURING CONSTRUCTION, ALL ACTIVITY IN THE VICINITY OF THE REMAINS WOULD CEASE IMMEDIATELY, AND THE STATE MEDICAL EXAMINER AND THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WOULD BE CONTACTED. IF MATERIALS ARE DISCOVERED ON ANY FEDERALLY OWNED PROPERTY, THEN REPRESENTATIVES OF THE ADMINISTERING AGENCY ALSO WOULD BE CONTACTED.

MITIGATION OF IMPACTS TO THREATHENED/ENDANGERED SPECIES-OSPREY

IN ADDITION TO OTHER REQUIRED MITIGATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL OSPREY NESTS CURRENTLY ON THE EGGNER'S FERRY BRIDGE AND THE SUBSEQUENT REMOVAL OF ANY NEW NESTS BEING BUILT WHILE THE NEW KENTUCKY LAKE BRIDGE IS UNDER CONSTRUCTION. THE CURRENTLY EXISTING NESTS MUST BE REMOVED BEFORE FEBRUARY 1, 2014, AND ANY SUBSEQUENT NESTS BEING BUILT WOULD NEED TO BE REMOVED BEFORE ANY EGGS ARE LAID. ONCE EGGS OR YOUNG BIRDS ARE IN A NEST, THEY MUST **NOT** BE DISTURBED. IT SHOULD BE NOTED THAT OSPREY COULD NEST ANYWHERE ON THE STRUCTURE, AT THE HIGHEST POINT OF THE SUPERSTRUCTURE OR ON THE ABUTMENTS ETC. THE KYTC DISTRICT ONE ENVIRONMENTAL COORDINATOR SHALL BE NOTIFIED TWENTY FOUR HOURS IN ADVANCE OF ANY REMOVAL OF A NEST SO THAT THE STATUS OF THE NEST CAN BE VERIFIED AND THE SUBSEQUENT REMOVAL DOCUMENTED. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON SITE, THE CONTRACTOR SHALL MEET WITH THE KYTC DISTRICT ONE COORDINATOR FOR ASSISTANCE WITH IDENTIFYING OSPREY NESTS ETC., AND TO DETERMINE IF THERE ARE ANY NESTS ON THE STRUCUCTURE THAT NEED TO BE REMOVED IMMEDIALTELY. THIS MITIGATION REQUIREMENT IS INTENDED TO MINIMIZE THE POSSIBILITY OF ANY POTENTIAL DELAYS TO THE PROJECT SCHEDULE. ALL COSTS ASSOCIATED WITH CARRYING OUT THIS MITIGATION REQUIREMENT SHALL BE BORNE BY THE CONTRACTOR AND

ARE INCIDENTAL TO THE PROJECT.

10-16-2013

New Bridge and Approaches Carrying US 68 and KY 80 over Kentucky Lake
Marshall/Trigg Counties
Item No 1-180.70

NOISE

1. DESCRIPTION: Landscape screening plan to be developed by KYTC during design. The plan is subject to final approval by the USFS prior to KYTC approval of a final Landscape Plan design. (A-35, A-36, A-41)*. (Fenton Campground)

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

2. DESCRIPTION: Landscape screening to minimize noise and visual impacts will be considered for the Golden Pond Picnic Area. The KYTC will work with the USFS during final design to incorporate landscape screening as appropriate.

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

3. DESCRIPTION: The construction contractor will be required to provide equipment (sound-deadening devices, shields, physical barriers) and take measures necessary to restrict the transmission of noise to noise sensitive sites (such as residences and campgrounds) in the immediate vicinity of the project. (3-2 through 3-10)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

WATER RESOURCES

LAKE CROSSINGS

4. DESCRIPTION: During final design, the use of a shore-to-shore bridge rather than a causeway-bridge combination will be considered for the Kentucky Lake and Lake Barkley bridges. (3-10, 3-11, 5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Studied and resolved in Phase 1 Design

5. DESCRIPTION: Bridge demolition and construction activities that would cause sedimentation concerns should be conducted in the cool months of November to April in order to minimize the silt load impacts on reproduction, respiration, and feeding when biological activity is high during warm months. (5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

6. DESCRIPTION: US Coast Guard Bridge Permits for the new Eggner's Ferry and Lawrence Memorial Bridges are required. Under the authority of Section 9 of the Rivers and Harbors Act of 1899 and the

General Bridge Act of 1946, as well as other acts, the Coast Guard is responsible for approving location and plans for bridges and causeways over navigable waters. (3-73)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Permit obtained. See construction contract documents

7. DESCRIPTION: Agents, acting on behalf of KYTC, shall obtain all permits necessary to construct the project. A copy of all permits will be provided to USFS prior to commencement of any ground disturbance in the jurisdictional areas of the permit. (3-12 to 3-25, 3-73, A-38, A-43)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: All permits obtained and distributed

8. DESCRIPTION: TVA will need to approve a land transfer, grant-of-easement, or other form of legal instrument to provide KYTC with the necessary land rights to place additional fill for the causeway/piers for the new bridge. Prior to consideration of issuance of the needed Section 26a permit and land use authorization, TVA will need to review detailed plans for replacement of Eggner's Ferry Bridge over Kentucky Reservoir. (Per Dec. 29, 2005 letter to KYTC)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + TVA letter to KYTC on 12-29-2005
- DATE: September 2006
- RESOLUTION: Task completed with Section 26a permit application process

9. DESCRIPTION: Land Grant Easements between USFS and KYTC will be required for the Land Between the Lakes property prior to construction.

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Completed in preceding LBL Design-Build Project

STREAMS

10. DESCRIPTION: In-channel work will be restricted to periods of low flow and will be limited to placement of piers, pilings, and /or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap. Construction techniques that would cause a minimum amount of damage to the bottom of water bodies will be used throughout construction. (3-11, 3-12, 3-13, 5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

11. DESCRIPTION: Banks will be constructed similar to pre-disturbance slopes and elevations and stabilized with natural vegetation. Shorelines will be stabilized with native woody plants, including trees, where practicable and sustainable. Retaining walls in general locations may be needed to minimize impacts (3-13, 5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design - See Plans

12. DESCRIPTION: Natural channel design concepts, including bioengineering, will be used where appropriate for stream channel work especially where existing roads are being abandoned and pavement and culverts are being removed. (5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00

- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable this construction project

13. DESCRIPTION: Erosion control measures specified in Section 3.21.10 will be implemented. The KYTC will coordinate with the US Fish and Wildlife Service; Kentucky Department of Environmental Protection; and the US Army Corps of Engineers during the design of channel relocations. (3-13, 5-2)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

14. DESCRIPTION: Stream mitigation through the use of oversized culverts, natural bottoms, and minimization of construction disturbance limits near the riparian buffer has been included in the plans for the project.

    - Ø SOURCE: FONSI-US68/KY80 Item No. 1-180.00+ KYTC letter to USFS on 10-15-2007
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

15. DESCRIPTION: US Army Corps of Engineers Dredge and Fill Permit for new embankment in Kentucky Lake and Lake Barkley. Section 404 of the Clean Water Act, and a 401 Water Quality Certification from Commonwealth of Kentucky (as mandated under Section 401 of the Clean Water Act). A copy of all permits will be provided to the USFS. (3-12 to 3-25, 3-73, A-38, A-43)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: All permits obtained. See construction contract documents.

WATER QUALITY

16. DESCRIPTION: Roadside Drainage - Where appropriate, roadside ditches that are grass-lined and connected to filter strips and containment basins will be constructed. (5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

17. DESCRIPTION: Erosion and Sedimentation Control - Permanent and temporary erosion control devices will be used to minimize sediment and debris. Strict controls will be employed during construction near streams to reduce turbidity. Timely revegetation after soil disturbance will be implemented and monitored. Revegetation will consider site specific needs for hydrology. (3-13, 5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

18. DESCRIPTION: Spill Prevention/Containment - The USFS will require contractors to have a spill plan and a fire plan prior to the beginning of work in the LBL. (5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

19. DESCRIPTION: US Army Corps of Engineers Dredge and Fill Permit for new embankment in Kentucky Lake and Lake Barkley Section 404 of the Clean Water Act, and a 401 Water Quality

Certification from Commonwealth of Kentucky (as mandated under Section 401 of the Clean Water Act). (3-73, 5-4)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Permits obtained. See construction contract documents.

20. DESCRIPTION: An approval under Section 26a of the TVA is required for new Eggner's Ferry Bridge. (3-73, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Permit obtained. See construction contract documents.

21. DESCRIPTION: Agents acting on behalf of KYTC shall obtain all permits necessary to construct the project. A copy of all permits will be provided to USFS prior to commencement of any ground disturbance in the jurisdictional areas of the permit. (3-12 to 3-25, 3-73, A-38, A-43)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained and distributed

22. DESCRIPTION: Herbicide Use Plan - Herbicide usage will be minimized in environmentally sensitive areas, such as near streams. The USFS will require contractors to use only those herbicides approved by the US EPA for use in and around water. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

23. DESCRIPTION: Low Salt and No Spray Zones - A low salt and no spray strategy will be developed in stream areas for this project. A signing strategy for these items will also be developed, to help maintenance forces who will be maintaining roadway after construction. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project. Future responsibility of KYTC District 1 Maintenance Department

24. DESCRIPTION: Parking and Turning Areas - Parking and turning areas for heavy equipment will be confined to sites that will minimize soil erosion and tree clearing, and will avoid environmentally sensitive areas. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

HYDROLOGY

25. DESCRIPTION: Appropriate culverts and other drainage structures will be used to maintain current hydrologic flows. The number of culverts and their placement will be determined in final design. (5.2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

26. DESCRIPTION: Modeling during final design will ensure that increased backwater levels will be less than what is required for the applicable permits. (5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

WETLANDS

27. DESCRIPTION: Hydrology of existing wetlands may only be altered by improving the hydrology. (3-13, 5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

28. DESCRIPTION: USACE Section 404 Permitting and Section 401 Water Quality Certification are required. Since the project is also within the jurisdictional limits of the TVA, approval via Section 26a permitting is required. (3-12, to 3-25, 3-73, A-38, A-43, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained. See construction contract documents.

29. DESCRIPTION: Salt and other possible pollutants from highway runoff will be diverted away from nearby wetlands by using roadside ditches. Current water regimes will be maintained along with no ditching in wetland areas. Erosion Control will be implemented. (3-12 to 3-25, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

30. DESCRIPTION: Within LBL, wetland mitigation is to be handled via the payment of in-lieu fees by agents acting on behalf of KYTC to Kentucky Department of Fish and Wildlife. KY Department of Fish and Wildlife has agreed to use said fee to perform wetland mitigation within the confines of LBL at locations to be approved by USFS. (3- 12, to 3-25, 3-73 & per October 15, 2007 letter to USFS by KYTC)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

31. DESCRIPTION: US Army Corps of Engineers Permit and TVA 26a permit for fill within jurisdictional wetlands, including the associated water quality certification is needed. Section 404 and 401 of Clean Water Act. (3-12 to 3-25, 3-73, A-38, A-43)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained. See construction contract documents.

FLOODPLAINS

32. DESCRIPTION: Modeling during final design will ensure that any increases in backwater levels will be less than that permitted by federal law and local ordinances. Additional culvert improvements will be made during final design, if necessary, based on a hydraulic capacity analysis. (3-20, 3-21, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006

- Ø RESOLUTION: Included in Phase II Design – See Plans

33. DESCRIPTION: The TVA requires that fills of more than one acre-foot in Kentucky Lake be offset by an equal cut or other method to achieve "no net loss" in flooding storage capacity. If causeways are used, opportunities to create additional storage volume areas in KL and LB by creating wetlands and/or ponds will be considered to compensate for flooding and power capacity losses, as necessary. (3-20,3-21, 5-4)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Requirement resolved during Section 26A Permit application process

34. DESCRIPTION: The US Army Corps of Engineers mandates that there will be "No Net Loss" for storage capacity in KL or LB. Per conversations with USACE Regulatory.

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Requirement resolved during Section 404 Permit application process

34a. DESCRIPTION: Where culverts penetrate the existing embankment, they would be lengthened so that the existing drainage function would be preserved. Therefore, there would be no additional flooding upstream of existing berm. Additional culvert improvements would be made during final design, if necessary, based on a hydraulic capacity analysis. (3-21)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

WILDLIFE and HABITAT

35. DESCRIPTION: To help minimize the loss of habitat, final geotechnical information will be used to determine if side-slopes could be made steeper, thus reducing the area of right- of-way. (5-4)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

36. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

37. DESCRIPTION: To minimize potential affects upon the fish life in general in Kentucky Lake and Lake Barkley, bridge construction activities should be minimized during the spawning season (March thru June). (3-81, 5-5)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

38. DESCRIPTION: Considerations would be given to moving existing osprey nests and nesting platforms in close proximity to the bridge prior to construction as well as building additional osprey nesting platforms at suitable locations in Lake Barkley and Kentucky Lake (per phone conversation with Blake Beyer) away from the bridge. Any moving of nests or platforms would be done during the non-nesting season (August - March). (3-33, 3-81, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Completed by KYTC prior to this construction project

39. DESCRIPTION: Limiting bridge construction operations below water to the cool months of November to April would reduce overall impacts to aquatic organisms. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

40. DESCRIPTION: In-channel work would be restricted to periods of low flow (typically late summer through fall). (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

41. DESCRIPTION: Disturbance would only take place within the project disturbance limits. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

42. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans
    -

43. DESCRIPTION: Special project working hours have been established to minimize impacts to wildlife as per the direction of USFWS. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

SIGNAGE

44. DESCRIPTION: Special wildlife warning signs will be included in the project's final sign plan. Deer crossing signs will be placed throughout the project area to warn motorists of potential collisions. Consideration will be given to signs that have attention features such as flashing lights at dawn and dusk. Locations will be designed in cooperation with USFS biologists. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

45. DESCRIPTION: A detailed sign plan, in accordance with MUTCD and when applicable, the Sign Handbook provided to KYTC by the USFS, will be prepared for the project. USFS will provide

guidance and approval for all materials and placement for informational signs related to USFS facilities. (October 15, 2007 letter to USFS from KYTC).

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

WILDLIFE CROSSING STRUCTURES

46. DESCRIPTION: Stream crossings (culverts and bridges) will allow for passage at all terrestrial and aquatic life stages. Specific locations and types of passage will be confirmed during final design. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

47. DESCRIPTION: Bifurcated Locations - If bifurcated alignments are chosen, crossing structures will be placed at higher frequency and density within the bifurcated sections where appropriate to avoid barrier effects that would create an island of habitat. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

48. DESCRIPTION: Bats - Where reasonable and appropriate, culverts will be designed to provide bat roosts. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

49. DESCRIPTION: Crossing structures will be maintained to ensure they remain accessible and useable for wildlife. This will involve inspecting openings and some vegetation control. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project. Future responsibility of KYTC District 1 Maintenance Department

50. DESCRIPTION: Culvert design and placement will include but will not be limited to providing safety and habitat to a variety of species where reasonable and appropriate. (5-5, 5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

CONSTRUCTION DISTURBANCES

51. DESCRIPTION: Construction that crosses the Devil's Elbow 7 nest secondary management zone for bald eagles should be minimized during the nesting season (Oct. 15 to May 15) to avoid disturbances. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

52. DESCRIPTION: Construction near streams will be restricted to normal daytime hours in the summer (May 15-August 15) when gray bats are present. (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

53. DESCRIPTION: Considerations will be given to moving existing osprey nests and nesting platforms in close proximity to the bridge prior to construction as well as building additional osprey nesting platforms at suitable locations in Lake Barkley and Kentucky Lake away from the bridge. Any movement of nests or platforms will be done during the non-nesting season (August - March). (3-81, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Completed by KYTC prior to this construction project

54. DESCRIPTION: Limiting bridge construction operations below water to the cool months of November to April would reduce overall impacts to aquatic organisms. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

55. DESCRIPTION: In-channel work would be restricted to periods of low flow (typically late summer through fall). (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

56. DESCRIPTION: Disturbance would only take place within the project disturbance limits. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

57. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

58. DESCRIPTION: In the LBL, tree clearing and snag removal will be kept to a minimum and limited to the construction limits. Within bifurcated sections, tree clearing will be kept to a minimum, and woods will be kept in as much a natural state as reasonable. Forested sections will be managed in accordance with the LBL forest management plan. Trees to be removed in the new right-of-way will be marked by USFS crews and removed by the roadway construction contractor. (5-7)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

59. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet

Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

60. DESCRIPTION: Where kudzu and other invasive species are present, roadway construction activities will take place before flowering in the late summer. Construction equipment will be inspected and vegetation removed. (3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

61. DESCRIPTION: Heavy equipment that had previously (within the last two weeks) been utilized in waters infested by zebra mussels will be thoroughly cleaned and left to dry for at least two weeks prior to use in construction to prevent the spread of this invasive species. (3-81, 5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

62. DESCRIPTION: Depressed grass medians are to be used in-lieu of raised grass medians for the project as part of Design Build Project No. 6, Item No 1-180.55 (Per October 15, 2007 letter from KYTC to USFS)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

63. DESCRIPTION: Construct a grade separated intersection with US 68/KY 80 and KY 453 (The Trace) as a part of Design Build Project No. 6 Item No. 1-180.55 (Per October 15, 2007 letter from KYTC to USFS)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: October 15, 2007
- RESOLUTION: Not applicable to this construction project

64. DESCRIPTION: Within the LBL, the KYTC will consider in-kind replacement of loss of open lands as designated by USFS LBL by reclaiming old fields elsewhere in LBL.

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

THREATENED and ENDANGERED SPECIES of SPECIAL CONCERN

65. DESCRIPTION: Tree cutting will be minimized near bald eagle secondary management zones to maintain vegetative screening. (3-80 to 3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

66. DESCRIPTION: Bridge construction activities in Lake Barkley near the osprey nests will not occur during the active nesting season (mid-March thru July). Individual nests will be monitored to insure that nesting is not active. (3-80 to 3-81, 5-7)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

67. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

VEGETATION

68. DESCRIPTION: Banks will be constructed similar to pre-disturbance slopes and elevations and stabilized with natural vegetation. Shorelines will be stabilized with native woody plants, including trees, where practicable and sustainable. Retaining walls in general locations may be needed to minimize impacts (3-13, 5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

69. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

70. DESCRIPTION: Mature trees will be installed in Fenton to replace the vegetated screen along the south side of US68/KY 80. The final landscape plan will include the replacement trees. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

INVASIVE SPECIES

71. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

72. DESCRIPTION: Where kudzu and other invasive species are present, roadway construction activities will take place before flowering in the late summer. Construction equipment will be inspected and vegetation removed. (3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

73. DESCRIPTION: Heavy equipment that had previously (within the last two weeks) been utilized in waters infested by zebra mussels will be thoroughly cleaned and left to dry for at least two weeks prior to use in construction to prevent the spread of this invasive species. (3-81, 5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to the Roadway Plans

CULTURAL RESOURCES

74. DESCRIPTION: Those portions of Site 15Tr1 that contain intact deposits have been avoided by the proposed project. If during ROW phase, it is determined that additional property from the Parcel 402 is to be purchased (for example, as an uneconomic remnant), beyond that identified in the current plans as necessary for the construction of the project, FHWA shall consult with the KHC regarding proposed long-term use of the property, the potential effects on the archaeological site, and the ultimate disposal of the parcel. The objective of the consultation will be to either establish a means for permanent protection of the site or portions of the site affected, or to excavate the site, exhausting its potential to yield further significant data. (5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

75. DESCRIPTION: If archaeological materials are uncovered during construction, all construction work in the area of the find(s) would cease. Staff Archaeologists either KYTC (502-564-7250) and KHC SHPO (502-564-7005) office would be contacted immediately so that a representative of that office may have the opportunity to examine and evaluate the materials. If human remains are discovered during construction, all activity in the vicinity of the remains would cease immediately, and the state medical examiner and the appropriate local law enforcement agency would be contacted. If materials are discovered on any state or federally owned property, then representatives of the administering agency also would be contacted. (5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to the Roadway Plans

76. DESCRIPTION: TVA's Cultural Resources staff will work with FHWA/KYTC to draft appropriate Section 106 documentation to evidence TVA's involvement in the project compliance. (A-37 to A-38)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

UNDERGROUND STORAGE TANKS and HAZARDOUS MATERIALS

77. DESCRIPTION: Site #9 in LBL has been avoided by the Project. (5-9)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

78. DESCRIPTION: A vegetation and landscape plan will be developed by the KYTC for the project area during final design and will be included in the contract documents. The KYTC will work with the USFS

to develop the LBL portion of the vegetation and landscape plan. The KYTC will work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Resort Park. The plan will address replantings as well as noxious weeds. (5-10)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

79. DESCRIPTION: KYTC coordination with USFS during design and engineering efforts for portions of highway that cross LBL and the two lakes so that the appearance of the improved road will complement the recreational objectives of LBL. (5-10)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

80. DESCRIPTION: "Light-Sensitive" design will be used for any lighting to be installed that impacts the sky over LBL. Any lighting plan is subject to final approval of the USFS. (Per October 15, 2007 letter to USFS from KYTC)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

81. DESCRIPTION: The KYTC will coordinate with the KY Department of Parks and the USFS during final design of this project to provide appropriate accommodation for those issues and areas of the parks directly affected by the construction of the proposed project. (5-10, A-36)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

82. DESCRIPTION: The KYTC will design and construct as part of this project a hike-bike trail between Kenlake State Resort Park and the Cadiz bypass. The design and location of the hike-bike trail will be refined during the final design of the project. KYTC will construct as part of the Design Build Project, the initial segments (in the area of Fenton Campground and from the Lake Barkley Bridge to Bacons Creek Road). The "cross-country" section will be constructed at a later date by KYTC with a separate project. USFS in conjunction with KYTC will provide design standards for this segment of the trail. Final segments of the trail will be constructed as part of the Lake Barkley and KY Lake Bridge projects. (2-14, 5-9)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

83. DESCRIPTION: As part of the Lake Barkley bridge project, KYTC shall provide a walkway under the new bridge to improve access to the shoreline for fishing. Included in this shall be provisions for a parking area on the north side of the roadway. USFS will be provided opportunity to provide input into design of this walkway. (5-12)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

84. DESCRIPTION: Improvements to the internal road system are provided at Fenton as per a plan to be provided by USFS. Fishing areas along the jetty are to be constructed in the Elbow Bay area. Access will be provided for the Golden Pond Picnic Area. Three Turnarounds are to be constructed at USFS

approved sites to be used as a location to provide information subject to final USFS approval. (A-35, A-36, A-41)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

85. DESCRIPTION: Access to existing causeway at Canton

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

KENLAKE STATE RESORT PARK

86. DESCRIPTION: Efforts will be made during final design to avoid the placement of piers or fill in the lagoon on the north side of US 68/KY 80. The KYTC will continue to coordinate with the Department of Parks through the project design on the issue of minimizing the use of the lagoon. During final design, the KYTC will investigate the possibility of additional landscaping (trees) on the north side of US 68/KY 80 to help screen the easternmost campsites in the Kenlake Campground from visual effects of the new roadway and bridge. (5-10)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction contract

87. DESCRIPTION: During the design process, the KYTC will investigate the feasibility of including in the design certain recreation-related elements for the portions of the park that are adjacent to US 68/KY 80. Part of this plan includes trail linkage from the park grounds to the new bridge. (5-10)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Included in Phase II Design – See Plans

LAND BETWEEN THE LAKES

88. DESCRIPTION: The loss of facilities at Fenton Lake Access Area will be mitigated: The loss of the swim beach north of US 68/KY 80 will be mitigated by the creation of a new beach on Lake Barkley. The KYTC will provide the funding and the USFS will construct it. (5-11)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

89. DESCRIPTION: The cement block toilet building will be replaced by the KYTC with a similar construction type. (5-11)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

90. DESCRIPTION: The loss of the western access at Fenton will be mitigated by construction of an internal road system in Fenton as part of the roadway construction contract.

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

91. DESCRIPTION: At Devil's Elbow Lake Access Area the KYTC will fund the replacement of the fishing pier and boat launch area, 11 primitive campsites, cement block toilet building (with a similar construction type) and portal sign and informational sign. The USFS will be responsible for designing and installing the replacement facilities. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

92. DESCRIPTION: At Golden Pond Picnic Site, the final design plans will include access to the site. The KYTC will fund and install the access. The existing picnic tables, barbeque grills, two sets of hitching posts/steps, parking area, Kentucky historical marker, and portal sign will be relocated within the picnic area. In addition, a time capsule buried at the site by former residents will be located and moved if necessary. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

93. DESCRIPTION: The southwestern embankment of the Lake Barkley Bridge will be modified to improve fishing opportunities on Lake Barkley. Access between the Energy Lake parking lot on the north side of US 68/KY 80 and the causeway on the south side will be provided as part of the construction contract. The access under the new bridge will be provided via a tunnel or walkway, which will be investigated and determined during final design. (5-12)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

94. DESCRIPTION: Mature trees will be installed in Fenton to replace the vegetated screen along the south side of US68/KY 80. The final landscape plan will include the replacement trees. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

95. DESCRIPTION: KYTC shall fulfill the following mitigation requirements through the use of direct compensation to the USFS. Upon payment of said compensation by KYTC, USFS shall assume full responsibility. These are: Replace Vault Toilet Building at Fenton Boat Ramp (3-65)*; Interpretative Area: Old City of Fenton TBD (in-lieu of Beach Replacement (5-11)*; Bulletin Board at Fenton; Pay Station at Fenton; Replace Vault Toilet and Portal and Information signs at Devil's Elbow Area (3-67)*; Gate at Turkey Bay; Golden Pond Interpretative site at Golden Pond (3-66)*; Equestrian Trail Relocation Golden Pond\Wrangler Campground; and Informational Signs at New Turnouts (3-69)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

UTILITIES

96. DESCRIPTION: The KYTC will continue to work with the USFS and the utility companies to accommodate the installation of underground utilities where possible. Where existing overhead electric lines will be disturbed by the construction or the project, KYTC will locate the replacement lines underground. Telephone lines and cables between Kentucky Lake and Lake Barkley will be buried except where geological conditions would prevent boring (such as under some streams and in areas of bedrock).(5-12)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

97. DESCRIPTION: Upon review of roadway, plans essentially all AT&T facilities currently installed approximately parallel and adjacent to the LBL US 68|KY 80 project corridor have been deemed impacted by the roadway project and will be placed underground. Some temporary overhead work in the area of intersection with the Trace will be necessary in order for work to begin on Buildable Unit One (The Trace Grade Separated Intersection) in a timely fashion. These costs will be borne by KYTC.

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

98. DESCRIPTION: Pennyrile Rural Electrical facilities installed approximately parallel and adjacent to the US 68| KY 80 project corridor, beginning near the Kentucky Lake|Fenton Campground (exact location not yet finalized) will be installed underground to Bacon Creek Road. This includes overhead facilities in the Trace Grade Separated Intersection area to a point along the Trace beyond the disturbance limits of the project. The exact limits of work along the Trace area approximately 1000 feet north of the existing bridge. No temporary relocation work is needed to begin construction on Buildable Unit One. From Bacon Creek Road to the Energy Lake Campground area, these facilities would remain overhead (with minor adjustments to allow work on the current roadway project) until they can be addressed as part of the Lake Barkley Bridge replacement. As part of the Bridge Project, the electrical facilities to provide power for the Energy Lake Campground area will be installed on the new bridge from the Cadiz side of Lake Barkley. At that point, the overhead electrical facilities from Bacon Creek Road to the Energy Lake Campground area will be removed. KYTC responsible for cost.

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

ADDITIONAL ENVIRONMENTAL COMMITMENTS (post FONSI)

FLOODPLAINS

99. DESCRIPTION: If causeways are used, opportunities to create additional storage volume areas in Kentucky Lake and Lake Barkley by creating wetlands and/or ponds will be considered to compensate for flooding and power capacity losses, as necessary.

    - SOURCE: Various agency meetings
    - DATE:
    - RESOLUTION: See TVA and USCE permits

RECREATION

100. DESCRIPTION: It is expected that improvements to the causeway west of Lake Barkley will take place. TVA, Kentucky Department of Fish and Wildlife Resources, and US Forest Service would like for the causeways to stay in place for recreational opportunities.

    - SOURCE: Various agency meetings
    - DATE:
    - RESOLUTION: Not applicable to this construction project

101. DESCRIPTION: Coordinate with USFS regarding special-events schedule.

    - SOURCE: Various meetings with the USFS
    - DATE:

- Ø RESOLUTION: Special Note added to Roadway Plans

102. DESCRIPTION: Kentucky Department of Fish and Wildlife Resources would like to assist in finding an appropriate place for a pro-size boat ramp. Preliminary preference is at Fenton.

- Ø SOURCE: Various meetings with the KDFW
- Ø DATE:
- Ø RESOLUTION: Not applicable to this construction project

VEGETATION

103. DESCRIPTION: Landscape all four highway approaches.

- Ø SOURCE: Various agency meetings
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

GENERAL

104. DESCRIPTION: Provide 'Helper Boat" to assist barges navigating thru the construction zone at the bridge site on Kentucky Lake.

- Ø SOURCE: Various meetings with the USCG
- Ø DATE:
- Ø RESOLUTION: See notes in Bridge Plans and USCG Permit

105. DESCRIPTION: Provide access to and from the Shared Use Path and KenLake State Resort Park

- Ø SOURCE: Various meetings with KenLake SRP resident manager
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

106. DESCRIPTION: Provide additional parking for visitors to the area wishing to access the Shared Use Path near the KenLake SRP campground.

- Ø SOURCE: Various meetings with KenLake SRP resident manager
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

107. DESCRIPTION: Provide additional bridge under-clearance for occasional sailboats with extra tall masts.

- Ø SOURCE: Various early public involvement meetings
- Ø DATE:
- Ø RESOLUTION: Included in Phase I and Phase II Design – See Plans

108. DESCRIPTION: Provide utility ducts on the new lake crossing bridge

- Ø SOURCE: Various meetings with utility companys by KYTC D-1 personnel.
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

109. DESCRIPTION: Reuse construction entrances created by Advanced Contract contractor.

- Ø SOURCE: Various meetings with KYTC D-1 construction personnel
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

110. DESCRIPTION: Provide “on-site” field office during the klife of the construction project for use by KYTC construction inspection personnel .

- SOURCE: Various meetings with KYTC D-1 construction personnel
- DATE:
- RESOLUTION: Special Note added to Roadway Plans

111. DESCRIPTION: Provide “on-site” power boat during the life of the construction project for use by KYTC construction inspection personnel.

- SOURCE: Various meetings with KYTC D-1 construction personnel
- DATE:
- RESOLUTION: Special Note added to Bridge Plans

SPECIAL NOTES FOR KENTUCKY LAKE BRIDGE PROJECT

EFFECTIVE WITH DECEMBER 20, 2013 LETTING

SPECIAL NOTES (BRIDGE):

FOR DYNAMIC PILE TESTING
FOR STEEL PIPE PILES – FURNISH
FOR STEEL PIPE PILES – INSTALL
FOR VIBRATION MONITORING
FOR STEEL ERECTION – ARCH SPAN
FOR STEEL ERECTION – APPROACH SPANS
FOR STAINLESS STEEL REINFORCEMENT
FOR BRIDGE STRAND HANGERS
FOR DISK BEARINGS
FOR SEISMIC ISOLATION BEARINGS – LEAD CORD ELASTOMERIC
FOR SEISMIC ISOLATION BEARINGS – FRICTION
FOR SEISMIC DAMPERS
FOR FINGER EXPANSION JOINT
FOR MODULAR EXPANSION JOINT
FOR LIGHTNING PROTECTION SYSTEM
FOR DECORATIVE FENCE PANEL
FOR SHOP DRAWINGS & WELDING PROCEDURES
(6U) FOR STRUCTURAL MASS CONCRETE

SPECIAL PROVISIONS (BRIDGE):

(69) FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

SPECIAL NOTES (GENERAL):

FOR HELPER BOAT
FOR REMOVAL OF EXISTING BRIDGE
FOR CONSTRUCTION TRAILER
FOR WEB CAMERA CONSTRUCTION MONITORING SYSTEM
FOR CPM SCHEDULING
FOR PROJECT INSPECTION BOAT
FOR ENGINEERING-RELATED CONSULTING SERVICES
FOR INTERMEDIATE MILESTONES
FOR AVIATION CONSTRUCTION PERMITS

SPECIAL NOTE FOR DYNAMIC PILE TESTING

Marshall/Trigg Counties Item No. 1-180.70, CID 13-1212
Kentucky Lake Bridge

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 strain transducers and accelerometers, as defined in Section 2.3.2 of this Special Note, 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 gages 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 gages are not driven into the ground or water, unless the gages are specifically designed for underwater use. The purpose of the dynamic pile testing is to ensure that applicable design criteria and design codes are met.

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. “Engineer” is defined in Section 101.03 of the Standard Specifications.

1.2 Test Locations

Perform testing on piles designated in the plans or as directed by the Engineer. The Department reserves the right to require the contractor to perform initial drive and/or restrike dynamic testing on additional piles or previously tested piles, if deemed necessary to ensure that applicable bridge design criteria and design codes are met. Contingency testing quantities are included in the contract drawings.

1.3 Personnel Qualifications

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

Personnel should demonstrate experience similar to the type and magnitude of the project.

- 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 ten (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 gages, 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 acceptance 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

Make submittals via SharePoint software in accordance with the Project requirements for submittals. See Tables 1 and 2 below. The Department will respond to the Contractor regarding acceptability of submittals within ten (10) business days. A “Business Day” is defined as any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

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 gage calibration documentation. Include pile hammer warm-up procedure for restrike tests. Include anticipated delivery and training dates for E-Saximeters.	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.	2 After (48 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	Perform analyses in Table 3 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 (EOD)	Minimum of two piles for each substructure or as directed by the Engineer. At piers containing only three piles, test all three piles.
Beginning of Restrike Test Frequency (BOR)	Minimum of two piles for each substructure or as directed by the Engineer.
Time Interval between End of Initial Driving and Restrike Tests	Perform restrike tests on dynamically tested piles at 72 hours (68 to 108 hours after end of drive) and 168 hours (164 to 240 hours after end of drive) after driving unless directed otherwise by the Engineer. At piers containing only three piles, test all three piles at 72 hours and only the center pile at 168 hours.
Pile Driving Analyses using Signal Matching Techniques	For each End of Initial Driving Test and each Restrike Test
Perform testing, analyses and reporting in accordance with this table and ASTM D4945, *High-Strain Dynamic Testing of Piles.*	

Perform and submit wave equation analyses for one pipe pile at each end bent location and one pipe pile of each diameter within the station ranges indicated below using the representative pier for each driving hammer and system proposed for use. Perform analyses to demonstrate that the pile hammer has sufficient energy to install the piles to the design tip elevation and 75 and 100 percent of the required nominal axial resistances (RNAR) without overstressing or damaging the piles. Dynamic testing results will determine the driving criteria and control the final pile tip elevation.

Table 3- Wave Equation Analyses Locations	
Pier or End Bent Group	**Representative Pier or End Bent for Wave Equation Analyses**
End Bent 1	End Bent 1
Pier 1	Pier 1
Piers 2 and 3	Pier 3
Pier 4	Pier 4
Pier 5	Pier 5
Pier 6	Pier 6
Piers 7 and 8	Pier 8
Pier 9	Pier 9
End Bent 2	End Bent 2

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 Independent Dynamic Pile Testing Consultant in accordance with Table 1 in this Special Note and a summary report of the results. The required driving criteria are outlined in Sections 2.3.1 and 2.3.2 of the Special Note for Steel Pipe Piles - Install.

Prior to bidding, additional wave equation analyses may be performed by the bidders to select the appropriate driving system. Bidders are advised to retain an engineering consultant to perform independent wave equation analyses in order to select hammer(s) that meets the specified requirements for this project. This engineering consultant should meet the criteria for “Wave Equation and Pile Driving Analyses” in Section 1.3 of this Special Note and have extensive experience performing wave equation analyses, dynamic pile testing and signal matching analyses on projects with pile and hammer sizes similar to those to be used on this project.

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. Model the 72-inch-diameter pipe piles with the constrictor plates with a single toe using radiation damping, limiting the Smith damping factor in the radiation damping model to a maximum value of 0.4 feet/sec. Select the pile hammers for the 72-inch-diameter pipe piles at the pier locations and 30-inch-diameter pipe piles at the end bents based upon the criteria described below.

Select hammer(s) and driving system components with the following characteristics:

- Capable of producing 0.33 to 0.1 inches of set (3 to 10 blows per inch) when verifying 75% and 100% of the Required Nominal Axial Resistance (RNAR) as shown in the contract drawings;
- Produce driving stresses not exceeding 90% of the yield stress of the steel based on wave equation analysis;
- Capable of varying the stroke or energy to control driving stresses and blow counts. The results of wave equation analyses may be used to assess the need for varying the stroke or energy; and
- Refer to the Special Note for Steel Pipe Piles - Install for additional driving system criteria, including minimum hammer energies based upon pipe pile diameters and type of substructure.

Do not mobilize hammer(s) to site until the wave equation analysis and hammer selection have been reviewed and accepted by the Department.
In the Wave Equation Summary Report, include:

- Explanation of how the piles were modeled;
- brief discussion of how the soil parameters were selected;
- brief discussion of the hammer, helmet and cushion properties selected for the model;
- drivability graph relating pile resistance (i.e. capacity), blow count and driving stresses with 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 or energy;
- constant resistance (i.e. capacity) analysis or inspectors chart to assist the Department in determining the required driving resistance at other field-observed strokes or energy; and
- discussion and interpretation of the results.

2.1.1 The Department will base acceptance of the proposed pile driving system upon the wave equation analyses indicating that the proposed system can meet the driving criteria outlined in Section 2.3.1 of the Special Note for Steel Pipe Piles - Install.

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

2.2 High-Strain Dynamic Pile Testing

2.2.1 Perform dynamic pile testing at the locations and frequency required in accordance with Table 4 and Section 1.2 in this Special Note and at the locations indicated on the project plans.

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 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 for acceptance.

2.2.4 Perform all field testing and measurements in the presence of the Engineer 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. “Wireless” technology that eliminates cables from the test pile to the data acquisition equipment will be allowed.

Table 4 - Dynamic Load Testing Summary			
Substructure / Pile	**Dynamic Pile Load Testing (Number of Tests)**		
	End of Drive and During Drive	**72-Hour Restrike**	**168-Hour Restrike**
End Bent 1 / Test Piles	3	3	3
Pier 1 / Test Piles	1	1	1
Pier 1 / Production Piles	2	2	--
Pier 2 / Test Piles	1	1	1
Pier 2 / Production Piles	2	2	--
Pier 3 / Test Piles	1	1	1
Pier 3 / Production Piles	2	2	--
Pier 4 / Test Piles	2	2	2
Pier 5 / Test Piles	2	2	2
Pier 6 / Test Piles	2	2	2
Pier 7 / Test Piles	1	1	1
Pier 7 / Production Piles	2	2	--
Pier 8 / Test Piles	1	1	1
Pier 8 / Production Piles	2	2	--
Pier 9 / Test Piles	1	1	1
Pier 9 / Production Piles	2	2	--
End Bent 2 / Test Piles	3	3	3
Note: The Department reserves the right to require additional dynamic load tests			

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. Consultant will analyze the data collected at the end of initial driving and the beginning of restrike using accepted signal matching techniques and software.

Provide safe access to the piles allowing the independent testing consultant to attach the gages, including man lifts, shelters, etc.

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, and prepare holes

for gage attachment. Attach gages 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. If desired, install fully waterproof underwater wires, transducers, accelerometers and all other applicable devices that have been waterproofed by their manufacturer. Provide training by the manufacturer of the underwater devices for the Pile Driving Monitoring Engineer(s) to ensure that they understand how to properly use the underwater devices. Submit a letter of certification from the manufacturer stating that the underwater devices have been properly waterproofed and that includes the name(s) of the engineer(s) who will be using them stating that they have been trained to be proficient in the use of the underwater devices. Consider the anticipated variations in lake level and the selected pile length above the design cut-off elevation when planning the dynamic pile load testing;
- Install a minimum of two and four sets of transducers/accelerometers (equally spaced around the pile), for the 30- and 72-inch-diameter piles, respectively;
- Appropriately position and fix the equipment required to be attached to the pile to the satisfaction of the Engineer and the testing consultant. Monitor, and re-tighten gages as needed during testing. Replace defective gages as needed during testing;
- Use the testing equipment to monitor pile stresses during driving to prevent pile damage and ensure pile integrity and resistance (i.e. capacity); and
- Do not exceed driving stresses of 45 ksi (90% of specified 50 ksi yield stress steel) or 40.5 ksi (90% of specified 45 ksi yield stress steel).
- Refer to the driving criteria in Sections 2.3.1 and 2.3.2 of the Special Notes for Steel Pipe Piles-Install.

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 allowed by the Engineer. 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 Sections 2.3.1 and 2.3.2 of Special Note for Steel Pipe Piles-Install is satisfied. Make any required adjustments to the fuel and/or power setting of the hammer if necessary to verify the resistance within the specified range of blow counts or to meet other applicable testing objectives. When the level of the gages is within 1 foot of any obstruction endangering the survival of gages or cables, halt driving and remove gages from the pile. If additional driving is required, remove the obstruction or splice the pile and reattach the gages near the head of the next pile segment prior to resuming driving. For each initial drive and restrike dynamic pile test, as defined in Section 5.0 of this Special Note, perform pile driving analysis using signal matching techniques for up to three (3) selected hammer blows per each test (as defined in Section 5.0 of this Special Note) to determine the relative resistance (capacity) from end bearing and skin friction along the length of the pile.

- Perform beginning of restrike (BOR) tests at the frequency indicated in Table 2 and Table 4 of this Special Note with the time interval between end of initial driving and beginning of restrike in accordance with Table 2 and Table 4 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 resistance from end bearing and skin friction along the length of the pile.
- Record set per each hammer blow or for a known number of hammer blows during BOR tests. If underwater gages are used, weld a bracket on the side of the pile beneath the hammer bonnet, with a visually observable extension above the waterline for the purpose of set measurements. Use surveying equipment and the bracket to measure the set per hammer blow. The Department will consider alternate methods if proposed by the Contractor.
- Perform restrike tests with a warmed-up hammer (if applicable) by striking the pile a maximum of 5 blows unless testing equipment indicates overstressing or damage to the pile. Include the hammer warm-up procedure in Submittal No. 2 per Table 1 of this Special Note. If hammer warm-up is not required, the hammer operation should at

least be checked and confirmed by a qualified operator prior to each restrike.

- o If directed by the Engineer, advance the pile and perform re-drive dynamic testing immediately after performing a restrike test. Perform signal matching on one or more selected hammer blows (up to two) at the end of the re-drive.
- o If overstressing or damage to the pile is indicated, immediately discontinue driving and notify the Engineer. If the contractor overdrives the pile during restrike testing, and disturbs the set up of the skin resistance, additional wait/setup time may be required by the Engineer. In the event initial restrike testing indicates a pile resistance below the specified resistance, additional driving may be required as directed by the Engineer.
- o The Engineer may require dynamic pile testing on additional piles if inconclusive results are obtained or unusual driving conditions are encountered.
- o Evaluate pile resistance and integrity based on the standard procedure used in practice.
- o Provide the Department within 48 hours with tabular records of the dynamic pile testing field measurements obtained at the end of initial driving and at the beginning of restrike, which includes the signal matching results.

3.0 DYNAMIC PILE TEST REPORTS

3.1 Preliminary Dynamic Pile Test Reports

Submit a preliminary test report for each pile tested (for both End of Drive (EOD) and Beginning of Restrike (BOR) tests) for review by the Department. In the reports, include narrative, 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.
- Datum elevation and description of datum (i.e. template, water surface, mudline, etc.).
- Mudline elevation.
- Indication of drive time and any delays experienced during driving.
- Elevation of soil inside the pipe pile above the constrictor plate at end of drive and beginning of restrike.
- Elevation of soil inside the pipe piles at the end bents at end of drive and indicate whether plugging has occurred in the pipe pile.
- Pile tip elevation at beginning and end of test.
- Signal matching analysis for EOD and/or BOR. Both BOR and EOD if a re-drive is required. Use a single-toe model with radiation damping, limiting the radiation damping Smith damping factor to 0.4 feet/sec for the 72-inch-diameter pipe piles.
- Impact of driving shoe on the signal matching model.
- Number of usable (in-calibration and operational) accelerometers and strain gages.
- Actual elapsed hours since end of drive, for restrikes only.
- Refined wave equation based upon dynamic testing analysis, including inspector's chart for the pile resistance values specified by the Engineer for each specific substructure.

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

3.2 Dynamic Pile Test Summary Report

Submit a summary report, including signal matching, for each pile tested 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. Resolve any issues between the saximeter, inspector's records and the blow counts recorded on the dynamic testing equipment in the summary report. 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 provided in preliminary reports not listed here.
- Hammer type, stroke length, hammer energy 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.
- Wave up and wave down 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.
- Narrative description of toe model used in the signal matching model and the damping model for the 72-inch-diameter pipe piles.
- Discussion of impact of the constrictor plate on the pile impedance, wave speed and any other dynamic properties of the pile for the 72-inch-diameter pipe piles.
- Discussion of match quality and impacts assumptions within the signal matching model may have had on the match quality of the signal matching results.
- Narrative describing the data, results, and their interpretation.

4.0 INCIDENTAL EQUIPMENT

At least fourteen (14) calendar days prior to the beginning of dynamic testing, provide two electronic devices to aid in recording pile hammer blows, stroke, and energy such as an “E-Saximeter” or accepted equivalent meeting the specifications on Page 16 of this Special Note. This device will immediately become property of the Department for use on this project.

At least one (1) calendar day prior to the beginning of dynamic testing, 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

Bidders are cautioned that contract quantities for bid items covered in this Special Note are based on the Department's pre-bid estimates and are subject to increases or decreases based on the conditions encountered. Payment for authorized and accepted quantities will be at the contract unit bid price regardless of increases or decreases in quantities. The Overrun and Underrun Formulas defined in Section 104.02.02 of the Standard Specifications does not apply to the items covered in this Special Note.

DYNAMIC PILE TESTING

Dynamic pile testing on test piles and selected production piles will be measured per each. Payment for each restrike test performed will be separate from payment for each test performed during initial driving. Payment for each test will include pile driving monitoring, pile driving analysis (including wave equation and signal matching work) performed and preparation of applicable reports. Payment for the below described work, includes all material, equipment, tools, labor, reporting and any other incidental work, costs, and delays incurred by the Contractor necessary to complete these items.

5.1 Dynamic Pile Testing-On Water-Initial

Initial drive is the end of drive (EOD) condition, when the initial driving conditions defined in the Special Note for Steel Pipe Piles-Install occur. On water refers to the bridge piers where access will be from barges situated on the lake.

5.2 Dynamic Pile Testing-On Land-Initial

Initial drive is the end of drive (EOD) condition, when the initial driving conditions defined in the Special Note for Steel Pipe Piles-Install occur. On land refers to the end bents where the piles can be accessed from land.

5.3 Dynamic Pile Testing-On Water-Restrike

Restrike is applying hammer blows to the pile head after a prescribed time period to determine the pile resistance at the specified time period. Apply no more than five (5) hammer blows during restrike after the specified time period has elapsed. The cost of any re-drive dynamic testing performed immediately after restrike is incidental to the restrike test. On water refers to the bridge piers where access

will be from barges situated on the lake. Include cost of all contractor equipment, labor, incidental items and delays required to perform the restrike.

5.4 Dynamic Pile Testing-On Land-Restrike

Restrike is applying hammer blows to the pile head after a prescribed time period to determine the pile resistance at the specified time period. Apply no more than five (5) hammer blows during restrike after the specified time period has elapsed. The cost of any re-drive dynamic testing performed immediately after restrike is incidental to the restrike test. On land refers to the end bents where the piles can be accessed from land. Include cost of all contractor equipment, labor, incidental items, and delays required to perform the restrike.

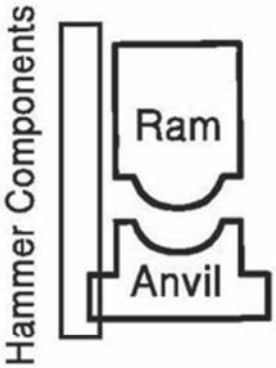
6.0 PAYMENT

Payment will be made under:

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

Marshall/Trigg Counties Item No. 1-180.70, CID 13-1212 - DRAFT
Kentucky Lake Bridge

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: _____
_____
_____

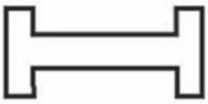
Striker Plate

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:	1OOmm X 190mm X 50mm (4 inches X 7.5 inches X 2 inches)
Weight:	0.54 kg (1.19 lb.)
Temperature range:	10 to 40°C (50 to 104°F) operating
Power:	built-in rechargeable battery w/ 16 hour min duration
Display:	LCD, 4 Lines x 16 characters, viewing area 62 mm by 26 mm (2.5 inches by 1 inch)
Keypad:	Large key (1.27 mm^2), non tactile

Electronic:

32 bit CICS Micro CPU up to 50 MHz
10 bit 2 channel analog to digital converter; 8 bit 2 channel digital to analog converter
Internal microphone 70 to 115 dB Standard Type A
USB drive for data transfer
8 MB internal RAM

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
Operates in English or SI units
Full one year warranty
Technical manual included

SPECIAL NOTE FOR STEEL PIPE PILES – FURNISH

This Special Provision shall apply to all steel pipe piling. The Pile thickness shall be as indicated in the Contract Plans. It supplements information provided in Section 604 pertaining to "cast-in-place concrete piles", "cast-in-place piles", "cast-in-place pile shells", "steel pipe piles", "steel shells" or "pile shells", except as modified herein. Where a conflict exists between this Special Note and Section 604, the provisions herein shall govern.

Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction except as noted otherwise.

1.0 DESCRIPTION. This work consists of fabricating and furnishing steel pipe piles and test piles to their final length, including constrictor plates and pile shoes of the sizes required for installation and as shown on the Contract Plans. This includes performing all other incidental work as described herein and as measured in Section 8 of this Special Note. Within these provisions "final length" has the meaning defined in Section 8.

2.0 MATERIALS.

02.01 Steel Pipe Piles, including Test Piles. Piles with wall thickness greater than 1 in. shall conform to ASTM A572, Grade 50. Piles with wall thicknesses not greater than 1 in. shall conform to either ASTM A572, Grade 50, or ASTM A252, Grade 3.

The carbon equivalency in all steel pipe piles, regardless of wall thickness, shall not exceed 0.45 percent, using the following formula from AWS D1.1 to calculate the percent carbon equivalent:

$$CE = C + (Mn + Si)/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

Sulfur content in all steel pipe piles shall be limited to 0.05%.

02.02 Pile Shoes. Conform to ASTM A 148, Grade 90/60 or ASTM A694, Grade F60.

02.03 Constrictor Plate and Stiffeners. Conform to ASTM A 572, Grade 50.

Steel in constrictor plates and stiffeners shall satisfy the same carbon equivalency and sulfur content limitations as required for steel pipes in Section 2.01 of this Special Note.

02.04 Concrete. For pipe pile concrete infill see Special Note for STEEL PIPE PILES – INSTALL.

02.05 Steel Reinforcement. For reinforcing steel in concrete infill see Special Note for STEEL PIPE PILES – INSTALL.

3.0 EQUIPMENT.

03.01 Equipment for Driving. Installation is not part of this Special Provision.

Conform to Special Note for STEEL PIPE PILES - INSTALL in the Contract Documents.

4.0 FABRICATION.

04.01 Steel Pipe Piles. Fabrication of steel pipe piles with wall thicknesses greater than 1 in. shall conform to American Petroleum Institute Specification 2B (API 2B), including dimensional tolerances. API 2B Appendix A, Supplementary Requirements SR1 through SR4, shall not apply. Spiral welded pipe (SWP) with wall thickness greater than 1 in. shall not be permitted.

Fabrication of steel pipe piles with wall thicknesses not greater than 1 in. shall conform to either: API 2B, including dimensional tolerances; or ASTM A252, including dimensional tolerances plus these additional tolerance requirements:

- Circumference: The outside circumference at any point in a length of pipe shall be within ±1% of the nominal circumference or within ±¾ in., whichever is less.
- Straightness: The straightness shall not vary more than 0.001 times the length of the pile (1/8 in. in any 10-ft length.)

04.02 Pile Shoes. Pile shoe shall consist of cast steel or machined steel open-ended, inside flange cutting shoe of the size shown on the plans. Pile shoes shall have full contact with pile cross-section at the tip of the pipe to avoid stress concentration and possible damage to the pile during installation.

04.03 Constrictor Plate and Stiffeners. Conform to Section 607 and the Contract Plans.

04.04 Welding Procedure and Operator Qualifications. Conform to API 2B.

04.05 Shop Welding. Shop welding of steel pipe piling is defined as welding performed at the pipe manufacturer's facility. Shop welding of steel pipe piles shall conform to API 2B.

04.06 Field Welding. Field welding of steel pipe piling is defined as welding performed after the material has been transported from the pipe manufacturer's facility. Field welding of pipe splices (girth welds) shall conform to the requirements of API 2B and the following:

A. Girth welds shall be complete joint penetration welds conforming to AWS D1.1.

B. Welds shall be located at least 12 in. away from a skelp end weld.

C. Match marking of pipe ends at the manufacturing or fabrication facility is recommended for piling to ensure weld joint fit-up. Prior to positioning any 2 sections of steel pipe to be spliced by field welding, including those that have been match marked at the manufacturing or fabrication facility, the Contractor shall equalize the offsets of the pipe ends to be joined and match mark the pipe ends.

D. Welds made in the flat position or vertical position (where the longitudinal pipe axis is horizontal) shall be single-vee or double-vee groove welds. Welds made in the horizontal position (where the longitudinal pipe axis is vertical) shall be single-bevel groove welds. Joint fit-ups shall conform to the requirements in AWS D1.1, Section 5.22.3.1, "Girth Weld Alignment (Tubular)," and these special provisions.

E. For field welding limited to attaching backing rings and handling devices, the preheat and interpass temperature shall be in conformance with the requirements in AWS D1.1, Section 3.5, "Minimum Preheat and Interpass Temperature Requirements," and with AWS D1.1 Table 3.2, Category C.

F. The minimum preheat and interpass temperature for production splice welding and for making repairs shall be 150°F, regardless of the pipe pile wall thickness or steel grade. In the event welding is disrupted, preheating to 150°F must occur before welding is resumed.

G. Welds shall not be water quenched. Welds shall be allowed to cool unassisted to ambient temperature.

5.0 INSPECTION AND REPAIR.

Mill test reports: Furnish notarized certified mill test reports to the Engineer and Department showing that all materials furnished conform to the specifications.

Inspection and repair of welds shall conform to API 2B except Subsection 7.3 shall be modified for field splices (girth welds) as follows:

25% of each girth weld shall be examined by radiographic or ultrasonic inspection in accordance with the requirements of: Section 6, and Part E with Paragraph 6.12.3, and Part F with Paragraph 6.13.3.1, of AWS D1.1. The Engineer may select several locations on a given splice. The cover pass must be ground smooth at locations to be tested. If repairs are required in a portion of the tested weld:

1. Perform NDT on the repaired portion.
2. Perform additional NDT on untested areas on each side of the repaired portion. The length of additional NDT on each side of the repaired portion must equal 10 percent of the pipe's outside circumference.
3. After this additional 20 percent of NDT is performed, and if additional repairs are required, determine and document the total cumulative repair lengths from all NDT. If the cumulative weld repair length is equal to or more than 10 percent of the pipe's outside circumference, then perform NDT on the entire weld.

6.0 HANDLING. Working drawings shall be submitted to the Engineer before attaching handling devices to steel pipe piling. Welds used to attach handling devices to steel pipe piling shall be aligned parallel to the axis of the pile and shall conform to the requirements for field welding specified herein. Working drawings shall include locations, handling and fitting device details, and connection details. Attachments shall not be made to steel pipe piling until the working drawings are approved in writing by the Engineer. The Contractor shall allow the Engineer 15 Business Days for review, as described for rolled steel sections in Special Note for Shop Drawings and Welding Procedures.

7.0 SUBMITTALS. Conform to Special Note for Shop Drawings and Welding Procedures. The following submittals are required:

1. Pile fabrication details
2. Pile fabrication section lengths
3. Pile field splice details and procedures
4. Constrictor plate fabrication details
5. Pile shoe fabrication details
6. Schedule for fabrication and delivery
7. Repair procedures for any fabrication defects

8.0 MEASUREMENT.

08.01 Pipe Piles - Furnish. Quantity for Furnishing Steel Pipe Piles will be measured per linear foot. Payment for the furnished piles does not include pile shoes, constrictor plates, concrete fill or reinforcement for concrete fill, but payment shall include splices and all incidental material and labor necessary to install the piles to their final length. "Final length" is defined as:

- the distance between the PILE CUTOFF ELEVATION and the LOWEST ANTICIPATED PILE TIP ELEVATION indicated in the plans at locations where the PILE TIP ELEVATION AS DRIVEN is not deeper than the LOWEST ANTICIPATED PILE TIP ELEVATION.
- the distance between the PILE CUTOFF ELEVATION indicated in the plans and the PILE TIP ELEVATION AS DRIVEN at locations where the PILE TIP ELEVATION AS DRIVEN is deeper than the LOWEST ANTICIPATED PILE TIP ELEVATION..

08.02 Test Piles (Pipe) - Furnish. Quantity for Furnishing Steel Pipe Test Piles will be measured per linear foot. Payment for the furnished test piles does not include pile shoes, constrictor plates, concrete fill or reinforcement for concrete fill, but payment shall include splices and all incidental material and labor necessary to install the piles to their final length. "Final length" is defined as:

- the distance between the PILE CUTOFF ELEVATION and 20 feet below the LOWEST ANTICIPATED PILE TIP ELEVATION indicated in the plans at locations where the PILE TIP ELEVATION AS DRIVEN is not deeper than 20 feet below the LOWEST ANTICIPATED PILE TIP ELEVATION.
- the distance between the PILE CUTOFF ELEVATION indicated in the plans and the

PILE TIP ELEVATION AS DRIVEN at locations where the PILE TIP ELEVATION AS DRIVEN is deeper than 20 feet below the LOWEST ANTICIPATED PILE TIP ELEVATION.

08.03 Pile Shoes for Steel Pipe Pile. Payment for pile shoes shall be at the contract unit price per each individual unit and shall include all material, labor and incidentals to fabricate, furnish and attach the shoes to the pile ends prior to driving.

08.04 Constrictor Plates for Steel Pipe Pile. Payment for constrictor plate shall be at the contract unit price per each individual unit and shall include all material, labor and incidentals to fabricate, furnish and attach the constrictor plates to the piles prior to driving.

9.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24618EC	PIPE PILES (FURNISH – 72 IN - 2 IN)	LF
24618EC	PIPE PILES (FURNISH – 30 IN – 1 IN)	LF
8033	TEST PILES (FURNISH – 72 IN PIPE - 2 IN)	LF
8033	TEST PILES (FURNISH – 30 IN PIPE - 1 IN)	LF
24627EC	OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	EACH
24627EC	OPEN END INSIDE FIT CUTTING SHOE (30 IN – 1 IN)	EACH
24628EC	PILE CONSTRICTOR PLATE (72 IN - 2 IN)	EACH

SPECIAL NOTE FOR STEEL PIPE PILES-INSTALL

Marshall/Trigg Counties Item No. 1-180.70, CID 13-1212
Kentucky Lake Bridge

1.0 SCOPE OF WORK

The following sections provide the requirements for driven pipe pile installation, schedule requirements for submittals, and Contractor/Department Responsibilities.

1.1 Driven Pipe Pile Installation Objectives and Qualifications

The scope of work includes furnishing all labor, driving equipment, ancillary equipment necessary, templates and analyses associated with installation of driven steel pipe piles as specified in this Special Note and in general accordance with Section 604 of the Standard Specifications, except as modified by this Special Note. Driven pile installation includes installing 30-inch outside diameter, open-ended steel pipe piles with driving shoes at the end bent locations and installing 72-inch outside diameter, open-ended steel pipe piles with driving shoes and internal steel constrictor plates at the approach span pier and main span pier locations per the plans, project specifications and this Special Note. Refer to the Special Note for Steel Pipe Piles-Furnish and the Special Note for Dynamic Pile Testing for additional information regarding the manufacture/fabrication and the testing of the pipe piles.

Bidders are cautioned to expect 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. Additional geotechnical information may be available via the KYTC Division of Construction Procurement Website under “Project Related Information”. The referenced geological literature and geotechnical information are for information only and are not contract documents. However, available subsurface data are included in the bridge plans 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. Bidders are advised to factor any and all risks associated with the conditions at the site into their bids.

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. “Engineer” is defined in Section 101.03 of the Standard Specifications.

1.1.1 Bridge Pier Contractor’s Qualifications

1.1.1.1 Qualifications of Bridge Pier Pile Driving Contractor or Subcontractor: Submit qualifications demonstrating that the Contractor has at least ten (10) years experience in heavy marine construction including at least three (3) projects in heavy marine construction, and including at least two (2) projects in a marine environment installing driven cylindrical piles (steel pipe or concrete shell) at least 30 inches in diameter and driven greater than 60 feet in penetration.

1.1.1.2 Supervisor of pier pipe pile installation: Submit qualifications showing that the Supervisor of the pipe pile installation has at least five (5) years supervisory experience within the last ten (10) years in heavy marine construction, with experience on at least two (2) projects installing driven cylindrical piles (steel pipe or concrete shell) 30 inches or larger in diameter and driven greater than 60 feet in penetration. Some or all of the experience may be with a different contractor.

1.1.1.3 Employ an independent testing agency for Dynamic Pile Testing. Submit qualifications of the testing agency and personnel per Section 1.3 of the Special Note for Dynamic Pile Testing.

1.1.1.4 Employ a Professional Land Surveyor and/or Professional Engineer licensed in the State of Kentucky with at least three (3) years experience in project survey control for projects of similar type and complexity, including preconstruction layout of

bridge foundations and determining as-built locations and elevations of driven piles.

1.1.2 End Bent Construction Qualifications

1.1.2.1 Qualifications of Bridge End Bent Pile Driving Contractor or Subcontractor: Submit qualifications showing that the Contractor has had at least five (5) years experience pile driving construction, and at least two (2) projects installing driven cylindrical piles (steel pipe or concrete shell) of at least 15 inches in diameter and driven greater than 30 feet in penetration.

1.1.2.2 Supervisor of end bent pipe pile installation: Submit qualifications showing that the Supervisor of the end bent, open-ended, pipe piles has at least five (5) years supervisory experience with pile driving and at least two (2) projects installing driven cylindrical piles (steel pipe or concrete shell) 15 inches or larger in diameter and driven greater than 30 feet in penetration. Some or all of the experience may be with a different contractor.

1.1.2.3 Employ an independent testing agency for Dynamic Pile Testing. Submit qualifications of the testing agency and personnel per the Special Note for Dynamic Pile Testing.

1.1.2.4 Employ a Professional Land Surveyor and/or Professional Engineer licensed in the State of Kentucky with at least three (3) years experience in project survey control for projects of similar type and complexity, including preconstruction layout of bridge foundations and determining as-built locations and elevations of driven piles.

1.1.3 Install 72-inch outside diameter, open-ended, pipe piles with steel constrictor plates to the specified driving criteria at the locations and depths specified in the contract documents. Refer to the Subsurface Data Sheets in the plans and additional geotechnical information posted on the Division of Construction Procurement's website for the anticipated materials that the piles will be driven through.

1.1.4 Install 30-inch outside diameter, open-ended pipe piles to the specified driving criteria at the locations and estimated depths specified in the contract documents. Refer to the Subsurface Data Sheets and additional geotechnical information posted on the Division of Construction Procurement's website for the anticipated materials that the piles will be driven through.

1.1.5 Perform and submit wave equation analyses per Section 1.5 of the Special Note for Dynamic Pile Testing. Dynamic testing results will be used to determine the driving criteria and control the final pile tip elevation.

1.1.6 Subcontract an independent pile testing firm to perform dynamic monitoring on the test piles. Provide the pile testing firm necessary assistance including, but not limited to, crane assistance and safety equipment, and safe access to the top of the piles prior to pile driving to facilitate installation and/or repair of the instruments. Refer to the Special Note for Dynamic Pile Testing for additional details. The test piles will also serve as production piles, once the test piles are accepted.

1.1.7 Perform layout, elevation and location survey control, provide templates and support spuds, and measurement and marking in general accordance with the requirements of Standard Specification Section 201.

1.1.8 Provide and perform all field and shop pile splicing per Special Note for Steel Pipe Piles-Furnish.

1.1.9 Perform 72-hour restrikes on each test pile indicated on the plans. Perform restrikes on additional test piles and/or production piles as selected by the Department. The target time is 72 hours but the Department will allow these restrikes to be performed between 68 to 108 hours after end of drive and this range applies to any reference to a 72-hour restrike even if not explicitly stated. The Department will determine the need of additional restrikes based on results of the initial restrikes. The Department will pay for additional restrikes based upon the applicable established unit prices for restrikes.

1.1.10 Perform 168-hour restrikes on designated test piles, unless additional restrikes are indicated on the plans. The target time is 168 hours but the Department will allow these restrikes to be performed between 162 to 240 hours after end of drive and this range applies to any reference to a 168-hour restrike even if not explicitly stated. Perform restrikes on additional

test piles and/or production piles as selected by the Department. The Department will determine the need of additional restrikes based on results of the initial restrikes and reserves the right to add restrike testing.

1.1.11 Furnish and place reinforcing steel in the pipe piles to connect with the pile caps and fill the pipe piles with concrete as shown on the contract documents.

1.1.12 After completing the pipe pile cut-offs, all unused excess materials become the property and responsibility of the Contractor to legally dispose of off-site at no additional cost to the Department.

1.2 Pre-Activity Meeting

A pre-activity meeting to cover the activities in the Special Note for Steel Pipe Piles-Install and the Special Note for Dynamic Pile Testing will be scheduled and shall occur after all the submittal items in Sections 1.3 and 2.1 of this Special Note have been submitted and accepted by the Department and not later than three (3) weeks prior to commencement of pile driving testing and construction activities. As a minimum, this meeting shall be attended by representatives of the Prime Contractor and Pile Driving Sub-Contractor(s) (if applicable) including the pile driving supervisor(s), Department District personnel as designated by the Branch Manager for Project Delivery and Preservation, Central Office Construction, Geotechnical Branch, and applicable Department Consultants. No pile construction or testing activity shall be performed until the contractor's final submittals have been accepted as having satisfactorily resolved all review comments and the pre-activity meeting has been held.

1.3 Materials

1.3.1 Steel Pipe Piles

Conform to Special Note for Steel Pipe Piles-Furnish and contract drawings and specifications.

1.3.2 Driving Shoes

Fit each steel pipe pile with a driving shoe. Conform to Special Note for Steel Pipe Piles-Furnish.

1.3.3 Constrictor Plate and Stiffeners

Pipe piles at the pier substructure locations will contain steel constrictor plates and stiffeners installed on the interior of the pipe piles as indicated in the project plans.

1.3.4 Field Splices

Conform to Special Note for Steel Pipe Piles-Furnish and applicable contract drawing details.

1.3.5 Concrete

Class A, Mod (Pipe Pile Infill) – Provide Class A Modified Concrete conforming to contract drawings and Standard Specifications.

1.3.6 Reinforcing Steel

Conform to contract drawings and Standard Specifications.

1.4 Pile Driving Equipment

1.4.1 General - Acceptance of Driving System: Furnish all accepted pile driving equipment (including the hammer, hammer cushion, drive head, pile cushion, and other appurtenances to be furnished by the Contractor). Acceptance will be based on the requirements per the Special Note for Dynamic Pile Testing. Obtain acceptance prior to mobilizing the pile-driving equipment and beginning the pile driving. Include the description for verifying hammer performance during testing and production driving.

Submit results of the wave equation analyses demonstrating that the piles can be driven to the required length and at 75 and 100% of the required nominal axial resistances (RNAR) as indicated in the plans using the selected driving system without damage to the piles.

During pile driving operations, use the accepted driving system. No changes in the driving system or equipment will be allowed unless the Contractor has submitted revised pile driving equipment data and wave equation analyses for the corresponding driving criteria and pile stresses and the Department has accepted the revised submittal.

The Department's acceptance of the pile driving equipment does not relieve the Contractor of its responsibility to drive the piles, free of

damage, as specified in this Special Note and/or other applicable contract documents.

1.4.2 Hammers:

1.4.2.1 Drive the 72-inch outside diameter steel pipe piles with hammer(s) having a rated energy of at least 589,000 ft-lbs and conforming to this Special Note and the Special Note for Dynamic Pile Testing. Select the hammer(s) to suit the conditions expected to be encountered. Repair or replace any hammer system which malfunctions and results in failure to deliver the required rated energy as determined by dynamic pile testing. If repairs do not result in the hammer's ability to deliver the required rated energy, replace it with a different hammer of the same type or an alternate hammer type, as accepted by the Department at no additional cost to the Department. Use the same hammer(s) to drive the test piles and the production piles at each pier. Submersible hammers are permitted.

1.4.2.2 Drive the 30-inch outside diameter steel pipe piles with hammer(s) having a rated energy of at least 100,000 ft-lbs and conforming to this Special Note and the Special Note for Dynamic Pile Testing. Select the hammer(s) to suit the conditions expected to be encountered. Repair or replace any hammer system which malfunctions and results in failure to deliver the required rated energy as determined by dynamic pile testing. If repairs do not result in the hammer's ability to deliver the required rated energy, replace it with a different hammer of the same type or an alternate hammer type, as accepted by the Department at no additional cost to the Department. Use the same hammer(s) to drive the test piles and the production piles at each end bent.

1.4.2.3 The Contractor may use a vibratory hammer to initially install the top section of the piles at the piers, only if the proposed equipment and procedures are submitted in writing and accepted by the Department in writing. Do not use a vibratory hammer to advance the pile tip below a depth of 50 feet below the encountered mudline.

1.4.2.4 The Contractor may use a vibratory hammer to initially install the top section of the piles at the end bents, only if the proposed equipment and procedures are submitted in writing and accepted by the Department in writing. Do not use a vibratory hammer to advance the pile tip below Elevation 310 feet.

1.4.3 Hammer Cushions - Equip all impact driving equipment, where required, with a cushion of suitable material thickness to prevent damage to the pile or hammer and to ensure uniform driving behavior. Provide hammer cushions made of durable manufactured materials which will retain uniform properties during driving. Wood, wire rope, and asbestos hammer cushions will not be permitted. Place a striker plate on the hammer cushion to ensure uniform compression of the cushion material. The Department may inspect the hammer cushion prior to beginning pile driving and after each 100 hours of pile driving. Replace the hammer cushion when the thickness is less than 75 percent of the original cushion thickness. Include appropriate cushion material and thickness in the wave equation analyses.

1.4.4 Helmets – Fit piles driven with impact hammers with an adequate helmet to uniformly distribute the hammer energy to the pile head. Align the helmet axially with the hammer and pile. Fit the helmet around the pile in such a manner to prevent transfer of torsional forces during driving, while maintaining proper alignment of the hammer and pile. Cut off the pile square, and position the helmet to hold the pile in line with the axis of the hammer. Locate the helmet plane and perpendicular to the longitudinal axis of the pile to prevent eccentric impacts from the drive head.

1.4.5 Pile Cushion – Provide pile cushion, where required, with dimensions such that the hammer energy is uniformly distributed to the pile head, when a pile cushion is required. Include appropriate cushion material and thickness in the wave equation analyses.

2.0 CONSTRUCTION

2.1 Submittals: Make submittals via SharePoint software in accordance with the Project requirements for submittals. The following submittals apply to the installation of pipe piles for review and acceptance by the Department 60 calendar days prior to start of the pile installation, unless the submittal date is specifically addressed in a different Special Note. The Department will respond to the

Contractor regarding acceptability of submittals within 10 business days. A "Business Day" is defined as any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

Conform to all submittal requirements of the Contract, including submitting the information specified herein:

2.1.1 Bridge Pier Construction Qualifications – Refer to Section 1.1.1

2.1.2 End Bent Construction Qualifications – Refer to Section 1.1.2

2.1.3 Sequence of Operations: Submit a Sequence of Operations Plan, showing the order and sequence for each pile installation, for review and acceptance by the Department prior to driving piles. Prepare the Sequence of Operations Plan to minimize impacts to adjacent construction and the existing bridge. Conform the Sequence of Operation Plan to the requirements in the contract plans and specifications and the Special Notes.

2.1.4 Shop Drawings: Submit shop drawings showing pipe pile sizes, drive shoe details, joint or splice details, welding, pick up points, and other items pertinent to the pile design and handling.

2.1.5 Pile Installation Equipment and Methods:
Items to be submitted as part of this section:

2.1.5.1 The manufacturer's literature, including technical and performance literature for the pile driving hammer, the cushions, and other equipment for pile driving.

2.1.5.2 The details of the monitoring system for determination of the elevation of the pile tip during and after driving.

2.1.5.3 The details of equipment and procedures for clearing obstructions encountered during pipe pile installation such as drilling, jetting, augering, or excavation.

2.1.5.4 Provide a project hazard analysis for the pile driving operations that will be incorporated into the project safety plan that will be submitted by the Contractor.

2.1.6 Pile Design:

Items to be submitted as part of this section:

2.1.6.1 See Special Note for Steel Pipe Piles-Furnish for a list of required submittals regarding pipe pile manufacturing and materials.

2.1.6.2 Qualifications and experience of the Contractor's Licensed Professional Engineer performing the wave equation analyses conforming to the qualifications and experience outlined in the Special Note for Dynamic Pile Testing.

2.1.6.3 The results of calculations using wave equation analyses of piles performed by a Professional Engineer, per the Special Note for Dynamic Pile Testing, that demonstrate that the equipment, cushions and cap are capable of installing the pipe piles without damage to the pile due to driving stresses. See Special Note for Dynamic Pile Testing for further details and requirements.

2.1.6.4 Settlement monitoring at the End Bents is part of the causeway expansion currently under construction under a separate contract. This data is critical for determining when the end bent piles can be driven. Settlement criteria have been met at End Bent 2. Drive End Bent 1 piles after telltale readings show less than 1/8 inch (0.01 feet) of settlement over a four week period. The Department will respond regarding the driving of the end bent piles within five calendar days after reviewing the data submitted by the causeway expansion contractor.

2.1.7. Site Plan and Pile Location Data:

2.1.7.1 Submit a Site Plan including the method to access the site (barge access, timber cribbing, any trestles, etc.), the proposed equipment laydown area, the method to secure the area from

unauthorized access, the method of providing temporary support of the equipment, and methods of erosion control as required per the contract plans and specifications. The plan will be subject to the review and written acceptance of the United States Coast Guard (USCG) who will coordinate other reviews with applicable governmental agencies. The review period for this USCG review can be assumed as 30 calendar days. Extension of Contract time will be administered as prescribed in Section 108.07, unless otherwise noted. Comply with the stipulations established by the applicable governmental agencies as included in applicable permits. If requested by the permitting agencies following review of the Contractor's plan, modify the submittal and proposed methods at no additional cost to the Department. The Department will not be liable for any delay or associated costs as a result of rejection of the Contractor's submittal by the permitting agencies.

2.1.7.2 Within ten (10) days after the completion of all pile driving at each pier or end bent location including all restrikes, submit to the Department a final as-driven pile location drawing, certified by a Kentucky Licensed Professional Land Surveyor and/or Engineer. The plan shall be to scale and include the following:

2.1.7.2.1 North arrow and graphical scale.

2.1.7.2.2 Identify each pile by a separate number consistent with the Contract Documents.

2.1.7.2.3 The elevation of each pile top to the nearest one-tenth (0.1) foot prior to and after cutting it off.

2.1.7.2.4 Deviation in feet, to the nearest one-tenth (0.1) foot, of the axial center of the pile at cutoff elevation from the design location and coordinates of the final location of the axial center of the pile at cutoff elevation.

2.1.7.2.5 The elevation to the nearest one-tenth (0.1) foot of the pile tip to the top of the internal steel constrictor plate after final driving.

2.1.7.2.6 The deviation, to the nearest ¼-inch per foot, of the pile axis from vertical.

2.1.8 Quality Control Plan for Pile Installation: Prepare a written Quality Control Plan for Pile Installation. The plan shall address all aspects of construction including materials, equipment and operations both in preparation for construction, construction, as well as related testing, monitoring and acceptance. Submit the plan to the Department for review and acceptance.

2.2 Pile Lengths and Order Lists:

2.2.1 Furnish all piles in accordance with the Contract Documents and the Contractor's accepted submittals.

2.2.2 There is no direct payment for any pile length above the cut-off elevation that the contractor requires to install the test piles or production piles. Determine the necessary test pile or pile length above the cut-off elevation depending on the Contractor's equipment, approach and schedule (i.e. means and methods) and considering potential variations in lake levels and construction schedule.

2.2.3 The Department will pay the full furnish price for test piles from the cut-off elevation to 20 feet below the lowest anticipated pile tip elevation as shown in the contract plans, provided the actual accepted test pile tip elevation is between the highest allowable pile tip elevation and 20 feet below the lowest anticipated pile tip elevation.

2.2.4 The Department will pay the full furnish price for production pipe piles from the cut-off elevation to the lowest anticipated pile tip elevation as shown in the contract plans, provided the actual accepted test pile tip elevation is between the highest allowable pile tip elevation and the lowest anticipated pile tip elevation.

2.2.5 The contractor has an option of submitting a written request to the Engineer to order production pipe piles after test piles have been driven and revised estimated pile tip elevations and lowest anticipated pile tip elevations have been determined by the Engineer. If the Engineer allows the contractor to exercise this option, the furnish pipe pile pay length may be modified based on updated pile tip elevation estimates.

The Department will not grant any extension of contract time for the Contractor to exercise this option.

2.2.6 Any splicing required to advance a test pile to 20 feet below the lowest anticipated pile tip listed in the plans or a production pile to the lowest anticipated pile tip listed in the plans will be incidental to the applicable furnish test pile or furnish pile unit price described in the Special Note for Steel Pipe Piles-Furnish. Prior to splicing it may be necessary to perform restrike dynamic testing per the Special Note for Dynamic Pile Testing to verify that the specified percentage of required nominal axial resistance and/or specified driving criteria cannot be achieved.

2.2.7 Stockpile any production pile or test pile cut-offs, 30-inch or 72-inch, 5 feet or longer for use as splices and maintain a written inventory of available splice lengths. No double payment for furnish pile quantity or furnish test pile quantity and no direct payment for storage and handling of these sections will be made by the Department for these stockpiled cut-off sections.

2.2.8 If driving test piles deeper than 20 feet below the lowest anticipated pile tip specified in the plans is required to achieve the target percentage of required nominal axial resistance, splice stockpiled cut-off sections of the appropriate pile diameter to the top of the test pile. The Department will specify the splice length, which is anticipated to be a minimum of 10 feet. “Splice Pile” (30-inch or 72-inch) payment will be per the pay item in this Special Note for each pile splice performed. Prior to splicing it may be necessary to allow the pile to set up to determine if the applicable driving criteria can be achieved. “Test Piles Install” will be per the pay item in this Special Note (30-inch or 72-inch). No payment for furnish pile will be made when stockpiled cut-offs are used.

2.2.9 If driving production piles deeper than the lowest anticipated pile tip listed in the plans is required to achieve the target percentage of required nominal resistance, splice stockpiled cut-off sections of the appropriate diameter to the top of the pile. The Department will specify the splice length, which is anticipated to be a minimum of 10 feet. “Splice Piles” (30-inch or 72-inch) payment will be per the applicable pay item in this Special Note. “Piles-Install” (30-inch or 72-inch) payment will be per the applicable pay item in this Special Note. No payment for furnish pile will be made when stockpiled cut-offs are used.

2.2.10 If a splice is required and no stockpile cut-offs are available to splice to the test pile or production pile, furnish additional pile of the length specified by the Department for the splice length per the applicable established furnish pile contract price (30-inch or 72-inch) in the Special Note for Steel Pipe Pile - Furnish. The full length of the furnished splice length will be paid per the appropriate contract furnish price. The test pile or production pile installed will be paid per the applicable contract install pay item based upon the actual length that the splice is driven. The splice will be paid per the applicable contract splice pay item in this Special Note.

2.3 Pipe Pile Installation

2.3.1 Driving Criteria for the Test Piles: Unless directed otherwise by the Engineer, drive the test piles on which dynamic testing is performed to the highest allowable pile tip elevation at the convenience of the contractor. Then, drive piles in accordance with the following installation criteria, whichever occurs first:

2.3.1.1 The End of Driving (EOD) Resistance is 75% of the Required Nominal Axial Resistance (RNAR) or to the Estimated Pile Tip Elevation, whichever occurs first. This assumes a setup factor (SF) of 1.33 (= 100% / 75%). This setup factor may be adjusted based on the actual setup observed as testing proceeds. Note that the percentage of RNAR and Elevation criteria are subject to change if directed by the Engineer.

2.3.1.2 Driving stresses exceed 45 ksi (90% of 50 ksi yield stress) or 40.5 ksi (90% of 45 ksi yield stress).

2.3.1.3 A set of 0.07 inch/blow (i.e. a blow count of 15 blows per inch) is obtained for a sustained (1 foot) length of pile penetration and the pile is driven to at least the highest allowable pile tip elevation indicated on the project plans.

2.3.1.4 After prescribed waiting periods, perform Beginning of Restrike (BOR) tests on the designated test piles. The target 72-hour BOR resistance is 85% of the Required Nominal Axial Resistance (RNAR). The target 168-hour BOR resistance is 90% of the Required Nominal Axial Resistance (RNAR). The

Department will use data from these restrike tests to evaluate the long-term static resistance of the piles.

2.3.1.5 Unless otherwise directed by the Engineer, re-drive the test pile until the criteria is achieved in Sections 2.3.1.2 or 2.3.1.3 of this Special Note or to 18 feet below the Lowest Anticipated Pile Tip Elevation shown in the contract plans, whichever occurs first. If directed by the Engineer, perform a 72-hour (68 to 108 hours after initial drive) restrike.

2.3.1.6 If the target percentage of RNAR at EOD or BOR condition cannot be achieved prior to achieving a pile tip elevation of 20 feet below anticipated lowest pile tip elevation, the Department will specify a splice length and direct the contractor to perform the splice and continue to drive the test pile until the specified criteria is satisfied as described in Sections 2.3.1.1 to 2.3.1.4 of this Special Note.

2.3.2 Driving Criteria for the Production Piles: Drive the production piles to the highest allowable pile tip elevation at the convenience of the contractor. Upon completion of the test pile driving and submission of the dynamic testing reports for end of drive and beginning of restrike as the testing is completed, the Engineer will provide driving criteria for the remaining production piles at each substructure within three business days of receiving the dynamic testing results.

2.3.2.1 At Piers 1 to 3 and Piers 7 to 9, drive the production piles below the highest allowable pile tip elevation with dynamic testing to the EOD criteria set in Section 2.3.1.1 of this Special Note or to EOD criteria established from the test pile at the given pier.

2.3.2.2 At Piers 1 to 3 and Piers 7 to 9, restrike the production piles at 72 hours (68 to 108 hours after initial drive) after EOD with dynamic testing to the 72-hour BOR criteria set in Section 2.3.1.4 of this Special Note or to the driving criteria established from the test pile at the given pier.

2.3.2.3 If the production piles at Piers 1 to 3 and Piers 7 to 9 do not achieve the 72-hour BOR criteria prior to reaching the lowest anticipated pile tip elevation, the Department will specify a

splice length and direct the contractor to perform the splice and continue to drive the pile until the driving criteria is satisfied. Splices will first be made using the stockpiled cut-off sections of appropriate pile diameter.

2.3.2.4 At the End Bents and Piers 4 to 6, drive the production piles below the highest allowable pile tip elevation to the EOD criteria established by the Engineer from the test pile results.

2.3.2.5 If the production piles at the End Bents and Piers 4 to 6 do not achieve the established EOD or 72-hour BOR driving criteria prior to reaching the lowest anticipated pile tip elevation, the Department will specify a splice length and direct the contractor to perform the splice and continue to drive the pile until the driving criteria is satisfied. Splices will first be made using the stockpiled cut-off sections of appropriate pile diameter.

2.3.3 Inspection of Pipe Piles: Provide access using man- lifts, crane-lifts, or other equipment as may be required or requested, for the Department to regularly inspect the interior of the pipe piles during driving, for observing any damage to the pipe and to measure the elevation of the soil plug and water surface inside the pile. No pipe pile will be accepted unless inspected and accepted by the Department.

2.3.4 Perform all work in this section in accordance with the accepted Quality Control Plan for the Pile Installation per Section 2.1.8 of this Special Note.

2.3.5 Sequence: Drive all test piles at a pier or end bent, as specified on the plans, including the restrikes, until accepted by the Department before any of the production piles at that pier or end bent are driven below the highest allowable tip elevation. Restrike indicated test piles at 72 hours and 168 hours following the end of the initial driving. The Department will provide the recommended production pile driving criteria based upon the dynamic pile testing results within 3 business days of receiving the dynamic pile testing report at each substructure.

Drive the remaining production piles below the highest allowable pile tip elevation by driving those located nearest the existing bridge first and in a sequence so as to minimize the impacts on the existing bridge

foundations and to reduce the potential effects of densification on the installation of the rest of the piles within a pier.

Perform a 72-hour restrike on all test piles after the end of the initial driving and any production piles selected by the Department. At each pier and end bent location, restrike the test piles and up to two (2) production piles at 168 hours (162 to 240 hours), if selected by the Department. If a submersible hammer is planned to be used below the water surface, propose a method of measuring the pile set per blow during restrike tests for review and acceptance by the Engineer.

2.3.6 Cleanout: After final driving and restrike, clean out the pipe pile removing materials to the elevation shown on the Contract Drawings. Use methods as needed and appropriate, including but not limited to excavating, augering, chiseling, air-lifting or jetting to remove the materials encountered, which do not result in damage to the driven pipe pile.

At all times during excavation, maintain the water or drill fluid level inside the pipe no more than 5 feet below the surrounding lake level including during fluctuations resulting from operation of the dam. Do not dewater the interior of the pipe pile without prior acceptance by the Department.

In no case remove any materials below the constrictor plate.

Remove soil from the interior of the pipe pile to the designated level shown on the contract drawings to create a level soil surface within the pile. Remove all loose/soft silt, clay, sand, gravel and all other soil materials above the top of the designated cleanout elevation shown on the contract drawings, unless otherwise accepted by the Department.

2.3.7 Determination of pile resistance:

Evaluate the nominal resistance of each test pile and selected production piles using dynamic pile testing as described in the Special Note for Dynamic Pile Testing.

2.3.8 Preparation for Driving:

2.3.8.1 Layout and Elevation and Location Control: Layout all pile locations. Establish a benchmark at each of the proposed driving locations on an object that is not influenced by surrounding lake levels to the nearest 0.1-foot, and is referenced to the project elevation datum and visible above maximum anticipated surrounding lake level.

Verify the tip elevation of driven piles to the nearest 0.1-foot relative to the project elevation datum. Confirm each pile tip elevation prior to and following pile restrike, and as required by the Engineer.

2.3.8.2 Templates: Pile driving templates or other acceptable means and methods proposed in writing by the Contractor and accepted in writing by the Engineer are deemed temporary works and are incidental to the construction of the permanent works. Include a description of the templates necessary to align and maintain the piles at their proper location and alignment in the Quality Control Plan for Pile Installation. Adjust the template(s) as necessary to prevent the tip of the piles from moving (i.e. “walking”) from their planned location. Securely fix the templates using temporary spud piles and/or other appropriate bracing and supports at the option of the Contractor. Situate the template configurations and spud piles so as not to injure or displace driven piles nor interfere with pile driving or other portions of the work. Use templates or other means and methods proposed in writing by the Contractor and accepted in writing by the Engineer to maintain the pile location and verticality until all piles in the pier group have been driven at least to the highest allowable tip elevation. Ensure that the location and alignment are maintained throughout pile installation and that the tolerances in Section 2.3.9.3 are achieved until the piles are accepted and incorporated into the substructure pile cap. At the end bents, the Contractor may submit a written request to the Engineer to remove portions of the templates (or other means and method proposed in writing by the Contractor and accepted in writing by the Engineer) prior to acceptance of all piles in the end bent. Dismantle and

remove the templates and temporary bracing, supports and spud piles in a manner so as not to damage, or misalign completed piling. Templates, bracing, supports, spud piles and other materials necessary to meet the requirements of this subsection remain the property of the Contractor. Repair any damage to the pipe piles as a result of the construction and removal of all materials necessary to meet the requirements of this subsection at no additional cost to the Department.

2.3.8.3 Measurement and Marking of Piles: Clearly and accurately mark all piles prior to installation at 1-foot vertical intervals and marked numerically at 5 feet vertical intervals starting at the pile tip.

Notify the Department of the total measured length of each pile and allow the Department to verify the length and accept the pile marking prior to the start of driving.

During driving, provide a graduated gauge 24 inches in length, with 1-inch increments clearly marked, and that is used as part of an elevation monitoring system situated at template (or other observable) level to allow verification of the final driving resistance for each pile driven. Secure and reference the monitoring system to an object that is not influenced by changes in surrounding lake levels.

If a submersible hammer is planned to be used below the water surface, provide a method of measuring the pile set per blow during restrike tests that is reviewed and accepted by the Engineer.

2.3.9 Pile Driving Records:

2.3.9.1 Test Pile Driving Records: For each test pile driven, keep records of the number of blows for each foot of penetration for the entire pile and the penetration (to the nearest 1/8 inch) under the final series of blows (pile set over the last 10 hammer blows). Include the type and size of hammer used, rate of hammer operation and stroke, type and dimensions of driving helmet and cushion block in the records. Include the

date, starting time, total driving time, pile location and identification number, pile type and size, "ground" or "mudline" elevation from which the pile is driven, elevation of soil within the interior of the pile above the constrictor plate, and final elevation of the pile tip and butt in the records. Indicate the elevation to which soil or interior of pipe pile was removed prior to concrete placement, volume and elevations of concrete, and pipe pile fill that was placed in the pile. Provide a copy of the records to the Engineer at the conclusion of each day's driving.

2.3.9.2 Production Pile Driving Records: Keep records for each production pile driven of the number of blows for each foot of penetration for approximately the last 10 feet of pile length (estimated upon the test pile driving results) and the penetration (to the nearest 1/8 inch) under the final series of blows to confirm the the end of driving (EOD) criteria or beginning of 72-hour restrike criteria (BOR) (pile set over the last ten (10) hammer blows and stroke, if applicable). Include the type and size of hammer used, rate of hammer operation and stroke, type and dimensions of driving helmet and cushion block in the records. Include the date, starting time, total driving time, pile location and identification number, pile type and size, "ground" or "mudline" elevation from which the pile is driven, elevation of soil within the interior of the pile above the constrictor plate, and final elevation of the pile tip and butt in the records. Indicate the elevation to which soil in the interior of pipe pile was removed prior to concrete placement, volume and elevations of concrete, and pipe pile fill that was placed in the pile. Provide a copy of the records to the Engineer at the conclusion of each day's driving.

2.3.9.3 Driven Pile Location and Alignment Tolerances: Drive all piles at the locations and alignments shown on the Contract Drawings unless otherwise directed or accepted in writing by the Engineer. Drive piles to within an axial tolerance not to exceed 1/4-inch per foot variation from the vertical. Drive the piles such that the final position of the axial center of driven foundation piles, measured in the plane of the cut-off elevation, does not deviate from the design location by more than 6

inches. Do not manipulate the piles after driving in order to force them into a tolerable position.

Perform accepted corrective action(s), as may be required, including replacement of misaligned piles and/or furnishing materials at no additional cost to the Department. Remove, or, if space allows and as allowed by the Engineer, cut-off the misaligned piles and then redrive or replace misaligned piles to the satisfaction of the Engineer.

2.3.9.4 Pile Heave and Restriking: Determine and record the elevation of the top of each pile immediately after driving and re-striking and again after completion of the driving of all piles in the group. Redrive any pile, by either the restrike criteria or to the original tip elevation, whichever is the greater distance, which has heaved more than 0.5-inch. Restrike the piles in accordance with this Special Note.

2.3.10 Defective, Damaged or Broken Piles:

Do not subject the piles to excessive or undue injury or stresses or to splitting or excessive deformation as a result of the driving operations and procedures. Correct any defective, damaged, or broken pile(s) by one of the following methods as accepted by the Engineer:

2.3.10.1 Withdraw the pile and replace with a new, and if necessary, longer pile; or

2.3.10.2 Cut off the defective or damaged pile at an elevation accepted by the Engineer, and splice another section to provide the required final elevation.

2.3.10.3 Perform any and all such remedial materials and work at no additional expense to the Department.

2.3.11 Pile Cut-offs:

2.3.11.1 Do not cut-off piles until all piles within a group have been checked for heave and until all required restriking has been completed to the satisfaction of the Engineer. Re-drive any

piles exhibiting heave of 0.5 inches or more to the required resistance or original tip elevation, whichever is deeper.

2.3.11.2 Unless otherwise specified, cut off all piles perpendicular to the longitudinal axis of the pile at the elevations specified on the Contract Drawings. Save all applicable cut-offs per Section 2.2.7.

2.3.11.3 The cut-offs may be used in splicing or building up other piles as required until all pipe pile driving is complete. Upon completion of the work, all unused or excess materials become the property of the Contractor to be legally disposed of off-site.

3.0 METHOD OF MEASUREMENT

Bidders are cautioned that contract quantities for bid items covered in this Special Note are based on the Department's pre-bid estimates and are subject to increases or decreases based on the conditions encountered. Payment for authorized and accepted quantities will be at the contract unit bid price regardless of increases or decreases in quantities. The Overrun and Underrun Formulas defined in Section 104.02.02 of the Standard Specifications does not apply to the items covered in this Special Note.

3.1 PILES - INSTALL – 30 IN PIPE – 1 IN will be measured for payment, calculated from the bottom of pile cap elevation to the as-driven tip elevation at the end bents, inspected and accepted in accordance with the Contract Documents and/or as directed by the Engineer. Pile length from cut-off to bottom of pile cap will not be measured or paid for installation.

3.2 PILES - INSTALL - 72 IN PIPE – 1 IN will be measured for payment, calculated from the measured mudline to the as-driven tip elevation at pier locations, inspected and accepted in accordance with the Contract Documents and/or as directed by the Engineer. Pile length from cut-off to mudline will not be measured or paid for installation. The mudline varies at the pier locations and will be defined as the mudline at each pile location which will be reported to the Engineer as measured by the Contractor in the presence of the Engineer.

3.3 TEST PILES - INSTALL - 30 IN PIPE – 1 IN will be measured for payment, calculated from the bottom of pile cap elevation to the actual driven pile tip elevation, inspected and accepted in accordance with the Contract Documents

and/or as directed by the Engineer. Pile length from cut-off to bottom of pile cap will not be measured or paid for installation.

3.4 TEST PILES - INSTALL - 72 IN PIPE – 2 IN will be measured for payment, calculated from the measured mudline to the actual driven pile tip elevation, inspected and accepted in accordance with the Contract Documents and/or as directed by the Engineer. Pile length from cut-off to mudline will not be measured or paid for installation. The mudline varies at the pier locations and will be defined as the mudline at each pile location which will be reported to the Engineer as measured by the Contractor in the presence of the Engineer.

3.5 SPLICE PILES - 30 IN PIPE – 1 IN – Payment for SPLICE PILE – 30-IN PIPE – 1 IN will be at the contract unit price per each and shall include all material, labor, any cutting and incidentals to perform the splice per the project plans and the applicable section of the Special Note for Steel Pipe Piles-Furnish. Splice piles will only be applicable when the Department directs the contractor to drive the test pile to an elevation that is greater than 20 feet below the lowest anticipated pile tip elevation or directs the contractor to drive the production pipe pile to an elevation that is below the lowest anticipated pile tip elevation. Any splicing required to advance a test pile to 20 feet below the lowest anticipated pile tip listed in the plans or advance a pipe pile to the lowest anticipated pile tip elevation listed in the plans will be incidental to the applicable test pile furnish or pipe pile furnish unit price described in the Special Note for Steel Pipe Piles-Furnish.

3.6 SPLICE PILES - 72 IN PIPE – 2 IN – Payment for SPLICE PILE – 72-IN PIPE – 2 IN will be at the contract unit price per each and shall include all material, labor, any cutting and incidentals to perform the splice per the project plans and the applicable section of the Special Note for Steel Pipe Piles-Furnish. Splice pile will only be applicable when the Department directs the contractor to drive the test pile to an elevation that is greater than 20 feet below the lowest anticipated pile tip elevation or directs the contractor to drive the pipe pile to an elevation that is below the lowest anticipated pile tip elevation. Any splicing required to advance a test pile to 20 feet below the lowest anticipated pile tip listed in the plans or advance a production pipe pile to the lowest anticipated pile tip elevation listed in the plans will be incidental to the applicable test pile furnish or pipe pile furnish unit price described in the Special Note for Steel Pipe Piles-Furnish.

Marshall/Trigg Counties Item No. 1-180.70
Kentucky Lake Bridge

4.0 PAYMENT

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
08033	TEST PILES - INSTALL - 30 IN PIPE -1 IN	LF
08033	TEST PILES - INSTALL - 72 IN PIPE - 2 IN	LF
24618EC	PILES – INSTALL - 30 IN PIPE -1 IN	LF
24618EC	PILES – INSTALL - 72 IN PIPE – 2 IN	LF
24618EC	SPLICE PILES – 30 IN PIPE – 1 IN	EACH
24619EC	SPLICE PILES – 72 IN PIPE – 2 IN	EACH

SPECIAL NOTE FOR VIBRATION MONITORING

Marshall/Trigg Counties Item No. 1-180.70, CID 13-1212
Kentucky Lake Bridge

1.0 GENERAL

Vibration-producing construction activities (primarily pile driving, or operation of heavy construction equipment) will be required during the construction and testing activities related to the Kentucky Lake bridge construction. 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 construction activities on this contract.

1.1 Scope of Work

The scope of work includes furnishing all labor, equipment and analyses associated with surveys of the pre- and post-construction condition of the existing Eggner Ferry bridge piers located adjacent to the new Kentucky Lake piers, and performing crack and vibration monitoring during the construction activities as specified in this Special Note.

2.0 PERSONNEL QUALIFICATIONS

Perform the services described below using the services of qualified personnel assigned to this project as described below.

2.1 Pre- and Post-Construction Surveys

Employ a licensed Professional Engineer to conduct pre- and post-construction condition surveys. The licensed Professional Engineer shall have at least 4 years of experience in pre- and post-construction condition surveys, and have conducted a minimum of 4 pre- and post-construction condition survey projects on transportation facilities.

2.2 Vibration Monitoring

Employ a qualified vibration specialist to establish Safe Vibration Levels for the existing Eggner Ferry Bridge Spans A through F piers. 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 4 vibration monitoring projects for ground vibrations caused by heavy construction. This specialist shall also supervise the Contractor's vibration-monitoring program.

3.0 SUBMITTALS AND REPORTS

Make submittals via SharePoint software in accordance with the Project requirements for submittals. See Table 1 below for a list and schedule of required Submittals and Reports. The Department will respond to the Contractor regarding acceptability of Submittals and Reports within 10 business days. A "Business Day" is defined as any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

Table 1 – Schedule of Submittals and Reports

Submittal Number	Submittal Item	Calendar Days	Event
1	Proposed licensed Professional Engineer for pre- and post-construction surveys, and proposed vibration specialist. Also include a listing of assigned personnel and their experience and qualifications.	30 After	Notice to Begin Work
2	Vibration Monitoring Plan and Pre-Construction Condition Survey	30 Before	Start of Pile Driving and/or Monitoring
3	Condition Survey and Vibration Monitoring Monthly Status Reports as defined in Sections 5 and 6	30 After and each month until pile driving is complete	Start of Pile Driving and/or Monitoring
4	Vibration Monitoring Summary Report and Post-Construction Condition Survey Report as defined in Sections 5 and 6 of this Special Note.	30 After	Completion of Pile-Driving Activities
Provide all submittals and reports in .pdf format			

4.0 MONITORING LOCATIONS AND EQUIPMENT

At a minimum, the piers for Spans A through F on the existing Eggner's Ferry Bridge will be monitored during pile-driving activities. Provide equipment for monitoring existing cracks and vibration monitoring as outlined in Sections 5 and 6. Establish recommended monitoring locations in the Pre-Construction Condition Survey and Vibration Monitoring Plan.

5.0 CONDITION SURVEYS

Conduct Pre- and Post-Construction Condition Surveys (PCS) on the existing Eggner Ferry Bridge Spans A through F Piers, prior to the commencement, and after the completion, of pile-driving activities. Include documentation of the Piers as viewed from the waterline. Detail (by engineering sketches, video, photographs, and/or notes) any existing structural or cosmetic damage.

Submit a Pre-Construction Condition Survey report that summarizes the pre-construction condition of the structure(s) and identifies 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.

Install crack displacement monitoring gages (visual or remote sensing) 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. Read the gages prior to vibration-producing activities, as well as during these activities. Obtain data on a monthly basis for as long as vibration-producing activities are being conducted. Submit a brief monthly report that confirms the data was obtained. Submit a final summary report which summarizes the data obtained on a monthly basis. Alert the Department if any significant movement as defined by the PCS engineer is detected by the monitoring gages.

Conduct a Post-Construction Condition Survey within 10 calendar days after the pile-driving activities for the bridge construction have been completed. The survey will follow the same procedures used for the Pre-Construction Condition Survey. Submit a report using the same format as the Pre-Construction Survey Report.

6.0 VIBRATION CONTROLS

Submit a written Vibration Monitoring Plan to the Engineer, which includes, but is not limited to the following: planned vibration monitoring activities (including the format for reporting the vibration readings), monitoring equipment, anticipated and Safe Vibration Levels (which may be established from a baseline monitoring program) at the closest structures, and communications activities.

During all pile-driving activities, monitor vibration levels at Spans A through F piers, and establish controls so that Contractor does not exceed the Safe Vibration Level established in the Contractor's Vibration Monitoring Plan to preclude damage to these structures. Collect and store data daily to confirm all equipment is operating within calibration requirements.

Provide vibration monitoring equipment capable of continuously recording the peak particle velocity, recording and transmitting a permanent record of the entire vibration event, and transmitting alarms when threshold values are exceeded. Provide vibration monitoring equipment with the following minimum features:

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. Frequency response (+3 dB points): 2 to 200 Hertz.
3. Three channels for simultaneous time-domain monitoring of vibration velocities in digital format on three perpendicular axes.
4. Two power sources: internal rechargeable battery and charger and backup power source.
5. Capable of internal, dynamic calibration.

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.
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.

Submit a monthly report that confirms vibration monitors are working and contains the highest vibration level peak particle velocities (PPV) and frequency observed at each monitoring location, starting after the first vibration monitor is installed, and continuing until vibration monitoring is terminated.

Submit a final report which summarizes the data collected. Include copies of all vibration records and associated construction activity (pile driving) data in the final report, submitted to the Engineer, in a format approved by the Engineer, 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 pile-driving activities. Evaluate the data to determine whether the measured vibrations can be reasonably attributed to construction activities. Include these evaluations in the final report.

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, take the following actions:

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 Section 3.
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, take the following actions:

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.

7. COMMUNICATIONS

Maintain a log of any complaints and make this available to the Engineer on request. Notify the Department at least 2 weeks prior to commencement of any vibration-producing activity that might affect the structure.

8. 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.

9. PAY ITEMS

Payment will be made under:

BID ITEM CODE	ITEM	UNIT
24550EC	VIBRATION MONITORING	LS

SPECIAL NOTE FOR STEEL ERECTION - ARCH SPAN

1.0 DESCRIPTION. This work shall consist of fabricating, furnishing and installing the arch span superstructure, including tied arch rib, tie girder, knuckle, hanger attachments, floor beams, stringers and bracing. (Note: This work does not cover fabrication and installation of the arch hanger system, which is covered under Special Note for Bridge Strand Hangers.)

Materials and workmanship shall be in accordance with the KYTC Standard Specifications for Road and Bridge Construction, 2012 Edition (KYTC); AASHTO/ AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; the Contract Drawings; and this Special Note.

Where a conflict exists between this Special Note and KYTC Section 607, the provisions herein shall govern.

2.0 MATERIALS. Materials shall conform to the Contract Drawings and KYTC Section 607.

3.0 ERECTION ANALYSIS AND STABILITY.

3.1 Steel Erection Responsibility. The stability of the structure during erection, and the final geometry of the structure, is the responsibility of the Contractor. The Contractor shall retain an erection engineer for the purpose of evaluating the stability, state of stress and geometry of the structure during and after erection. The Contractor shall erect the bridge in a safe manner without over stressing the structural components during erection and shall leave the structure in a state of stress compatible with the design.

Structural steel shall be in conformance with KYTC Section 607. Steel erection shall be in conformance with the AASHTO/NSBA "Steel Bridge Erection Guide Specification", S10.1-2007.

3.2 Conceptual Erection Sequence. The assumed erection sequence, as described in the General Note "Arch Erection and Camber" in the Contract Drawings, is that the arch rib, tie, bracing and floor system is constructed on blocking in the "no-load condition" with four bearing support points. The blocking is assumed to be removed only after the superstructure steel is completely erected. This would require floating in of the completed steel superstructure for placement on top of Piers 4 and 5. The Contractor may choose and develop any sequence that can safely erect the bridge without overstress or damage to the structural steel. The design of any necessary shoring / falsework and its foundations is the responsibility of the contractor.

3.3 Arch Erection And Camber. In addition to the full analysis of the completed structure, load capacity and stability of the main span arch structure has been verified for the completely erected steel superstructure, prior to deck placement. The General Note "Arch Erection and Camber" details the assumed erection and deck pour sequence that is consistent with the camber diagrams shown on the Contract Drawings and the load

capacity of the fully-erected structure. No provision in either the camber or structural capacity of the members has been included for erection stresses.

The load capacity and stability verification of a partially completed arch span in the various stages of erection prior to installation of all steel members is the responsibility of the Contractor. The Contractor shall evaluate the partially completed structure in accordance with the same design provisions used for the permanent structure except as indicated herein. Wind buffeting loads for design are given on the Contract Drawings and are based on a project specific wind study and wind tunnel testing performed by RWDI and corresponds to a mean hourly wind speed of 69.6 mph at deck level. During construction, wind loads are predicted to correspond to a 10-year mean hourly velocity of 60.5 mph at the deck level. Therefore, the given buffeting loads can be proportioned accordingly and used for evaluating buffeting demands during construction.

No uplift at bearings shall be allowed in any construction phase.

3.4 Changes to the Structure. Any changes to the structural steel system shown in the Contract Plans require reanalysis for load capacity and stability for both construction and permanent load conditions, including seismic. Diaphragm action of the stay-in-place forms shall be neglected in all analyses.

Dead load deflection, camber and stringer haunch thickness are based on the erection and slab pouring sequences as described in the General Note "Arch Erection and Camber" and as shown in the plans. Any deviation from this sequence will need to be evaluated by the Contractor's engineer to determine the effect on camber, dead load deflection and structural member stresses. This evaluation must be submitted to the Engineer for review and approval by the Engineer of Record.

4.0 QUALIFICATIONS AND SUBMITTALS.

4.1 Erector Qualifications. Structural steel shall be erected by a qualified, competent erection contractor. To establish qualification the erection contractor shall submit to the Department proof of their experience on previous projects of equivalent complexity which, at a minimum, include the following:

A) Any one lift using two or more cranes/derricks/poles,
B) Steel spans over water or active railroad/rapid transit tracks,
C) Erection with floating equipment,
D) Field splicing primary members while held in place by erection equipment

The Department shall determine whether the submitted evidence is satisfactory to establish qualification and competency.

4.2 Erection Procedure.

General. The Contractor shall submit a detailed erection procedure to the Engineer for each bridge structural unit, prepared and sealed by a professional engineer licensed in Kentucky. The professional engineer who prepares the erection procedure

and calculations shall have experience in steel erection of similar size, complexity, and scope. The procedure shall address all requirements for erection of the structural steel into the final designed configuration and satisfy all written comments from the Engineer of Record and the Department or its agents prior to the start of erection. The procedure, as a minimum, shall include the following information:

Drawings.

A) Plan of the work area showing permanent support structures (piers and abutments), roads, waterways (including navigational channel), overhead and underground utilities, and other information pertinent to erection.
B) Erection sequence for all members noting any temporary support conditions, such as holding crane positions, temporary supports, falsework, etc. Member reference marks, when reflected on the erection plan, should be the same as used on shop detail drawings.
C) Primary member delivery location and orientation.
D) Location of each crane for each primary member pick, showing radius and crane support (barges, mats, etc.).
E) Capacity chart for each crane configuration and boom length used in the work.
F) Center of gravity locations for primary members.
G) Detail, weight, capacity, and arrangement of all rigging for primary member picks.
H) Lifting weight of primary member picks, including all rigging and pre-attached elements.
I) Details of any temporary lifting devices to be bolted or welded to permanent members, including: method and place (shop or field) of attachment; capacity; and method, time and crew responsible for removal.
J) Bolted splice assembly requirements.
K) Lifting/handling procedure for any primary member that has a lifted length-to-width ratio (l /b) greater than 85.
L) Blocking details for bridge bearings.

Calculations.

A) Design calculations indicating the load capacity and verifying the stability of temporary supports for structure and crane(s) for each pick and release.
B) Calculations to substantiate structural adequacy and stability of all steel members for each step of bridge assembly.
C) Calculations to verify adequate capacity of contractor-fabricated rigging such as lift beams, welded lugs, spreader beams, beam clamps, etc. Submit manufacturers' certification or catalog cuts for pre-engineered devices.
D) Geometrical information that will be used to monitor the structure during erection to ensure that the final geometry of the structure is as indicated on the plans.

Coordination Items.

- Review / approval by other agencies as required (e.g., US Coast Guard, US Army Corp of Engineers, etc.).
- Conform to Special Note for Helper Boat to minimize impacts to commercial towing industry.
- Construction activities that occur concurrently with steel erection, such as setting forms or concrete deck pours.

4.3 Shop Drawings. Shop drawings for arch system and components shall conform to KYTC Section 607 and Special Provision for Shop Drawings & Welding Procedures.

5.0 TRANSPORTATION, HANDLING AND SUPPORT.

5.1 Transportation.

Responsibility. The Contractor is responsible for coordinating delivery from the fabricator to the jobsite and for providing adequate site access.

Shipping plan. The Contractor is responsible for preparing a shipping plan indicating support, lateral bracing, and tie-down points for primary members during transportation to the jobsite.

Handling. Ship primary members upright, unless otherwise approved by the Department. Load, support, and unload primary members in a manner that will not damage, excessively stress or permanently deform the steel or cause repeated stress reversals in the members.

5.2 Lifting and Assembly.

General. Lift, position and assemble all members in accordance with the approved erection procedures. The proposed crane location(s) and member delivery location(s) may require modification in the field to suit changing jobsite conditions. However, cranes and material must be located such that the lift is safe and within the crane manufacturer's rated capacity for all required positions.

Lifting devices. Install lifting devices, including bolted assemblies using existing bolt holes (splices, cross frame connection plates, etc.), using owner-approved details. welded lugs are not permitted without approval of the Engineer."

Erection stability. All structural members shall be stabilized with falsework, temporary bracing and/or holding cranes until the structure is complete and has the necessary lateral stability to make the structure self-supporting.

Falsework and temporary supports. Falsework and temporary supports shall be detailed to ensure that the temporary elevation of supported steel accommodates the deflections expected to occur as the structure is completed.

Pins. Pins are normally used to align holes for bolted field connections. Field reaming to facilitate fit-up will only be allowed with the Department's prior approval. Any abnormal distortion of the member or of the holes during the alignment process shall be immediately reported to the Engineer.

Connections. For splice connections of primary members, fill at least 50 percent of the holes prior to crane release. The 50 percent may be either erection bolts in a snug tight condition or full-size erection pins. At least half (25 percent of all holes) shall be filled with bolts, and sufficient pins shall be used near outside corners of splice plates and at member ends near splice plate edges to ensure alignment. Uniformly distribute the filled holes.

The 50 percent requirement may be waived if a reduced percentage is calculated as sufficient and shown on the approved erection procedure. Permanent bolts may be used as erection bolts, provided they are installed in accordance with the specifications.

Primary member splice connections that are assembled on the ground (prior to erection) shall be 100 percent complete, in the no-load condition, prior to any lifting operation.

Abnormalities. Any abnormal member deformation or brace deflection after crane release or temporary support removal shall be immediately reported to the Engineer for swift resolution. Further work affecting the area, except for restoring support or adding bracing, shall be stopped until the deformation/deflection is resolved.

6.0 REPAIR.

6.1 Documentation. The Contractor is responsible for documenting damage due to handling, removal of erection aids, aligning members and other actions, uncorrected misfits at connections, and misalignments exceeding tolerances in erected members. As-received damage attributable to transport or fabrication shall also be documented.

6.2 Implementation. The Contractor shall propose a method of repair and basis for acceptance for the Department's review.

6.3 Repair Procedures. Submit repair procedures for damaged or misaligned steel in the form of sketches and/or written procedures as applicable. Information must provide sufficient detail for the Department to adequately review the repair application. After repairs are complete, the Contractor shall provide as-built detailed drawings, NDT results, and procedures/materials used to the Engineer for inclusion in the project file.

6.4 Welds. Field or shop welds that are unacceptable must be repaired in accordance with AWS D1.5. Responsibility for the cost of the repair and subsequent inspection shall be at the Contractor's expense.

7.0 MEASUREMENT. The cost of fabricating, furnishing and installing the arch span superstructure, including tied arch rib, tie girder, knuckle, hanger attachments, floor beams, stringers and bracing; and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents; shall be included in the lump sum unit price for Structural Steel – Arch Span.

(Note: The cost for fabricating and installing the arch hanger system is separate from this pay item and is covered in Special Note for Bridge Strand Hangers.)

8.0 PAYMENT.

Code	Pay Item	Pay Unit
08160	STRUCTURAL STEEL – ARCH SPAN	LS

SPECIAL NOTE FOR STEEL ERECTION – GIRDER SPANS

Marshall - Trigg Counties
US 68/KY80 Bridge over Kentucky Lake – Drawing No. 24686

STEEL ERECTION RESPONSIBILITY - The stability of the structure during erection, and the final geometry of the structure, is the responsibility of the contractor. The contractor shall retain an erection engineer for the purpose of evaluating the stability, state of stress and geometry of the structure during and after erection. The contractor shall erect the bridge in a safe manner without over stressing the structural components during erection and shall leave the structure in a state of stress compatible with the design.

Structural steel shall be in conformance with Section 607 of Kentucky Transportation Cabinet's standard specifications for road and bridge construction. Steel erection shall be in general conformance with the AASHTO/NSBA steel bridge erection guide specification, S10.1-2007.

CONSTRUCTION LOADING - Load capacity and stability of the steel girders has been verified only for the completely erected steel superstructure, prior to deck placement. Load capacity in the fully-erected state has been checked using AASHTO LRFD bridge design specifications, section 3.4.2 with a load factor of 1.25 for dead loads and for wind. A construction phase horizontal wind pressure of 50 psf, representing the mean-hourly wind speed with a 10-year return period has been used. Allowable lateral deflection under construction wind loading is l/150 (span/150).

The load capacity and stability verification of partially completed girders in the various stages of erection prior to installation of all girders, crossframes, and lateral bracing is the responsibility of the contractor. A minimum construction horizontal wind pressure of 50 psf shall be used in the design of temporary shoring / falsework and for checking partially erected girders.

Girders and their bearing stiffeners should be vertical under full dead load. Uplift at bearings shall be prevented in each construction phase.

CHANGES TO THE STRUCTURE - Any changes to the structural steel system shown in the contract plans requires reanalysis for load capacity and stability for both construction and permanent load conditions. Diaphragm action of the stay-in-place forms shall be neglected in all analyses.

Dead load deflection, girder haunch thickness, and verified construction stresses are based on the slab pouring sequence shown in plans. Any deviation from the plan slab pouring sequence will need to be evaluated by the engineer of record to determine the effect on haunch, dead load deflection, and girder stress.

CONCEPTUAL ERECTION SEQUENCE - The need for and location of falsework has been estimated for one conceptual erection sequence. The contractor may choose and develop any sequence that can safely erect the bridge without overstress or damage to the structural steel. The design of any needed shoring / falsework and their foundations is the responsibility of the contractor.

ERECTOR QUALIFICATIONS - Structural steel shall be erected by a qualified, competent erection contractor. To establish qualification, the erection contractor shall submit to the owner documented previous, equivalently complex erection projects which, at a minimum, include the following:

A) Any one lift using two or more cranes/derricks/poles,
B) Spans over water or active railroad/rapid transit tracks,
C) Erection with floating equipment,
D) Field splicing primary members while held in place by erection equipment

The owner shall determine whether the submitted evidence is satisfactory to establish qualification and competency.

ERECTION PROCEDURE - General: the contractor shall submit a detailed erection procedure to the owner for each bridge structural unit, prepared and sealed by a professional engineer licensed in the Commonwealth of Kentucky. The professional engineer who prepares the erection procedure and calculations shall have experience in steel erection of similar size, complexity, and scope. The procedure shall address all requirements for erection of the structural steel into the final designed configuration and satisfy all written owner comments prior to the start of erection. The procedure, as a minimum, shall include the following information:

Drawings:

A) Plan of the work area showing permanent support structures (piers and abutments), roads, waterways (including navigational channel), overhead and underground utilities, and other information pertinent to erection
B) Erection sequence for all members noting any temporary support conditions, such as holding crane positions, temporary supports, falsework, etc. Member reference marks, when reflected on the erection plan, should be the same as used on shop detail drawings
C) Primary member delivery location and orientation
D) Location of each crane for each primary member pick, showing radius and crane support (barges, mats, etc.)
E) Capacity chart for each crane configuration and boom length used in the work
F) Center of gravity locations for primary members
G) Detail, weight, capacity, and arrangement of all rigging for primary member picks
H) Lifting weight of primary member picks, including all rigging and pre-attached elements
I) Details of any temporary lifting devices to be bolted or welded to permanent members, including method and time (shop or field) of attachment, capacity, and method, time and responsibility for removal.
J) Bolted splice assembly requirements
K) Lifting/handling procedure for any primary member that has a lifted length divided by width (l / b) greater than 85
L) Blocking details for bridge bearings

Calculations:

A) Design calculations indicating the load capacity and verifying the stability of temporary supports for structure and crane(s) for each pick and release
B) Calculations to substantiate structural adequacy and stability of girders for each step of bridge assembly
C) Calculations to verify adequate capacity of contractor-fabricated rigging such as lift beams, welded lugs, spreader beams, beam clamps, etc. Submit manufacturers' certification or catalog cuts for pre-engineered devices
D) Geometrical information that will be used to monitor the structure during erection to ensure that the final geometry of the structure is as indicated on the plans

Coordination items

A) Review / approval by other agencies as required (e.g., us coast guard, us army corps of engineers, etc.)
B) Construction activities that occur concurrently with steel erection, such as setting forms or concrete deck pours

TRANSPORTATION - Responsibility: The contractor is responsible for coordinating delivery from the fabricator to the jobsite and for providing adequate site access.

Shipping plan: The contractor is responsible for preparing a shipping plan indicating support, lateral bracing, and tie-down points for primary members during transportation to the jobsite.

Handling: Ship primary members upright, unless otherwise approved by the owner. Load, support, and unload primary members in a manner that will not damage, excessively stress, or permanently deform the steel and not cause repeated stress reversals.

LIFTING AND ASSEMBLY

General: Lift, position, and assemble all members in accordance with the approved erection procedures. The proposed crane location(s) and member delivery location(s) may require modification in the field to suit changing jobsite conditions. However, cranes and material must be located such that the lift is safe and within the crane manufacturer's rated capacity for all required positions.

Lifting Devices: Install lifting devices, including welded lugs and bolted assemblies using existing bolt holes (splices, cross frame connection plates, etc.), and use owner-approved details.

Erection Stability: **G**irders shall be stabilized with falsework, temporary bracing, and/or holding cranes until a sufficient number of adjacent girders are erected with cross frames connected to provide the necessary lateral stability and to make the structure self-supporting.

Falsework and Temporary supports: Falsework and temporary supports shall be detailed to ensure that the temporary elevation of supported steel accommodates the deflections expected to occur as the structure is completed.

Pins: Pins are normally used to align holes for bolted field connections. Field reaming to facilitate fitup will only be allowed with the owner's prior approval. Any abnormal distortion of the member or of the holes during the alignment process shall be immediately reported to the owner.

Connections: For splice connections of primary members, fill at least 50 percent of the holes prior to crane release. The 50 percent may be either erection bolts in a snug tight condition or full-size erection pins, but at least half (25 percent of all holes) shall be bolts, and sufficient pins shall be used near outside corners of splice plates and at member ends near splice plate edges to ensure alignment. Uniformly distribute the filled holes.

The 50 percent requirement may be waived if a reduced percentage is calculated as sufficient and shown on the approved erection procedure. Permanent bolts may be used as erection bolts, provided they are installed in accordance with the specifications.

Primary member splice connections that are made up on the ground (prior to erection) shall be 100 percent complete, in the no-load condition, prior to any lifting operation.

Abnormalities: Any abnormal member deformation or brace deflection after crane release or temporary support removal shall be immediately reported to the owner for swift resolution. Further work affecting the area, except for restoring support or adding bracing, shall be stopped until the deformation/deflection is resolved.

REPAIR

Documentation: The contractor is responsible for documenting damage due to handling, removal of erection aids, aligning members and other actions, uncorrected misfits at connections, and misalignments exceeding tolerances in erected members. As-received damage attributable to transport or fabrication shall also be documented.

Implementation: The contractor shall propose a method of repair and basis for acceptance for the owner's review.

Repair Procedures: Submit repair procedures for damaged or misaligned steel in the form of sketches and/or written procedures as applicable. Information must provide sufficient detail for the owner to adequately review the repair application. After repairs are complete, the contractor shall provide as-built detailed drawings, NDT results, and procedures/materials used to the owner for inclusion in the project file.

Welds: Field or shop welds that are unacceptable must be repaired in accordance with d1.5. Responsibility for the cost of the repair and subsequent inspection shall be based on the cause.

SPECIAL NOTE FOR STAINLESS STEEL REINFORCEMENT

1.0 DESCRIPTION. The Contractor shall use stainless steel reinforcement bars in the concrete deck slab, curb, and sidewalk, as indicated in the plans. Reinforcement bars shown in the Plans marked with the suffix "SS" shall be stainless steel as described herein.

The work shall be performed in accordance with the applicable requirements of sections 602 and 811 of the standard specifications.

2.0 MATERIALS.

Grade and Type: The Contractor shall supply test results certifying that the materials conform to Grade 60 or 75 deformed reinforcement bars per ASTM A955, including the annex, and must conform to one of the following UNS designations; S24100, S32205, S32304, S20910, S30400, S31603, S31653, S32101, S32201, or S31803.

All bars shall be of the same UNS designation.

Chemical Composition: Material shall conform to that specified in ASTM A276, Table 1, Chemical Requirements.

Heat Treatment: Bars may be furnished in one of the heat treatment conditions listed in ASTM A955, and as needed to meet the requirements of this specification.

Finish: Bars are to be supplied free of dirt, mill scale, oil, and debris by pickling. Bars shall be fabricated and bent using equipment that has been thoroughly cleaned or otherwise modified to prohibit contamination of the stainless steel from fragments of carbon steel or other contaminants.

Reinforcing bars displaying rust/oxidation, questionable blemishes, or that deviate from round shall be subject to rejection.

Bending: Bending shall be performed in accordance with Section 602 of the Standard Specifications and ASTM A955.

Manufacturers: The following manufactures are capable of producing material meeting this specification. Other suitable manufacturers may also exist. The Contractor is responsible for ensuring that all materials supplied meet the Contract requirements.

Supplier	Contact	Phone No.
Altec Steel, Inc. 5515 Meadow Crest Drive Dallas, TX 75229	Ross Paulson	425-823-1913
Dunkirk Specialty Steel 88 Howard Ave Dunkirk, NY	Gary Zaffalon	800-916-9133 716-366-1000 Ext 323

North American Stainless 6870 Highway 42 East Ghent, KY 41045	Todd Sullivan	502-347-6034
Salit Specialty Rebar 3235 Lockport Road Niagara Falls, NY 14305	Kevin Cornell	877-299-1700 716-299-1990
Talley Metals P. O. Box 2498 Hartsville, SC 29551	Melba Deese	843-335-7326 800-334-8324 Ext 712-2356

Control of Material: Samples for testing shall be supplied to the KYTC Materials Laboratory for testing, generally following applicable provisions of KM-101. One sample per heat per bar size shall be supplied. Each sample shall consist of two five-foot-long specimens.

Mill Test Reports: Reports shall be provided for the Project and shall:

1. Be from the supplying mill verifying that the stainless reinforcement provided has been sampled and tested and the test results meet the Contract requirements;

2. Include a copy of the chemical analysis of the steel provided, with the UNS designation, the heat lot identification and the source of the metal if obtained as ingots from another mill;

3. Include a copy of tensile strength, yield strength and elongation tests on each of the sizes (diameter in millimeters) of stainless steel reinforcement provided.

4. Permit positive determination that the reinforcement provided is that which the test results cover.

5. Include a statement certifying that the materials are being melted and manufactured in the United States.

3.0 CONSTRUCTION.

Methods: Construction methods shall conform to Section 602 of the Standard Specifications except as modified below:

Ship, handle, store, and place the stainless steel reinforcement bars according to the applicable provisions with the following additions and exceptions:

1. Prior to shipping ensure that all chains and steel bands will not come into direct contact with the stainless steel reinforcement bars. Place wood or other soft materials (i.e., thick

cardboard) under the tie-downs. Alternatively, use nylon or polypropylene straps to secure the stainless steel reinforcement bars.

2. When bundles of reinforcement steel and stainless steel reinforcement bars must be shipped one on top of the other, the stainless steel reinforcement bars should be loaded on top. Use wooden spacers to separate the two materials.

3. Outside storage of stainless steel reinforcement bars is acceptable. Cover the stainless steel reinforcement bars with tarpaulins.

4. Store stainless steel reinforcement bars off the ground or shop floor on wooden supports.

5. Do not use carbon steel tools, chains, slings, etc. when fabricating or handling stainless steel reinforcement bars. Only use nylon or polypropylene slings.

6. Place all stainless steel reinforcement on bar chairs that are solid plastic, stainless steel, or epoxy-coated steel. Fabricate stainless steel metal chairs and continuous metal stainless steel supports from stainless steel conforming to the requirements of ASTM A493, Type 316, UNS number S31600; or Type 316L, UNS number S31603. Stainless steel chairs used above steel beams shall have plastic coated feet.

7. Tie wire used to tie stainless steel reinforcement shall be 16 gauge wire fabricated from stainless steel alloy Type 316L, UNS designation S31603, dead soft annealed, annealed at size.

8. Do not tie stainless steel to uncoated or coated reinforcement, or to galvanized attachments or galvanized conduits. Direct contact is not acceptable. When stainless steel reinforcing bars or dowels are adjacent to coated or uncoated reinforcing bars or galvanized metals, maintain a minimum 1 inch clearance between the two metals. Where insufficient space exists to maintain this minimum, the bar may be sleeved with a continuous 1/8" minimum thickness polyethylene or nylon tube bound with nylon or polypropylene cable ties and extending at least 1 inch in each direction past the point of closest contact between the two dissimilar bars.

9. Uncoated fasteners, anchors, lifting loops, etc., that extend from the top flange of prestressed beams into the bridge deck shall be completely removed or cut off flush with the top flange of the beam prior to casting the deck.

10. To prevent corrosion from dissimilar metals, when stainless steel reinforcement is used in abutments, end diaphragms, concrete barriers, etc., only epoxy-coated or non-metallic snap ties, straps, or other forming hardware shall be permitted.

Notification: The Contractor shall notify the Engineer a minimum of 2 weeks prior to placing the stainless steel reinforcement.

Splices: Splices shall generally be of the lap type.

Approval: Stainless steel reinforcement placed in any member must be inspected and approved by the Engineer before placing concrete. Concrete placed in violation of this specification may be rejected and removal required.

4.0 MEASUREMENT. Measurement will be in pounds of steel placed in the structure as shown on the plans at the contract unit price.

5.0 PAYMENT. "STEEL REINFORCEMENT STAINLESS STEEL" will be paid for at the contract price per pound and shall be compensation in full for all costs of fabricating, shipping, furnishing and installing the reinforcement and all component materials as specified in this Special Note and in the Contract Plans.

Code	Pay Item	Pay Unit
24112EC	STEEL REINFORCEMENT STAINLESS STEEL	LB

SPECIAL NOTE FOR BRIDGE STRAND HANGERS

1.0 DESCRIPTION. This work shall consist of the manufacturing, testing, fabricating, transporting, and installation of arch hangers, sockets and spacers for tied arch bridges. Materials and workmanship shall be in accordance with the KYTC Standard Specifications (KYTC); AASHTO/ AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; AASHTO "LRFD Bridge Design Specifications", 6th Edition (AASHTO LRFD Design); AASHTO "LRFD Bridge Construction Specifications," 3rd Edition, 2010 (AASHTO LRFD Construction); the Contract Documents; and this Special Note.

2.0 MATERIALS. Materials shall conform to the following:

A. Strand. Hangers shall consist of galvanized steel wire structural strand composed of zinc-covered wires to make up the finished diameter. The structural strand for the bridge hangers shall meet the requirements of ASTM A586, *"Standard Specification for Zinc-Coated Parallel and Helical Steel Wire Structural Strand,"* with Class A coating inner wires and Class C coating outer wires. Strand shall be pre-stretched as required in this special provision.

The design of the strands for the structure and the structure's fabricated geometry shall be based on the appropriate Modulus of Elasticity for the material being used.

B. Sockets. Sockets shall be forged or cast steel. Forged sockets shall meet the requirements of ASTM A668, *"Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use"*, Class C, and shall be annealed. Cast sockets shall be fully annealed high strength castings conforming to ASTM A148, *"Standard Specification for Steel Castings, High Strength, for Structural Purposes."* All sockets shall be galvanized in accordance with ASTM A123, *"Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products."* Sockets shall be of sufficient strength to produce a failure in the strand material, rather than a failure of the socket itself.

C. Pins. Socket pins shall satisfy ASTM A668 Class F requirements. Furnish pins conforming to KYTC Subsection 607.03.09 Pins and Rollers. Provide a smooth finished surface with an ANSI 250 finish.

D. Zinc. Slab zinc for socket to strand attachment shall meet the requirements of ASTM B6, *"Standard Specification for Zinc"*, high grade or better.

E. Spacers. All materials for hanger spacers shall be new. No reclaimed elastomeric materials shall be incorporated in the fabrication of the spacers.
The elastomeric materials specified for the hanger spacers shall be either 100 percent virgin Neoprene (polychloroprene), or natural rubber (polyisoprene) and shall conform to Section 18.2 of the AASHTO LRFD *Bridge Construction Specifications, 3nd Edition, 2010*. The nominal hardness of the elastomeric element(s) shall not exceed 60 on the Shore A scale.

Laminates shall be rolled mild steel sheets meeting the requirements of ASTM

A709, Grade 36. Structural steel for manufacture of the hanger spacers shall meet the requirements of ASTM A709, Grade 36 and shall be galvanized in accordance with ASTM A123. All galvanizing shall be done prior to any required bonding of steel to rubber. Surfaces of steel to be bonded to rubber shall not be galvanized.

F. Wire Rope Lubricant. Bridge strand shall be treated with PreLube 19 Preservative Lubricant by Grignard, Inc., applied in accordance with manufacturer's recommendations.

3.0 DESIGN. Design shall be in accordance with the Contract Documents, this special provision and other specifications referenced herein.

4.0 FABRICATION. Hanger geometry shall be as defined in the Contract Plans.

Wires used in each hanger shall be made in one continuous piece. The splicing of wire is not permitted. Strand shall be of long lay, but shall not be of such length to prevent keeping the center in its true position during any of the operations before the hangers are in their final positions.

Before commencing with the manufacture of the strands, the Contractor shall be assured by preliminary tests that the proposed material will meet the specifications with regard to strength and elasticity. Once the manufacture of the strand has begun, no changes shall be made or allowed as to the grade of wire, the construction or lay, or other factors which would affect the uniformity of the product.

Each length of strand as fabricated shall be prestressed under a load equal to 55 percent of its specified ultimate (breaking) strength in straight tension. The prestressing shall be done in an approved manner that will remove all of the structural stretch that may occur under the load which the hangers are designed to carry.

After prestressing, the strand shall be measured for the various hanger lengths while under a known tension equal to the dead load stress shown on the plans, using calibrated steel tapes. After marking for length the load shall be released and then reapplied. A second measurement shall then be made and the two measurements shall check within a tolerance of 0.25 inches.

At the time the strand is measured, the Contractor shall mark the centerline between sockets and shall place marks using paint or other approved method on the outside surface of the strand at sufficiently close intervals for use as a guide to eliminate any change in length of the hangers due to twisting.

The strand shall then be cut and the sockets shall be put on carefully to ensure socket and strand alignment. The sockets shall be attached to the strands by using zinc as specified in ASTM B6, and using a reliable method that will not permit the strand, when stressed to 100 percent of its specified ultimate strength under the test specified hereafter, to slip more than 0.5 inches. If a greater movement should occur, the method of attachment shall be changed until a satisfactory one is found. Each end fitting of the finished assembly shall be proof-loaded to a minimum of 50 percent of the ultimate strength of the strand.

The laminated components of the spacers shall be individually molded to the required size. Completed units shall be packaged and crated in such a manner that they will not become damaged while being handled, transported or stored. Any unit, upon inspection by the Engineer or KYTC, deemed to be damaged in any way will be replaced by the Contractor at his expense.

5.0 SAMPLING, TESTING & INSPECTION.

A. Sockets. Sockets shall be subjected to Charpy impact tests in accordance with ASTM A781, *"Standard Specification for Castings, Steel and Alloy, Common Requirements, for General Industrial Use,"* S9 (absorbed energy) shall be made on each heat. If Charpy V-notch test values are less than 15 ft-lb at 55 degrees F for any heat, all sockets represented by that heat will be rejected.

All sockets shall be given a visual inspection and evaluated for defects in accordance with the Manufacturers Standardization Society of Valve and Fitting Industry's *Quality Standard for Steel Castings for Valves, Flanges and Fittings and other Piping Components - Visual Method for Evaluation of Surface Irregularities*, SP-55, latest edition. The Engineer, with KYTC concurrence, will determine the acceptability of sockets evaluated in accordance with this standard. Should a socket be unacceptable, that socket shall be replaced, or alternatively, the Contractor may propose the use of other non-destructive test methods to establish the acceptability and/or reparability of the socket. These test methods, done at the expense of the Contractor, may include, for example, radiography, ultrasonic, magnetic particle or dye penetrant. The Engineer shall determine the acceptability and/or reparability of a socket based on the results of the tests conducted. For those sockets that are repaired follow-up non-destructive tests, at the Contractor's expense, shall be performed to verify the success of the repair procedure. The Engineer shall be the sole judge as to the suitability of a repaired casting.

Visual Inspection as required above shall be performed by a commercial testing laboratory approved by the Engineer as being qualified to perform such work. If visual examination reveals any defect, nondestructive tests as deemed appropriate by the Engineer for the type of defect observed, shall be required. Non-destructive tests shall be performed by the same approved laboratory In accordance with the appropriate Supplementary Requirements of ASTM A781.

B. Strength & Modulus of Elasticity. After prestressing, the modulus of elasticity of each strand shall be determined, and it shall be submitted to the Engineer and KYTC. The modulus of elasticity shall be determined from a gauge length of no less than 100 inches and shall be computed on the gross metallic area of each strand size. A stress-strain curve shall be plotted from the test results of each strand size, and from these curves, the modulus of elasticity shall be computed. The elongation readings used for computing the modulus of elasticity shall be taken when the strand is stressed to not less than 10 percent of the listed strength nor more than 90 percent of the prestressing load. The stretch in any strand during the above increment of load shall not vary more than 6 percent from the average stretch of all strand tested. Preliminary to the testing of the strand specimens, the specimen shall be stressed in the testing machine to an accurately measured load equal to the prestressing load, following which the load shall be released and the test commenced. The preliminary stressing procedure shall be uniform for all specimens. Tests for modulus of elasticity of the strand may be made at the time that the test pieces are tested for strength.

From each prestressed length of strand, one piece shall be cut, after prestressing, of sufficient length to make a test for strength and elasticity on a single straight strand.

The ends of the test pieces shall be socketed with sockets of the same design as those proposed for use in the construction. The strands, in single part tests, shall develop a minimum ultimate strength equal to the value stipulated in the applicable ASTM specification for the material being used and for the size of strand or rope specified. If, after six or more tests of straight strand of each size have been made, the Engineer and KYTC find that the strength and elasticity have sufficient uniformity, one test on a straight strand of each size may be made thereafter from each manufactured length of strand of each size, instead of one from each prestressed length. The strand shall show a well-defined and uniform elastic stretch and recovery after prestressing.

C. Hanger Assemblies. The Contractor shall prepare at least 8 specimens of hanger of each strand size, at least 25 diameters long, with sockets (selected at random from those prepared for use) attached to each end, and these specimens shall be stressed to destruction. Under this test, the specimens shall develop the ultimate strength. Material and method of socketing shall be the same for both the tests and the actual hanger strand. The sockets in every instance shall be of sufficient strength to produce failure in the strand material. Sockets used for the tests may not be reused in the actual construction. If an assembly should fail in the anchorage of the strand in the socket, or if a socket should break or otherwise fail at less than the specified ultimate load during the tests, six additional assemblies shall be fabricated and the tests repeated. If one or more sockets fail during additional tests, the entire lot shall be rejected and new sockets furnished and tested.

Certified test reports covering all the tests specified shall be furnished to the Engineer and KYTC. No claims for delay will be considered for testing or failure to submit required testing documentation in a timely manner.

Shop Inspection. The Engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly and testing of the hanger assemblies.

6.0 IDENTIFICATION, STORAGE & HANDLING. Identification marks shall be used on the strand to facilitate erection and the Contractor shall use suitable means to protect the strands in transit and during the handling and erection. Strands shall be properly coiled or rolled on reels. Any kinked or damaged strand will be rejected. Straightening of bent wires will not be permitted.

7.0 INSTALLATION. Hangers shall be installed so that the strands at each panel will be equally stressed. Necessary adjustment shall be provided through the use of threaded sockets.

The hanger strand shall be erected with sockets in the same relative position to each other as when the strands were measured and the sockets installed, with the markings along the length of the strand in a straight line.

Spacers shall be located at the intersection of network hangers. Spacers shall incorporate an elastomeric element for purposes of providing a degree of damping and shall hold the individual ropes or strands of each hanger in their correct geometric relationship.

8.0 SUBMITTALS. The Contractor shall submit to the Engineer for approval with KYTC concurrence all details, calculations, and any required shop drawings, catalog cuts, materials, equipment, methods and procedures proposed for: the manufacture and fabrication of the hangers and sockets; the assembly, testing, and erection of the hangers; and for the fabrication, furnishing, and installation of the hanger spacers; all complete in place. All calculations and shop drawings shall be signed and sealed by an Engineer registered in the Commonwealth of Kentucky.

The Contractor's submittal shall include all material designations and certified test reports or certificates of conformance or compliance, furnished by the manufacturer's testing laboratory or independent testing agency, attesting that all materials meet the requirements specified herein. Included in the submittal shall be the exact sizes of the strand proposed for the hangers, together with details for the construction of the hanger, giving the exact number and size of wires in each of the outer and inner layers, and their arrangement. The Contractor shall also submit the results of all tests performed on the fabricated spacer units during the construction process, such as shear tests, and any required stress-strain tests.

The geometric dimensions shown on the plans relative to hanger lengths and strand elongations or that are otherwise dependent on the hanger modulus of elasticity, shall be adjusted if the actual modulus of elasticity, as determined by the Contractor after prestressing the strand, differs from the design assumptions. In that case, the proposed adjustments shall be submitted with calculations to the Engineer for approval with KYTC concurrence.

9.0 MEASUREMENT. The cost of furnishing, fabricating, testing and installing of the hanger assemblies, including structural strand, anchor sockets, pins, threaded rods, nuts, washers, cotter pins and strand spacers and for galvanizing shall be included in the lump sum unit price for Arch Hanger Assembly.

10.0 PAYMENT.

Code	Pay Item	Pay Unit
24608EC	BRIDGE STRAND HANGER – FABRICATE & INSTALL	LS

SPECIAL NOTE FOR DISK BEARINGS

This Special Note will apply to all disk bearings indicated on the plans. It supplements information provided in the KYTC Standard Specifications. Where a conflict exists between this Special Note and the Standard Specifications, the provisions herein shall govern.

Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This work consists of designing, fabricating, testing, delivering and installing disk bearing assemblies at the locations shown on the Contract Plans in accordance with this special note the Standard Specifications and the AASHTO *LRFD Bridge Design Specifications,* 6th Edition, 2012 *(*AASHTO *LRFD Design)* and AASHTO *LRFD Bridge Construction Specifications*, 2010 (AASHTO *LRFD Construction.*)

Bearing assemblies include the disk bearings, masonry and sole plates, grout pads, anchor bolts, and appurtenant hardware. Disk bearings consist of a polyether urethane rotational element (the disk) confined by upper and lower steel bearing plates. Bearings shall have a shear resisting mechanism and/or positive location device to prevent lateral movement of the disk. Bearings shall provide for thermal expansion and contraction, rotation, camber movement, and creep and shrinkage of the structure, where applicable.

Disk bearings shall be supplied as fixed bearings, guided expansion bearings, or non-guided expansion bearings, as designated in the Contract Documents.

2.0 MATERIALS. Materials shall conform to the following:

A. **Steel Plate:** ASTM A572 Grade 50

B. **Stainless Steel:** Stainless steel shall conform to the requirements of ASTM A240, Type 304, and AASHTO *LRFD Construction* 18.1.2.5. Higher grades of stainless are permissible. The minimum thickness of the stainless steel shall be 13 gauge (0.094 inches) or as indicated in the Contract Plans. The stainless steel connection to the carbon steel attachment plate shall be seal welded to form an effective moisture seal.

C. **Polytetrafluoroethylene** (PTFE). PTFE sheet shall meet the requirements of AASHTO *LRFD Construction* 18.8.2.5 and be manufactured from pure virgin unfilled PTFE resin conforming to the material requirements of AASHTO *LRFD Construction* 18.8.2.

PTFE sheet shall be dimpled and lubricated, with dimples satisfying the depth, diameter and distribution requirements of AASHTO *LRFD Design* 14.7.2. Unless indicated otherwise in the Contract Plans, the minimum thickness of the PTFE sheet shall be 0.188 in. when the maximum dimension of the PTFE is less than or equal to 24 inches and 0.25 in. when the maximum dimension of the PTFE is greater than 24 in.

D. **Adhesive.** The Bearing Supplier shall use a uniform layer of epoxy adhesive to bond the PTFE to the recessed bearing plate below it. Epoxy Adhesive shall conform to AASHTO *LRFD Construction* 18.8.2.4 and shall be stable from -100°F to +250°F. PTFE bonding surface shall be prepared in accordance with AAHTO *LRFD Construction.* 18.8.2.10

The bearing supplier shall supply non-project specific test results showing that their standard epoxy connection typically achieves adhesive peel strengths of 20 lb. per inch between the PTFE material and carbon steel plate when tested per ASTM D429, Method B or ASTM D903.

E. **Polyether Urethane.** Polyether urethane shall conform to AASHTO *LRFD Construction* 18.3.2.8.

3.0 DESIGN. Disk bearings shall be designed and constructed in accordance with AASHTO *LRFD Design,* Section 14, and AASHTO *LRFD Bridge Construction*, Section 18. Calculations meeting the requirements of Section 8.0 SUBMITTALS in this Special Note shall be prepared and sealed by a professional engineer registered in the state of Kentucky.

The design of the bearings shall meet the following additional requirements:

A. The bearing assembly shall be removable and replaceable by raising the bridge superstructure 0.375 inch maximum. This requires the fabrication of a minimum of a four plate system including a masonry plate, lower bearing plate, upper bearing plate and sole plate.

B. The sole and masonry plates shall be designed to distribute the bearing loads into the surrounding substructure and/or superstructure. Service or installation considerations specified by the design engineer, such as weldability and bearing height, may require thicker masonry and sole plates than are required due to strength considerations alone.

C. When necessary, guide bars shall be welded to the slide plates or integrally machined into a larger plate. Guide bars shall be designed for the specified horizontal loads, but not less than 10% of the vertical capacity of the bearing. Guided members must have their contact area within the guide bars in all operating positions. The total clearance between guide bars and the guided member shall be 1/16 inch, ±1/32 inch.

D. The polyether urethane disk shall be designed for a maximum average compressive stress of 5000 psi. If the outer surface of the disk is not vertical, the stress shall be computed using the smallest plan diameter of the disk, excluding the area of any holes.

E. The shear restriction mechanism shall be designed to allow free rotation and withstand the specified horizontal forces. The mechanism shall be designed to withstand the design forces on the bearing without exceeding the allowable shear, bending or bearing capacities. Shear resistance of the urethane disk shall not be included.

4.0 FABRICATION.

4.1 General. Fabrication shall be in accordance with this special note and AASHTO *LRFD Construction* 18.3.3 and other provisions of that specification.

4.2 Product Prequalification. The Manufacturer shall demonstrate a minimum of five (5) years of experience in the design and manufacture of disk style bearings and be certified under the AISC Quality Certification Program - Simple Steel Bridges. Bearings shall be fabricated at facilities owned and operated by the manufacturer; the manufacturer being the single entity that designs, fabricates and supervises the installation of the bearing assemblies. The following disk bearing products are deemed pre-qualified:

A. Versiflex HLMR Disc Bearings supplied by:
The D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872
Phone: (419) 257-3561

B. Disktron HLMR Disk Bearings supplied by:
R. J. Watson, Inc.
11035 Walden Ave
Alden, NY 14004
Phone: (716) 901-7020

Contractor is not limited to sourcing the disc bearings from the above suppliers as long as the alternate supplier meets the qualification requirements of this section.

4.3 Fabrication Tolerances. Except as noted, all bearing surfaces of steel plates shall be finished or machined flat within 0.0008 in./in. Out-of-flatness greater than 0.0008 in./in. shall be cause for rejection. The bottom surfaces of lower bearing plates (masonry plates) designed to rest on bearing pads shall not exceed and out-of-flatness value of 0.005 in./in. Oxygen cut surfaces shall not exceed a surface roughness value of 1000 micro-inches, as defined by ANSI B46.1.

Components of the bearing shall satisfy additional tolerances specified in AASHTO *LRFD Construction* 18.3.3.1 and Table 18.1.4.2-1.

4.4 Welding. All welding shall conform to and all welders shall be qualified in accordance with the requirements of the current AASHTO/AWS D1.5M/D1.5 *Bridge Welding Code*.

4.5 Coatings. All mill scale shall be removed from steel plates by means of abrasive blasting in accordance with SSPC-SP10. The plate surfaces above and below the polyether urethane disk shall be abrasive blast cleaned to a near white condition as defined in SSPC-SP10. The blast profile shall be jagged rather than "peened".

The bearing assemblies shall be shop painted in accordance with Standard Specifications Section 821 and paint manufacturer's recommendations. Galvanizing and field painting will not be permitted. The surfaces to be painted or metalized shall be shown in the shop drawings. The following areas are not to be coated: (a) any PTFE, Polymer urethane and stainless steel surfaces; (b) shear resisting mechanism and anchor hole.

Connection bolts and washers shall be galvanized per ASTM A153.

5.0 SAMPLING, TESTING & INSPECTION. Sampling, testing and inspection shall be performed in accordance with the applicable requirements of AASHTO *LRFD Construction* 18.1.5. All testing shall be performed in the presence of a representative of KYTC or its designated inspection agent. Section references in the following two paragraphs are with respect to AASHTO *LRFD Construction* unless otherwise stated.

5.1 Performance Testing. In addition to the material certification tests described in Section 18.1.5.2.2 for the materials specified in Section 2.0 of this special note, five additional tests may be required, depending on the bearing types being utilized. The first three tests shall be conducted on all bearing types (fixed, free and guided) and include: (1) Dimension Check (Section 18.1.5.2.4); (2) Clearance Test (Section 18.1.5.2.5); and (3) short-term compressive Proof Load Test (Section 18.3.4.4.4). The remaining two tests are conducted as follows: (4) Coefficient of friction test shall be performed on a representative sliding bearing (free and guided) following the provisions of Section 18.1.5.2.6. (5) A horizontal load capacity test shall be conducted on fixed and guided bearing assemblies to following the provisions of Section 18.1.5.2.8.

Long-term deterioration tests (Section 18.1. 5.2.7) are not required for bearing products listed as pre-qualified in Section 4.2 of this special provision. The requirement for performing long-term deterioration tests may be waived by the Department for alternate supplier products pending the submission of evidence indicating satisfactory long-term performance of the products. The Department shall be the sole authority in making the decision to waive the long-term deterioration tests for a proposed product.

5.2 Performance Criteria. If any of the tests fail, then all bearings of that lot shall be rejected, unless the Bearing Supplier elects to test all bearings.

Bearings not damaged during the testing described in Section 5.1 of this special note may be used in the work.

Certificate of Compliance: In addition to records of test results, the contractor's disc bearing supplier shall submit Certificates of Compliance for the disc bearings indicating the materials, fabrication, testing, and installation are as specified herein.

Shop Inspection. The Engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly, testing and painting of the bearings.

6.0 IDENTIFICATION, STORAGE & HANDLING. Every bearing shall have the project identification number, lot number and individual bearing number indelibly marked with ink on a side that will be visible after erection.

Bearing assemblies shall be handled by their bottom surfaces only, and shall not be lifted by their tops, sides and/or shipping bands. Completed bearings shall be individually banded in the upright position. When in storage the bearings shall be kept banded, wrapped and secured in a clean, dry and upright position. Packaging shall be adequate to prevent damage from impact as well as from dust and moisture contamination during shipping and storage.

At no time prior to completion of the project, may any bearing be disassembled without authorization from the Bearing Supplier.

7.0 INSTALLATION. Disk bearings shall be installed in accordance with the Contract Documents and the approved shop drawings. A technical representative of the bearing

Manufacturer shall be readily available to provide guidance to the Contractor during the entire installation process.

Bearings shall be clearly piece-marked with a numbering system to ensure appropriate field matching of upper and lower assembly components. Mark centerlines on bearing base plate and slide plate edges. These identification marks will be used to measure offsets in the field. Use indelible ink to place these marks. Bearing devices shall not be disassembled unless otherwise permitted by the engineer or manufacturer.

The Contractor shall adjust bearing seat elevations to accommodate the final bearing height. Install bearings in accordance with the position and orientation show on the Contract Plans. The Contractor shall take special care to protect stainless steel and PTFE surfaces from damage and/or debris intrusion during installation of bearings and anchorage. Welding to bearing plates after assembly is permitted provided that welding procedures restrict the maximum temperature in the areas of the urethane disk and PTFE to no more than 225 degrees Fahrenheit as determined by the use of temperature indicating wax pencils. Protective material shall be placed over the bearing assembly to protect against sparks and flash. After welding is complete, exposed steel shall be touched up in accordance with the specified coating system.

Upon final installation of the bearings, the Engineer shall inspect the bearing components to assure that they are level and parallel to within 0.03125 in./ft. Any deviations in excess of the allowed tolerances shall be corrected.

8.0 SUBMITTALS. Prior to fabrication of the bearing assemblies, the manufacturer shall submit shop drawings complying with AASHTO *LRFD Construction* 18.1.1. to the Engineer for review and approval. Such drawings shall show all details of the bearings and of the materials proposed for use and shall be approved by the Engineer prior to the fabrication of the bearings or construction of the beam seats. Such approval shall not relieve the Contractor of any responsibility under the contract documents for the successful completion of the work.

The shop drawings shall include, but not be limited to, the following information.

A. Plan and elevation of each disc bearing type
B. Complete details and sections showing all materials (with ASTM or other designations) incorporated into the disc bearings assemblies
C. The maximum design coefficient as shown in the Contract Drawings
D. Vertical and horizontal load capacities and movement ratings
E. All bearing connection details

The shop drawings shall be stamped by a professional engineer registered in the Commonwealth of Kentucky and employed by the bearing supplier. Do not perform any fabrication until the approved shop drawings are in the hands of the Inspector and fabricator and the Engineer has authorized fabrication.

9.0 MEASUREMENT. The Department will pay for Disk Bearings at the contract unit price bid for each type. The Department will not pay for bearings replaced due to damage or rejection. Payment is full compensation for furnishing all materials and equipment necessary to fabricate, inspect, test, ship and install the disk bearings. All prescribed work shall be done in a workmanlike and acceptable manner and shall include all labor and incidentals necessary for completion.

10.0 PAYMENT.

Code	Pay Item	Pay Unit
24614EC	DISK EXPANSION BEARING	EACH

SPECIAL NOTE FOR SEISMIC ISOLATION BEARINGS - LEAD CORE ELASTOMERIC

This Special Note applies to six Lead-Core Elastomeric (LCE) Seismic Isolation bearings for Span 5 indicated on the plans. It supplements information provided in the standard specifications. Where a conflict exists between this Special Note and the standard specifications, the provisions herein shall govern.

1.0 DESCRIPTION. This work consists of designing, fabricating, testing, delivering and installing six Lead-Core Elastomeric (LCE) Seismic Isolation bearings assemblies at the locations shown on the Contract Plans in accordance with: this special note; KYTC Standard Specifications for Road and Bridge Construction, 2012 Edition (KYTC); AASHTO *LRFD Bridge Design Specifications,* 6th Edition, 2012 *(*AASHTO *LRFD Design*); AASHTO *LRFD Bridge Construction Specifications*, 2010 (AASHTO *LRFD Construction*); and AASHTO *Guide Specifications for Seismic Isolation Design*, 3rd Edition (Guide Specifications).

The seismic isolation bearing system is a key structural component of the bridge, and must function successfully during an earthquake at any time throughout the life of the bridge, while also performing reliably under service loads with no maintenance.

The Lead-Core Elastomeric (LCE) Seismic Isolation bearing as shown on the plans consists of the lead-core elastomeric energy absorbing device (isolator) bonded to the top and bottom LCE mounting plates.

In addition, all items below the sole plate such as top load plates, masonry plates, sub-base plates, concrete preparation of the grout pockets and grout pad areas, non-shrink grout and shear lug plates as well as tap bolts between the LCE top mounting plate and the top load plate and between the LCE bottom mounting plate and the sub-base plates shall be considered part of the LCE isolation bearing assembly. Contractor shall note that these isolation bearing assemblies may require significant lead-time to obtain. These six bearings work together as a system with the foundational stiffness of Piers 4 and 5.

1.1 Pre-Approved Suppliers. The Lead-Core Elastomeric (LCE) Seismic Isolation option shall be used for the six arch main span (Span 5) bearings. The structure has been analyzed and designed in accordance with Project Specific Seismic Design Criteria, AASHTO Guide Specifications for LRFD Seismic Bridge Design, and the AASHTO Guide Specifications for Seismic Isolation Design using a six Lead-Core Elastomeric (LCE) Seismic Isolation system in conjunction with the foundation stiffness of Piers 4 and 5. The following manufacturers have been preapproved to supply the specified isolators:

<u>Lead-Core Elastomeric Isolation Bearing:</u>

Seismic Energy Products
518 Progress Way
Athens, TX 75751
Ph. (903) 675-8571

Dynamic Isolation Systems
885 Denmark Drive, Suite 101
McCarran, NV 89434
Ph. (775) 359-3333

1.2 Alternative Suppliers. The Contractor may propose an alternate supplier. However, only isolation bearing types designated in the General Notes and the plans will be allowed. An alternate supplier shall have successfully completed a minimum of three

similar lead-core elastomeric isolation projects within the past 5 years, or demonstrate that the company has the key personnel and equipment from a former company in which these personnel successfully filled the same role and successfully met the same requirement. Written documentation supporting the qualification for a proposed alternate supplier shall be submitted a minimum of 60 days prior to beginning seismic bearing assembly design and shop drawings. This documentation shall include the plan for design and testing of the seismic bearings.

1.3 Quality Assurance / Quality Control. Fabrication of the isolation bearings shall be performed in accordance with the applicable provisions of the AASHTO *LRFD Bridge Design Specifications*, the AASHTO *LRFD Bridge Construction Specifications* and the AASHTO Guide *Specifications for Seismic Isolation Design*. Inspection and testing shall be the responsibility of the Fabricator Quality Control (FQC) staff. However, representatives of the Department can and will inspect fabrication as considered appropriate and will monitor operations of the Fabricator's FQC staff. Department inspection or testing will not relieve the Fabricator of any QC responsibilities.

1.4 Qualifications. Fabricator FQC key personnel shall have a minimum of 5 years prior experience with the fabrication and testing of isolation bearings of the type being proposed for this project. The Contractor shall submit written documentation for Fabricator's FQC staff with the seismic bearing shop drawings. The Department reserves the right to suspend the fabrication work if unapproved personnel are utilized. The Contractor shall be fully liable for the additional costs resulting from the suspension of work, and no adjustments in the contract time resulting from the suspension of the work will be allowed.

1.5 Shop Drawings. Prior to fabrication, the Contractor shall submit calculations and shop drawings verifying that the proposed isolation bearings meet the design and geometric requirements of the plans and specifications. The shop drawings shall include, at a minimum:

a. Written documentation of FQC staff qualification as detailed above.

b. Calculations that conform to the AASHTO *LRFD Bridge Design Specifications* and the Guide Specification. Seismic bearings shall be designed sufficient to meet the requirements specified in Section 3.2. No substitutions shall be made in the materials used in the design calculations without additional calculations verifying that the new materials meet the design requirements. Where a conflict exists between AASHTO *LRFD Bridge Design Specifications* and the *AASHTO Guide Specifications for Seismic Isolation Design*, the later shall govern.

c. Detail drawings of the individual isolation bearings and overall seismic bearing assemblies.

d. A complete description of material properties and conformance specifications for the isolation bearings including the isolator, tap bolts, masonry plates, top load plates, sub-base plates and shear lugs.

2.0 MATERIALS

2.1 Lead-Core Elastomeric (LCE) Seismic Isolation. Meet the following material requirements:

a. Internal steel reinforcing plates shall, as a minimum, conform to ASTM A1011 Grade 40.

b. LCE mounting plates provided by the bearing manufacturer shall, as a minimum, conform to ASTM A572, Grade 50. LCE load plates shall be vulcanized bonded to the isolation bearing and mechanically connected to the internal lead core.

c. Exposed steel surfaces shall be protected from rust by one coat of zinc-rich primer. All exposed steel surfaces shall receive a final field coat in accordance with the plans and specifications.

d. The purity of lead shall be established from a sample of lead used in the isolators and shall demonstrate a minimum of 99% purity.

e. The elastomer shall be Grade 3 Natural Rubber.

f. Results showing performance within the stated parameters shall be provided for each elastomer formulation used in the isolators. Tests performed within the previous 12 months are acceptable for the following tests:

– Compression Set (ASTM D395) at 70°C for 22 hours:
  Maximum permissible set = 40%.

– Bond Strength (ASTM D429, Method B):
  Minimum bond strength = 40lb/in, 100% rubber tear.

– Heat Resistance (ASTM D573) at 70°C for 7 days:
  Maximum permissible change in tensile strength = -25%
  Maximum permissible change in ultimate elongation = -25%
  Maximum permissible change in durometer hardness = +10%

– Ozone Resistance (ASTM D 1149)

Representative strips of material shall be prepared in accordance with ASTM D518, Method A. The tests shall be performed at a concentration of 50±5 parts per hundred million, at 20% strain after conditioning at 38°C±1 for 100 hours. No cracks shall be visible using 7X magnification.

g. Results from tests performed on each batch of elastomer used in the isolators shall demonstrate compliance with the following requirements:

– Tensile Strength (ASTM D412):
  Minimum permissible tensile strength = 2500 psi

– Elongation at break (ASTM D412):
Minimum permissible elongation at break = 500%

– Shear Modulus at 50% Shear Strain (ASTM D4014):
Maximum permissible variation from design value=±10%

2.2 Masonry Plates, Sub-Base Plates, Top Load Plates, Shear Lug Plates. Masonry, sub-base plates and shear lug plates shall conform to M270 Grade 50W steel.

2.3 Grout for Shear Lug Pocket. Shear lug pocket shall be prepared as indicated on the plans and filled with a non-shrink grout from the Department's List of Approved Materials and conforming to KYTC Section 601.

3.0 DESIGN AND PERFORMANCE REQUIREMENTS

3.1 Seismic Acceleration & Response Spectra

Seismic isolation bearing analysis shall be performed in accordance with the Guide Specification using the following criteria:

– Seismic Design Category: D
– Site Specific Design Response Spectrum: See Table 3.1a
Note that the design response spectrums presented below are for the 1,000 year return event.

Table 3.1a: Design Response Spectrum

Main Span West Pier 4			**Main Span East Pier 5**		
Station Range	1003+00	1003+00	**Station Range**	1008+50	1008+50
	Horizontal	**Vertical**		**Horizontal**	**Vertical**
T_m (sec)	**S_a(g)**	**S_a(g)**	**T_m (sec)**	**S_a(g)**	**S_a(g)**
0.001	0.419	0.279	0.001	0.440	0.294
0.150	1.551	1.034	0.130	1.484	0.989
0.410	1.551	1.034	0.430	1.484	0.989
0.500	0.691	0.461	0.500	0.918	0.612
0.600	0.402	0.268	0.600	0.533	0.356
0.700	0.308	0.205	0.700	0.318	0.212
0.800	0.269	0.179	0.800	0.269	0.179
0.900	0.239	0.160	0.900	0.239	0.160
1.000	0.215	0.144	1.000	0.215	0.144
1.100	0.196	0.131	1.100	0.196	0.131
1.200	0.179	0.120	1.200	0.179	0.120
1.300	0.166	0.110	1.300	0.166	0.110
1.400	0.154	0.103	1.400	0.154	0.103
1.500	0.144	0.096	1.500	0.144	0.096
1.700	0.127	0.084	1.700	0.127	0.084
1.800	0.120	0.080	1.800	0.120	0.080
2.000	0.108	0.072	2.000	0.108	0.072
2.200	0.098	0.065	2.200	0.098	0.065
2.400	0.090	0.060	2.400	0.090	0.060
2.600	0.083	0.055	2.600	0.083	0.055
2.800	0.077	0.051	2.800	0.077	0.051
3.000	0.072	0.048	3.000	0.072	0.048
3.200	0.067	0.045	3.200	0.067	0.045

Main Span West Pier 4			Main Span East Pier 5		
Station Range	1003+00	1003+00	Station Range	1008+50	1008+50
	Horizontal	Vertical		Horizontal	Vertical
3.400	0.063	0.042	3.400	0.063	0.042
3.600	0.060	0.040	3.600	0.060	0.040
3.800	0.057	0.038	3.800	0.057	0.038
4.000	0.054	0.036	4.000	0.054	0.036
4.200	0.051	0.034	4.200	0.051	0.034
4.400	0.049	0.033	4.400	0.049	0.033
4.600	0.047	0.031	4.600	0.047	0.031
4.800	0.045	0.030	4.800	0.045	0.030
5.000	0.043	0.029	5.000	0.043	0.029
5.200	0.041	0.028	5.200	0.041	0.028
5.400	0.040	0.027	5.400	0.040	0.027
5.600	0.038	0.026	5.600	0.038	0.026
5.800	0.037	0.025	5.800	0.037	0.025
6.000	0.036	0.024	6.000	0.036	0.024
6.200	0.035	0.023	6.200	0.035	0.023

3.2 Loads.

Shop drawing calculations shall demonstrate that the bearing design conforms to the following minimum requirements.

a. Bearing shall be designed to resist, at minimum, the following unfactored reactions as provided in Table 3.2a.

Table 3.2a: Unfactored Dead and Live Load Reactions (per bearing)

Location	Bearing Type	Dead Load Vertical (kips)	Live Load Vertical (kips)	Dead Load Longitudinal (kips)	Live Load Longitudinal (kips)	Braking Force (kips)	Live Load Rotation (rad)
Pier 4	A	2615	600	45	10	18	0.003
Pier 4	B	370	375	35	10	19	0.003
Pier 5	A	2615	600	30	10	18	0.003
Pier 5	B	370	375	60	10	19	0.003

b. Bearing shall be designed to resist, at minimum, the service lateral loads as provided in Table 3.2b. Additionally, the bearing shall be designed such that

the deflection does not exceed the values provided in Table 3.2b for the specified load case.

Table 3.2b: Wind Service Lateral Reactions (per bearing)

Location	Bearing Type	Wind (0.3WS*) (kips)	Max. deflection due to Wind (0.3WS) (inches)	Wind (1.0WS**) (kips)	Max. deflection due to Wind (1.0WS) (inches)	Wind on Live (1.0WL*) (kips)	Max. deflection due to Wind on Live (1.0WL) (in)
Pier 4	A	41	0.4	135	2.8	14	0.2
Pier 4	B	39	0.4	131	2.8	14	0.2
Pier 5	A	41	0.4	135	2.8	14	0.2
Pier 5	B	39	0.4	131	2.8	14	0.2

* Based on a Keff (elastic value) of 103 (k/in). Stiffness must remain elastic for Service Load condition with 0.3Ws.
** Based on a Keff value of 48 (k/in).

c. Bearings shall be designed to resist, at minimum, the strength lateral loads and displacements as provided in Table 3.2c. Additionally, the bearing shall be designed such that the deflection does not exceed the values provided in Table 3.2c for the specified load case.

Table 3.2c: Maximum Strength Wind Loads (per bearing)

Location	Bearing Type	Wind (1.4WS*) (kips)	Max. deflection due to Wind (1.4WS) (inches)
Pier 4	A	189	6.5
Pier 4	B	184	6.5
Pier 5	A	189	6.5
Pier 5	B	184	6.5

* Based on a Keff value of 27 (k/in)

d. Bearing shall be designed to resist, at minimum, the temperature lateral loads and displacements as provided in Table 3.2d. Additionally, the bearing shall

be designed such that the deflection does not exceed the values provided in Table 3.2d for the specified load case.

Table 3.2d: Thermal Movement and Demands (per bearing)

Location	Bearing Type	Temperature Rise (inches)	Max. Force Temperature Rise* (Kips)	Temperature Fall (inches)	Max. Force Temperature Fall** (Kips)
Pier 4	A	2.1	87	2.4	91
Pier 4	B	2.1	87	2.4	91
Pier 5	A	2.1	87	2.4	91
Pier 5	B	2.1	87	2.4	91

* Based on a Keff value of 41 (k/in)
** Based on a Keff value of 38 (k/in)

e. Bearings shall be designed with to resist the minimum total design displacement provided in Table 3.2e. The minimum Keff of the bearing at this total design displacement shall be as specified in the table. The bearing shall be designed to resist a force, at minimum, equal to the total design displacement of the bearing multiplied by the actual bearing Keff value at that displacement.

Additionally, in accordance with Section 12.3 of the Guide Specification, the bearing shall be designed such that it is stable under 1.2 times the dead load shown in Table 3.2a at a horizontal offset equal to 1.5 times the total design displacement.

Table 3.2e: Minimum Seismic Stiffness and Displacement Requirements (per Bearing) (EQ)

Location	Bearing Type	Lateral	
		Total Design Displacement (in)	Min. Keff (kip/in)
Pier 4	A	9.0	40
Pier 4	B	9.0	40
Pier 5	A	8.1	42
Pier 5	B	8.1	42

4.0 FABRICATION

4.1 General. Fabrication shall be in accordance with this Special Note and AASHTO *LRFD Construction*.

4.2 Welding. All welding shall conform to and all welders shall be qualified in accordance with the requirements of the current AASHTO/AWS D1.5M/D1.5 *Bridge Welding Code*.

4.3 Masonry, Sub-Base, Top Load and Shear Lug Plate Coats. Shall be cleaned and painted per the project general notes.

4.4 Other Coatings. All mill scale shall be removed from steel plates by means of abrasive blasting in accordance with SSPC-SP10. The plate surfaces shall be abrasive blast cleaned to a near white condition as defined in SSPC-SP10. The blast profile shall be jagged rather than "peened".

The bearing assemblies shall be shop painted in accordance with Standard Specifications Section 821 and paint manufacturer's recommendations. Galvanizing will not be permitted. The surfaces to be painted or metalized shall be shown in the shop drawings. Areas to be field welded shall not be coated.

Connection bolts and washers shall be mechanically galvanized as described in AASHTO M 154.

5.0 SAMPLING, TESTING & INSPECTION

5.1 Testing and Inspection for Fabricator Quality Control. Upon completion of fabrication and testing, the contractor shall submit all material certifications, certificates of compliance and test results indicating conformance with the contract plans, specifications and approved shop drawings. Contractor shall submit both prototype tests and QC test results as detailed in Sections 5.3 and 5.4 below.

5.2 Fabrication Tolerances. The tolerances on isolator dimensions prior to testing shall be as follows:

External Plan Dimensions	± ¼ inch
Overall height	± ¼ inch
Variation between top and bottom surface	≤ 0.005 radian
Variation of sides from theoretical	± ¼ inch
Flatness of external plates	± 1/16 in. per 36 in.

Each isolator shall be marked with the isolator serial number specified by the manufacturer.

5.3 Prototype Tests. Isolation system suppliers shall submit characterization test results by means of the evaluation findings of the Highway Innovative Technology Evaluation Center and shall also submit prototype test results in accordance with Section 13.2 and 13.3 of the AASHTO *Guide Specifications*.

Prototype tests shall be performed on the isolators fabricated for the subject project. Testing of similarly sized or reduced scale specimens is not allowed. As per

section 13.2 of the AASHTO *Guide Specifications*, prototype tests shall be performed on a minimum of two isolators of each type shown in this specification. However, if tests of any isolator fail to meet the requirements of the AASHTO *Guide Specifications*; then all isolators of that type shall be tested and any isolators that fail to meet the requirements shall be rejected. Fabrication of the remaining bearings shall not be continued until prototype test results are approved by the Engineer.

5.4 Quality Control Tests. Each isolator shall be tested and evaluated in accordance with the requirements of the AASHTO *Guide Specifications*, Section 15.2. Any bearing that fails to satisfy the requirements shall be rejected. Alternative suppliers of lead core elastomeric isolators, if approved, must satisfy these testing requirements.

6.0 IDENTIFICATION, STORAGE & HANDLING. Every bearing shall have the project identification number, lot number and individual bearing number indelibly marked with ink on a side that will be visible after erection.

Bearing assemblies shall be handled by their bottom surfaces only, and shall not be lifted by their tops, sides and/or shipping bands. Completed bearings shall be individually banded in the upright position. When in storage the bearings shall be kept banded, wrapped and secured in a clean, dry and upright position. Packaging shall be adequate to prevent damage from impact as well as from dust and moisture contamination during shipping and storage.

At no time prior to completion of the project, may any bearing be disassembled without authorization from the Bearing Supplier.

7.0 INSTALLATION

7.1 Preparing Concrete Bearing Areas. The sides and bottom of the bearing lug grout pocket shall be cleaned of laitance and loose and foreign material prior to setting masonry plates. The Contractor shall mark the location of the masonry plates in the pockets (by plan station and offset.) Masonry plates on each pier shall be set by template to the indicated elevation and alignment and positively secured to the top of the pier for grout placement.

7.2 Substructure Survey. After preparing concrete surface and setting masonry plates, the Contractor shall perform a horizontal and vertical control survey of the center and corner of each plate. The Engineer will inspect the bearing components to assure that they are level and parallel to with ± 0.005 radians. Any deviations in excess of the allowed tolerances shall be corrected.

7.3 Grouting Lug Pocket. Prior to grouting, contact surfaces of pocket shall be coated with concrete bonding agent. Grout shall be place into pocket under pressure until the voids are completely filled and grout exits the vent holes on the top of the masonry plate and overflows the perimeter of the masonry plate. Strike off excess grout and provide a clean bearing surface for the installation of the bearing components. Completely remove all overflow grout located above the top-of-bearing elevation. Properly collect and dispose of all overflow grout in an environmentally safe manner.

7.4 Seismic Bearing Assemblies. Care shall be taken during storage and installation of the isolators to prevent damage to the isolator or coating materials on the steel.

The bearing assemblies shall be installed level in exact position (true roadway

station and offset, or as adjusted by the Engineer due to substructure location out of tolerance) and the bottom LCE mounting plate shall have full and even bearing upon the sub-base plates; Bearing sub-base plates shall have full and even bearing upon and field welded to masonry plates. Any superstructure gradients are accommodated by tapered sole plates which are part of the arch tie girders or end floor beams. The top load plate shall be in full contact with the sole plates and shall be welded to sole plates. The top LCE mounting plate shall have full and even contact with the top load plates. Connections shall be adjusted as necessary, under the direction of the Engineer, to obtain full contact. All grout holes in the masonry plates shall be covered by the sub-base plate after field welding the plates together.

Contractor shall take care to minimize heat build-up in bearing. Temperature in nearest bearing load plate shall be kept below 200°F. Multiple weld passes may be required.

Contractor shall provide a complete record of the location of each installed isolator, by serial number, to both the Engineer and the manufacturer.

There shall be no obstructions, including bolt extensions, which prevent the isolators from deforming horizontally in any direction. The area around each isolator shall be cleaned of all debris and construction material at the completion of the contract.

7.5 Arch Erection. The seismic bearings shall be installed as outlined in arch erection and camber given in the General Note "Arch Erection and Camber" in the Contract Drawings and Special Note for Steel Erection – Arch Span.

If, at the completion of construction, the seismic bearing assemblies are not vertical at 60°F, the Contractor shall remove the bearing sub-assembly to masonry plate weld and re-center the bearings. Permanent horizontal deflection of the bearings shall be no more than 1/8" measured at the bottom of the bearing sub-assembly top plate.

Approximate jacking force during erection and concurrent stiffness as provided in Table 7.1:

Table 7.1:

Erection Temperature (°F)	Required Jacking Movement (in)	Required Jacking Load (kips)	Effective Stiffness (kip/in)
0	3.6	648	180
60	1	180	180
120	1.6	288	180

8.0 MEASUREMENT. The Department will pay for "Seismic Isolation Bearing - Type A or - Type B" at the contract unit price per each bearing assembly. This will constitute full compensation for all costs associated with preparing concrete surfaces; installing and grouting

shear lugs; and designing, fabricating, testing and installing the seismic bearing assemblies (including all steel plates below the tapered sole plate).

9.0 PAYMENT. The Department will pay for completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24612EC	SEISMIC ISOLATION BEARING – TYPE A	EACH
24613EC	SEISMIC ISOLATION BEARING – TYPE B	EACH

The Department will consider payment as full compensation for all work required under this Special Note.

SPECIAL NOTE FOR SEISMIC ISOLATION BEARINGS - FRICTION

This Special Note applies to six Friction Seismic Isolation bearings for Span 5 indicated on the plans. It supplements information provided in the standard specifications. Where a conflict exists between this Special Note and the standard specifications, the provisions herein shall govern.

1.0 DESCRIPTION. This work consists of designing, fabricating, testing, delivering and installing six Friction Seismic Isolation Bearing assemblies at the locations shown on the Contract Plans in accordance with: this special note; KYTC Standard Specifications for Road and Bridge Construction, 2012 Edition (KYTC); AASHTO *LRFD Bridge Design Specifications,* 6th Edition, 2012 *(*AASHTO *LRFD Design*); AASHTO *LRFD Bridge Construction Specifications*, 2010 (AASHTO *LRFD Construction*); and AASHTO *Guide Specifications for Seismic Isolation Design*, 3rd Edition (Guide Specifications).

The seismic isolation bearing system is a key structural component of the bridge, and must function successfully during an earthquake at any time throughout the life of the bridge, while also performing reliably under service loads with no maintenance.

The friction seismic isolation bearing as shown on the plans is a flat sliding friction type with rotational characteristics of a polyurethane disk bearing and stabilizing polyurethane springs similar to or equal to Eradiquake Isolation Bearings with top and bottom load plates, keeper assembly plates and keeper assembly tap bolts designed and tested to fracture at the specified a demand corresponding to a 1000-year return event. These six bearings work together as a system with the foundational stiffness of Piers 4 and 5.

In addition, all items below the sole plate such as masonry plates, sub-base plates, concrete preparation of the grout pockets and grout pad areas, non-shrink grout and shear lug plates as well as tap bolts between the bottom load plates and the sub-base plates shall be considered part of the friction seismic isolation bearing assembly. Contractor shall note that these isolation bearing assemblies may require significant lead-time to obtain.

1.1 Pre-Approved Suppliers. The Friction Seismic Isolation Bearing option shall be used for the six arch main span (Span 5) bearings. The structure has been analyzed and designed in accordance with Project Specific Seismic Design Criteria, AASHTO Guide Specifications for LRFD Seismic Bridge Design, and the AASHTO Guide Specifications for Seismic Isolation Design using a six bearing friction isolation system in conjunction with the foundation stiffness of Piers 4 and 5. The following manufacturers have been preapproved to supply the specified isolators:

<u>Friction Seismic Isolation Bearing:</u>

R. J. Watson Bridge & Structural Engineered Systems
11035 Walden Avenue
Alden, NY 14004
Ph. (716) 901-7020

1.2 Alternative Suppliers. The Contractor may propose an alternate supplier. However, only isolation bearing types designated in the General Notes and the plans will be allowed. An alternate supplier shall have successfully completed a minimum of three similar flat sliding friction isolation projects within the past 5 years, or demonstrate that

the company has the key personnel and equipment from a former company in which these personnel successfully filled the same role and successfully met the same requirement. Written documentation supporting the qualification for a proposed alternate supplier shall be submitted a minimum of 60 days prior to beginning seismic bearing assembly design and shop drawings. This documentation shall include the plan for design and testing of the seismic bearings.

1.3 Quality Assurance / Quality Control. Fabrication of the isolation bearings shall be performed in accordance with the applicable provisions of the AASHTO *LRFD Bridge Design Specifications*, the AASHTO *LRFD Bridge Construction Specifications* and the AASHTO Guide *Specifications for Seismic Isolation Design*. Inspection and testing shall be the responsibility of the Fabricator Quality Control (FQC) staff. However, representatives of the Department can and will inspect fabrication as considered appropriate and will monitor operations of the Fabricator's FQC staff. Department inspection or testing will not relieve the Fabricator of any QC responsibilities.

1.4 Qualifications. Fabricator FQC key personnel shall have a minimum of 5 years prior experience with the fabrication and testing of isolation bearings of the type being proposed for this project. The Contractor shall submit written documentation for Fabricator's FQC staff with the seismic bearing shop drawings. The Department reserves the right to suspend the fabrication work if unapproved personnel are utilized. The Contractor shall be fully liable for the additional costs resulting from the suspension of work, and no adjustments in the contract time resulting from the suspension of the work will be allowed.

1.5 Shop Drawings. Prior to fabrication, the Contractor shall submit calculations and shop drawings verifying that the proposed isolation bearings meet the design and geometric requirements of the plans and specifications. The shop drawings shall include, at a minimum:

a. Written documentation of FQC staff qualification as detailed above.

b. Calculations that conform to the AASHTO LRFD Bridge Design Specifications and the Guide Specification. Seismic bearings shall be designed sufficient to meet the requirements specified in Section 3.2. No substitutions shall be made in the materials used in the design calculations without additional calculations verifying that the new materials meet the design requirements. Where a conflict exists between AASHTO LRFD Bridge Design Specifications and the AASHTO Guide Specifications for Seismic Isolation Design, the later shall govern.

c. Detail drawings of the individual isolation bearings and overall seismic bearing assemblies.

d. A complete description of material properties and conformance specifications for the isolation bearings including the isolator, keeper and keeper assembly tap bolts, masonry plates, top and bottom load plates, sub-base plates and shear lugs.

2.0 MATERIALS

2.1 Friction Seismic Isolation Bearing. Meet the following material requirements:

a. **Stainless Steel:** Stainless steel shall conform to the requirements of ASTM A240, Type 304, and AASHTO *LRFD Construction* 18.1.2.5. Higher grades of stainless are permissible. The minimum thickness of the stainless steel shall be 13 gauge (0.094 inches) or as indicated in the Contract Plans. The stainless steel connection to the carbon steel attachment plate shall be seal welded to form an effective moisture seal.

b. **Polytetrafluoroethylene** (PTFE). PTFE sheet shall meet the requirements of AASHTO *LRFD Construction* 18.8.2.5 and be manufactured from pure virgin unfilled PTFE resin conforming to the material requirements of AASHTO *LRFD Construction* 18.8.2.

PTFE sheet shall be dimpled and lubricated, with dimples satisfying the depth, diameter and distribution requirements of AASHTO *LRFD Design* 14.7.2. Unless indicated otherwise in the Contract Plans, the minimum thickness of the PTFE sheet shall be 0.188 in. when the maximum dimension of the PTFE is less than or equal to 24 inches and 0.25 in. when the maximum dimension of the PTFE is greater than 24 in.

c. **Adhesive.** The Bearing Supplier shall use a uniform layer of epoxy adhesive to bond the PTFE to the recessed bearing plate below it. Epoxy Adhesive shall conform to AASHTO *LRFD Construction* 18.8.2.4 and shall be stable from -100°F to +250°F. PTFE bonding surface shall be prepared in accordance with AAHTO *LRFD Construction* 18.8.2.10

The bearing supplier shall supply non-project specific test results showing that their standard epoxy connection typically achieves adhesive peel strengths of 20 lb. per inch between the PTFE material and carbon steel plate when tested per ASTM D429, Method B or ASTM D903.

d. **Polyether Urethane.** Polyether urethane shall conform to AASHTO *LRFD Construction* 18.3.2.8.

2.3 Masonry Plates, Sub-Base Plates, Shear Lug Plates. Masonry, sub-base plates and shear lug plates shall conform to M270 GRADE 50W steel.

2.4 Friction Bearing Plates. All steel bearing plates provided by the bearing manufacturer, except stainless steel, shall conform to ASTM A572 (Grade 50) steel.

2.5 Grout for Shear Lug Pocket. Shear lug pocket shall be prepared as indicated on the plans and filled with a non-shrink grout from the Department's List of Approved Materials and conforming to KYTC Section 601.

3.0 DESIGN AND PERFORMANCE REQUIREMENTS

3.1 Seismic Acceleration & Response Spectra

Seismic isolation bearing analysis shall be performed in accordance with the Guide Specification using the following criteria:

- Seismic Design Category: D
- Site Specific Design Response Spectrum: See Table 3.1a
  Note that the design response spectrums presented below are for the 1,000 year return event.

Table 3.1a: Design Response Spectrum

Main Span West Pier 4			**Main Span East Pier 5**		
Station Range	1003+00	1003+00	**Station Range**	1008+50	1008+50
	Horizontal	**Vertical**		**Horizontal**	**Vertical**
T_m (sec)	**S_a(g)**	**S_a(g)**	**T_m (sec)**	**S_a(g)**	**S_a(g)**
0.001	0.419	0.279	0.001	0.440	0.294
0.150	1.551	1.034	0.130	1.484	0.989
0.410	1.551	1.034	0.430	1.484	0.989
0.500	0.691	0.461	0.500	0.918	0.612
0.600	0.402	0.268	0.600	0.533	0.356
0.700	0.308	0.205	0.700	0.318	0.212
0.800	0.269	0.179	0.800	0.269	0.179
0.900	0.239	0.160	0.900	0.239	0.160
1.000	0.215	0.144	1.000	0.215	0.144
1.100	0.196	0.131	1.100	0.196	0.131
1.200	0.179	0.120	1.200	0.179	0.120
1.300	0.166	0.110	1.300	0.166	0.110
1.400	0.154	0.103	1.400	0.154	0.103
1.500	0.144	0.096	1.500	0.144	0.096
1.700	0.127	0.084	1.700	0.127	0.084
1.800	0.120	0.080	1.800	0.120	0.080
2.000	0.108	0.072	2.000	0.108	0.072
2.200	0.098	0.065	2.200	0.098	0.065
2.400	0.090	0.060	2.400	0.090	0.060
2.600	0.083	0.055	2.600	0.083	0.055
2.800	0.077	0.051	2.800	0.077	0.051
3.000	0.072	0.048	3.000	0.072	0.048
3.200	0.067	0.045	3.200	0.067	0.045
3.400	0.063	0.042	3.400	0.063	0.042
3.600	0.060	0.040	3.600	0.060	0.040
3.800	0.057	0.038	3.800	0.057	0.038
4.000	0.054	0.036	4.000	0.054	0.036
4.200	0.051	0.034	4.200	0.051	0.034
4.400	0.049	0.033	4.400	0.049	0.033
4.600	0.047	0.031	4.600	0.047	0.031
4.800	0.045	0.030	4.800	0.045	0.030
5.000	0.043	0.029	5.000	0.043	0.029
5.200	0.041	0.028	5.200	0.041	0.028
5.400	0.040	0.027	5.400	0.040	0.027
5.600	0.038	0.026	5.600	0.038	0.026
5.800	0.037	0.025	5.800	0.037	0.025
6.000	0.036	0.024	6.000	0.036	0.024
6.200	0.035	0.023	6.200	0.035	0.023

3.2 Loads.

Shop drawing calculations shall demonstrate that the bearing design conforms to the following minimum requirements.

a. Bearing shall be designed to resist, at minimum, the following unfactored reactions as provided in Table 3.2a.

Table 3.2a: Unfactored Dead and Live Load Reactions (per bearing)

Location	Bearing Type	Dead Load Vertical (kips)	Live Load Vertical (kips)	Dead Load Lateral (kips)	Live Load Lateral (kips)	Braking Force (kips)	Live Load Rotation (rad)
Pier 4	A	2590	600	80	35	29	0.003
Pier 4	B	370	375	0	0	0	0.003
Pier 5	A	2590	600	80	35	29	0.003
Pier 5	B	370	375	0	0	0	0.003

b. Bearing shall be designed to resist, at minimum, the service lateral loads as provided in Table 3.2b.

Table 3.2b: Wind Service Lateral Reactions (per bearing)

Location	Bearing Type	Wind (0.3WS) (kips)	Wind (1.0WS) (kips)	Wind on Live (1.0WL) (kips)
Pier 4	A	46	155	11
Pier 4	B	111	371	42
Pier 5	A	36	120	9
Pier 5	B	109	363	41

c. Bearings shall be designed to resist, at minimum, the strength lateral loads and displacements as provided in Table 3.2c.

Table 3.2c: Maximum Strength Wind Loads (per bearing)

Location	Bearing Type	Wind (1.4WS*) (kips)
Pier 4	A	217
Pier 4	B	520
Pier 5	A	168
Pier 5	B	508

d. Bearing shall be designed to resist, at minimum, the temperature lateral loads as provided in Table 3.2d.

Table 3.2d: Thermal Movement and Demands (per bearing)

Location	Bearing Type	Max. Force Temperature Rise (Kips)	Max. Force Temperature Fall (Kips)
Pier 4	A	293	340
Pier 4	B	0	0
Pier 5	A	293	340
Pier 5	B	0	0

e. Bearing shall be designed to resist the minimum total design displacement provided in Table 3.2e. The minimum Keff of the bearing at this total design displacement shall be as specified in the table. The bearing shall be designed to resist a force, at minimum, equal to the total design displacement of the bearing multiplied by the actual bearing Keff value at that displacement.

Additionally, in accordance with Section 12.3 of the Guide Specification, the bearing shall be designed such that it is stable under 1.2 times the dead load shown in Table 3.2a at a horizontal offset equal to 1.5 times the total design displacement.

Table 3.2e: Minimum Seismic Demands and Displacements Requirements (per Bearing) (EQ)

Location	Bearing Type	Seismic Vertical Reaction (kip)	Longitudinal		Transverse	
			Total Design Displacement (in)	Min. Keff (kip/in)	Total Design Displacement (in)	Min. Keff (kip/in)
Pier 4	A	2925	8.1	26	2.5	116
Pier 4	B	550	7.7	34	2.6	17
Pier 5	A	3000	6.0	36	6.0	66
Pier 5	B	575	5.3	36	6.4	7

Type B bearing transverse keeper assembly tap bolts shall be designed to fracture under transverse seismic load of 658 kips per bearing at Pier 4 and 563 kips per bearing at Pier 5. Type A bearing longitudinal keeper assembly tap bolts shall be designed to fracture under longitudinal seismic load of 845 kips per bearing at Pier 4 and 596 kips per bearing at Pier 5.

4.0 FABRICATION

4.1 General. Fabrication shall be in accordance with this Special Note and AASHTO *LRFD Construction*.

4.2 Welding. All welding shall conform to and all welders shall be qualified in accordance with the requirements of the current AASHTO/AWS D1.5M/D1.5 *Bridge Welding Code*.

4.3 Masonry, Sub-Base and Shear Lug Plate Coats. Shall be cleaned and painted per the project general notes.

4.4 Other Coatings. All mill scale shall be removed from steel plates by means of abrasive blasting in accordance with SSPC-SP10. The plate surfaces above and below the polyether urethane disk shall be abrasive blast cleaned to a near white condition as defined in SSPC-SP10. The blast profile shall be jagged rather than "peened".

The bearing assemblies shall be shop painted in accordance with Standard Specifications Section 821 and paint manufacturer's recommendations. Galvanizing will not be permitted. The surfaces to be painted or metalized shall be shown in the shop drawings. The following areas are not to be coated: (a) any PTFE, Polymer urethane and stainless steel surfaces; (b) shear resisting mechanism and anchor hole; (c) any area to be field welded.

Connection bolts and washers shall be mechanically galvanized as described in AASHTO M 154.

5.0 SAMPLING, TESTING & INSPECTION

5.1 Testing and Inspection for Fabricator Quality Control. Upon completion of fabrication and testing, the contractor shall submit all material certifications, certificates of compliance and test results indicating conformance with the contract plans, specifications and approved shop drawings. Contractor shall submit both prototype tests and QC test results as detailed in Sections 5.3 and 5.4 below.

5.2 Fabrication Tolerances. The tolerances on isolator dimensions prior to testing shall be as follows:

External Plan Dimensions	± ¼ inch
Overall height	± ¼ inch
Variation between top and bottom surface	≤ 0.005 radian
Variation of sides from theoretical	± ¼ inch
Flatness of external plates	± 1/16 in. per 36 in.

Each isolator shall be marked with the isolator serial number specified by the manufacturer.

5.3 Prototype Tests. Isolation system suppliers shall submit characterization test results by means of the evaluation findings of the Highway Innovative Technology Evaluation Center and shall also submit prototype test results in accordance with Section 13.2 and 13.3 of the AASHTO *Guide Specifications*.

Prototype tests shall be performed on the isolators fabricated for the subject project. Testing of similarly sized or reduced scale specimens is not allowed. As per section 13.2 of the AASHTO *Guide Specifications*, prototype tests shall be performed on a minimum of two isolators of each type shown in this specification. However, if tests of any isolator fail to meet the requirements of the AASHTO *Guide Specifications*; then all isolators of that type shall be tested and any isolators that fail to meet the requirements shall be rejected. Fabrication of the remaining bearings shall not be continued until prototype test results are approved by the Engineer.

The keeper assemblies tap bolts which are designed to break at a designated transverse and longitudinal force shall be tested to the breaking point to within a 10% tolerance.

5.4 Quality Control Tests. Each isolator shall be tested and evaluated in accordance with the requirements of the AASHTO *Guide Specifications*, Section 15.2. Any bearing that fails to satisfy the requirements shall be rejected. Alternative suppliers of lead core elastomeric isolators, if approved, must satisfy these testing requirements.

6.0 IDENTIFICATION, STORAGE & HANDLING. Every bearing shall have the project identification number, lot number and individual bearing number indelibly marked with ink on a side that will be visible after erection.

Bearing assemblies shall be handled by their bottom surfaces only, and shall not be lifted by their tops, sides and/or shipping bands. Completed bearings shall be individually banded in the upright position. When in storage the bearings shall be kept banded, wrapped and secured in a clean, dry and upright position. Packaging shall be adequate to prevent damage from impact as well as from dust and moisture contamination during shipping and storage.

At no time prior to completion of the project, may any bearing be disassembled without authorization from the Bearing Supplier.

7.0 INSTALLATION

7.1 Preparing Concrete Bearing Areas. The sides and bottom of the bearing lug grout pocket shall be cleaned of laitance and loose and foreign material prior to setting masonry plates. The Contractor shall mark the location of the masonry plates in the pockets (by plan station and offset.) Masonry plates on each pier shall be set by template to the indicated elevation and alignment and positively secured to the top of the pier for grout placement.

7.2 Substructure Survey. After preparing concrete surface and setting masonry plates, the Contractor shall perform a horizontal and vertical control survey of the center and corner of each plate. The Engineer will inspect the bearing components to assure that they are level and parallel to with ± 0.005 radians. Any deviations in excess of the allowed tolerances shall be corrected.

7.3 Grouting Lug Pocket. Prior to grouting, contact surfaces of pocket shall be coated with concrete bonding agent. Grout shall be place into pocket under pressure until the voids are completely filled and grout exits the vent holes on the top of the masonry plate and overflows the perimeter of the masonry plate. Strike off excess grout and provide a clean bearing surface for the installation of the bearing components. Completely remove all overflow grout located above the top-of-bearing seat elevation. Properly collect and dispose of all overflow grout in an environmentally safe manner.

7.4 Seismic Bearing Assemblies. Care shall be taken during storage and installation of the isolators to prevent damage to the isolator or coating materials on the steel.

The bearing assemblies shall be installed level in exact position (true roadway station and offset, or as adjusted by the Engineer due to substructure location out of tolerance) and the bottom load plate shall have full and even bearing upon the sub-base plates; Bearing sub-base plates shall have full and even bearing upon and field welded to masonry plates. Any superstructure gradients are accommodated by tapered sole plates which are part of the arch tie girders or end floor beams. The top load plate shall be in full contact with the sole plates and shall be welded to sole plates. Connections shall be adjusted as necessary, under the direction of the Engineer, to obtain full contact. All grout holes in the masonry plates shall be covered by the sub-base plate after field welding the plates together.

Contractor shall take care to minimize heat build-up in bearing. Temperature in nearest bearing load plate shall be kept below 200°F. Multiple weld passes may be required.

Contractor shall provide a complete record of the location of each installed isolator, by serial number, to both the Engineer and the manufacturer.

There shall be no obstructions, including bolt extensions, which prevent the isolators from deforming horizontally in any direction. The area around each isolator shall be cleaned of all debris and construction material at the completion of the contract.

7.5 Arch Erection. The seismic bearings shall be installed as outlined in arch erection and camber given in the Special Note for Steel Erection – Arch Span.

8.0 MEASUREMENT. The Department will pay for "Seismic Isolation Bearing - Type A or - Type B" at the contract unit price per each bearing assembly. This will constitute full compensation for all costs associated with preparing concrete surfaces; installing and grouting shear lugs; and designing, fabricating, testing and installing the seismic bearing assemblies (including all steel plates below the tapered sole plate).

9.0 PAYMENT. The Department will pay for completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24612EC	SEISMIC ISOLATION BEARING – TYPE A	EACH
24613EC	SEISMIC ISOLATION BEARING – TYPE B	EACH

The Department will consider payment as full compensation for all work required under this Special Note.

SPECIAL NOTE FOR VISCOUS DAMPERS

Marshall/Trigg County US-68 over Kentucky Lake

Item Number 01-180.70; Drawing No. 24686

1.0 DESCRIPTION AND SCOPE OF WORK

1.1 DESCRIPTION: Furnish and install completed fluid viscous damping devices, including mounting pins, girder connection plates, anchor plates, and mounting brackets at the locations shown on the plans in accordance with these specifications and the *AASHTO LRFD Bridge Design and Construction Specifications.*

A. WORK IN THIS SECTION: Principal items include:

1. Preparation of shop drawings, test reports, designing, fabrication, testing, handling and shipping to the site.
2. Extent of fabrication of Fluid Viscous Damping Devices (FVD) work of this section is indicated by the requirements of this section.
3. Production Dampers: Provide FVDs, referred to herein as "Production Dampers" in accordance with the specifications.

2.0 EXPERIENCE REQUIREMENTS AND SUBMITTALS

2.1 QUALIFIED SUPPLIERS

Taylor Devices, Inc.
90 Taylor Drive
North Tonawanda, NY 14120-0748
Contact: Paul Tuttobene (585) 624-7259

ITT Enidine, Inc.
7 Center Drive
Orchard Park, NY 14127
Contact: Ben Eder (585) 313-9740

The contractor should note that he/she is not limited to sourcing the FVDs from the above suppliers. Alternate suppliers shall submit to the Owner documented previous projects, which at a minimum meet the qualification requirements of Section 2.2. The Owner shall determine if the submitted documentation is satisfactory for qualification.

2.2 QUALIFICATION REQUIREMENTS: FVDs and the FVD supplier shall be subject to the qualification requirements for acceptance listed below.

1. Documentation of independent product testing by Departments of Transportation, other government agencies, or nationally-recognized facilities/organizations.
2. A published test report showing the dynamic characteristics of a design similar to the proposed FVDs. This report shall include force-displacement and force-velocity plots and shall be used to demonstrate the independence of the proposed FVDs to temperature, frequency and cyclic degradation.

3. A list of five or more projects where FVDs have been installed in a structure for seismic protection. For each project, the FVDs shall have provided a minimum of one year satisfactory service.

2.3 SUBMITTALS:

A. GENERAL: All submittals shall be made as directed by the engineer of record.

B. SHOP DRAWINGS: Shop drawings shall be submitted to the Engineer with the Steel Girder Shop Drawings. Submit Shop Drawings for:

1. Each and every FVD type indicating dimensions and weights.
2. Mounting pins.
3. Mounting brackets.
4. Anchor plates.
5. Girder connection plates.

C. PRODUCT DATA:

1. FVD: Product Data shall include, but shall not be limited to manufacturer's standard product specifications, a list of production history for seismic dampers, and installation instructions.

2. Paint: Submit manufacturer's literature and data.

D. CERTIFICATIONS: Submit the following documents, written and signed by the Quality Assurance Manager of the vendor.

1. A Certificate of Conformance (C of C) stating that all testing equipment has been checked for accuracy by appropriate standards for the purpose of this specification and that all mill test reports for all steel to be used are on file at the vendor facility.

E. INSPECTION AND TEST REPORTS: Submit the following test reports, written and signed by testing agency approved by the Engineer.

1. Production FVD Test Reports: Submit test data for each production FVD within fourteen (14) calendar days after the completion of testing of the subject FVD.

2. Final FVD Test Report: Submit the Final FVD Report, as described in this Section, within twenty-eight (28) calendar days after the completion of all production FVD testing.

F. PROPOSED TEST PROCEDURES: Submit annotated and drafted illustrations of all proposed test apparatus and procedures for tests required by this Section. Such illustrations shall be submitted and approved by the engineer of record and/or architect prior to the commencement of any testing.

G. WARRANTIES AND GUARANTEES: A written warranty of not less than 35 years shall be provided with the cost proposal along with certification that a maintenance plan does not have to be purchased to activate the warranty. The manufacturer of the FVD's specified herein shall have manufactured FVD's of more than 150 kips output for a minimum of 10 years at the same manufacturing site proposed to manufacture the FVD's for this project.

3.0 VISCOUS DAMPER FUNCTION AND CONSTRUCTION

3.1 FUNCTION

A. FUNCTION: The FVD's shall provide an output force in either tension or compression that is directly proportional to the relative velocity between the two ends of the dampers. The damper output force varies only with velocity, and does not change with damper stroke position or orientation angle. The function of the dampers is to absorb earthquake energy, thereby reducing or eliminating damage to the structure when an earthquake occurs.

B. FLUID MEDIUM: The unit shall use inert silicone fluid as the operating fluid medium which shall comply with U.S. Federal Standard VV-D-1078.

C. FLUID EXPANSION COMPENSATION: The unit shall contain provisions to allow for thermal expansion and contraction of the fluid medium to prevent excessive buildup of internal high pressure or vacuum pressure.

D. SERVICING PROVISIONS: The dampers shall be maintenance and service free over a period of at least 35 years and preferably over the expected life of the structure. This means that no inspection, or fluid level verification, or refilling or replacement of fluid or any other parts shall be needed on any basis whatsoever. The dampers shall be designed and constructed so that installation, removal, or replacement, if necessary, shall be a simple process not requiring any special tools or methods.

E. ADJUSTMENT: The unit shall be designed to provide for a length adjustment of plus or minus 0.25 inch.

F. DIMENSIONS: The overall dimensions of the unit shall be held to a minimum consistent with the requirements of this specification, and in no case shall they exceed the dimensions specified in the plans.

3.2 CONSTRUCTION

A. GENERAL: The FVD unit shall be of corrosion protected construction with stainless steel piston rod internally mounted.

B. DESIGN LOADS

1. Axial Design Load: The maximum axial design loads are as follows:

   At End Bents 1 & 2 = 600 kips (tension or compression)

   At Piers 4 & 5 = 150 kips (tension or compression)

   FVD shall be capable of providing the maximum design load with the rod fully extended, retracted, or at any intermediate point.

2. Lateral Design Loads: The unit shall be designed to withstand a lateral acceleration of 1 g in any direction in any position of rod extension/retraction.

3. Fluid Pressure: The unit shall be designed to withstand the following internal pressure:

   a. Proof: 200 percent of maximum operating pressure.

b. Burst: 300 percent of maximum operating pressure, but not less than 20,000 psi.

4. Factors of Safety: Minimum factors of safety for the unit shall be 2.0 limit and 2.5 ultimate. The unit shall be such that no yielding will result from the application of limit loads and no failure will result from application of ultimate loads. Limit and ultimate loads shall include the effects of load factors included herein.

3.3 PERFORMANCE

A. DAMPING COEFFICIENT:
The units shall operate meeting the Damping Constitutive Law: $F = C * V^{\alpha}$
Where,
F = Damper Resistive Force (kips)
C = Damping Coefficient (kips*sec / inch)
V = Velocity (inch / sec)
α = Velocity exponent (dimensionless)

Damper characteristics shall be as follows:

At End Bents 1 & 2	C = 115 kip-s/in with $\alpha = 0.7$
At Piers 4 & 5	C = 20 kip-s/in with $\alpha = 0.7$

Damping shall be present in both directions of travel and meet the performance shown in Figures 1 & 2. The normal operating force developed by the unit over the design range of velocity shall always fall within the envelopes as shown in Figures 1 & 2.

B. DUTY CYCLES: The unit shall be designed to the amplitude, frequency and time requirements of the following wind load and seismic loading duty cycles.

1. Wind Load Duty Cycle: 0 to 0.25 in. amplitude at 1 cps for 300,000 cycles per year.

2. Seismic Loading Duty Cycle: 1 inch mean amplitude (2 inches peak amplitude) at 0.75 cps for 5 cycles (average) per year.

C. MAXIMUM/MINIMUM OPERATING TEMPERATURES: The unit shall be capable of operating at the energy levels, time and the environmental conditions specified herein, without degradation of performance or life as a result of maximum/minimum operating temperature.

D. LEAKAGE: The use of fluid seals that require fluid weepage for lubrication are prohibited. Under non-operating conditions, static seals shall not leak externally. When subjected to proof pressure for three (3) minutes, the unit shall show no visible evidence of external leakage.

E. STROKE: The unit shall be capable of meeting the performance requirements of 3.3 A and C, when cycled about any point within the full stroke of the unit. The full stroke shall be:

At End Bents 1 & 2	= +/- 12 inches
At Piers 4 & 5	= +/- 12 inches

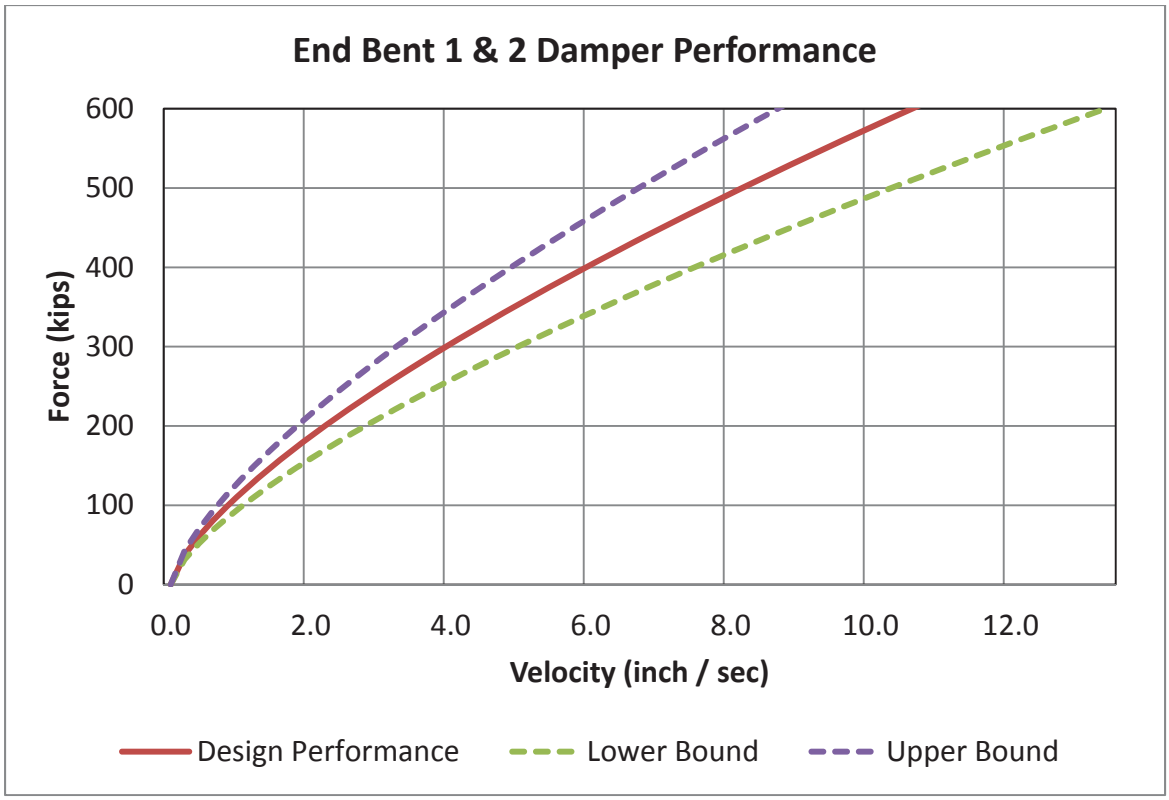


FIGURE 1 – END BENTS 1 & 2 FORCE-VELOCITY DAMPER OUTPUT ENVELOPE

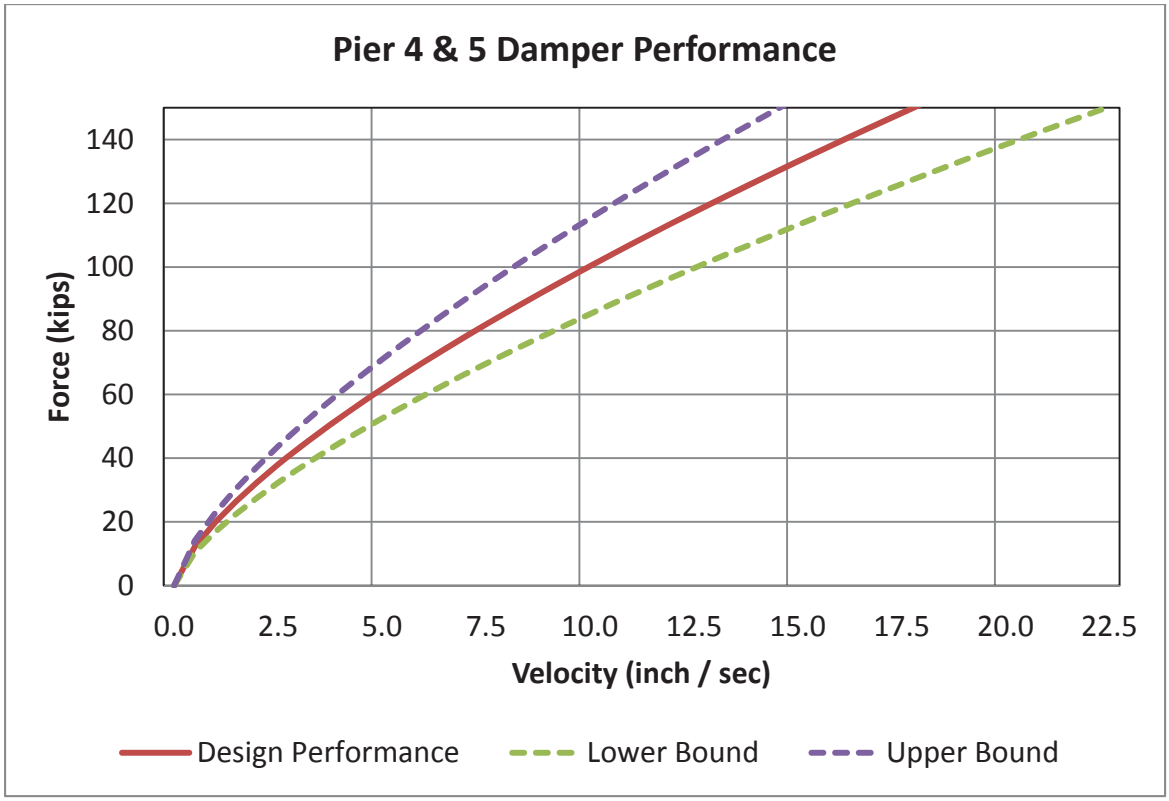


FIGURE 2 – PIERS 4 & 5 FORCE-VELOCITY DAMPER OUTPUT ENVELOPE

3.4 LIFE

A. LIFE: The unit shall be designed to guarantee a minimum reuse of one maximum capable seismic event before requiring refurbishment.

3.5 ENVIRONMENTAL CONDITIONS

A. AMBIENT OPERATING TEMPERATURE: When installed, the unit shall be capable of operating in an ambient air temperature from 0°F to +120°F.

B. ATMOSPHERIC PRESSURE: The unit shall operate at essentially sea level pressure (760 ±50mm mercury).

C. HUMIDITY: The unit shall be designed to withstand relative humidity up to 100 percent, including condensation due to temperature change.

D. SUBMERSION: The unit shall be designed to withstand submersion and be equipped with wipers to protect seals from silt damage.

E. OTHER ATMOSPHERIC ELEMENTS: The unit shall be designed to withstand any of the probable combinations of the following atmospheric elements: rain, snow, sleet, hail, ice, fog, smoke, wind, ozone, sunshine, sand and dust, and salt atmosphere.

3.6 DELIVERY, HANDLING, AND STORAGE

A. DELIVERY: Deliver production FVD's to the job site in protective packaging for freight and handling purposes.

B. HANDLING: Handle FVD's and components carefully to prevent damage, breaking, denting or scoring. Do not deliver damaged FVD's or components; replace with new.

C. STORAGE: Store FVD's in a clean place. Protect from dirt, fumes, construction debris and physical damage.

4.0 TESTING, MATERIALS, AND EQUIPMENT

4.1 TESTING OF VISCOUS DAMPING DEVICE UNITS

A. PRODUCTION UNIT TESTING:

1. Purpose: Production unit testing shall be conducted in order to verify the following:

   a. The general quality and manufacturing consistency of each of the production units.

   b. The general consistency of all production units in terms of their performance characteristics to meet the requirements of the contract documents.

2. Acceptance Criteria:

   a. No visible leakage or signs of physical deterioration or degradation in performance shall be observed during and after the series of tests. There shall be no signs of yielding or permanent deformation, or re-torquing of parts.

   b. The force-velocity results from the tests both in tension and in compression, adjusted for expected variations due to temperature and number of stroke

cycles shall fall entirely within the upper and lower bound curves (Figures 1 & 2) as used for the final design of the damped structure.

3. Sequence of Testing:

a. Quality Assurance Tests: Production units shall be subjected to and pass the following sequence of quality assurance tests:

(1) Proof load test: An internal pressure shall be applied to each FVD that shall be equivalent to 150% of the maximum damper load (each production unit). This pressure shall be maintained for 180 seconds.

(2) High Level Proof Load Test: One out of every fifty production units, or a minimum of two (2) units, shall have an internal pressure of 20,000 psi applied. This pressure shall be maintained for 180 seconds.

(3) Life Cycle Test: One out of every fifty production units, or a minimum of two (2) units, shall be cycled through its full end to end displacement for a total of 60 cycles. The cyclic velocity is expected to be much slower than the design maximum velocity and shall depend on the capacity of the approved testing apparatus.

b. Performance Verification Tests:

(1) Production unit testing shall be conducted on all units in order to verify the performance consistency of each production unit. These tests shall be performed in the tension and compression directions and shall verify the force velocity characteristics of the damper. Tests are to be performed at 100% of DBE velocity as determined from dynamic analysis of the structure for 3 cycles. The test results shall fall entirely within the upper and lower bound curves (+/- 15%). The force, displacement and time measurements shall be accurately obtained and recorded. Force-velocity plots shall be constructed from this data.

(2) For time/cost savings, testing in the compression direction only may be proposed, provided the damper manufacturer can substantiate the balanced nature of fluid orificing in each direction. The use of valves and/or reservoirs or accumulators are not considered a balanced method and will require testing in both directions.

4.2 STANDARDS: Conform to the applicable provisions of the current editions of the following standards, except as indicated otherwise on the drawings or the specifications:

1. Title 24, Part 2, CCR, 1989 Amendments
2. ASTM E4 - Load Verification of Testing Machines
3. ASTM A36 - Specification for Structural Steel
4. ASTM A325 - Specification for High Strength Steel Bolts
5. ASTM A570 - Specification for Structural Sheet Steel

6. AWS D1.1 - Structural Welding Code of the American Welding Society
7. AMS-W-6858 - Welding, Resistance: Spot and Seam
8. AWS- C3.4, C3.5, C3.6 - Brazing of Steels, Copper, Copper Alloys, Nickel Alloys, Aluminum and Aluminum Alloys
9. AWS- C1.4, C1.4M - Welding, Spot, Hardenable
10. NAV SEA S9074-AQ-GIB-010/248 – Welding and Brazing Procedure and Performance Qualifications
11. AMS-STD-2175 - Classification and Inspection of Casting
12. ANSI/ISO/ASQ 9001 (ISO 9001) - Quality Management Systems-Requirements
13. SAE AS/EN 9100 Quality Management System
14. ISO 14001 – Environmental Management Systems
15. AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", by the American Institute of Steel Construction
16. AISC "Code of Standard Practice for Steel Buildings and Bridges"
17. SSPC "Steel Structures Painting Council"
18. MIL-HDBK-5 "Specifications for Metallic Materials"

NOTE: Proposed alternate standards shall be submitted to the architect/engineer for review and approval.

4.3 FVD MATERIALS AND PARTS

A. Except as specified herein, the materials, parts and processes used in the design and manufacture of the unit shall conform to specifications and standards selected in the order of precedence established by MIL-STD-970. All materials and processes used shall be identified in vendor drawings by specifications or standards.

B. MATERIALS: All materials used in the manufacture of the unit shall be subject to approval by the engineer of record.

1. Materials: Materials shall have allowable stress values taken from MIL-HDBK-5. Unless suitably protected against electrolytic corrosion, dissimilar materials as defined in MIL-STD-889 shall not be used in contact with each other. Dissimilar metal joints shall not be permitted without a non-metallic separator or gasket of at least .06 inch thickness. The use of aluminum, aluminum alloys, magnesium, magnesium alloys, beryllium and beryllium alloys is prohibited. The use of non-stainless steel internally exposed to internal pockets of air or gas (as could occur in an internal reservoir, and plumbing to the reservoir) is allowable provided components are suitably protected from corrosion by means of appropriate surface treatments.

2. Fungus Resistant Materials: Only non-nutrient materials shall be used in the unit.

3. Castings: All castings shall be prohibited for pressure vessel parts or any other parts subjected to tensile or bending stresses, except for parts such as covers, handles, etc. whose failure would not affect the structural integrity or performance characteristics of the unit. Such casting may be Class 2B, subject to the approval of the engineer of record.

C. PARTS

1. FVD's shall be constructed of maintenance-free designs only. Reservoirs, external plumbing and/or fluid level indicators such as sight windows or pressure indicators that may leak are strictly prohibited.

2. Age Sensitive Parts: All non-metallic packing, seals, wipers or gaskets shall be of non-age sensitive materials.

3. Piston rods and any part that slides relative to a seal shall be manufactured from stainless steel only. Plating may be applied over the stainless steel if required by the type of fluid seal selected.

4. Operating fluid used in the dampers shall be non-toxic, non-flammable, and cosmetically inert silicone per U.S. Federal Standard VV-D-1078. Petro-chemical fluids shall not be used.

5. The components of the damper that are pressure vessels are to be of non-tie rod type construction, without externally supported heads or end caps. Welded construction or castings of any type are not permitted for pressure vessel construction.

6. Pressure vessels and seals shall be rated for 20,000 psi minimum burst pressure. A randomly selected production unit shall be tested to this pressure, with no loss of fluid or parts failure of any type permitted.

7. Parts List Approval: The vendor shall submit the equipment parts list for review and approval by the engineer of record. Approval will be based on an evaluation of the following documentation as applicable to each part.

   a. Vendor part number and nomenclature

   b. Military or other applicable specifications

   c. Source name and part number

   d. Testing and inspection requirements

5.0 FABRICATION AND QUALITY CONTROL

5.1 FABRICATION

A. PROCESSES

1. Protective Treatment: Materials subject to deterioration when exposed to environmental conditions likely to occur during service usage, shall be protected against such deterioration in a manner that will in no way prevent compliance with the requirements of this specification. The use of any protective coating that will crack, chip or scale with age or extremes of climate and environmental conditions shall not be

used. Corrosion control shall be used as a guide for minimizing corrosion damage to the assembly.

2. Fusion Welding: Fusion welding shall be in accordance with approved standards. Weld design shall be based on the function and strength of the assemblies. Fillet welds on plate above 0.125 inches thickness will not be used on primary structure without specific approval by the engineer of record. Weld quality shall be specified on vendor drawings with proper acceptance standards and inspection methods.

3. Resistance Welding: Resistance welding shall be in accordance with MIL-W-6858 and MIL-W-45223, as applicable.

4. Welder Certification: Certification tests for welders shall be in accordance with AWS D1.1.

5. Brazing: The brazing of steels, copper, copper alloys and nickel alloys shall conform to MIL-B-7883.

6. Soldering: Soldering shall be in accordance with approved standards. Whenever insulation material is subject to heating during soldering, the material shall be undamaged and parts fastened thereto shall not be loosened. No mechanical assembly shall depend on soft-solder for mechanical strength.

7. Finish: The exterior finish of the unit, including the color and finish type required shall be recommended by the vendor and submitted to the engineer of record for approval.

B. WORKMANSHIP: All parts shall be free of burrs and sharp edges and any damage, defect or foreign material which might detract from the intended operation, function or appearance of the unit.

5.2 SAFETY

A. SAFETY: The design of the unit shall be such that all possible sources of danger to personnel or equipment during assembly, disassembly, testing, operation and maintenance are minimized. Where required, precautionary measures shall be prominently and clearly indicated on the equipment

5.3 MAINTAINABILITY

A. MAINTAINABILITY: The unit shall be constructed to be maintenance free. The use of reservoirs, external plumbing and/or fluid level indicators shall not be permitted. Each FVD shall be designed and constructed such that installation, removal and replacement, if necessary, shall be a simple process not requiring any special tools or methods. The use of fluid seals that require fluid weepage for lubrication are prohibited.

5.4 INTERCHANGEABILITY

A. INTERCHANGEABILITY: All parts having the same manufacturer’s part number shall be functionally and physically interchangeable. The vendor shall assign new part numbers when change numbers cause any of the following conditions:

1. Performance or durability is affected to such an extent that superseded items must be discarded for reasons of safety or malfunctioning.
2. Parts, subassemblies of complete units are changed to such an extent that the superseded and superseding items are not interchangeable.
3. Superseded parts are limited to use in specific articles or models of articles and the superseding parts are not so limited to use.

When interchangeable repairable assemblies contain a non-interchangeable part, the part number re-identification of the non-interchangeable part, of the next assembly and all the progressive higher assemblies shall be changed up to and including the assembly where the interchangeability is re-established.

5.5 CHANGE CONTROL

A. CHANGE CONTROL: After initial design completion and approval or initial hardware delivery, whichever occurs first, any change or substitution of material, dimensions, processes or other characteristics must be approved by the engineer of record prior to incorporation. The vendor shall exercise the same configuration control over his suppliers.

5.6 IDENTIFICATION MARKING

A. IDENTIFICATION MARKING: Units shall be marked for identification in accordance with MIL-STD-130.

5.7 SERIAL NUMBER ASSIGNMENT

A. SERIAL NUMBER ASSIGNMENT: Sequential serial numbers shall be assigned to all units in accordance with architect/engineer of record's requirements. The individual number shall be assigned according to the vendors standard practice unless otherwise specified in the purchase order or contract.

5.8 QUALITY CONTROL PROVISIONS

A. PRODUCT QUALITY CONTROL: To ensure effective control over product quality, the vendor shall, establish and maintain a manufacturing/processing control system including written process specifications and procedures to insure that manufacturing, processing, inspection and testing are accomplished in accordance with the following:

1. Quality Management System Requirements ISO 9001 and AS/EN 9100.

   The seller shall provide and maintain a system that complies with U.S. requirements of the current revision of ISO 9001and AS/EN 9100 for quality assurance in design, manufacture, test, and repair of dampers. Certification to ISO 9001 or AS/EN 9100 by an individual or firm located outside the United States of America is prohibited.

B. MANUFACTURING PROCESS CONTROL: In addition to compliance with both of the quality assurance systems listed above, the vendor must maintain a system for manufacturing process control of this project which includes as a minimum the following:

1. Raw Material Traceability.
2. Inspection instructions.

3. In process and final detail component inspection instruction with actual dimensions.

C. CALIBRATION SYSTEM REQUIREMENTS: All devices used to measure, gage, test, inspect or otherwise examine items to determine compliance with specification and/or contractual requirements shall be calibrated in compliance with the applicable section of the current revision of both ISO 9001 and AS/EN 9100 standards, to a calibrated measurement standard which has known valid relationships traceable to the U.S. National Institute of Standards and Technology (NIST).

6.0 MEASUREMENT

The final quantity of FVDs will be the actual number of individual dampers, including mounting pins, girder connection plates, anchor plates, and mounting brackets, acceptably furnished and installed during the project. The Department will not measure dampers replaced due to damage or rejection.

7.0 PAYMENT

The Department will pay for the Viscous Dampers at the contract unit price bid for each. The Department will not pay for dampers replaced due to damage or rejection. Payment is full compensation for furnishing all materials and equipment necessary to install, operate, move, repair, and maintain or replace the dampers. All prescribed work shall be done in a workmanlike and acceptable manner including all labor and incidentals necessary for completion. The Department will make payment for the completed and accepted quantities under the following:

Pay Item	Pay Unit
Seismic Dampers – End Bents	Each
Seismic Dampers – Piers 4 & 5	Each

SPECIAL NOTE FOR FINGER EXPANSION JOINT

1.0 DESCRIPTION. This work includes the fabrication, furnishing and installation of a tooth expansion joint with a fabric reinforced drainage trough for highway bridge joints. Materials and workmanship shall be in accordance with the KYTC Standard Specifications; AASHTO/AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; AASHTO "LRFD Bridge Design Specifications", 6th Edition (AASHTO LRFD Design); AASHTO "LRFD Bridge Construction Specifications," 3rd Edition, 2010 (AASHTO LRFD Construction); the Contract Documents; and this Special Provision.

2.0 MATERIALS. Materials shall conform to the following:

A. Structural Steel. Steel plate, bars and shapes shall conform to AASHTO M270 (ASTM A709), Grade 50. (Sidewalk and (railing) cover-plates shall conform to AASHTO M270, Grade 50). No aluminum components or hardware shall be used. Galvanize steel components in accordance with ASTM A123.

B. Welded Studs. Welded studs for anchorage purposes shall conform to ASTM A108.

C. Anchors Bolts. Anchor bolts, nuts and washers shall be in accordance with ASTM F1554, Grade 55, ASTM A563 Grade DH and ASTM F436, respectively, and shall be hot-dipped galvanized.

D. Neoprene Trough. Fabric reinforced drainage trough shall be polychloroprene (Neoprene) of the thickness specified in the plans. Trough shall be reinforced with one or two plies of tightly woven polyester or nylon fabric and shall be supplied and installed in one continuous length. The inside surface of the trough shall be smooth to promote self-removal of foreign material during normal joint operation. The shape of the trough shall be designed to minimize stress concentrations at compression strips.

Neoprene/fabric composite material shall comply with the following:

PHYSICAL PROPERTY	ASTM TEST	VALUE
Density		75 psf minimum
Hardness (Type A Durometer)	D2240	50 to 75 points
Tensile Strength, both directions	D378	800 lbs/in. minimum
Elongation @ ultimate tensile strength	D412	35% maximum
Tear (Die C)	ASTM S624	120 lbs/in. minimum
Low Temperature Brittleness (22 hrs. @ -20^{0}F, then wrapped around a 3 inch mandrel)	ASTM D2137	No cracks
Ozone Resistance (20% Strain) 100 pphm in air (100 hrs. @ 100^{0}F)	D1149	No cracks

E. Drainage Trough Hardware. Plates, fasteners, washers and nuts shall be stainless steel conforming to ASTM A240, ASTM F593 and ASTM F594.

3.0 FABRICATION. Tooth plate assembly may be fabricated in two pieces with a joint at the roadway crown (Option 1.) Alternatively, plate assembly may be fabricated in segments with individual lengths not less than 11'-0" (segmented joint) provided that segment joints occur at the crown line and within 1'-0" of roadway lane lines (Option 2.) Tooth plates for each assembly shall be cut from a single plate by burning in such a way that, after the plate is cut and the toothed plates placed in the same relative position as before burning, no part of the cut shall be wider than 5/16 in. Anchor holes, vent holes and tapers shall be machined into the plate. Upon completion, the machined plate shall be galvanized per ASTM A123.

The joint segments shall be manufactured and delivered in pairs of independent elements with parallel gaps between teeth. Both halves (abutment and superstructure, or each side of adjacent units) of finger expansion joints shall be fully assembled in the shop to ensure that full joint closure can be attained without binding of fingers. After joint segments have been fully assembled to nominal joint dimensions and approved, they shall be match marked and scored (the upper surface of the finger plates shall be permanently scored to provide two or more parallel lines in both directions) to aid in proper field installation.

4.0 SAMPLING, TESTING & INSPECTION. An independent laboratory, to ensure compliance with these provisions, shall test each lot of composite neoprene/fabric sheeting. Two certified copies of the qualification test data indicating that the tested materials comply with these provisions shall be submitted to the Engineer and KYTC. The sample from each lot shall be one 6-inch piece, 2-foot long.

5.0 IDENTIFICATION, SHIPPING & HANDLING.

Expansion joint openings shall be preset prior to shipment and assembled with temporary shipping angles at maximum 5'-0" centers. Fabricator shall show details of all shipping and erection temporary attachments on the shop drawings.

6.0 INSTALLATION. Installation of the expansion dam shall be to the lines and grades shown on the plans and in accordance with Contract Documents and shop drawings. Expansion joint system shall be shipped to job site preassembled for units either side of crown line (Option 1) or for the fabricated segment lengths (Option 2).

Align the finger plate or sliding plate joint assemblies in position and check the expansion opening. The expansion opening must be adjusted for temperature prior to bolting, welding or placing concrete on each side of the joint.

Test fit the finger plates or sliding plates with all the armoring and anchorages in place. Install the finger joint centered over the expansion gap, for both fingerplates and sliding plates. Verify that the joint is in plane and sloped per the roadway. For Fabrication Option 2 align adjacent finger plate assemblies using temporary angles bolted to the assemblies. Make sure the fingers do not rub during the full range of temperature movement.

The Engineer will confirm the procedure, opening and alignment prior to concrete placement. After confirmation, remove the finger plates or sliding plates before concreting. Cast and cure the expansion joint blockout per KYTC specifications. Place concrete under the expansion dams, vibrate until the concrete is forced through air holes, and strike off excess concrete. After the concrete has cured, clean air holes and fill with an approved sealer.

Install the fabric trough and the finger or sliding plates according to the Contract Documents and shop drawings. Do not splice the drain trough, unless indicated. If splices are indicated, use splices vulcanized by the manufacturer. Do not use longitudinal splices.

7.0 SUBMITTALS. Submit shop drawings, for each location, type and model of expansion device used. Shop drawings shall include, but not be limited to, the following:

A. Complete details of all components and sections showing all materials used in the expansion joints.
B. A listing of all applicable KYTC, ASTM and AASHTO specifications.
C. Name and address of the manufacturer, and location of the fabrication plant.
D. Name and telephone number of the manufacturer's representative who will be responsible for coordination of production, inspection, sampling and testing.
E. Welding procedures used in the expansion joint assembly manufacture clearly described and detailed.
F. Table of longitudinal offsets for installation at varying temperatures. Use 60°F as the mean temperature.

Joint shop drawings and neoprene trough shop drawings shall be coordinated to ensure that joints and troughs will fit when field assembled. Fabrication shall not commence until the approved shop drawings are in the hands of the Inspector and fabricator and the Engineer has authorized fabrication.

8.0 MEASUREMENT. Quantity for Finger Expansion Joint will be measured per linear foot inside face to inside face of exterior traffic barriers. The unit price for Finger Expansion Joint will be full compensation for furnishing, fabricating, installing structural steel tooth plates, roadway joint seals, drainage troughs, catch basins, downspouts, sidewalk plate, barrier cover plates and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

9.0 PAYMENT.

Code	Pay Item	Pay Unit
23859EC	FINGER EXPANSION JOINT	LF

SPECIAL NOTE FOR MODULAR EXPANSION JOINT

1.0 DESCRIPTION. This work includes the fabrication, furnishing and installation of a watertight modular bridge joint system (MBJS.) The joint system consists of multiple preformed neoprene strip seals mechanically held in place by steel edge and separation center beams. The center beams are supported by support bars suspended over the joint opening on sliding elastomeric bearings. An equidistant control system maintains equal spacing between all center beams and edge beams.

1.1 General. Design, materials and workmanship shall be in accordance with: KYTC Standard Specifications; AASHTO/AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; AASHTO "LRFD Bridge Design Specifications", 6th Edition (AASHTO *LRFD Design*); AASHTO "LRFD Bridge Construction Specifications," 3rd Edition, 2010 (AASHTO *LRFD Construction*); the Contract Documents; and this Special Note.

Multiple support bar, single-support bar or swivel joint MBJS systems that meet the provisions of this Special Note may be acceptable for use.

1.2 Acceptable Systems. Only manufacturers who have successfully completed fatigue and performance testing in accordance with Subsection 1.3 will be permitted to supply the MBJS. Submit final results of all required tests to the Engineer for approval prior to manufacture.

1.3 Pre-Qualification Testing Requirements. Before a MBJS can be accepted for installation on this project, the design must be pre-qualified by the manufacturer through successful fatigue and performance testing administered by an independent testing laboratory. Perform fatigue and performance testing in accordance with Section 19, Appendix A19 of AASHTO *LRFD Construction*.

All testing shall be performed on specimens similar to the MBJS system and components to be used for this project and meeting the requirements of the Contract Plans. Successful testing will prequalify such a system —with variations as permitted by the Engineer —for the project, and no further testing will be required.

No claims for delay will be considered for testing or failure to submit required testing documentation in a timely manner.

2.0 MATERIALS. Materials shall conform to the following and shall be identical to those used to meet the Pre-Qualification Testing Requirements of Subsection 1.3:

A. Structural Steel. Structural steel for center beams, edge beams, and support bars, shall meet the physical requirements (tensile strength, yield strength, elongation, and Zone 2 Charpy impact requirements) of ASTM A709, Grade 50. Support boxes, stirrups for attachment to center beams, and sidewalk and railing cover plates shall conform to ASTM A709, Grade 50.

All structural steel not defined herein shall meet the physical requirements shown on the working drawings. The specific steel grade shall meet or exceed the physical requirements listed on the working drawings and/or used in the design calculations. Aluminum components shall not be used.

Welding shall conform to ANSI/AWS D1.1/D1.1M "Structural Welding Code-Steel" and AASHTO/ AWS D1.5M/D1.5 "Bridge Welding Code".

B. Anchors Bolts. Anchor bolts, nuts and washers shall be in accordance with ASTM A307 Grade C, ASTM A563 Grade DH, and ASTM F436, respectively, and shall be hot-dipped galvanized.

C. Studs. Welded studs for anchorage purposes shall conform to ASTM A108.

D. Stainless Steel. Stainless steel sheets conforming to ASTM A240/A240M, Type 304, shall be provided on sliding surfaces. The surface shall be polished to a Number 8 mirror finish.

E. Polytetrafluorethylene (PTFE). PTFE shall be 100-percent virgin material, woven fabric or dimpled sheet conforming to the requirements of Section 18.8 of AASHTO LRFD Construction and shall be provided on every sliding surface.

F. Elastomeric Seal. Preformed elastomeric joint seals shall be of the single diaphragm strip type with a minimum thickness of 7/32" and shall conform to ASTM D5973. The elastomeric seal shall be supplied and installed in one continuous length, and no field splicing shall be allowed. Sealing gland shall meet the movement requirements shown in the Contract Plans and the material requirements as follows:

PROPERTY	ASTM TEST METHOD	VALUE
Hardness, Durometer A	D 2240 (Modified)	50-65 Durometer, Shore A
Tensile Strength, min	D 412	2000 psi
Elongation at break, min	D 412	250%
Compression Set at 72 hours, max	D 395, Method B	40% at 212°F

G. Lubricant-Adhesive. Elastomeric seal shall be installed utilizing a one-part moisture curing polyurethane and aromatic hydrocarbon solvent mixture that complies with ASTM D4070.

H. Springs and Bearings. Springs, bearings, and equidistant devices (sometimes referred to as control springs) shall be of elastomeric or urethane material and shall be of the same material composition and formulation, manufacturer, fabrication procedure and configuration as the ones used in the prequalification test. Urethane foam shall conform to ASTM D3574.

I. Reinforcing Steel. All reinforcing steel in the blockout shall be stainless steel meeting the requirements of "Special Note for Steel Reinforcement - Stainless."

3.0 DESIGN. The modular bridge joint system shall be designed in accordance with Article 14.5, "Bridge Joints," of AASHTO *LRFD Design*. Limit states, loads, load factors and distribution factors shall comply with Article of 14.5.6.9 and MBJS shall be detailed to resist snowplow damage in accordance with Article 14.5.1.2 of that specification. The MBJS shall meet these additional requirements:

A. Center Beams and Edge Beams.

- each separation beam (center beam) shall be attached, either directly or indirectly, to an independent support beam using a complete joint penetration groove weld; partial penetration welds, fillet welds, bolted connections, or other means to directly or indirectly attach separation beams to support bars, is prohibited
- edge beams shall consist of a monolithic steel shape with a machined or extruded seal retainer cavity; the web of the edge beam cross-section shall be at least ½ in. in thickness
- center beams shall consist of a monolithic steel shape with a machined or extruded seal retainer cavity; the weight of the center beam shall be at least 25 lbs. per foot and the web shall be at least 1¼ in. in thickness
- where field splices are required due to shipping restrictions or stage construction, splices shall be located under the median barrier or away from design wheel paths
- only field-splice details that have been fatigue-tested in accordance with the prequalification tests in Section 1.3 of this Special Note may be used for the center beams and edge beams
- center beam spans with a splice shall not be greater than 4.00 ft.

B. **Support Bars and Boxes**.

- the maximum allowable spacing between support bars shall be 6.00 feet
- steel plate or tubing for support boxes with a width not greater than 16 in. shall have a minimum thickness of 3/8 in. For support box widths greater than 16 in., the top plate width-to-thickness ratio shall not exceed 45 unless stiffening ribs are used.
- a 2.0 in. minimum gap shall be provided between the bottom surfaces of the MBJS and the deck blockouts to allow adequate placement and consolidation of concrete under and around all parts of the MBJS, including support boxes.

C. Seals.

- the number of seal gaps (cells) shall be such that the maximum opening per cell (clear distance between center beams or center beam and edge beam) shall not exceed 3.15 in. (3 in. nominal) for the Strength Limit State Combinations specified in Table 3.4.1-1 of AASHTO *LRFD Design*.

- the sealing elements shall not extrude above the top of the modular joint seal assembly

D. Support Box Bearings and Springs.

- an equidistant control system, which distributes the total joint opening evenly between cells, shall be incorporated
- support bar bearings and springs shall be positively locked into support boxes with non-metallic dowels or pins; the connection must permit removal and replacement of the bearing and spring components.

E. **Performance and Maintenance**.

- the joint seal assembly shall be watertight
- the modular joint seal assembly shall be designed with adequate access to all internal components in order to assure the feasibility of inspection and maintenance activities
- the design concept shall accommodate scheduled maintenance and periodic replacement of seals, support bearings and control springs to provide a long-term cost-effective lifetime for the joint seal assembly

Supplemental to the shop drawings, design calculations prepared in accordance with AASHTO *LRFD Design* by an Engineer registered in the Commonwealth of Kentucky shall be provided. Included in the calculations shall be: (a) rotation and longitudinal and transverse horizontal movement capacity; (b) live load, fatigue limits and impact factors utilized; (c) limit state load combinations used; (d) member design; (e) connections design; (f) splice design. The calculations shall include a statement indicating that the joint devices furnished by the manufacturer are adequate for the requirements of the Contract Documents.

4.0 FABRICATION. Expansion joints shall be fabricated and assembled at facilities owned and operated by the manufacturer, the manufacturer being the single entity that designs, fabricates and installs (or supervises the installation of) the joint assemblies.

All structural steel surfaces, except those made of stainless steel, shall be hot-dipped galvanized after assembly, in accordance with ASTM A123. Anchorages and support boxes shall be attached to the edge beam section prior to galvanizing. An anchorage shall be located within 9 in. of each end of each pre-galvanized section.

Stainless steel sheet shall be welded at each edge to the steel substrate by the tungsten-arc welding process in accordance with the current AWS specification. Stainless steel sheet shall be clamped to ensure full contact with the substrate during welding. Welds shall not protrude beyond the sliding surface of the stainless steel. Intermittent fillet welds are not allowed.

Each MBJS shall be assembled and elastomeric seals installed at the fabrication shop. Lubricant adhesive is to be used on all elastomer-to-steel contact areas for seal installation. Continuous glands shall be used for the full length of each MBJS.

When a splice is required for shipping or staged construction, each MBJS is to be shipped in separate sections sized in accordance with Section 3 of this Special Note or with the slab construction joints required for the construction stages as shown in the plans. If field splices will be used, the ends of the edge and center beams shall be staggered by 24 in. so that they are not at

the same point on each beam. Installation of seal elements is not required during fabrication for a MBJS with a splice (since seals must be continuous without splices for the full length of the device.)

5.0 SAMPLING, TESTING & INSPECTION. The MBJS to be used shall be prequalified in accordance with Section 1 of this Special Note.

5.1 Shop Inspection. The full-penetration weld that connects the center beam to the support bar shall be ultrasonically inspected in accordance with AWS D1.1. Twenty-five percent of the center beam-to-support bar welds shall be inspected in this manner, or as directed otherwise by the Engineer. If ultrasonic inspection reveals at least one rejectable weld defect, the fabricator shall then ultrasonically inspect another 25% of the center beam-to-support bar welds (25% of the original total of welds.) If rejectable defects are found in the second 25% set of welds (50% of total), all remaining non-inspected welds shall then be inspected. Each weld that is rejected by ultrasonic inspection shall be repaired using a welding procedure approved by the Engineer. The repaired welds shall be re-inspected ultrasonically in accordance with the original requirements.

The Engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly or testing of the MBJS.

5.2 Pre-installation Inspection. Immediately prior to installation, the MBJS and the blockout shall be inspected by the Engineer for:

- Proper alignment.
- Complete bond between the seals and the steel.
- Proper placement and effectiveness of studs or other anchorage devices.
- Proper placement of elastomeric springs and bearings.
- Appropriate clearance between the bottoms of the support boxes of MBJS and the surface of the blockout specified on the Contract Plans

5.3 Post-Installation Inspection. The MBJS shall be inspected after installation and again prior to opening the bridge to traffic to verify the following:

- The top surfaces of the MBJS are recessed from the finished roadway profile 0 to 0.25 in.
- There is no more than 0.125-in. difference in elevation among the tops of any of the center beams or edge beams. This variation shall be measured vertically from a straight line connecting the top of the deck profile on each side of the MBJS.
- There is no more than 3/16-in. difference among gap widths along the length of a seal or among the multiple cells of the MBJS.

After installation and prior to final acceptance, deck joint seals shall be tested in the presence of the Engineer for leakage of water through the joint. Any leakage of the joint seal shall be cause for rejection.

6.0 IDENTIFICATION, SHIPPING & HANDLING. The MBJS shall be delivered to the job site and stored as a single unit with seals installed, or as permitted in Section 4 of this Special Note if a splice is required, and in accordance with the Manufacturer's written recommendations as approved by the Engineer. Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer. Seals shall not be damaged or cut.

All joint materials and assemblies stored at the job site shall be protected from damage, and assemblies shall be supported so as to maintain their true shape and alignment.

7.0 INSTALLATION. To facilitate proper installation of MBJS in the field the contractor shall have available the services of a qualified installation technician who is employed full-time by the manufacturer of the expansion joint system being used.

Prior to installation of the joint, the blockout and supporting system shall be protected from damage and construction traffic.

7.1 Supporting MBJS During Concrete Placement. The MBJS shall be fully supported during the placement of the concrete. Welds for temporary attachments to the center beams or support bars for erection purposes shall be removed and the surface ground smooth. Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer using a method approved by the Engineer.

Devices used to maintain the preset openings in the MBJS shall be uniformly spaced at not greater than 15 ft along its length. A minimum of three such devices shall be used per fabricated segment.

To reduce corrosion of the MBJS, it shall be electrically isolated from the bridge deck and blockout reinforcement using a 1 inch clear gap or nonconductive sleeve material.

7.2 Placing the Concrete. Concrete shall not be deposited in the forms until the Engineer has performed the Pre-Installation Inspection described in Section 5 of this Special Note and approved the placement of the joint assembly, anchorages and reinforcement.

If there is a vertical grade, concrete shall be placed on the downhill side of the blockout first. The concrete shall be vibrated thoroughly so as to adequately consolidate concrete underneath the support boxes and edgebeams. Care should be taken to avoid displacement of the forms and reinforcing steel.

Devices used to maintain the preset openings in the MBJS shall be removed within two hours after the concrete is placed.

7.3 Bridging the MBJS After Installation. Construction loads shall not be allowed on the MBJS for at least 72 hours after installation is completed. If it is necessary to cross the MBJS, the Contractor shall bridge over the joint system in a manner approved by the Engineer.

7.4 Acceptance. The Engineer shall perform a Post-Installation Inspection as described in Section 5 of this Special Note. An MBJS that fails inspection or testing shall be replaced or repaired to the satisfaction of the Engineer at the Contractor's expense.

Any proposed corrective procedure shall be submitted to the Engineer for approval before corrective work is begun.

8.0 SUBMITTALS. The Contractor shall submit details of the MBJS to be used together with installation and waterproofing plans to the Engineer for approval prior to fabrication of the MBJS.

The shop plans shall include, but not be limited to the following:

- plan and section views of the MBJS for each movement rating and roadway width, showing dimensions and tolerances.
- all center beam/support bar joints and all shop and field splices
- complete details of all components and sections showing all material incorporated into the MBJS
- all ASTM, AASHTO or other material designations
- welding procedure specifications
- corrosion protection system
- method of installation, including, but not limited to: sequence; installation gap setting for various temperatures; support during placement of the concrete; lifting locations and lifting mechanisms; and installation at curbs
- temperature adjustment devices and opening dimensions relative to installation temperature
- any required changes to the blockout reinforcement in order to accommodate the MBJS temporary bridging plan if construction traffic is anticipated following installation
- design calculations in accordance with Section 3 of this Special Note

The Contractor shall also submit the following test reports and certificates for review and approval:

- Manufacturer's certificate of compliance with the AISC Quality Certification Program, Simple Steel Bridges.
- Certification that welding inspection personnel are qualified and certified as welding inspectors under AWS QC1, Standard for Qualification and Certification of Welding Inspectors. Documentation that any personnel performing nondestructive evaluation (NDH) are certified by ASNT.
- Manufacturer's certificate of compliance for the PTFE sheeting or fabric.
- Certification that MBJS passed the Prequalification Tests required in Section 1.3.
- Certification that the bearings, springs, and equidistant devices are the same formulation, manufacturer and configuration that were used in the Prequalification Tests required in Section 1.3. In each certification, the name and address of the Manufacturer of the springs, bearings and equidistant devices shall be provided.

The Contractor shall submit for the Engineer's approval a written maintenance and part replacement plan prepared by the joint manufacturer. This plan shall include a list of parts and

instructions for maintenance inspection, acceptable wear tolerances, methods for determining wear, and procedures for replacing worn parts.

Fabrication shall not commence until the approved shop drawings are in the hands of the Inspector and fabricator and the Engineer has authorized fabrication.

9.0 MEASUREMENT. Quantity for Modular Expansion Joint will be measured per linear foot inside face to inside face of exterior traffic barriers. The unit price will be full compensation for furnishing, fabricating and installing MBJS, including sidewalk plate and all barrier cover plates, and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

10.0 PAYMENT.

Code	Pay Item	Pay Unit
24610EC	MODULAR EXPANSION JOINT	LF

SPECIAL NOTE FOR STRUCTURE LIGHTNING PROTECTION

Marshall - Trigg Counties
US 68/KY80 Bridge over Kentucky Lake – Drawing No. 24686

1.0 DESCRIPTION AND SCOPE OF WORK

1.1 Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2008 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the attached detail drawings. Section references are to the Standard Specifications.

1.2 This work shall include the design, furnishing and installation of a complete structure lightning protection system on the arch. For the Special Note, the 'arch' is defines as all structural steel components and framing in the Span 5 superstructure, including the Rib, Tie, Knuckle, Floor Beams, Stringers, and all connections, splices and bracing thereto the above components. At a minimum the following work is included:

1.2.1 Design of a Lightning Protection System meeting the requirements of the Specifications, Plans and this Special Note.
1.2.2 Preparation and submittal for approval of shop drawings for Structure Lightning Protection System.
1.2.3 Furnishing all labor, materials, tools, and equipment necessary for installation of Structure Lightning Protection System.
1.2.4 Any other work specified as part of this contract.

2.0 GENERAL

The Structure Lightning Protection for the arch bridge superstructure shall be in accordance with the latest edition of ANSI/NFPA 780-2011 lightning protection installation standards, ANSI/UL 96 lightning protection components and UL96A installation requirements for lightning protections systems. Protection shall include, but not be limited to air terminals, bonding, interconnecting conductors, and grounding as required under the provisions of UL 96A, NFPA 780, and as specified in excess of the referenced standards herein.

3.0 DESIGN

3.1 The contractor shall design and prepare calculations, and shop drawings for the Structure Lightning Protection System. All design documents shall be stamped by a Professional Engineer registered in the State of Kentucky. Design calculations and shop drawings shall be submitted to the engineer for review and

approval. The contractor shall receive engineer's approval prior to purchasing any materials or equipment for the Structure Lightning Protection System.

3.2 The Lightning Protection System shall be designed to continue to function after the design seismic event.

3.3 At a minimum, the structure shall be grounded at each of the main bearings at Piers 4 and 5. A separate grounding conductor shall be used for the connection at each main bearing point. The grounding conductors shall be run inside FRE Conduit down the face of the pier away from the shipping channel. Separate ground connections shall be made at the base of the piers for each grounding conductor.

3.4 No welding will be allowed on any arch members or plates designated as fracture critical. All other welding must be approved by the Engineer. Only welding as shown on the approved shop drawings will be allowed.

4.0 MATERIALS

4.1 All materials shall comply in weight, size and composition with the requirements of the Underwriters' Laboratories, Inc., the National Fire Protection Association Code and OSHA relating to the height of the structure.

4.2 All rods, cables, ground rods, and connectors used in the system shall carry an UL Label "A" & "B" and all lightning air terminals shall carry the Manufacturer's name.

4.2.1 Conductors: Conductors shall consist of commercially pure copper cable, sized in accordance with NFPA Code.

4.2.2 Conductor Fasteners: Conductor fasteners shall be an approved type of noncorrosive metal having ample strength to support conductor.

5.0 INSTALLATION

5.1 General

5.1.1 All ungrounded sizable metallic objects within 6' of the arch or metal connected to the arch, railings barrier rails etc. shall be bonded to the system with approved fittings and conductors.

5.1.2 Copper materials connecting to steel shall be lead-coated.

5.1.3 Connection between metals shall be made with approved exothermic welds.

5.1.4 All materials shall be fastened to eliminate any possibility of displacement and subsequent maintenance.

5.2 Air Terminals

5.2.1 Air terminals shall be approved type extending not less than 10 inches above the top chord of the arch and shall be securely anchored.

5.2.2 Air terminals shall not extend higher than 24 inches except with individual approval or as required by OSHA. Terminals 23 inches and less shall be spaced 20 feet apart.

5.2.3 Terminals 24 inches and higher shall be spaced 25 feet apart or as required by codes.

5.3 Conductors: Conductors shall be run concealed.

5.4 Conductor Fasteners: Space 3'-0" O.C. max.

5.5 Ground Connection

5.5.1 Drive to the required depth to reach permanent moisture but in no case less than 11'-6". In case of rock ledge or other conditions making compliance impossible, trench or other grounding will be permitted, providing it will pass UL requirements.

6.0 MEASUREMENT

Structure Lightning Protection. Measurement will be lump sum and include the design, shop drawing preparation, and installation of the Structure Lightning Protection.

7.0 PAYMENT

Structure Lightning Protection. Payment at the contract unit price is full compensation for all work required by this note including the design, prepare shop drawings, and to provide all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified by this note.

Payment will be made under:

BID ITEM CODE		
23868EC	STRUCTURE LIGHTNING PROTECTION	LS

The Department will consider payment as full compensation for all work required by this note.

SPECIAL NOTE FOR DECORATIVE FENCE PANEL

1.0 DESCRIPTION. This work includes all labor, equipment and materials to fabricate and install decorative fence panels attached to the pedestrian railing spaced intermittently as quantified in the Contract Documents.

2.0 MATERIALS. Materials shall conform to the following:

A. Structural Steel. Steel plate shall conform to AASHTO M270 (ASTM A709), Grade 50. No aluminum components or hardware shall be used.

B. Anchors Bolts. Anchor bolts, nuts and washers for connection of panel/post base to concrete shall be in accordance with ASTM A325 Type 1, ASTM A563 Grade DH and ASTM F436, respectively, and shall be hot-dipped galvanized.

C. Hardware. Plates, fasteners, washers and nuts for connection of decorative panel assembly to pedestrian railing shall be stainless steel conforming to ASTM A240, ASTM F593 and ASTM F594.

3.0 DESIGN.

A. Plate. Decorative panels shall be ½" plate steel with plasma or water jet cutouts to create a silhouette.

B. Patterns. Patterns are illustrated in the exhibits attached to this Special Note. Electronic files of these illustrations will be provided in JPEG File Interchange Format upon request to the Contractor awarded this contract. The Contractor will be responsible to create and develop any computer aided design files of the patterns that may be necessary for use in fabrication. Compatibility of the files provided by the Engineer with fabrication computer controlled cutting machinery is not the responsibility of the Engineer.

C. Shape. Manufacturer of decorative panels should work with pedestrian rail Fabricator and Contractor to verify exact shape of panels. Panels are approximately rectangular but it is the Contractor's responsibility to ensure communication between all parties concerning the exact shape and corner angles of the panels. Fabricate the panels to match the geometry of the pedestrian railing at each panel location along the stations of the bridge.

4.0 FABRICATION. Materials and workmanship shall be in accordance with the KYTC Standard Specifications; AASHTO/AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code – Steel"; AASHTO "LRFD Bridge Design Specifications", 6th Edition (AASHTO LRFD Design); AASHTO "LRFD Bridge Construction Specifications," 3rd Edition, 2010 (AASHTO LRFD Construction); the Contract Documents; and this Special Provision.

Upon completion, the machined plate shall be galvanized per ASTM A123.

5.0 SAMPLING, TESTING & INSPECTION. Submit one completed full-size panel with connection hardware as a sample panel to the Engineer for approval prior to fabricating additional panels. Upon approval of the Engineer, the panel may be used as a production panel.

Shop Inspection. The engineer reserves the right to visit the manufacturer's fabrication shop for purposes of inspecting the manufacturing, assembly, testing and galvanizing of the decorative panels.

6.0 IDENTIFICATION, SHIPPING & HANDLING. Identify the station of the panel on the shop drawing to aid in proper field installation.

7.0 INSTALLATION. Installation of the panels shall be to the lines and grades shown on the plans and in accordance with the Pedestrian Railing plans, notes and details.

Test fit the first Decorative Panel in place on the first length of installed Pedestrian Railing prior to the installation of any other railing sections. Verify to the satisfaction of the Engineer that the panel is in plane and the respective edges are parallel to both railing posts and roadway slope.

8.0 SUBMITTALS. Submit shop drawings for the decorative panel. Shop drawings shall include, but not be limited to, the following:

A. Layout of pedestrian railing showing location and dimensions of all decorative and railing panel lengths with station locations for decorative panels.
B. Complete details of all components and sections showing all materials used.
C. A listing of all applicable KYTC, ASTM and AASHTO specifications.
D. Name and address of the fabricator, and location of the fabrication plant.
E. Name and telephone number of the fabricator's representative who will be responsible for coordination of production, inspection, sampling and testing.
F. Cutting procedures used in the fabrication clearly described and detailed
G. Welding procedures used in the fabrication clearly described and detailed.
H. Table of image type, station, grade, angle of panel corners for each panel.
I. Connection detail for bolting the Decorative Fence Panels to the stiles and rails of the Pedestrian Railing.
J. Touch up procedures for galvanized finish scratched during shipping or handling.

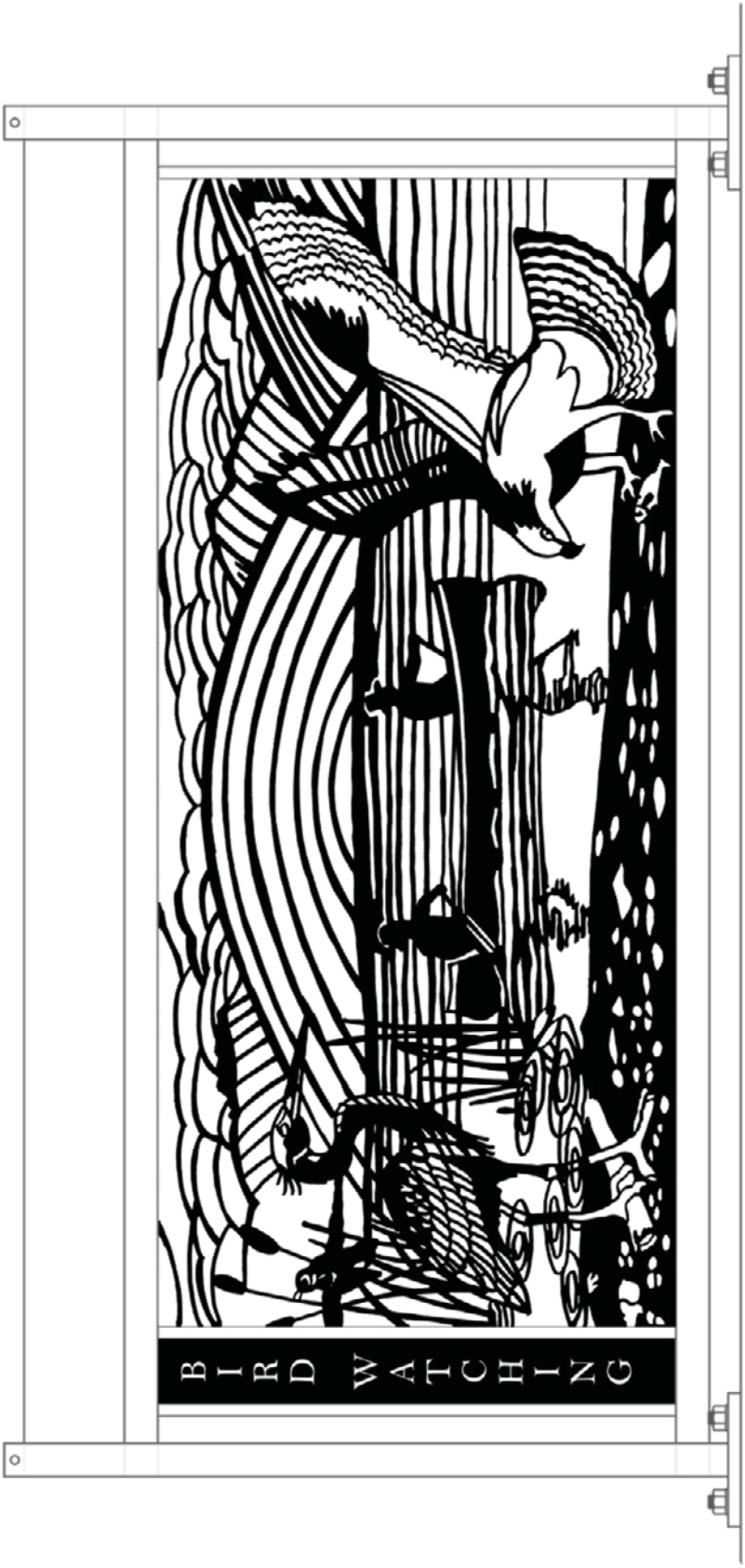
Decorative Fence Panel shop drawings and Pedestrian Railing shop drawings shall be coordinated to ensure fit when field assembled. Do not perform any fabrication until the approved shop drawings are in the hands of the Inspector, panel Manufacturer and railing Fabricator and the Engineer has authorized fabrication.

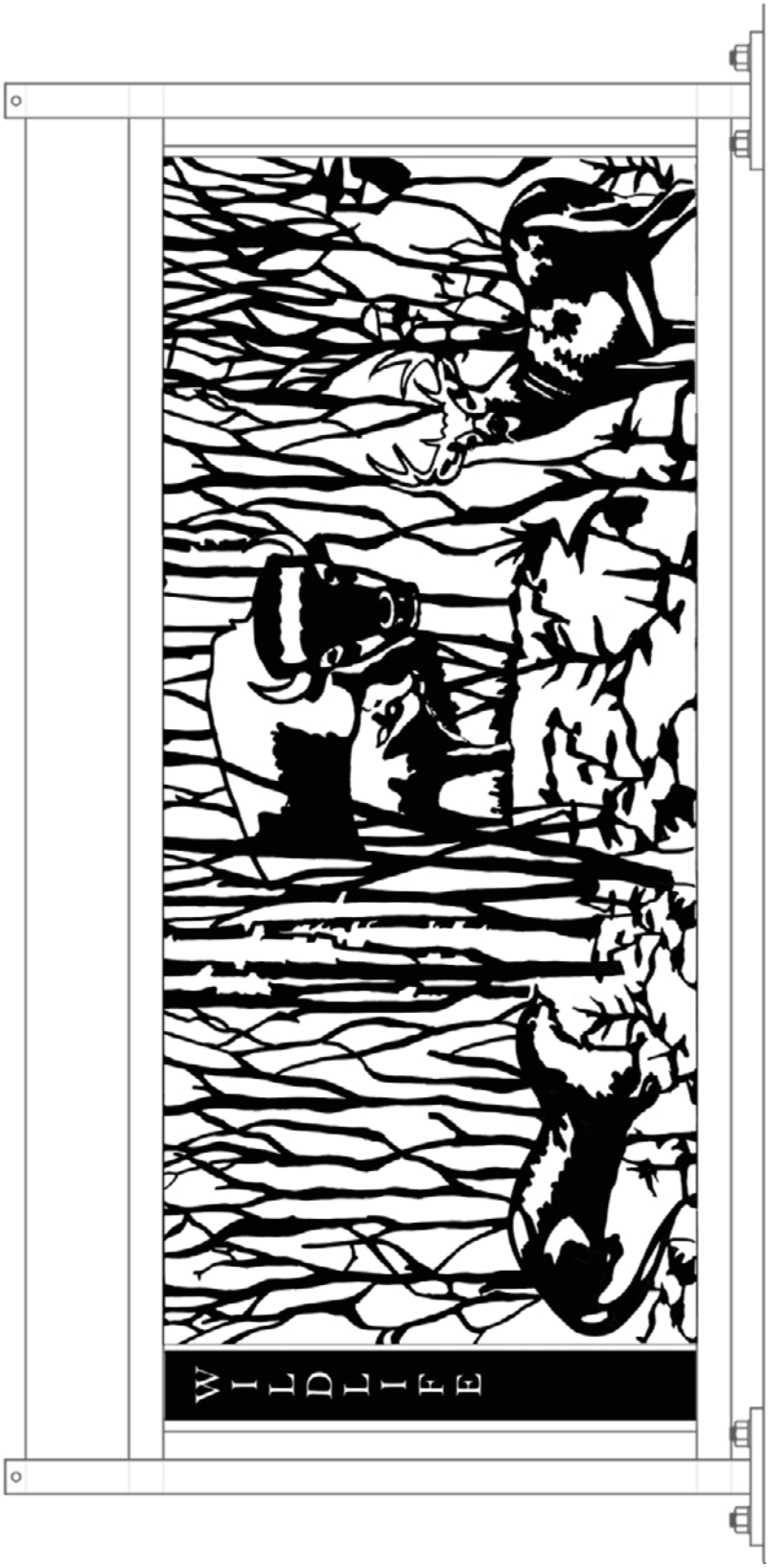
9.0 MEASUREMENT. The Department will measure the quantity by each individual unit.

10.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24629EC	DECORATIVE FENCE PANEL	EACH

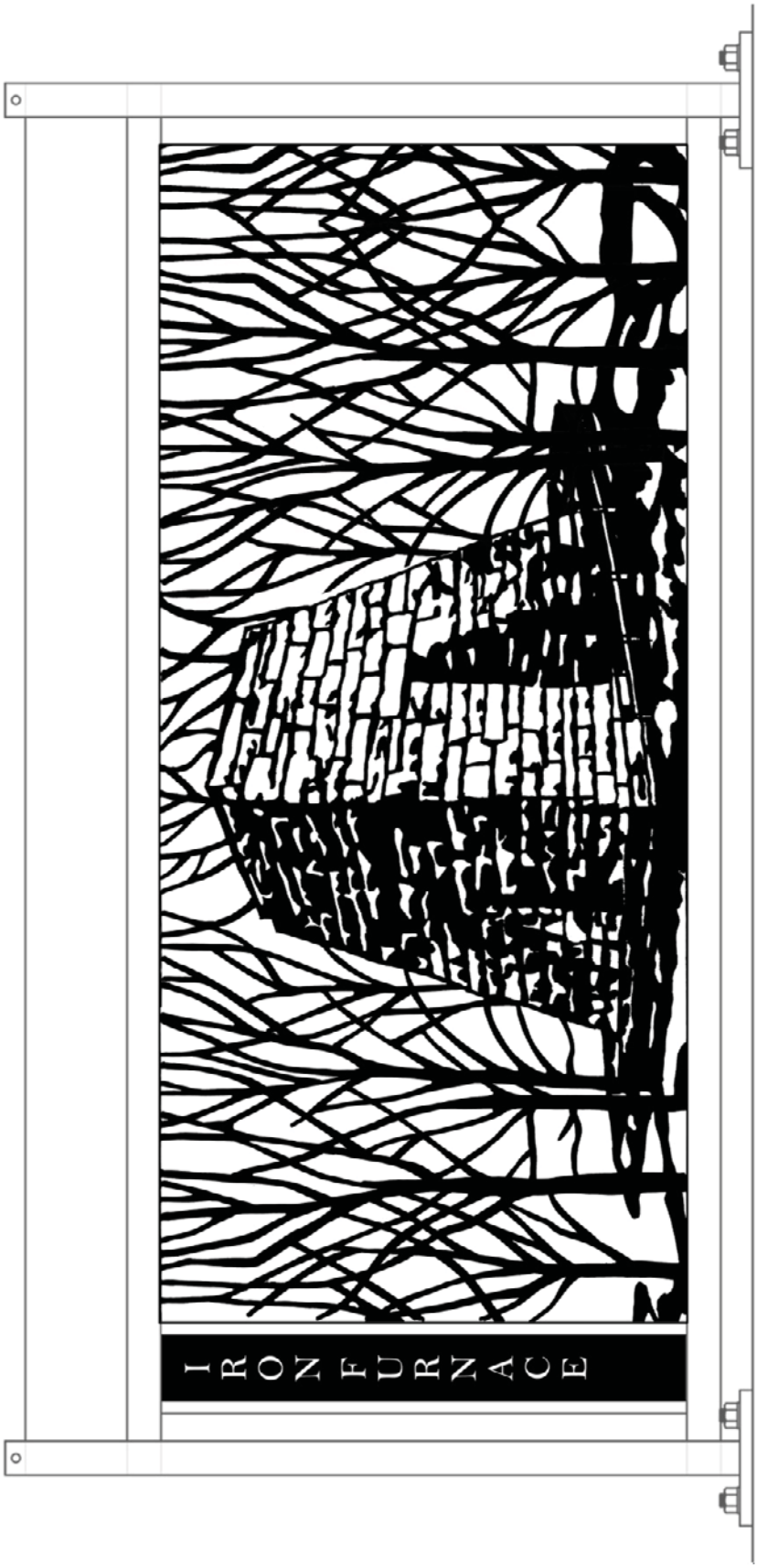
The Department will consider payment as full compensation for all work required under this section.


BIRD WATCHING

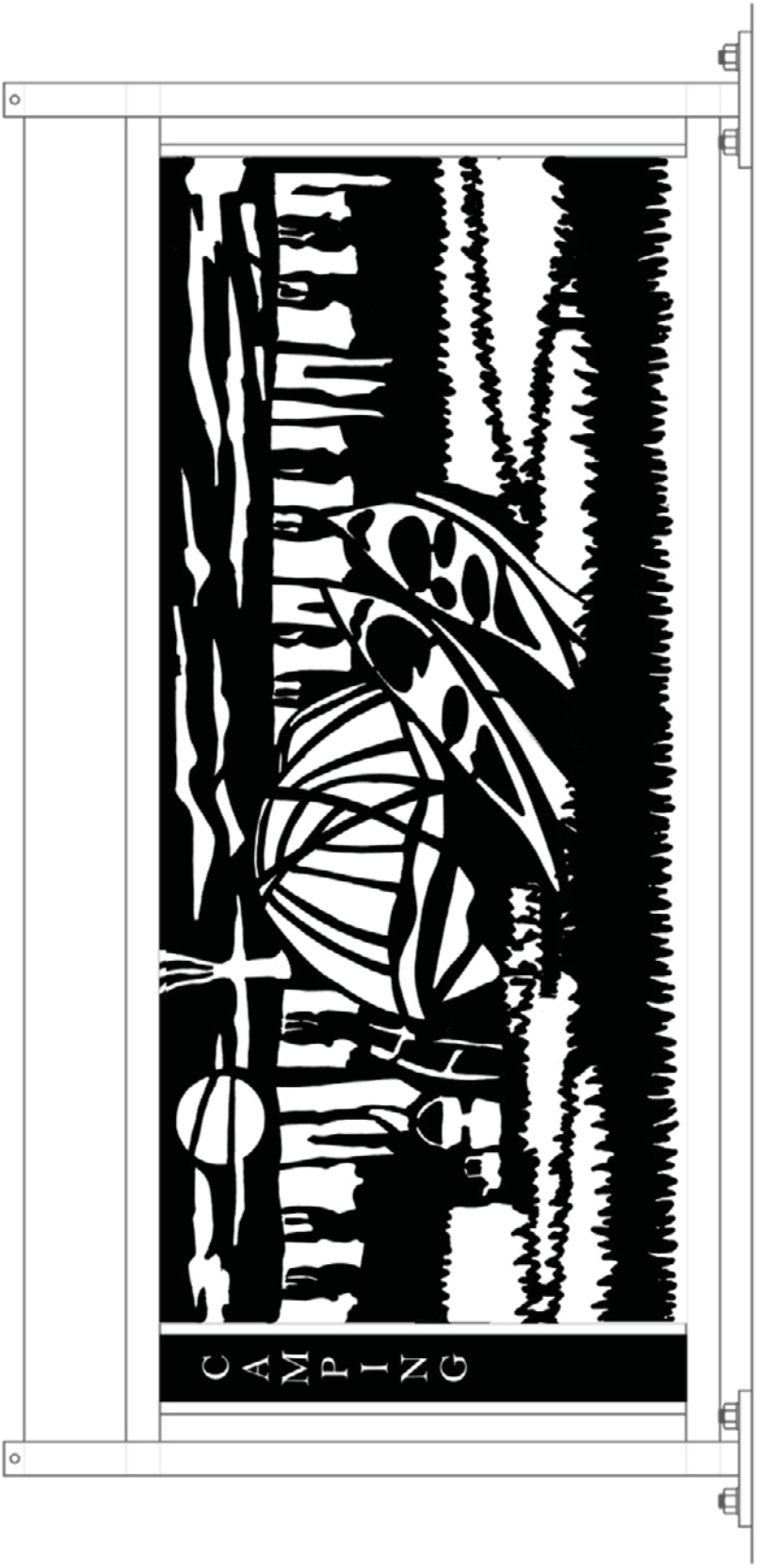

WILDLIFE

FISH

THE HOMEPLACE


IRON FURNACE

FISHING


CAMPING

SPECIAL NOTE FOR SHOP DRAWINGS AND WELDING PROCEDURES

This Special Note replaces Subsection 607.03.01 of the Department's 2012 Standard Specifications for Road and Bridge Construction in its entirety.

607.03.01 Shop Drawings and Welding Procedures. Submit detailed shop drawings and welding procedures to the Division of Structural Design or their designated representative ("Reviewer"). The Department will furnish plans showing sufficient details for the Contractor to prepare detailed shop drawings. Include welding procedures and details, when required, as part of the shop drawings. The Department will not consider the shop drawing submittal process to be complete without the submittal of welding procedures.

Submit a shop drawing submittal schedule (Schedule) for review and approval no later than thirty calendar days prior to the first submittal. List all anticipated shop drawing packages for the project by component and superstructure unit, span or pier, and show the estimated submittal dates for each package. The Schedule shall be updated and resubmitted to the Engineer on the first day of each calendar month until all required submittals have been approved.

Shop drawings shall be submitted in accordance with the latest approved Schedule with all relevant drawings and construction procedures and sufficient lead time to permit a complete review.

Submit shop drawings in electronic format. Make all drawing submittals in a 22 inch by 36 inch Portable Document Format which will produce clear prints and sharp lines on both 11 inch by 17 inch prints and 22 inch by 36 inch prints ("PDF Prints"). The Department reserves the right to require hard copy prints on a case-by-case basis.

Submission of two or three-dimensional computer modeling data will not by itself constitute a complete shop drawing submittal. The use of two- or three-dimensional computer modeling techniques to facilitate fabrication will not relieve the fabricator from providing detailed shop drawings of all bridge members and components for the Department's records.

Submit initially to the Reviewer PDF prints of the detailed shop drawings and welding procedures. All shop drawings and procedures shall bear the Contractor's stamp with an acknowledgment that he has reviewed the submittal. Each sheet will be electronically stamped by the Reviewer. The Reviewer will return one PDF file of reviewed shop drawings with all required corrections noted. When corrections are necessary, submit PDF prints of the corrected drawings. After the final review when no additional corrections are necessary, the Reviewer will forward the correct shop drawing PDF Prints, stamped with the Reviewer's Stamp indicating approval (or conditional approval,) to the DOSD Shop Plan Coordinator for distribution. Only plans submitted directly to the Shop Plan Coordinator by the Reviewer will be distributed, and only plans electronically stamped "distributed by the Division of Structural Design" are to be used for fabrication.

After fabrication is complete and the Engineer has approved the structural steel for shipment, furnish to the Engineer one electronic set of the as-built shop drawings, including the welding procedures, as PDF Prints.

Review cycles will begin the first Business Day after a submittal is received ("logged"), or the next Business Day after the submittal date indicated on the most recently submitted Schedule, whichever occurs later. Submittals received after 2:00 PM Eastern Time will be logged as the next Business Day following receipt of the submission. 'Business Days' are weekdays, Monday through Friday except official Department holidays.

The Reviewer will determine if all relevant drawings and construction procedures have been submitted. If a submission is incomplete or otherwise requires additional information or data to properly complete the review, the review cycle for the submission will be reset and the cycle will begin as specified in the previous paragraph once all required information is received (logged.)

Review cycle durations for shop drawing submittal packages deemed complete by the Reviewer are as follows:

Allow at minimum 15 Business Days for review of shop drawing submissions of welded plate girders or rolled steel sections.

Allow at minimum 30 Business Days for review of shop drawing submissions for the tied arch rib, tie girder, knuckle, hanger anchors and floor beams.

No claims for delay will be considered for shop drawing reviews when the Engineer has indicated that relevant drawings or construction procedures are insufficient for a thorough review. No claims for delay will be considered for shop drawing reviews when information relevant to the submittal review is still in the process of being developed. Additional time to review requested changes to any relevant drawings and construction procedures will not be considered cause for delay claims.

Do not make changes to any drawing after the Engineer has reviewed it without the Engineer's written approval or written direction.

Only make substitutions of sections different from those shown on the drawings when the Engineer approves in writing.

Although the drawings may have been reviewed, take responsibility for the correctness of the drawings and for shop fits and field connections.

Take responsibility for any material ordered or work done before the Engineer reviews the drawings and welding procedures.

When design drawings differ from the shop drawings, the design drawings govern. When the requirements of this section differ from the shop drawings, the requirements of this section govern.

When the design drawings differ from the requirements of this section, the design drawings govern.

SPECIAL NOTE FOR HELPER BOAT
Kentucky Lake Bridge

1.0 SCOPE OF WORK. Bidders are advised that there is commercial barge traffic on this portion of Kentucky Lake throughout the year.

This work is to provide a helper boat with pilot to assist commercial tows upon request by commercial barge pilots transiting under the bridge.

It is anticipated that not all Commercial Vessels will request a helper boat. Requests for a helper boat will be at the discretion of the commercial barge pilot transiting the bridge on the navigable waterway.

2.0 EQUIPMENT. The equivalent utility of an 1800 horsepower (1800 HP) tow boat shall be provided. When not servicing requests from transiting Commercial Barge Pilots, the helper boat may be used by the Contractor for other construction activities, but shall be made available to assist tows when requested without delay to the needs of commercial navigation.

During the phases of work listed in Section 5.0 herein, the helper boat will be moored or docked on-site or within one mile of the project site at all times except when in use as a helper boat or assisting construction activities.

3.0 PERSONNEL. The pilot of the helper boat shall have and maintain a Transportation Worker Identification Card (TWIC) and the Merchant Mariner Credential (MMC) for the Pilot of a Towing Vessel appropriate for the class and size of tow boat being operated as a helper boat. One or more relief pilots with the same credentials as listed above shall also be retained by the Contractor such that 24 hours a day, during the durations of the contract when a helper boat is an active requirement, a qualified and licensed pilot is always available to operate the helper boat.

4.0 REQUIREMENTS. The United States Coast Guard (USCG or Coast Guard) regulates all work on or in navigable waters. Comply with all permit conditions and Coast Guard regulations.

Provide regular advance notifications in writing to the Engineer of upcoming work activities on the lake for forwarding to the USCG and the United States Army Corps of Engineers (USACE) for the agencies' issuance as Notices to Mariners.

Three months prior to any work requiring a helper boat to be active, the Contractor shall submit to the Engineer for approval the Chain of Communication by which the Commercial Industry will contact the Contractor's Helper Boat Pilot for requesting assistance in transiting the bridge site.

Two months prior to any work requiring a helper boat, the Contractor shall participate in a meeting with the Department, the USCG, and representatives of the commercial towing industry for the purpose of advance coordination and safety preparation.

5.0 CONTRACT PHASES AND INSTANCES REQUIRING HELPER BOAT. (Note: All references to pier and span identifiers for both the existing Eggner's Ferry Bridge and the proposed new bridge conform to the Contract Drawings.)

The existing navigation channel span of the Eggner's Ferry Bridge is designated as Span 'B'.

Provide a helper boat upon request of the Pilot of a Commercial Towing Vessel transiting the site when any work activity results in temporary reductions to the navigational clearances of Span 'B'.

Construction of Pier 4 foundation and the subsequent work for Pier 4 are anticipated to obstruct the horizontal navigation clearance in Span 'B' to the extent that commercial tows will be effectively blocked from Span 'B'.

Coordinate the appropriate time and date with the Department and the USCG for shifting the navigation channel span to the adjacent Span 'C'.

From the time the navigation channel is shifted to Span 'C' until demolition and removal of the existing bridge channel spans and channel piers has been completed, provide a helper boat upon request of a Pilot of a Towing Vessel transiting the site. The determination that all debris from the existing bridge has been satisfactorily removed will be made by the US Army Corps of Engineers.

Provide a helper boat upon request of the Pilot of a Towing Vessel transiting the site for any subsequent Contractor operations or instances that potentially impede commercial towing in the lake thus requiring a helper boat.

6.0 DEMOBILIZATION OF HELPER BOAT. Submit to the Engineer a request in writing to discontinue the Helper Boat service certifying that there will be no subsequent Contractor operations or instances requiring a helper boat. Do not demobilize the Helper Boat until authorized in writing by the Engineer.

7.0 RECOVERY OF DAMAGES. In the event that any damages to the Department, to the public, or to commercial towing interests result from the Contractor's failure to provide a helper boat when requested during the contract phases or instances requiring a helper boat as described above, such damages will be the responsibility of the Contractor. The Department will seek recovery from the Contractor of any and all damages resulting from failure to provide a helper boat in accordance with this special note.

8.0 MEASUREMENT. When Helper Boat is included in the Bid Proposal as a separate bid item, the Department will measure all work performed as part of providing a Helper Boat as a lump sum.

9.0 PAYMENT. The Department will pay for the quantities at the contract unit price as follows.

When Helper Boat is included in the Bid Proposal as a separate bid item, the Department will make partial payments for Helper Boat in 4 equal or approximately equal payments.

1) 25 percent after the Helper Boat has assisted ten (10) Commercial Tows at the request of the Commercial Tow Pilots transiting the bridge, or with Payment 2, whichever comes first.
2) 25 percent when all proposed concrete bridge pier construction is complete.
3) 25 percent when the proposed bridge is substantially complete and has been opened to traffic.

4) 25 percent after removal of the existing Eggner's Ferry Bridge Channel Piers and Spans and after the Helper Boat has been authorized in writing by the Engineer to be demobilized.

The Department will consider payment as full compensation for all work required under this section. Payment will be made under:

BID ITEM CODE		
24620EC	HELPER BOAT	LS

SPECIAL NOTE FOR REMOVAL OF EXISTING BRIDGE

1.0 DESCRIPTION. The Contractor shall remove the existing Eggner's Ferry Bridge structure to the limits indicated on the plans in accordance with KYTC Standard Specification Section 203 "Removal of Structures and Obstructions" and the following special note. Where a conflict exists between these special notes and Section 203, the provisions in these special notes shall govern.

2.0 CONSTRUCTION. Special conditions within the project permits relate to demolition and removal of the Eggner's Ferry Bridge. Comply with the conditions stated in all permits. Perform demolition between November 15th and February 28th.

Take ownership and dispose of all materials removed with the exception of the Span 'E' Truss.

Existing span 'E' is identified as the parallel chord truss replacement superstructure erected in 2012 after a vessel collision collapsed the original span. Salvage the steel superstructure truss of existing span 'E'. After removing the bridge deck slab from the structural steel, lower the truss Span 'E' intact onto a barge and transport to the Eddyville Port Authority for storage. The Span 'E' truss shall remain the property of the Department.

Obtain a lease for the Department with the Port for a period of six months, on a monthly basis. The lease shall be in the Department's name. If the Port is unavailable to store the steel span, or if the terms of the Lease are unacceptable to the Department, the Contractor shall coordinate with other potential storage location property owners and with the Department to secure an alternate lease.

The representation of existing bridge on plan sheets is for information only. The contractor is referred to the existing bridge plans to determine approximate quantities for removal. The contractor is responsible for location and protection of all existing utilities.

The production of the demolition plan and procedures is the responsibility of the contractor. The demolition plan must clearly demonstrate the safety and feasibility of all proposed operations. All submittal components must be sealed by a professional engineer licensed in the Commonwealth of Kentucky.

Obtain all necessary licenses, training and permits for the handling of and use of explosives, if used.

Blasting of superstructure steel truss spans with explosives will be acceptable to the Department.

The use of explosives under water may or may not be acceptable to all governing agencies. The Contractor shall obtain all necessary permits, licenses, certifications, etc. for use of explosives. The Contractor shall contact the appropriate governing agencies prior to the use of explosives and provide confirmation to the Department that the necessary permits, licenses, certifications, etc. have been obtained.

Submit the demolition plan to the Engineer six months prior to scheduled demolition.

The engineer will coordinate submission to the United States Coast Guard. Do not proceed with demolition until the engineer has received a copy of written acceptance of the demolition plan from the United States Coast Guard. Do not proceed with demolition until the demolition plan is returned by the Engineer as approved by the United States Coast Guard.

Schedule the removal of those trusses and piers obstructing the navigation channel to occur as the first activities. This is not intended to preclude the Contractor from also working at

other locations simultaneously.

Maintain a detailed schedule of the entire removal and demolition sequence. Submit the schedule to the engineer two months prior to the start of demolition work and thereafter as changes are made. The engineer will coordinate with USCG and USACE for notice to mariners for the demolition operations as scheduled.

Prepare plans for protection of traffic including vehicular, pedestrian, bicycle, commercial vessels and recreational boaters. Traffic will not be allowed on the replacement bridge during blasting.

Maintain navigation and or obstruction lighting on the existing bridge in accordance with USCG requirements including the duration after permanent power has been installed on the replacement bridge structure.

Coordinate temporary access to the work site with the Department. The contractor may construct pile supported temporary docks only as approved by the engineer. The construction of an additional temporary causeway into the lake will not be permitted. The contractor is not permitted to place fill material in the lake for any reason. The contractor is not permitted to remove any existing material of the causeway unless otherwise shown on the Roadway plans.

Coordinate temporary construction entrances from US68/KY80 with the department. Super-structure concrete deck shall be removed prior to removing any structural steel members. Take necessary measures to prevent any debris from falling into the water.

Conduct a preconstruction survey of the lake bottom to establish any materials existing prior to construction or demolition. Conduct a post demolition survey of the lake bottom to verify all materials from construction and demolition have been removed. Provide the report of all surveys to the Engineer. The USACE Navigation Branch will also conduct a post-demolition sweep survey. The Contractor shall be responsible to remove all materials identified by the USACE Navigation Branch after the post-demolition sweep survey. Remove upper portions of the deep water truss-supporting piers down to elevation 330.0. Remove all of the approach span piers down to the surrounding lake bottom elevation or mud line.

Fill cavities left by the end bent structure removal using approved similar causeway materials to the surface and grade to blend with adjacent contours of the existing causeway.

3.0 MEASUREMENT. The Department will measure all work performed as part of Removing the Existing Bridge as a lump sum.

4.0 PAYMENT. The Department will consider payment as full compensation for all work required under this section.

The Contractor shall be responsible for the cost related to lowering, transporting and preparing the truss for storage. The Department will be responsible for the costs of the lease payments during storage of the truss.

The Contractor shall submit to the Engineer a schedule of costs for work related to the lowering, transport and preparation for storage of the Existing Span ‘E’ to Eddyville Port. The Department reserves the right to adjust the amount of the Lump Sum prior to lowering if the Department perceives there is not a market for selling or renting the span.

Payment will be made under:

BID ITEM CODE		
02731	REMOVE STRUCTURE	LS

SPECIAL NOTE FOR CONSTRUCTION TRAILER

1.0 DESCRIPTION. A construction trailer shall be provided and maintained for the exclusive use of the Engineer/Project Manager and their staff for the duration of this project. The duration of the project shall be defined as the period between the occupancy date defined in Section 2.3 herein and the later of the completion date in this proposal or the actual completion date when all requirements of the Contract Documents have been fulfilled. All costs associated with Federal, State, and Local regulatory permits and inspections, and setup/removal of the construction trailer shall be that of the Contractor.

The construction trailer shall be weatherproof, wind-tight, and dust-proof with level and solid floors. The contractor is to retain ownership of this construction trailer and be responsible for its removal upon completion of the project.

2.0 REQUIREMENTS.

2.1 Location. The construction trailer shall be located on a site that is mutually agreed to by the Engineer/Project Manager and the Contractor in a location that is convenient to the site and will not affect progression of work.

The construction trailer may be a trailer or a permanent building and shall be in accordance with applicable state and local codes and KYOSHA/OSHA requirements.

2.2 Minimum Requirements. The construction trailer shall be a minimum of 720 sq. ft. with an 8 ft. minimum height from the floor to the ceiling. This construction trailer shall have at least two doors. At least one of the doors must be able to be locked from the inside, and the locks shall be keyed the same for all doors. Five key sets to the office shall be furnished by the Contractor. There shall be a minimum of 8 windows that are at least 5 sq. ft. each. Windows shall be equipped with screens and approved locking mechanisms and shall be sliding or hinged. Windows shall also be provided with approved coverings.

The construction trailer shall have a minimum of two offices (120 sq. ft. each) with inside doors and an area large enough to accommodate jobsite meetings for KYTC personnel, Contractor/Sub-Contractor personnel, and Vendors.

2.3 Other Requirements. The construction trailer that is provided for the use of the Engineer/Project Manager shall be fully furnished and ready for occupancy at least two days prior to the start of actual construction.

The Contractor shall be responsible for protecting the construction trailer from fire, flooding, and theft throughout the duration of the project. If there is any loss of property to KYTC due to theft, fire, or natural disaster, it shall be the responsibility of the Contractor.

The construction trailer shall have cooling/heating capabilities to maintain a uniform temperature between 68°F and 80°F.

The electrical system for the construction trailer shall be 100 amp minimum with 120/240 volt electrical service. The construction trailer shall be furnished with a minimum of two two-prong receptacles in each office, storage room and meeting area to accommodate all required electrical equipment.

The Contractor shall be responsible for regular weekly trash disposal for the construction trailer.

The construction trailer shall have sufficient parking to accommodate KYTC personnel regularly assigned to the project location and their agents and visitors with at the minimum a compacted aggregate parking lot. The Contractor shall furnish security lighting for the parking area.

The construction trailer shall have a minimum of one separate, lockable indoor storage area, (minimum 100 sq. ft.) to adequately store equipment (i.e. nuclear density gauge, cylinder molds, concrete testing equipment). This storage building shall have the capacity to secure a nuclear density machine by means of double lock system. This storage area shall have a concrete cylinder tank (minimum 150 gal) that can be maintained at a temperature between 68°F and 80°F.

The Contractor shall be responsible for furnishing an internet connection possible of 1.0 Mb connection speed to the entire construction trailer via wi-fi or a minimum of two wired connections in each office, storage area and meeting area throughout the duration of the project.

The Contractor shall furnish a sign for the construction trailer that distinguishes the office as the KYTC Field Office.

2.4 Field Office Equipment and Supplies.

Description	Quantity
Broom and Dust Pan	1
Coat Rack	1
Toilet Facilities	Yes
Drinking Water (Hot and Cold)	Yes
Cleaning Supplies	Yes
Fire Extinguishers	2
First-Aid Kit	1
Blood Borne Pathogen Kit	1
Smoke Detector	1
Calculator	2
File Cabinets (minimum 4 drawers with locks)	3
Office Desk	4
Office Chairs	4
Folding Table	2
Folding Chairs	12
Drafting Table	1
Drafting Stool	1
Telephone Lines	2
Voice Mail	1
Telephones (One phone shall be cordless with 900 MHz)	3
Fax Machine (Separate line from the ones listed above)	1
Shelving	24 lin. ft.
Carbon Monoxide Detector	1
Refrigerator/Freezer	1
Microwave Oven (1.6 cu ft)	1
Waste Paper Baskets	4

Paper Shredder (Minimum 12 sheet capacity with 5 gallon waste basket)	1
Copier	1
Printer	1
Scanner	1

(The Contractor may provide an all-in-one Copier/Printer/Scanner as long as what is provided has the capability to print on plain paper for letter, legal, and 11"x17" sizes and is able to reduce or increase paper size and has an automatic feeder. The paper, toner, and ink cartridges shall be provided by the Contractor.)

The construction trailer and all the Equipment and Supplies shall be the responsibility of the Contractor throughout the duration of the contract, and the Contractor will retain ownership at the conclusion of the project.

3.0 MEASUREMENT. The construction trailer will be measured as a lump sum. The payment schedule is to be mutually agreed upon by both the contractor and KYTC. KYTC will provide a two-week notice minimum to the Contractor of when the construction trailer will be vacated.

4.0 PAYMENT. The construction trailer will be paid for as a lump sum. All cost associated with the Field Office shall be the responsibility of the Contractor.

Code	Pay Item	Pay Unit
21325ND	CONSTRUCTION TRAILER	LS

SPECIAL NOTE FOR WEB CAMERA CONST MONITORING SYSTEM

1.0 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes an integrated, professional-grade, high resolution digital webcam system designed specifically for the construction industry as a turnkey package including camera(s) and related hardware, mounting equipment, software, wireless cellular data transmission service, website hosting, image hosting and storage, online interface for the system and technical support.

B. Related Sections:
1. Division 1 Section "Photographic Documentation" for periodic construction photographs.
2. Division 1 Section "Closeout Procedures" for submitting digital photographs as Project Record Documents at Project closeout.

1.03 DEFINITIONS

A. CCD: Charge-coupled device.

B. System Vendor: Provider of camera system hardware and software and host maintaining off-site server, data storage devices, and troubleshooting software and equipment. Contractor shall maintain an active contract for System Service for duration of Contract Time unless other term is agreed upon in writing by the Owner. Cost for System Service shall be included in the Contract Sum.

C. System Service: Host services provided by System Vendor including image acquisition, transfer, backup, periodic upgrades to the system, viewing access via a maintained interface on the Internet and on-line storage of images for duration of the Service Contract.

1.04 SUBMITTALS

A. Shop Drawings:
1. Key Plan: Submit key plan of Project site with notation of vantage points marked for location and direction of each camera. Indicate camera mounting heights relative to ground or bridge deck elevation.

B. Quality Assurance Submittals:
1. Manufacturer’s Instructions: Follow manufacturer’s installation and testing instructions.

C. Closeout Submittals:
1. Digital Images: Submit digital still images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
a. Date and Time: Include date and time in filename for each image.
b. Format: Submit a sortable/identifiable archive of all digital still images on an external hard drive or DVD format.
2. Time-Lapse "Movie": Compile select digital still images into a time-lapse movie of the construction period. Optimize images included and run-time length of movie to suit Owner's requirements.

1.05 QUALITY ASSURANCE

A. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
1. Factory assemble camera system from components bearing UL Classification Marking indicating that materials have been produced under UL's Classification and Follow-Up Service.

B. Comply with NECA 1, "Standard Practices for Good Workmanship in Electrical Construction."

C. Comply with NFPA 70, "National Electrical Code."

D. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels.

B. Store materials to comply with manufacturer's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other causes.

1.07 PROJECT CONDITIONS

A. Environmental Conditions: Capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:
1. Exterior Environment: System components installed in locations exposed to weather shall be rated for continuous operation in ambient

temperatures of minus 10 to plus 120 deg F dry bulb and 20 to 90 percent relative humidity, condensing. Rate for continuous operation when exposed to rain as specified in NEMA 250, winds up to 85 mph. NEMA 250, Type 3R enclosures.

1.08 COORDINATION

A. Coordinate installation of cameras so that system is fully operational prior to commencement of construction operations.

B. Coordinate layout and installation of cameras to avoid interference from trees or other obstructions and to prevent sunlight and light from fixtures entering directly into the camera lens.

C. Coordinate layout and installation of cameras to avoid interference with construction operations.

1.09 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of cameras and equipment related to camera operation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Failure of system to meet performance requirements.
2. Faulty operation of hardware and software.
3. Defects in other components of the work.

B. Warranty Period: Lifetime product warranty required

1.10 USAGE RIGHTS

A. Obtain and transfer copyright usage rights to Owner for unlimited reproduction of photographs and archives generated by the system.

B. Contractor shall understand that photographs and archives generated by the camera system become the mutual property of the Owner and System Vendor and cannot be used for advertisement or publicity reasons without the expressed written consent of the Owner and System Vendor.

1.11 MAINTENANCE

A. Maintenance Service: Provide service and maintenance of camera system for entire Construction period.

1. Examine monthly; clean and adjust equipment.
2. Provide remote emergency repair service by System Vendor 24 hours a day, seven days a week to ensure uninterrupted camera service. Provide personnel on-site to assist System Vendor as needed during working

hours. Provide replacement parts and components due to system failure, damage, or theft within two business days.

3. Maintenance service shall not be assigned or transferred to another agent or subcontractor without prior written consent of Owner.

4. Require system vendor to proactively monitor the system by means of service and maintenance contract. If no connection is made within a span of time not to exceed 24 hours during regular business days, require system vendor to notify Contractor and commence troubleshooting.

   a. Provide necessary staff during troubleshooting to verify power availability, to remove and replace system, and to verify functioning phone lines or internet access for dialup and Ethernet based systems.

2.0 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. OxBlue, Inc., 888-849-2583, http://www.OxBlue.com/.
2. EarthCam, Inc., 800-327-8422, http://www.EarthCam.net

B. Substitutions: As approved by the Owner.

2.02 SYSTEM REQUIREMENTS

A. The indoor/outdoor camera system shall consist of a tamper and impact resistant, discreet, fixed pole or wall-mount enclosure with integrated fixed camera, lens and controller.

B The cameras shall have the ability to take a high-resolution **8.0 Megapixel** digital still images of the construction site at a set time interval, every 15 minutes, and upload the still images over a wireless cellular modem to a secure, password-protected website.

2.03 EQUIPMENT

A. Camera: Integrated high definition camera and lens assembly consisting of a charge coupled device (CCD) camera with a remotely controlled focal length lens mounted as a permanent module with the following features:

1. Digital Still Image Resolution: Minimum sensor size of **8.0 megapixels**, and at an image resolution of not less than 3264 x 2448 pixels.
2. Memory: Unlimited remote storage provided by the system vendor.
3. Lens: 6.3 - 63 mm (38-380mm equivalent in 35mm photography), system capable of ten times (10x) optical zoom. Include a wide angle conversion lens with a 0.66x factor. Provide capability to remotely control focal length lens to change resolution, focus and zoom.

4. Focus Mode: iESP auto, Spot AF, Selective AF target, Manual.
5. Metering Mode: Digital iESP multi-pattern auto TTL, Spot metering, Center Weighted metering.
6. Data Connection: Provide one of the following:
    a. In areas with cellular coverage, operate cameras via built-in cellular data connection provided and maintained by the system vendor.
    b. In areas without cellular coverage, operate cameras via an RJ-45 Ethernet data connection over broadband or satellite internet access provided and maintained by the Contractor.
7. Electrical Operation: 120 VAC at maximum 83 Watts.

B. Quantity of Cameras: Five (5)

C. Camera Enclosure: Construct tamper and impact resistant housing of extruded aluminum, die cast aluminum, and sheet aluminum body with factory-applied powder coated finish.
1. Construct with forward opening, front hinged lid, allowing easy access to camera mounting sled.
2. Provide rear link-lock latch, manufactured from stainless steel, suitable for use with pad lock.
3. Equip with heater, blower and thermostat.

2.04 INTERFACE AND ONLINE ACCESS

A. Remote Access: Contractor’s System Vendor shall provide an online interface system to allow viewing of all high-definition digital still images captured and stored during construction, from any location with internet access and with password protection.
1. Maintain images on the System Vendor's website for reference available at all times during construction and for not less than 90 days after Final Completion.

B. Online Interface:
1. The online interface system shall be accessible by an unlimited number of human users.
2. System shall display Project name and Owner Logo.
3. The system shall display online time-lapse videos and allow for videos to be downloaded by users.
4. Navigation: Provide calendar based navigation system for selecting specific images.
5. Zoom: Provide pan and zoom capability for zooming into high definition images.
6. User Screen Viewing Options:
    a. Dynamic Calendar: Provide screen showing calendar in which each day displays an image for that day.

b. Project Dashboard: Provide screen allowing user to view multiple sites at one time.
c. Quad View: Provide screen showing four windows, allowing user to view last four days, weeks, or months on one screen.
d. Split Screen: Provide screen showing two discrete images side by side, from same camera or from two different cameras.
e. Overlay Mode: Provide screen showing two discrete images overlaid, allowing user to determine differences between the two.
f. Full-Screen: Provide screen maximizing view of images on users monitor.

7. Email: Provide capability to email photos with comments from within the system.
8. Slideshow: Provide capability to browse through images, moving forward and backward in time by individual image and by day.

3.0 EXECUTION

3.01 PREPARATION

A. Unpack camera system components and save packing materials (box and foam) for future shipment of camera system including associated appurtenances and mounting equipment to Owner or Manufacturer as required.

3.02 INSTALLATION

A. General:

1. Install camera system in accordance with manufacturer's printed instructions, State and Municipality codes and requirements and approved submittals. The Owner shall have final approval of all camera locations.
2. Install units plumb and at proper angle to provide maximum field of view of on-site operations.
3. Securely and rigidly anchor products in place.
4. Connect cameras to power.

B. Location – Cameras shall be located to provide coverage of full project site.

1. One (1) camera shall be located near the western project limit to capture roadway construction.
2. One (1) camera shall be located near the west bank of Kentucky Lake to capture roadway and bridge construction.
3. One (1) camera shall be located on the bridge to capture bridge construction.
4. One (1) camera shall be located near the east bank of Kentucky Lake to capture roadway and bridge construction.
5. One (1) camera shall be located near the eastern project limit to capture roadway construction.
6. The Owner shall have final approval of all camera locations.

C. Relocate camera as directed by Owner during construction progress.
1. Each camera may be relocated up to two (2) times prior to Final Completion.
2. Camera positions may include attachment to existing construction, new construction and temporary facilities.

D. Position camera so that field of view of approximately 77 degrees covers intended area of site.
1. Install camera at elevation that will provide uncompromised visual coverage.
2. Install camera so that position of sun or man made light sources will not come into direct contact with field of view of camera at any time during construction.

3.03 FIELD QUALITY CONTROL

A. Preinstallation Testing: Test camera on site at ground level prior to mounting unit in its intended elevated position.
1. Contact System Vendor not less than 24 hours in advance of installation for testing.
2. Connect unit.
3. After 30 minutes contact System Vendor and require System Vendor to remotely confirm camera is operating properly.
4. Install cameras in approved locations.

3.04 CLEANING

A. Clean installed items using methods and materials recommended in writing by manufacturer.

B. Clean camera system components, including camera-housing windows, lenses, and monitor screens.

3.05 INSTRUCTION

A. Engage a factory-authorized service representative by phone to instruct Contractors personnel in procedures to adjust and maintain camera equipment.
1. Instruct personnel on procedures and schedules for troubleshooting and maintaining equipment.
2. Explain methods of determining optimum alignment and adjustment of components.

3.06 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain camera equipment in good operating condition on a 24-hour basis until removal.

B. Termination and Removal: Remove camera system after Final Completion of the project and with approval from Owner. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with camera system. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Camera system including associated appurtenances and mounting equipment are property of Owner.

3.07 METHOD OF MEASUREMENT

A. When WEB CAMERA CONST MONITORING SYSTEM is included in the Bid Proposal as a separate bid item, the Department will measure the work performed as part of providing WEB CAMERA CONST MONITORING SYSTEM as a lump sum.

3.08 PAYMENT

A. The Department will pay for the quantities at the contract unit price. When WEB CAMERA CONST MONITORING SYSTEM is included in the Bid Proposal as a separate bid item the Department will make partial payments for WEB CAMERA CONST MONITORING SYSTEM in two (2) equal or approximately equal payments.

1. 50 percent after the system is installed and fully operational.
2. 50 percent after all Closeout Submittals have been submitted and accepted by the Department.

B. The Department will consider payment as full compensation for all work required under this section.

1. Payment will be made under:

Bid Item Code		
23912EC	WEB CAMERA CONST MONITORING SYSTEM	LS

1

END OF SECTION

SPECIAL NOTE FOR CPM SCHEDULING

A. GENERAL. Contrary to Kentucky Standard Specifications 108.07.04, additional contract time will only be added when the Engineer deems the critical path of the project has been affected. Create the progress schedule required for this project using the critical path method (CPM). The Contractor shall designate a Schedule Representative who shall be responsible for coordinating with the Engineer during the preparation and maintenance of the schedule. The contractor shall submit an interim schedule followed by a baseline schedule, or only a baseline schedule, depending on when the contractor starts work as described below.

B. INTERIM SCHEDULE. If the Contractor starts work within 15 days of the Notice to Begin Work, they shall submit an interim schedule. The interim schedule will be in CPM schedule format. The interim schedule shall include detailed activities for the work to be accomplished during the first 30 days of the Contract, and summary activities for the balance of the work. The interim schedule, if required, shall be submitted at the Preconstruction Conference. No work shall begin without the submission of an interim schedule.

C. BASELINE SCHEDULE. The Contractor shall submit a baseline schedule as outlined in the submission requirements section (C.2) within 15 days of the Notice to Begin Work. No pay estimates will be processed after 15 days without the submission of the baseline schedule. The baseline schedule will be in CPM schedule format and as described below. The Engineer will review the baseline schedule and will "accept", "accept as noted" or "reject" the schedule within 5 days of receipt. If the Engineer does not provide written notification regarding the disposition of the baseline schedule within 5 days, the submission will be considered "accepted."

For baseline schedules that are "accepted as noted", the Contractor shall make the necessary revisions and resubmit the revised schedule within 3 days. The Engineer will only "reject" baseline schedules that are not in compliance with contract requirements.

For baseline schedules that are "rejected", the Engineer shall indicate in writing portions of the schedule that are not in compliance with the contract requirements. The Project Engineer shall conduct a mandatory meeting with the Contractor and the Contractor's Schedule Representative within 5 days of the Engineer's written notice. The purpose of this meeting is to resolve disputes with the baseline schedule so that it may be resubmitted. The Contractor shall provide clarification and all additional information necessary for the Engineer within 3 days of this meeting. The Contractor shall submit the revised Baseline Schedule to the Engineer for review and acceptance within 3 days of this meeting.

No pay estimates will be generated until the baseline schedule is "accepted" or "accepted as noted." In the event the baseline schedule is not "accepted" within 90 days of the Notice to Begin Work, all work shall cease on the project until the baseline schedule is "accepted". The incurred delays from the "cease work order" will be the contractor's responsibility and will not be considered for time extension. Any claims associated with time impacts for work performed or delay experienced prior to the baseline schedule being "accepted" or "accepted as noted" will be evaluated at the sole discretion of the Engineer. "Acceptance" by the Engineer will not relieve the Contractor of their responsibilities for compliance with specifications and contract requirements or for the accuracy or feasibility of

the schedule.

"Acceptance" of the baseline schedule does not revise the Contract Documents. The baseline schedule must be "accepted" or "accepted as noted" by the Engineer prior to the Engineer evaluating any contractor claims associated with time impacts.

The Engineer's review of the baseline schedule will be for compliance with the specifications and contract requirements. "Acceptance" by the Engineer will not relieve the Contractor of any of their responsibilities for the accuracy or feasibility of the schedule.

1. Schedule Requirements. Generate and submit an electronic copy of the baseline schedule using Primavera P6 V7.0 by Primavera Systems Inc., Bala Cynwyd, PA, or equivalent electronically transferable software. The Contractor's costs associated with these provisions should be incorporated into the bid item for the progress schedule. Provide and maintain current through the life of the contract three licenses of the same software for the Engineer's use.

Provide a calendar day schedule that shows the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project by the Original Contract Completion Date. Show the order and interdependence of activities and the sequence for accomplishing the work. Describe all activities in sufficient detail so that the Engineer can readily identify the work and measure the progress of each activity. The baseline schedule must reflect the scope of work, required phasing, maintenance of traffic requirements, interim completion dates, the Completion Date, and other project milestones established in the Contract Documents. Include activities for submittals, working drawings, shop drawing preparation, submittal review time for the Department shop drawings, material procurement and fabrication, and the delivery of materials, plant, and equipment, and other similar activities.

The Contractor shall be responsible for assuring all work, including all subcontractor's work, is included in the schedule. The Contractor shall be responsible for assuring that all work sequences are logical and that the schedule indicates a coordinated plan.

Failure by the Contractor to include any element of work required for performance of the Contract shall not excuse the Contractor from completing all work within the required time. Omissions and errors will be corrected as described in Section F or H in this note and will not affect contract time.

a) Administrative Identifier Information.

1. Project Number
2. County
3. Route Number
4. Item Number
5. CID Number
6. Award Date
7. Date of Notice to Begin Work
8. Completion Date
9. Contractor's Name
10. Contractor's Dated Signature
11. KYTC's Dated Accepted Signature

b) *Project Activities.*

i. Activity Identification (ID): Assign each activity a unique identification number. Activity ID length shall not exceed 10 characters. Assign baseline Activity ID's in sequences of 10 (e.g.; A1000, Al010, A1020). This will allow modifications and additional items to be placed into the Identification scheme easily. Once accepted, the Activity ID shall be used for the duration of the project.

ii. Activity Description: Each activity shall have a narrative description consisting of a verb or work function (e.g.; form, pour, excavate, pier #2) and an object (e.g.; slab, footing, underdrain).

iii. Activity Original Duration: Assign planned duration in calendar days for each activity. Do not exceed a duration of 20 calendar days for any construction activity unless approved by the Engineer. Do not represent the maintenance of traffic, erosion control, and other similar items as single activities extending to the Completion Date. Break these Contract Items into component activities in order to meet the duration requirements of this paragraph.

vi. Activity Relationships:

- All activities, except the first activity, shall have a predecessor(s). All activities, except the final activity, shall have a successor(s).
- Use only finish-to-start relationships with no leads or lags to link activities, or use start-to-start relationships with lags no greater than the predecessor duration to link activities.
- Use of finish-to-finish relationship is permitted when both activities are already linked with a start-to-start relationship.

c) *Project Milestones.*

i. Start Project: The Contractor shall include as the first milestone in the schedule, a milestone named "Start Project". The date used for this milestone is the date the contract is executed and signed by the Department.

ii. End Project Milestone: The Contractor shall include as the last activity in the project schedule, a milestone named "End Project". The date used for this milestone is considered the project completion date.

iii. Start Phase Milestone: The Contractor shall include as the first activity for a project phase, an activity named "Start Phase X", where "X" identifies the phase of work. The Contractor may include

additional milestones but, as a minimum, must include all contractual milestones.

iv. End Phase Milestone: The Contractor shall include as the last activity in a project phase, an activity named "End Phase X" where "X" identifies the phase of work. The Contractor may include additional milestones, but at a minimum contractual milestone.

d) *Schedule Options.* The schedule may only be calculated using retained logic. Show open ends as non- critical. Schedule durations are to be contiguous. The project calendar will be based on the Contractor's plan for completing the project. However, the scheduling increment (hours or days) will be stipulated during the Preconstruction Conference. All days must remain active unless the Contractor is instructed not to work by contract documents. Total float shall be calculated as finish float.

2. Submission Requirements. Submit all schedules within the time frames specified. Submit the schedule and information in electronic file format via email, and compact disc (CD) compatible with the Engineer's computer. Submit the following information along with the electronic baseline schedule:

a) A baseline schedule in a bar chart format including the Administrative Identifier Information discussed in Section C.l.a on the first page of the schedule. For each activity on the chart, indicate the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start Date, Early Finish Date, and Percent Complete. Use arrows to show the relationships among activities.

b) A baseline schedule in a bar chart format, on paper. Identify the critical path of the project on the bar chart in red. The critical path is defined as; the longest path of activities in the project that determines the project completion date. The activities that make-up the critical path of activities are the "Critical Activities."

3. Submittal Cover Memo. All submittals shall be accompanied with a brief cover memo containing:

- Identification of the submission as the Baseline Schedule
- Administrative Identifier Information (see section C.l.a)
- Any critical notes as determined by the Contractor

An example Cover Memo is provided in this note.

D. FLOAT. Use of float suppression techniques, such as; preferential sequencing (arranging critical path through activities more susceptible to Department caused delay), lag logic restraints, unrealistic activity durations, zero total or free float constraints, extending

activity times, or imposing constraint dates other than as required by the contract, shall be cause for rejection of the project schedule or its updates. Schedules with negative float will also not be accepted.

1. Definitions of Float. Total Float is the length of time along a given network path that the actual start and finish of activity(s) can be delayed without delaying the project completion date. Project Float is the length of time between the End Project Milestone and the Contract Completion Date.

2. Ownership of Float. Float available in the schedule, at any time shall not be considered for the exclusive use of either the Department or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as a result of favorable weather within a Biweekly period, where the number of days of normally anticipated weather is less than expected, will also contribute to the Project Float. A schedule showing work completing in less time than the contract time, and accepted by the Department, will be considered to have Project Float. Project Float will be a resource available to both the Department and the Contractor. No time extensions will be granted nor delay damages paid unless a delay occurs which impacts the project's critical path, consumes all available float and extends the work beyond the Contract Completion Date.

3. Negative Float. Negative float is not allowed. Schedules with negative float will not be accepted. Negative float will not be a basis for requesting time extensions. Any extension of time will be addressed in accordance with the Section F. Scheduled completion date(s) that extend beyond the contract (or phase) completion date(s) may be used in computations for assessment of liquidated damages. The use of this computation is not to be construed as an order by the Department to accelerate the project.

E. BIWEEKLY UPDATE SCHEDULE. A Biweekly update schedule is a schedule in which only progress is updated from the prior data date to the current data date. Work added and/or excusable delays encountered since the prior data date must be represented as a schedule revision as described in Section E.

1. Update Requirements. Biweekly on a date set at the Preconstruction Conference and until Formal Acceptance, submit an updated schedule and all required information with a data date of the last day of the preceding biweekly submittal. The date for submission and data date may be adjusted to accommodate regularly scheduled progress meetings. Submit the Biweekly updated bar chart on paper and a copy of the updated schedule in electronic format in Section C.2. The Engineer shall "accept" or "reject" the schedule update within 5 days of receipt of the updated CPM schedule. The Engineer may withhold estimates if the updated schedule is not submitted as required by this section. For each updated schedule, identify the actual start and finish dates for all completed activities and the actual start date and remaining

duration for all activities in progress. Provide a written narrative that identifies any changes or shifts in the critical path and submit reasons for the changes or shifts in the critical path.

Submit the following with each updated schedule:

a) CPM Schedule in Bar Chart Format

b) Electronic files (formatted as described above)

2. Submittal Cover Memo. All update submittals shall be accompanied with a brief cover memo containing all the information require in the Baseline Submittal Cover Memo per section C.3 with the addition of:

- Baseline Report
  - Narrative of baseline expectations
  - Project completion status per baseline expectations of Logic Report
  - Logic Modification Report per section F
  - Narrative of all logic changes and reasoning
  - Two separate CPM submissions; one reflecting the schedule without changes in logic, the other reflecting the proposed logic and the effects.
  - Description of fragnet required per section F
- Progress Report
  - Narrative of all schedule changes since last update
  - Details of each change including impact of change on the schedule, float consumption or addition, and reason causing change when float is consumed

F. REVISIONS. The Work may require and/or the Contractor may make revisions to the CPM schedule. Addition of new activities (fragnets required) or new calendars or changes to existing activities, calendars or logic constitute a revision. All revisions must be reported in a Logic Modification Report. The Logic Modification Report is a separate CPM update which includes all the changes recommended by the contractor within the current Biweekly update schedule. **It** shall include a Narrative explanation of the necessary changes accompanying the Biweekly update schedule. Any revision which modifies the critical path or impacts an interim date or project completion date is considered a Logic Modification. A fragnet is defined as the sequence of new activities that are proposed to be added to the existing schedule. The fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities. If submitted as a fragnet, the Contractor shall compute two Finish Dates. The first Finish Date shall be computed without consideration of any impact by the fragnet. The second Finish Date shall be computed with consideration of any impact by the fragnet. The Contractor shall also submit a written narrative stating the reason for the proposed revisions. The Engineer shall "accept" or "reject" proposed revisions within ten days of receipt of appropriate schedules and narrative. All approved revisions will be incorporated into the Biweekly Update Schedule which will become the Revised Biweekly Update Schedule.

G. TIME EXTENSIONS. The Work may require and/or the Contractor may request an extension of the Completion Date. Perform the following analysis to compute the duration of the time extension. Submit two paper copies and two electronic copies of each analysis performed.

1. Determine project progress prior to circumstance(s) necessitating the time extension. Unless the Engineer requests an interim schedule updated to the date of the circumstance alleging to have caused delay, the previous accepted Biweekly update shall be used to display the prior progress of the project. This schedule is referred to as the Un-impacted Schedule
2. Prepare a fragmentary network (fragnet) depicting the circumstance that is believed to have delayed the project.
3. Insert the fragnet into the Un-impacted Schedule, run the schedule calculations and determine the finish date. This schedule is referred to as the Impacted Schedule.
4. Compare the Impacted Schedule finish date with the Un-impacted Schedule finish date in order to determine the duration of any warranted time extension.

Submit the impacted schedule with the request for time extension. Include a narrative report describing the effects of new activities and relationships to interim and contract completion dates. All time extensions approved by the Engineer will be incorporated into the Biweekly update with the fragnet used to determine impacts incorporated into the schedule.

H. RECOVERY SCHEDULE. If the Biweekly Update Schedule or Revised Biweekly Update Schedule projects a finish date for the Project more than 14 calendar days later than the Contract Completion Date, submit a recovery schedule showing a plan to finish by the current Completion Date. The acceptance of any schedule projecting a completion date for the Project beyond the Current Contract Completion Date does not constitute approval of a time extension or an order to accelerate. All changes to completion dates and orders to accelerate must be made via Change Order. The Department will withhold Estimates until the Engineer "accepts" the recovery schedule. The Engineer will use the schedule to evaluate time extensions and associated costs requested by the Contractor. In the event the current Completion Date is in dispute, the recovery schedule will need to be submitted once the dispute has been resolved.

I. BASIS OF PAYMENT. The Department will make partial payments according to Section 109.05 of the standard specifications and as modified by the following schedule:

1. The Department will release 50 percent of the lump sum amount bid for Project CPM Schedule to the Contractor with the first regular payable after the Engineer has accepted" the CPM Baseline schedule submission and the Department has received the scheduling software.
2. The Department will release an additional 25 percent of the lump sum amount bid for Project CPM Schedule to the Contractor with the first regular estimate payable after 50 percent of the original contract amount is complete.
3. The Department will release the remaining 25 percent of the lump sum

amount bid for Project CPM Schedule to the Contractor with the first regular estimate payable after project completion.

The Department will pay for the accepted quantities at the contract price as follows:

Code	Pay Item	Pay Unit
---------	Project CPM Schedule	Lump Sum

The Department will consider payment as full compensation for all work required in this provision.

SPECIAL NOTE FOR PROJECT INSPECTION BOAT

DESCRIPTION. Project Inspection Boat shall consist of providing a boat and safety equipment at the site, along with adequate training and docking facilities as specified below. The boat shall be for the exclusive use of, and operated by, the Engineer or his personnel.

PROJECT INSPECTION BOAT. The boat shall not be less than 18 ft (5.5 m) in length with at least a 72-inch (1.8 m) beam, equipped with an outboard motor of at least 70 horsepower (52 kw), and shall be capable of accommodating at least 6 adult passengers, including the operator. In addition, the Engineer shall at all times retain the right to travel on, or be present on, any of the Contractor's floating plants or equipment.

The boat shall be in good condition and meet the approval of the Engineer. The boat and safety equipment shall at all times meet all applicable boating regulations of the United States Coast Guard.

The boat shall be equipped with 2 fuel tanks, complete remote control, a spotlight and an adequate whistle or horn. The motor shall be equipped with electric and hand starters, an alternator or generator, and slip clutch propeller protection. These requirements are in addition to all Coast Guard or State requirements.

The Contractor shall service, gas, oil and maintain the boat during the life of the contract unless otherwise directed by the Engineer.

TRAINING FOR DEPARTMENT PERSONNEL. The Contractor shall provide field training by someone proficient in the operation of the boat to ensure that approximately 3 to 5 employees of the Department, or their representative, are competent in the proper operation, safety features and handling on open water and while docking. The required training time is anticipated to be no more than one-half day.

INSURANCE FOR PROJECT INSPECTION BOAT. The Contractor shall furnish the Engineer with evidence that liability insurance has been obtained, with a minimum coverage of $500,000, and shall hold the Department and its representatives harmless from any and all damage to, or caused by, the boat while being operated by the Engineer.

The insurance shall be kept in effect until the project is completed, and the evidence of renewal of the policy as necessary shall be forwarded to the Engineer.

MEASUREMENT. The Department will measure all work performed as part Project Inspection Boat as a lump sum.

PAYMENT. The Department will consider payment as full compensation for all work required under this section.

Payment will be made under:

BID ITEM CODE		
24626EC	PROJECT INSPECTION BOAT	LS

SPECIAL NOTE FOR ENGINEERING-RELATED CONSULTING SERVICES

Marshall/Trigg Counties; Item No. 1-180.7; CID 13-1212
Kentucky Lake Bridge

Because of their ongoing involvement with this project as consultants to the Department, Michael Baker Corporation, Palmer Engineering, Terracon, and ICA Engineering (formerly Florence & Hutcheson) will not be permitted to perform any services as consultants to the Prime Contractor or Subcontractors 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 such services, subject to meeting applicable pre-qualification, experience, and/or other requirements.

SPECIAL NOTE FOR INTERMEDIATE MILESTONES

INTERMEDIATE MILESTONES - The following intermediate milestones and are specified for this contract with the following dates:

- **Bridge Open to Traffic: October 31, 2015**
- **Removal of Existing Bridge: February 28, 2016**

The **Bridge Open to Traffic** milestone is defined as the condition that exists when all bridge and roadway work is completed providing four lanes open to traffic on the new bridge. This condition includes both the travelled way and the shoulders. All safety features shall also be in place including but not limited to guardrail barriers, pedestrian railings, signs, and pavement markings. Work not required to be complete by the Bridge Open to Traffic date include items related to the multi-use path not on bridge, path delineation lighting, parking areas, and/or seeding. As approved by the Engineer, short-term temporary lane closures to complete minor punch list items after the Bridge Open to Traffic date may be allowed. After the new bridge is open to traffic, the existing bridge shall be permanently closed to the public.

An incentive of $20,000 per calendar day will be paid for each day, or portion thereof, that the work associated with this milestone is completed earlier than the Bridge Open to Traffic date. The maximum incentive payment will be $1,500,000.

If the work associated with this milestone is not complete on or before the Bridge Open to Traffic date, no incentive will be paid and only disincentive fees will apply.

If the work associated with this milestone is not complete on or before the Bridge Open to Traffic date, a disincentive fee of $20,000 per calendar day, or portion thereof, will be assessed. There will be no maximum disincentive fee.

The **Removal of Existing Bridge** milestone is defined as the condition that exists when all bridge components over the water have been removed and all bridge components in the water have been removed from the water to the limits indicated on the plans. Lake shore will be based on water surface elevation at Normal Pool. Removal of all debris will be confirmed by the Engineer based on comparison of the Contractor's post-demolition survey to the Contractor's pre-construction survey. Work not required to be completed by the Removal of Existing Bridge date includes: removal of end bents, disposal of demolished material, transport of Span 'E' to storage and coordination of the USACE Navigation Branch post-demolition sweep survey.

An incentive of $5,000 per calendar day will be paid for each day, or portion thereof, that the work associated with this milestone is completed earlier than the Removal of Existing Bridge date. The maximum incentive payment will be $250,000.

If the work associated with this milestone is not complete on or before the Removal of Existing Bridge date, no incentive will be paid and only disincentive fees will apply.

If the work associated with this milestone is not complete on or before Removal of Existing Bridge date, a disincentive fee of $5,000 per calendar day, or portion thereof, will be assessed. There will be no maximum disincentive fee.

Disincentive fees and liquidated damages will be cumulative.

SPECIAL NOTE FOR AVIATION CONSTRUCTION PERMITS

The Contractor is hereby notified that any permanent structure, bridge, or temporary structure, cranes, that will exceed 200 feet above normal pool elevation 358.8 NAVD88) is required to be permitted through the Kentucky Airport Zoning Commission (KAZC) through their form TC-56-50. The FAA must also be notified of the construction utilizing FAA Form 7460.

This permanent bridge structure has previously been found to not require a permit because of its height. It is expected that cranes utilized for the project will exceed 200 feet and will have to have permits maintained during their use on the project.

A KAZC temporary permit has been obtained based on the cranes anticipated to be used on this project and is attached. The Contractor shall comply with all conditions of this permit including obstruction lighting if required. The temporary permits required for the cranes have a limited duration and must be updated periodically. The KAZC permit has a duration of 4 months and the FAA notice of construction has a duration of 18 months.

After contract execution, the maintenance of these permits will be the Contractor's responsibility. The contractor will be required to transfer the permit to the Contractor's name, request extensions, and make future modifications to the permit based on his construction schedule and crane usage throughout the project duration.

10-31-2013

Special Roadway Plan Notes

For

New Bridge and Approaches carrying US 68 and KY 80 over Kentucky Lake
Marshall/Trigg Counties
Item No 1-180.70

CONSTRUCTION NOISE

THE CONTRACTOR IS REQUIRED TO USE EQUIPMENT THAT IS OUTFITTED WITH DEVICES THAT RESTRICT THE TRANSMISSION OF NOISE AND TAKE OTHER MEASURES NECESSARY TO RESTRICT THE TRANSMISSION OF NOISE IN THE IMMEDIATE VICINITY OF THE PROJECT.

FIRE AND SPILL PREVENTION/CONTAINMENT

PRIOR TO THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A SPILL PREVENTION/CONTAINMENT PLAN AND A FIRE PREVENTION/CONTAINMENT PLAN TO THE U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE (USFS). THE SPILL PREVENTION PLAN SHALL INCLUDE MEASURES TO PREVENT OR CONTROL SPILLS OF FUELS, LUBRICANTS, OR ANY OTHER MATERIALS USED IN CONSTRUCTION FROM ENTERING KENTUCKY LAKE OR ITS TRIBUTARIES.

HERBICIDE USAGE

HERBICIDE USAGE WILL BE MINIMIZED. THE USFS REQUIRES THAT CONTRACTORS USE ONLY THOSE HERBICIDES APPROVED BY THE US EPA FOR USE IN AND AROUND WATER.

CLEARING AND GRUBBING

CLEARING AND GRUBBING WILL BE LIMITED TO THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. PRIOR TO ANY DISTURBANCE, THE ENGINEER AND CONTRACTOR WILL MEET AT THE PROJECT SITE TO DETERMINE WHICH VEGETATION WILL BE REMOVED IN ORDER TO MINIMIZE DISTURBANCE.

DO NOT ALLOW DEBRIS TO ENTER THE WATERS OF KENTUCKY LAKE. DEBRIS THAT DOES ENTER THE WATERS OF KENTUCKY LAKE WILL BE REMOVED BY THE CONTRACTOR IMMEDIATELY.

INVASIVE PLANT SPECIES CONTAINMENT PLAN

THE CONTRACTOR WILL WORK WITH KYTC AND THE USFS TO MINIMIZE OR ELIMINATE THE SPREAD OF INVASIVE AND NOXIOUS WEEDS. BY ITS NATURE EARTH MOVING ACTIVITIES AS WELL AS THE USE OF CONTAMINATED CONSTRUCTION FILL, SEED, AND EROSION-CONTROL PRODUCTS CONTRIBUTE TO THE SPREAD OF WEEDS. UNDER KRS 176.051 THE KENTUCKY TRANSPORTATION CABINET IS INSTRUCTED TO KEEP THE RIGHT-OF-WAY FREE OF:

JOHNSON GRASS
GIANT FOXTAIL
CANADA THISTLES

NODDING THISTLES
MULTIFLORA ROSE
KUDZU
WILD CUCUMBER
BLACK NIGHTSHADE

THREE OF THESE SPECIES JOHNSON GRASS, MULTI-FLORA ROSE AND KUDZU WERE IDENTIFIED WITHIN THE PROJECT AREA DURING THE NEPA PHASE. THERE ARE 28 SPECIES FROM THE FOREST SERVICE REGION 8 EXOTIC/INVASIVE LIST KNOW TO OCCUR WITH LBL, 18 OF WHICH WERE IDENTIFIED ALONG US68/KY80 AS PART OF A USFS CONTRACTED STUDY IN 2004. CONSIDERING THESE AND OTHERS NOT ON THE FS R8 LIST, SPECIES WHICH PROPAGATE PRIMARILY BY SEXUAL MEANS (I.E., SEED DISPERSAL) THAT ARE CONSIDERED A SEVERE OR SERIOUS THREAT TO NATIVE VEGETATION IN DISTURBED AND/OR UNDISTURBED HABITATS INCLUDED TREE-OF-HEAVEN, JAPANESE STILTGRASS, SERICEA LESPEDEZA, EUROPEAN PRIVET, LOBLOLLY PINE, MULTIFLORA ROSE, CROWN VETCH, AUTUMN OLIVE, TALL FESCUE, BUSH HONEYSUCKLE AND JAPANESE HONEYSUCKLE. ADDITIONAL SPECIES WHICH PROPAGATE PRIMARILY THROUGH ASEXUAL MEANS (I.E., ROOT SHOOTS AND RUNNERS) THAT ARE CONSIDERED A SEVERE OR SERIOUS THREAT TO NATIVE VEGETATION IN DISTURBED AND/OR UNDISTURBED HABITATS INCLUDE KUDZU, COMMON PERIWINKLE AND LARGE PERIWINKLE. THESE SPECIES IDENTIFIED AS SERIOUS THREAT WILL BE THE FOCUS OF THE INVASIVE PLANT SPECIES CONTAINMENT PLAN.

GIVEN THE EXTENDED TIMEFRAMES THAT ARE SOMETIMES REQUIRED TO ERADICATE AN INVASIVE SPECIES FROM AN AREA, IT IS NOT FEASIBLE TO ATTEMPT TO REMOVE SUCH SPECIES FROM WITHIN THE CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION. THEREFORE, THE FOLLOWING PLAN HAS BEEN DEVELOPED TO BOTH PREVENT THE INTRODUCTION OF EXOTIC/INVASIVE SPECIES FROM OUTSIDE THE PROJECT AREA AND TO MINIMIZE THE POTENTIAL OF SPREADING EXISTING INFESTATIONS OF EXOTIC/INVASIVE SPECIES ANYWHERE WITHIN THE PROJECT AREA.

PRIOR TO CONSTRUCTION, THE CONTRACTOR WILL:

STAGE THE PROJECT IN SUCH A MANNER AS TO MINIMIZE THE AREA OF DISTURBANCE WITHIN THE PERMANENT EASEMENT, TEMPORARY EASEMENT AND STAGING ZONES AS MUCH AS POSSIBLE.

IDENTIFY, MAP AND FIELD MARK AREAS WITHIN THE DISTURBED LIMITS THAT HAVE NOXIOUS AND INVASIVE WEED POPULATIONS OF CONCERN. THIS EFFORT WILL RELY HEAVILY UPON THE STUDY CONDUCTED BY SOUTHEASTERN BOTANICAL SURVEY FOR USFS IN 2004.

TREAT THE IDENTIFIED AREAS WHERE THE WEED POPULATION EXISTS WITH CHEMICAL APPLICATION, INCINERATION, OR OTHER MEANS TO CONTAIN THE WEED POPULATION. THIS MAY NOT BE PRACTICAL IF THE WEED SEEDS CANNOT BE ERADICATED.

TRAIN THE ON-SITE CONSTRUCTION MANAGERS, CONSTRUCTION WORKERS, AND EQUIPMENT OPERATORS IN THE IDENTIFICATION OF THE WEEDS TO BE AVOIDED

INSPECT THE GRAVEL, ROCK, BORROW MATERIAL AND OTHER SUPPLIES USED IN THE CONSTRUCTION TO MINIMIZE WEEDS

USE ONLY CERTIFIED WEED-FREE STRAW AND MULCH

WASH AND INSPECT ALL EQUIPMENT OUTSIDE OF THE PROJECT SITE FOR WEED SEEDS AND PLANT PARTS PRIOR TO BRINGING THEM ONTO THE PROJECT SITE.

INSTITUTE BEST MANAGEMENT PRACTICES TO PREVENT EROSION AND THE POSSIBILITY OF WEEDY MATERIAL TRANSPORT

DURING CONSTRUCTION THE CONTRACTOR WILL:

MINIMIZE THE DISTURBANCE TO THE GROUND AND AVOID ANY UNNECESSARY REMOVAL OF VEGETATION AS MUCH AS PRACTICAL.

POWER WASH OR USING AN AIR COMPRESSOR, BLOW CLEAN ALL VEHICLES BEFORE THEY LEAVE AREAS IDENTIFIED AS SUPPORTING INVASIVE SPECIES.

GATHER AND PROPERLY DISPOSE OF (I.E. INCINERATE) WEEDS AND WEED SEEDS THAT ARE REMOVED FROM THE VEHICLES

RESTRICT ALL VEHICLES FROM ENTERING THE FLAGGED AREAS THAT ARE NOT NECESSARY FOR THE CONSTRUCTION

SOIL GENERATED FROM CUT MATERIAL THAT MAY CONTAIN EXOTIC/INVASIVE SPECIES ROOT MATERIAL OR SEED WILL NOT BE TRANSPORTED ELSEWHERE WITHIN THE PROJECT AREA FOR USE AS FILL MATERIAL UNLESS IT IS PLACED AT SUFFICIENT DEPTH THAT SEED GERMINATION OR NEW SHOOTS FROM ROOT MATERIAL IS NOT POSSIBLE.

ZEBRA MUSSEL PREVENTION PLAN

THE TENNESSEE RIVER IS KNOWN TO HARBOR POPULATIONS OF THE ZEBRA MUSSEL WITHIN KENTUCKY. ALTHOUGH THE SPECIES IS ESTABLISHED WITHIN KENTUCKY LAKE, EFFORTS TO REDUCE THE POTENTIAL FOR INTRODUCTION OF THE SPECIES LOCALLY WITHIN THE PROJECT AREA ARE RECOMMENDED.

ALL HEAVY EQUIPMENT REQUIRED FOR THE PROJECT THAT HAS BEEN PREVIOUSLY (WITHIN THE LAST TWO WEEKS) USED ELSEWHERE MUST BE THOROUGHLY CLEANED AND MAINTAINED IN A DRY STATE FOR A PERIOD OF AT LEAST TWO WEEKS PRIOR TO MOBILIZATION ONTO THE US-68/KY-80 PROJECT SITE.

TO REDUCE THE RISK OF POTENTIALLY TRANSPORTING ZEBRA MUSSELS WITHIN THE US68/KY80 PROJECT AREA TO OTHER SITES OUTSIDE THE TENNESSEE RIVER, OR UPPER REACHES WHERE THE SPECIES HAS NOT YET BECOME ESTABLISHED, CONSTRUCTION EQUIPMENT WILL BE CLEANED AND MAINTAINED IN A DRY STATE FOR A PERIOD OF AT LEAST TWO WEEKS BOTH DURING CONSTRUCTION AND AT THE CONCLUSION OF CONSTRUCTION PHASE.

WORKING HOUR RESTRICTIONS

CONSTRUCTION ACTIVITIES (EXCLUDING BRIDGE DECK POURING) WILL OCCUR ONLY DURING DAYLIGHT HOURS IN AND NEAR KENTUCKY LAKE DURING THE SEASON OF POTENTIAL OCCUPATION BY GRAY BATS (APRIL 1 – NOVEMBER 14). EXCEPTIONS MUST BE APPROVED BY THE ENGINEER.

SEED MIXTURE FOR PERMANENT SEEDING

CONTRARY TO SECTION 212.03.03, USE THE FOLLOWING SEED MIXTURE, AT A RATE OF 40 POUNDS PER ACRE, FOR PERMANENT SEEDING:

75% - WILDFLOWER MIX CONSISTING OF RYE, LITTLE BLUESTEM, CANADA WILD RYE, SWITCHGRASS, AUTUMN BENTGRASS, PURPLE TOP, LANCE LEAVED COREOPSIS, TICKLEGRASS (ROUGH BENTGRASS), VIRGINIA WILD RYE, TALL WHITE BEARD TONGUE, WILD BERGAMOT
12.5% - HEAVY CONEFLOWER
12.5% - BLACK-EYED SUSAN

MOT RESTRICTIONS

NO LANE CLOSURES WILL BE ALLOWED DURING THE OBSERVANCE OF ALL NATIONAL HOLIDAYS IDENTIFIED IN SECTION 101 OF THE STANDARD SPECIFICATIONS. SPECIAL EVENTS ARE ALSO HELD IN THE LBL AREA AND AT KENLAKE STATE PARK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SCHEDULE CONSTRUCTION ACTIVITIES SUCH THAT IMPACTS TO THE EVENTS ARE AVOIDED. A CALENDAR OF EVENTS CAN BE OBTAINED FROM THE USFS AND KENLAKE STATE PARK. KYTC RESERVES THE RIGHT TO RESTRICT THE USE OF LANE CLOSURES DUE TO UNFORESEEN SPECIAL EVENTS.

CONSTRUCTION IN AND NEAR THE WATERS OF KENTUCKY LAKE

DISTURBANCE WITHIN THE WATERS OF KENTUCKY LAKE, INCLUDING THE LAGOON UNDER THE LAGOON BRIDGE, SHALL BE MINIMIZED TO LIMIT THE POTENTIAL IMPACTS TO AQUATIC LIFE.

IN THOSE INSTANCES WHERE WORK WITHIN THE WATERS OF KENTUCKY LAKE IS UNAVOIDABLE, THEN IT SHALL BE PERFORMED IN SUCH A MANNER AND DURATION AS TO MINIMIZE RESUSPENSION OF SEDIMENTS AND DISTURBANCE TO SUBSTRATES AND BANK OR RIPARIAN VEGETATION.

TO THE MAXIMUM EXTENT PRACTICABLE, ALL WORK SHALL BE PERFORMED DURING LOW FLOW CONDITIONS.

ALL EARTHWORK OPERATIONS SHALL BE CARRIED OUT IN SUCH A WAY THAT SEDIMENT RUNOFF AND SOIL EROSION TO KENTUCKY LAKE ARE CONTROLLED AND MINIMIZED.

SPOIL MATERIALS SHALL NOT BE DUMPED INTO KENTUCKY LAKE, AS SPECIFIED UNDER SECTION 404 GUIDELINES OF THE CLEAN WATER ACT.

EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT RUNOFF FROM THESE AREAS WILL NOT DIRECTLY ENTER THE WATER. FILTRATION OF EFFLUENT FROM EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT EFFLUENT WILL BE FILTERED THROUGH VEGETATED AREAS AND/OR PROPER SEDIMENT CONTROL STRUCTURES LOCATED BETWEEN THE STAGING AREA AND THE WATER; THEREFORE, MINIMIZING THE POTENTIAL FOR IMPACTS SUCH AS SEDIMENTATION AND POLLUTION.

MITIGATION OF IMPACTS TO THREATENED/ENDANGERED SPECIES

GRAY BAT

IN ORDER TO MINIMIZE OR NULLIFY THE POTENTIAL MYOTIS GRISESCENS IMPACTS, THE KENTUCKY TRANSPORTATION CABINET DOCUMENTS HEREIN, SEVERAL EFFORTS DESIGNED TO MINIMIZE AND MITIGATE.

THE KENTUCKY TRANSPORTATION CABINET DESIGN EXECUTIVE SUMMARY (LANHAM 2005) CONTAINED WITHIN THE PRELIMINARY DRAINAGE DESIGN ADVANCE FOLDER (PALMER ENGINEERING COMPANY 2010) SHOWS THE FOLLOWING REGARDING MINIMIZATION AND MITIGATION ISSUES RELATED TO THE WATER RESOURCES, WHICH WOULD ALSO BE OF VALUE FOR NEGATING IMPACTS TO POTENTIAL FORAGING AREAS BY M. GRISESCENS:

AVOIDANCE ALTERNATIVES FOR WATER RELATED IMPACTS

THE PROPOSED ROADWAY CROSSES THE KENTUCKY LAKE, LAKE BARKLEY, AND A NUMBER OF SMALL STREAMS. AVOIDANCE OF THESE CROSSINGS IS NOT POSSIBLE, AS THE MAIN OBJECTIVE OF THE PROJECT IS TO REPLACE THE EXISTING, STRUCTURALLY DEFICIENT BRIDGES AND RESTRUCTURE THE ALIGNMENT. THE BRIDGE SPANS WILL BE ARRANGED SO AS TO KEEP THE MAIN CHANNELS OPEN AND UNOBSTRUCTED TO FLOW. THE ABUTMENTS MAY BE SKEWED SLIGHTLY TO THE FLOW DIRECTION, BUT PERPENDICULAR TO THE ROADWAY, TO MIMIC THE CURRENT FOOTPRINT OF THE EXISTING BRIDGE. THE USE OF RIP RAP WILL BE LIMITED TO THE CHANNEL BANKS, AND USED ONLY IN THE IMMEDIATE VICINITY OF THE STRUCTURE. ALL IN-LAKE CONSTRUCTION WILL CONTAIN EROSION PREVENTION AND SEDIMENTATION CONTROL (EPSC) MEASURES TO INCLUDE BUT NOT BE LIMITED TO:

ALL WATER LEAVING THE CONSTRUCTION SITE VIA DITCH OR SHEET FLOW WILL BE CONTROLLED BY SEDIMENT TRAPS OR SILT FENCE TO LIMIT SEDIMENT THAT MIGHT REACH THE STREAMS. EROSION CONTROL PLANS WILL BE DEVELOPED AND INCLUDED WITH THE PLAN SET. THESE PLANS WILL BE UPDATED BY THE CONTRACTOR AS CONSTRUCTION PROCEEDS. ALL EROSION AND SEDIMENT DEVICES WILL BE SIZED TO PROPERLY PREVENT OR RETAIN SEDIMENT FROM LEAVING THE PROJECT SITE.

ADDITIONAL MITIGATION AND MINIMIZATION PROCEDURES WILL BE:

1) IN AREAS NOT TREATED WITH RIP-RAP OR OTHERWISE STABILIZED, RE-VEGETATION OF STREAM BANK AND RIPARIAN ZONES SHALL OCCUR CONCURRENTLY WITH THE PROJECT PROGRESSION. SPECIES OF GRASSES, SHRUBS, AND TREES THAT ARE INDIGENOUS TO THE AREA OR THOSE RECOMMENDED BY THE DIVISION OF ENVIRONMENTAL ANALYSIS BIOLOGIST FOR DISTRICT 1, COMMONWEALTH OF KENTUCKY TRANSPORTATION CABINET, SHOULD BE PLANTED.

2) TO THE MAXIMUM EXTENT PRACTICABLE, ALL WORK SHALL BE PERFORMED DURING LOW FLOW CONDITIONS.

3) THE FILL CREATED BY DISCHARGE AND/OR DEPOSITION OF ANY DREDGED OR EXCAVATED MATERIALS ONSHORE, AND ALL EARTHWORK OPERATIONS, SHALL BE CARRIED OUT IN SUCH A WAY THAT SEDIMENT RUNOFF AND SOIL EROSION TO THE WATERCOURSE ARE CONTROLLED

AND MINIMIZED. BEST MANAGEMENT PRACTICES FOR WATER POLLUTION CONTROL SHALL BE INCORPORATED INTO PROJECT DESIGN PLANS ACCORDING TO SECTION
213.03.01 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

4) HEAVY EQUIPMENT (BULLDOZERS, CRANES, BACKHOES, DRAG LINES, ETC.), IF REQUIRED FOR THIS PROJECT, SHOULD NOT BE USED OR OPERATED WITHIN THE STREAM CHANNEL. IN THOSE INSTANCES WHERE SUCH IN-STREAM WORK IS UNAVOIDABLE, THEN IT SHALL BE PERFORMED IN SUCH A MANNER AND DURATION AS TO MINIMIZE RE-SUSPENSION OF SEDIMENTS AND DISTURBANCE TO SUBSTRATES AND BANK OR RIPARIAN VEGETATION.

5) SPOIL MATERIALS FROM THE WATERCOURSE OF ON-SHORE OPERATIONS, INCLUDING SLUDGE DEPOSITS, SHALL NOT BE DUMPED INTO WATERCOURSES AS SPECIFIED UNDER SECTION 404 GUIDELINES OF THE CLEAN WATER ACT. DURING THE DREDGING OF APPROXIMATELY 100,000 CUBIC YARDS OF MATERIAL FROM THE KENTUCKY LAKE BOTTOM, A TURBIDITY CURTAIN OR SIMILAR MEASURE WILL BE USED TO REDUCE SILTATION. AREA FOR DEPOSIT OF DREDGED MATERIALS SHALL BE PROVIDED WITH TEMPORARY DIKES OR BULKHEADS FOR SEPARATION AND RETENTION OF SETTLEABLE SOLIDS. DREDGE SPOIL WILL BE DEPOSITED IN A LOCATION THAT IS TO BE APPROVED BY THE TENNESSEE VALLEY AUTHORITY, U.S. ARMY CORPS OF ENGINEERS, AND KENTUCKY DIVISION OF WATER PRIOR TO DEPOSITION.

6) MEASURES SHALL BE TAKEN TO PREVENT OR CONTROL SPILLS OF FUELS, LUBRICANTS, OR ANY OTHER MATERIALS USED IN CONSTRUCTION FROM ENTERING THE WATERCOURSE.

7) ANY FILL OR RIP-RAP SHALL BE OF SUCH COMPOSITION THAT IT WILL NOT ADVERSELY AFFECT THE BIOLOGICAL, CHEMICAL, OR PHYSICAL PROPERTIES OF THE RECEIVING WATERS AND/OR CAUSE VIOLATION VOLUME 1 OF 1 PAGE 11 OF 119 OF WATER QUALITY STANDARDS. IF RIP-RAP IS UTILIZED, IT IS TO BE OF SUCH SIZE AND WEIGHT THAT BANK STRESS OR SLUMP CONDITIONS WILL NOT BE CREATED BECAUSE OF ITS PLACEMENT, AS SPECIFIED IN SECTION 703 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

ADDITIONALLY, THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING MEASURES SPECIFICALLY AIMED AT THE USE OF HABITAT BY BATS:

* SEASONAL RESTRICTIONS PLACED UPON THE DECONSTRUCTION OF THE OLD BRIDGES ONCE THE NEW BRIDGES ARE OPERATIONAL. CONTRACTOR WILL DECONSTRUCT THE EXISTING BRIDGE DURING THE PERIOD OF TIME WHEN BATS AND OSPREY ARE NOT PRESENT (NOVEMBER 1-FEBRUARY 28).
* CONSTRUCTION ACTIVITIES (EXCLUDING BRIDGE DECK POURING) WILL OCCUR ONLY DURING DAYLIGHT HOURS IN AND NEAR THE STREAM DURING THE SEASON OF POTENTIAL OCCUPATION BY BATS (APRIL 1- NOVEMBER 14). BECAUSE OF INCREASED HEAT AND HUMIDITY EXPERIENCED DURING THE SUMMER MONTHS, DECK POURING MAY NEED TO OCCUR DURING TIMES WHEN M. GRISESCENS ACTIVELY FORAGE. POURING OF CONCRETE DURING NIGHT-TIME HOURS ALLOWS FOR PROPER CURATION TO INCREASE STRUCTURAL INTEGRITY AND LONG-

TERM SUSTAINABILITY OF THE BRIDGE DECK. THE KENTUCKY TRANSPORTATION CABINET FEELS THAT DECK-POURING ACTIVITIES OCCURRING AT NIGHT WILL NOT ALTER THE BEHAVIORAL PATTERNS OF M. GRISESCENS POTENTIALLY FORAGING OVER THE LARGE LAKES AND STREAM NETWORKS DURING THESE PERIODS.

* TO REDUCE EROSION AND SEDIMENTATION EFFECTS OF HIGHWAY CONSTRUCTION PROJECTS, CONTRACTOR IS BOUND BY THE TENETS OF KPDES PERMIT NO. KYR10 FOR ALL CONSTRUCTION PROJECTS INVOLVING SOIL DISTURBANCE. FOR THE SUBJECT PROJECT, A SITE SPECIFIC EROSION CONTROL PLAN (ECP), HAS BEEN DEVELOPED IN ORDER TO OUTLINE POTENTIAL WATER QUALITY ISSUES BY DETERMINING INDIVIDUAL DISTURBED DRAINAGE AREAS (DDA) WHERE CONSTRUCTION SITE EFFLUENT WILL BE DISCHARGED OFF-SITE OR INTO WATERS OF THE COMMONWEALTH (SEE APPENDIX C). WITHIN THE ECP, SEDIMENT CONTROL STRUCTURES HAVE BEEN MARKED AT EACH DDA DISCHARGE POINT. THESE STRUCTURES ARE SUGGESTIONS BASED ON ENGINEERING PRACTICES DEVELOPED BY THE DESIGN ENGINEER.

* ACCORDING TO SECTION 213.03.01 OF THE KENTUCKY TRANSPORTATION CABINET STANDARD SPECIFICATIONS, A BEST MANAGEMENT PRACTICES (BMP) PLAN (IN ACCORDANCE WITH KPDES PERMIT NO. KYR10) WILL BE DEVELOPED JOINTLY BY THE RESIDENT ENGINEER AND THE CONTRACTOR PRIOR TO THE PRECONSTRUCTION CONFERENCE. THE BMP PLAN WILL BE DEVELOPED UTILIZING INFORMATION CONTAINED WITHIN THE ECP. THROUGH PROGRESSION OF THE PROJECT, THE BMP PLAN WILL BE UPDATED IN ORDER TO ADDRESS THE EVER-CHANGING ON-SITE CONDITIONS TO ASSURE THE OVERALL GOAL OF EROSION CONTROL AND SEDIMENT CONTAINMENT. THE BMP PLAN SHALL BE MODIFIED WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF THE SITE WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS TO WATERS OF THE COMMONWEALTH. THE BMP SHALL ALSO BE AMENDED IF ANY ASPECT (DURING INSPECTIONS CONDUCTED BY THE RESIDENT ENGINEER AND CONTRACTOR SIMULTANEOUSLY EVERY 7 DAYS OR AFTER RAIN EVENTS GREATER THAN 0.5") IS DETERMINED TO BE INEFFECTIVE IN CONTROLLING THE DISCHARGE OF POLLUTANTS TO WATERS OF THE COMMONWEALTH. ANY CHANGES IN THE BMP PLAN SHALL BE IMPLEMENTED WITHIN 7 DAYS OF THE MONITORING OR ACTION EVENT. APPROPRIATE DOCUMENTATION OF CHANGES IN THE BMP PLAN WILL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. FURTHER, APPROPRIATE DOCUMENTATION (PICTURES, MONITORING LOG, ETC.) OF INSPECTIONS WILL BE MAINTAINED ON THE CONSTRUCTION SITE.

* IT IS EXPECTED THAT IMPACTS TO THE RIPARIAN CORRIDOR WILL BE NEGLIGIBLE-TO-NONEXISTENT AS THE VAST MAJORITY WORK WILL BE PERFORMED ON THE EXISTING ROADBED. PRIOR TO ANY DISTURBANCE OF VEGETATION (IF ANY) WILL BE REMOVED IN ORDER TO MINIMIZE RIPARIAN DISTURBANCE. ALL AREAS WILL BE REPLANTED WITH NATIVE SPECIES AS NECESSARY. PLANTING LISTS WILL BE DEVELOPED FOR CONSTRUCTION PERSONNEL BY THE DEC AND THE KYTC BIOLOGIST.

* A PREMIUM WILL BE PLACED ON KEEPING DEBRIS ATTRIBUTED TO PHASE I AND II REMOVAL OUT OF THE WATER. DEBRIS THAT DOES ENTER THE STREAM WILL BE REMOVED IMMEDIATELY. DUE TO ON-SITE RESTRAINTS, EQUIPMENT WILL BE USED ON THE BARGES, BANKS, AND IF NECESSARY VIA A PAD AT THE EDGE OF THE WATER.

* PLACING OF CONCRETE FOR PIERS AND/OR DECKING WILL BE DONE SUCH THAT SPILLS INTO THE STREAM DO NOT OCCUR. IN THE UNFORESEEN EVENT THAT SPILLAGE DOES OCCUR, THE FRANKFORT USFWS OFFICE WILL BE NOTIFIED AND THE RESIDENT ENGINEER SHALL HALT THE ACTIVITY IMMEDIATELY AND NOT RESUME UNTIL APPROPRIATE REMEDIAL ACTIONS HAVE BEEN IMPLEMENTED.

* EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT RUNOFF FROM

THESE AREAS WILL NOT DIRECTLY ENTER THE WATER. FILTRATION OF EFFLUENT FROM EQUIPMENT CLEANING/STAGING AREAS WILL BE LOCATED SUCH THAT EFFLUENT WILL BE FILTERED THROUGH VEGETATED AREAS AND/OR PROPER SEDIMENT CONTROL STRUCTURES LOCATED BETWEEN THE STAGING AREA AND THE WATER; THEREFORE, MINIMIZING THE POTENTIAL FOR IMPACTS SUCH AS SEDIMENTATION AND POLLUTION.

* THE PROPOSED BRIDGES HAVE BEEN DESIGNED TO REDUCE IMPACTS TO THE WATER BY MINIMIZING THE NUMBER OF NEW PIERS IN THE LAKES. ALL OF THE EXISTING PIERS WILL BE REMOVED.

* DURING FOOTER/PIER CONSTRUCTION, COFFER DAMS, SEDIMENT CURTAINS, AND/OR SANDBAGS AND PUMPS MAY BE UTILIZED IN ORDER TO BE ABLE TO PLACE CONCRETE IN THE FOOTERS. IF SO, WATER REMOVED FROM INSIDE THE COFFER DAMS OR SANDBAGGED AREAS WILL BE FILTERED USING AN APPROVED SEDIMENT FILTRATION METHOD PRIOR TO RELEASE INTO THE WATER.

* USFWS AND THE KYTC BIOLOGIST SHALL BE CONTACTED BY THE KYTC DISTRICT 1 ENVIRONMENTAL COORDINATOR AT LEAST ONE WEEK PRIOR TO THE START OF CONSTRUCTION FOR THE PROPOSED PROJECT.

ARCHAELOGICAL MATERIALS

IF ARCHAELOGICAL MATERIALS ARE UNCOVERED DURING CONSTRUCTION, ALL CONSTRUCTION WORK IN THE AREA OF THE FIND(S) WOULD CEASE. STAFF ARCHAEOLOGISTS EITHER KYTC (502-564-7250) OR KHC SHPO (502-564-7005) OFFICE WOULD BE CONTACTED IMMEDIATELY SO THAT REPRESENTATIVES OF THAT OFFICE MAY HAVE THE OPPORTUNITY TO EXAMINE AND EVALUATE THE MATERIALS. IF HUMAN REMAINS ARE DISCOVERED DURING CONSTRUCTION, ALL ACTIVITY IN THE VICINITY OF THE REMAINS WOULD CEASE IMMEDIATELY, AND THE STATE MEDICAL EXAMINER AND THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WOULD BE CONTACTED. IF MATERIALS ARE DISCOVERED ON ANY FEDERALLY OWNED PROPERTY, THEN REPRESENTATIVES OF THE ADMINISTERING AGENCY ALSO WOULD BE CONTACTED.

MITIGATION OF IMPACTS TO THREATHENED/ENDANGERED SPECIES-OSPREY

IN ADDITION TO OTHER REQUIRED MITIGATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL OSPREY NESTS CURRENTLY ON THE EGGNER'S FERRY BRIDGE AND THE SUBSEQUENT REMOVAL OF ANY NEW NESTS BEING BUILT WHILE THE NEW KENTUCKY LAKE BRIDGE IS UNDER CONSTRUCTION. THE CURRENTLY EXISTING NESTS MUST BE REMOVED BEFORE FEBRUARY 1, 2014, AND ANY SUBSEQUENT NESTS BEING BUILT WOULD NEED TO BE REMOVED BEFORE ANY EGGS ARE LAID. ONCE EGGS OR YOUNG BIRDS ARE IN A NEST, THEY MUST **NOT** BE DISTURBED. IT SHOULD BE NOTED THAT OSPREY COULD NEST ANYWHERE ON THE STRUCTURE, AT THE HIGHEST POINT OF THE SUPERSTRUCTURE OR ON THE ABUTMENTS ETC. THE KYTC DISTRICT ONE ENVIRONMENTAL COORDINATOR SHALL BE NOTIFIED TWENTY FOUR HOURS IN ADVANCE OF ANY REMOVAL OF A NEST SO THAT THE STATUS OF THE NEST CAN BE VERIFIED AND THE SUBSEQUENT REMOVAL DOCUMENTED. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON SITE, THE CONTRACTOR SHALL MEET WITH THE KYTC DISTRICT ONE COORDINATOR FOR ASSISTANCE WITH IDENTIFYING OSPREY NESTS ETC., AND TO DETERMINE IF THERE ARE ANY NESTS ON THE STRUCUCTURE THAT NEED TO BE REMOVED IMMEDIALTELY. THIS MITIGATION REQUIREMENT IS INTENDED TO MINIMIZE THE POSSIBILITY OF ANY POTENTIAL DELAYS TO THE PROJECT SCHEDULE. ALL COSTS ASSOCIATED WITH CARRYING OUT THIS MITIGATION REQUIREMENT SHALL BE BORNE BY THE CONTRACTOR AND

ARE INCIDENTAL TO THE PROJECT.

10-16-2013

New Bridge and Approaches Carrying US 68 and KY 80 over Kentucky Lake
Marshall/Trigg Counties
Item No 1-180.70

NOISE

1. DESCRIPTION: Landscape screening plan to be developed by KYTC during design. The plan is subject to final approval by the USFS prior to KYTC approval of a final Landscape Plan design. (A-35, A-36, A-41)*. (Fenton Campground)

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

2. DESCRIPTION: Landscape screening to minimize noise and visual impacts will be considered for the Golden Pond Picnic Area. The KYTC will work with the USFS during final design to incorporate landscape screening as appropriate.

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

3. DESCRIPTION: The construction contractor will be required to provide equipment (sound-deadening devices, shields, physical barriers) and take measures necessary to restrict the transmission of noise to noise sensitive sites (such as residences and campgrounds) in the immediate vicinity of the project. (3-2 through 3-10)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

WATER RESOURCES

LAKE CROSSINGS

4. DESCRIPTION: During final design, the use of a shore-to-shore bridge rather than a causeway-bridge combination will be considered for the Kentucky Lake and Lake Barkley bridges. (3-10, 3-11, 5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Studied and resolved in Phase 1 Design

5. DESCRIPTION: Bridge demolition and construction activities that would cause sedimentation concerns should be conducted in the cool months of November to April in order to minimize the silt load impacts on reproduction, respiration, and feeding when biological activity is high during warm months. (5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

6. DESCRIPTION: US Coast Guard Bridge Permits for the new Eggner's Ferry and Lawrence Memorial Bridges are required. Under the authority of Section 9 of the Rivers and Harbors Act of 1899 and the

General Bridge Act of 1946, as well as other acts, the Coast Guard is responsible for approving location and plans for bridges and causeways over navigable waters. (3-73)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Permit obtained. See construction contract documents

7. DESCRIPTION: Agents, acting on behalf of KYTC, shall obtain all permits necessary to construct the project. A copy of all permits will be provided to USFS prior to commencement of any ground disturbance in the jurisdictional areas of the permit. (3-12 to 3-25, 3-73, A-38, A-43)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: All permits obtained and distributed

8. DESCRIPTION: TVA will need to approve a land transfer, grant-of-easement, or other form of legal instrument to provide KYTC with the necessary land rights to place additional fill for the causeway/piers for the new bridge. Prior to consideration of issuance of the needed Section 26a permit and land use authorization, TVA will need to review detailed plans for replacement of Eggner's Ferry Bridge over Kentucky Reservoir. (Per Dec. 29, 2005 letter to KYTC)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + TVA letter to KYTC on 12-29-2005
- DATE: September 2006
- RESOLUTION: Task completed with Section 26a permit application process

9. DESCRIPTION: Land Grant Easements between USFS and KYTC will be required for the Land Between the Lakes property prior to construction.

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Completed in preceding LBL Design-Build Project

STREAMS

10. DESCRIPTION: In-channel work will be restricted to periods of low flow and will be limited to placement of piers, pilings, and /or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap. Construction techniques that would cause a minimum amount of damage to the bottom of water bodies will be used throughout construction. (3-11, 3-12, 3-13, 5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

11. DESCRIPTION: Banks will be constructed similar to pre-disturbance slopes and elevations and stabilized with natural vegetation. Shorelines will be stabilized with native woody plants, including trees, where practicable and sustainable. Retaining walls in general locations may be needed to minimize impacts (3-13, 5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design - See Plans

12. DESCRIPTION: Natural channel design concepts, including bioengineering, will be used where appropriate for stream channel work especially where existing roads are being abandoned and pavement and culverts are being removed. (5-2)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00

- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable this construction project

13. DESCRIPTION: Erosion control measures specified in Section 3.21.10 will be implemented. The KYTC will coordinate with the US Fish and Wildlife Service; Kentucky Department of Environmental Protection; and the US Army Corps of Engineers during the design of channel relocations. (3-13, 5-2)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

14. DESCRIPTION: Stream mitigation through the use of oversized culverts, natural bottoms, and minimization of construction disturbance limits near the riparian buffer has been included in the plans for the project.

    - Ø SOURCE: FONSI-US68/KY80 Item No. 1-180.00+ KYTC letter to USFS on 10-15-2007
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

15. DESCRIPTION: US Army Corps of Engineers Dredge and Fill Permit for new embankment in Kentucky Lake and Lake Barkley. Section 404 of the Clean Water Act, and a 401 Water Quality Certification from Commonwealth of Kentucky (as mandated under Section 401 of the Clean Water Act). A copy of all permits will be provided to the USFS. (3-12 to 3-25, 3-73, A-38, A-43)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: All permits obtained. See construction contract documents.

WATER QUALITY

16. DESCRIPTION: Roadside Drainage - Where appropriate, roadside ditches that are grass-lined and connected to filter strips and containment basins will be constructed. (5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

17. DESCRIPTION: Erosion and Sedimentation Control - Permanent and temporary erosion control devices will be used to minimize sediment and debris. Strict controls will be employed during construction near streams to reduce turbidity. Timely revegetation after soil disturbance will be implemented and monitored. Revegetation will consider site specific needs for hydrology. (3-13, 5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

18. DESCRIPTION: Spill Prevention/Containment - The USFS will require contractors to have a spill plan and a fire plan prior to the beginning of work in the LBL. (5-3)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

19. DESCRIPTION: US Army Corps of Engineers Dredge and Fill Permit for new embankment in Kentucky Lake and Lake Barkley Section 404 of the Clean Water Act, and a 401 Water Quality

Certification from Commonwealth of Kentucky (as mandated under Section 401 of the Clean Water Act). (3-73, 5-4)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Permits obtained. See construction contract documents.

20. DESCRIPTION: An approval under Section 26a of the TVA is required for new Eggner's Ferry Bridge. (3-73, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Permit obtained. See construction contract documents.

21. DESCRIPTION: Agents acting on behalf of KYTC shall obtain all permits necessary to construct the project. A copy of all permits will be provided to USFS prior to commencement of any ground disturbance in the jurisdictional areas of the permit. (3-12 to 3-25, 3-73, A-38, A-43)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained and distributed

22. DESCRIPTION: Herbicide Use Plan - Herbicide usage will be minimized in environmentally sensitive areas, such as near streams. The USFS will require contractors to use only those herbicides approved by the US EPA for use in and around water. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

23. DESCRIPTION: Low Salt and No Spray Zones - A low salt and no spray strategy will be developed in stream areas for this project. A signing strategy for these items will also be developed, to help maintenance forces who will be maintaining roadway after construction. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project. Future responsibility of KYTC District 1 Maintenance Department

24. DESCRIPTION: Parking and Turning Areas - Parking and turning areas for heavy equipment will be confined to sites that will minimize soil erosion and tree clearing, and will avoid environmentally sensitive areas. (5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

HYDROLOGY

25. DESCRIPTION: Appropriate culverts and other drainage structures will be used to maintain current hydrologic flows. The number of culverts and their placement will be determined in final design. (5.2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

26. DESCRIPTION: Modeling during final design will ensure that increased backwater levels will be less than what is required for the applicable permits. (5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

WETLANDS

27. DESCRIPTION: Hydrology of existing wetlands may only be altered by improving the hydrology. (3-13, 5-3)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

28. DESCRIPTION: USACE Section 404 Permitting and Section 401 Water Quality Certification are required. Since the project is also within the jurisdictional limits of the TVA, approval via Section 26a permitting is required. (3-12, to 3-25, 3-73, A-38, A-43, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained. See construction contract documents.

29. DESCRIPTION: Salt and other possible pollutants from highway runoff will be diverted away from nearby wetlands by using roadside ditches. Current water regimes will be maintained along with no ditching in wetland areas. Erosion Control will be implemented. (3-12 to 3-25, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included with Phase II Design – See Plans

30. DESCRIPTION: Within LBL, wetland mitigation is to be handled via the payment of in-lieu fees by agents acting on behalf of KYTC to Kentucky Department of Fish and Wildlife. KY Department of Fish and Wildlife has agreed to use said fee to perform wetland mitigation within the confines of LBL at locations to be approved by USFS. (3- 12, to 3-25, 3-73 & per October 15, 2007 letter to USFS by KYTC)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

31. DESCRIPTION: US Army Corps of Engineers Permit and TVA 26a permit for fill within jurisdictional wetlands, including the associated water quality certification is needed. Section 404 and 401 of Clean Water Act. (3-12 to 3-25, 3-73, A-38, A-43)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: All permits obtained. See construction contract documents.

FLOODPLAINS

32. DESCRIPTION: Modeling during final design will ensure that any increases in backwater levels will be less than that permitted by federal law and local ordinances. Additional culvert improvements will be made during final design, if necessary, based on a hydraulic capacity analysis. (3-20, 3-21, 5-4)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006

- Ø RESOLUTION: Included in Phase II Design – See Plans

33. DESCRIPTION: The TVA requires that fills of more than one acre-foot in Kentucky Lake be offset by an equal cut or other method to achieve "no net loss" in flooding storage capacity. If causeways are used, opportunities to create additional storage volume areas in KL and LB by creating wetlands and/or ponds will be considered to compensate for flooding and power capacity losses, as necessary. (3-20,3-21, 5-4)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Requirement resolved during Section 26A Permit application process

34. DESCRIPTION: The US Army Corps of Engineers mandates that there will be "No Net Loss" for storage capacity in KL or LB. Per conversations with USACE Regulatory.

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Requirement resolved during Section 404 Permit application process

34a. DESCRIPTION: Where culverts penetrate the existing embankment, they would be lengthened so that the existing drainage function would be preserved. Therefore, there would be no additional flooding upstream of existing berm. Additional culvert improvements would be made during final design, if necessary, based on a hydraulic capacity analysis. (3-21)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

WILDLIFE and HABITAT

35. DESCRIPTION: To help minimize the loss of habitat, final geotechnical information will be used to determine if side-slopes could be made steeper, thus reducing the area of right- of-way. (5-4)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

36. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Included in Phase II Design – See Plans

37. DESCRIPTION: To minimize potential affects upon the fish life in general in Kentucky Lake and Lake Barkley, bridge construction activities should be minimized during the spawning season (March thru June). (3-81, 5-5)*

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - Ø DATE: September 2006
    - Ø RESOLUTION: Special Note added to Roadway Plans

38. DESCRIPTION: Considerations would be given to moving existing osprey nests and nesting platforms in close proximity to the bridge prior to construction as well as building additional osprey nesting platforms at suitable locations in Lake Barkley and Kentucky Lake (per phone conversation with Blake Beyer) away from the bridge. Any moving of nests or platforms would be done during the non-nesting season (August - March). (3-33, 3-81, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Completed by KYTC prior to this construction project

39. DESCRIPTION: Limiting bridge construction operations below water to the cool months of November to April would reduce overall impacts to aquatic organisms. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

40. DESCRIPTION: In-channel work would be restricted to periods of low flow (typically late summer through fall). (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

41. DESCRIPTION: Disturbance would only take place within the project disturbance limits. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

42. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans
    -

43. DESCRIPTION: Special project working hours have been established to minimize impacts to wildlife as per the direction of USFWS. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

SIGNAGE

44. DESCRIPTION: Special wildlife warning signs will be included in the project's final sign plan. Deer crossing signs will be placed throughout the project area to warn motorists of potential collisions. Consideration will be given to signs that have attention features such as flashing lights at dawn and dusk. Locations will be designed in cooperation with USFS biologists. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

45. DESCRIPTION: A detailed sign plan, in accordance with MUTCD and when applicable, the Sign Handbook provided to KYTC by the USFS, will be prepared for the project. USFS will provide

guidance and approval for all materials and placement for informational signs related to USFS facilities. (October 15, 2007 letter to USFS from KYTC).

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

WILDLIFE CROSSING STRUCTURES

46. DESCRIPTION: Stream crossings (culverts and bridges) will allow for passage at all terrestrial and aquatic life stages. Specific locations and types of passage will be confirmed during final design. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

47. DESCRIPTION: Bifurcated Locations - If bifurcated alignments are chosen, crossing structures will be placed at higher frequency and density within the bifurcated sections where appropriate to avoid barrier effects that would create an island of habitat. (5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

48. DESCRIPTION: Bats - Where reasonable and appropriate, culverts will be designed to provide bat roosts. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

49. DESCRIPTION: Crossing structures will be maintained to ensure they remain accessible and useable for wildlife. This will involve inspecting openings and some vegetation control. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project. Future responsibility of KYTC District 1 Maintenance Department

50. DESCRIPTION: Culvert design and placement will include but will not be limited to providing safety and habitat to a variety of species where reasonable and appropriate. (5-5, 5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

CONSTRUCTION DISTURBANCES

51. DESCRIPTION: Construction that crosses the Devil's Elbow 7 nest secondary management zone for bald eagles should be minimized during the nesting season (Oct. 15 to May 15) to avoid disturbances. (5-6)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

52. DESCRIPTION: Construction near streams will be restricted to normal daytime hours in the summer (May 15-August 15) when gray bats are present. (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

53. DESCRIPTION: Considerations will be given to moving existing osprey nests and nesting platforms in close proximity to the bridge prior to construction as well as building additional osprey nesting platforms at suitable locations in Lake Barkley and Kentucky Lake away from the bridge. Any movement of nests or platforms will be done during the non-nesting season (August - March). (3-81, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Completed by KYTC prior to this construction project

54. DESCRIPTION: Limiting bridge construction operations below water to the cool months of November to April would reduce overall impacts to aquatic organisms. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

55. DESCRIPTION: In-channel work would be restricted to periods of low flow (typically late summer through fall). (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

56. DESCRIPTION: Disturbance would only take place within the project disturbance limits. (3-81)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

57. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

58. DESCRIPTION: In the LBL, tree clearing and snag removal will be kept to a minimum and limited to the construction limits. Within bifurcated sections, tree clearing will be kept to a minimum, and woods will be kept in as much a natural state as reasonable. Forested sections will be managed in accordance with the LBL forest management plan. Trees to be removed in the new right-of-way will be marked by USFS crews and removed by the roadway construction contractor. (5-7)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

59. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet

Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

60. DESCRIPTION: Where kudzu and other invasive species are present, roadway construction activities will take place before flowering in the late summer. Construction equipment will be inspected and vegetation removed. (3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

61. DESCRIPTION: Heavy equipment that had previously (within the last two weeks) been utilized in waters infested by zebra mussels will be thoroughly cleaned and left to dry for at least two weeks prior to use in construction to prevent the spread of this invasive species. (3-81, 5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

62. DESCRIPTION: Depressed grass medians are to be used in-lieu of raised grass medians for the project as part of Design Build Project No. 6, Item No 1-180.55 (Per October 15, 2007 letter from KYTC to USFS)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

63. DESCRIPTION: Construct a grade separated intersection with US 68/KY 80 and KY 453 (The Trace) as a part of Design Build Project No. 6 Item No. 1-180.55 (Per October 15, 2007 letter from KYTC to USFS)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: October 15, 2007
- RESOLUTION: Not applicable to this construction project

64. DESCRIPTION: Within the LBL, the KYTC will consider in-kind replacement of loss of open lands as designated by USFS LBL by reclaiming old fields elsewhere in LBL.

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

THREATENED and ENDANGERED SPECIES of SPECIAL CONCERN

65. DESCRIPTION: Tree cutting will be minimized near bald eagle secondary management zones to maintain vegetative screening. (3-80 to 3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

66. DESCRIPTION: Bridge construction activities in Lake Barkley near the osprey nests will not occur during the active nesting season (mid-March thru July). Individual nests will be monitored to insure that nesting is not active. (3-80 to 3-81, 5-7)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

67. DESCRIPTION: Construction near streams would be restricted to normal daytime hours in the summer (May 15-August 15). (3-80)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Special Note added to Roadway Plans

VEGETATION

68. DESCRIPTION: Banks will be constructed similar to pre-disturbance slopes and elevations and stabilized with natural vegetation. Shorelines will be stabilized with native woody plants, including trees, where practicable and sustainable. Retaining walls in general locations may be needed to minimize impacts (3-13, 5-2)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

69. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

70. DESCRIPTION: Mature trees will be installed in Fenton to replace the vegetated screen along the south side of US68/KY 80. The final landscape plan will include the replacement trees. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

INVASIVE SPECIES

71. DESCRIPTION: Disturbed areas will be re-vegetated with grasses, woody vegetation and/or wildflowers, as specified in the vegetation/landscape plan that will be developed by the KYTC with assistance from the USFS during the final design. KYTC would work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Park. (3-81, 5-4, 5-5)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Included in Phase II Design – See Plans

72. DESCRIPTION: Where kudzu and other invasive species are present, roadway construction activities will take place before flowering in the late summer. Construction equipment will be inspected and vegetation removed. (3-81, 5-7)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to Roadway Plans

73. DESCRIPTION: Heavy equipment that had previously (within the last two weeks) been utilized in waters infested by zebra mussels will be thoroughly cleaned and left to dry for at least two weeks prior to use in construction to prevent the spread of this invasive species. (3-81, 5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to the Roadway Plans

CULTURAL RESOURCES

74. DESCRIPTION: Those portions of Site 15Tr1 that contain intact deposits have been avoided by the proposed project. If during ROW phase, it is determined that additional property from the Parcel 402 is to be purchased (for example, as an uneconomic remnant), beyond that identified in the current plans as necessary for the construction of the project, FHWA shall consult with the KHC regarding proposed long-term use of the property, the potential effects on the archaeological site, and the ultimate disposal of the parcel. The objective of the consultation will be to either establish a means for permanent protection of the site or portions of the site affected, or to excavate the site, exhausting its potential to yield further significant data. (5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

75. DESCRIPTION: If archaeological materials are uncovered during construction, all construction work in the area of the find(s) would cease. Staff Archaeologists either KYTC (502-564-7250) and KHC SHPO (502-564-7005) office would be contacted immediately so that a representative of that office may have the opportunity to examine and evaluate the materials. If human remains are discovered during construction, all activity in the vicinity of the remains would cease immediately, and the state medical examiner and the appropriate local law enforcement agency would be contacted. If materials are discovered on any state or federally owned property, then representatives of the administering agency also would be contacted. (5-8)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Special Note added to the Roadway Plans

76. DESCRIPTION: TVA's Cultural Resources staff will work with FHWA/KYTC to draft appropriate Section 106 documentation to evidence TVA's involvement in the project compliance. (A-37 to A-38)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

UNDERGROUND STORAGE TANKS and HAZARDOUS MATERIALS

77. DESCRIPTION: Site #9 in LBL has been avoided by the Project. (5-9)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

78. DESCRIPTION: A vegetation and landscape plan will be developed by the KYTC for the project area during final design and will be included in the contract documents. The KYTC will work with the USFS

to develop the LBL portion of the vegetation and landscape plan. The KYTC will work with KY Commerce Cabinet Department of Parks staff on the details of the plan for the portion of the project in Kenlake State Resort Park. The plan will address replantings as well as noxious weeds. (5-10)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

79. DESCRIPTION: KYTC coordination with USFS during design and engineering efforts for portions of highway that cross LBL and the two lakes so that the appearance of the improved road will complement the recreational objectives of LBL. (5-10)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

80. DESCRIPTION: "Light-Sensitive" design will be used for any lighting to be installed that impacts the sky over LBL. Any lighting plan is subject to final approval of the USFS. (Per October 15, 2007 letter to USFS from KYTC)

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

81. DESCRIPTION: The KYTC will coordinate with the KY Department of Parks and the USFS during final design of this project to provide appropriate accommodation for those issues and areas of the parks directly affected by the construction of the proposed project. (5-10, A-36)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase I and Phase II Design – See Plans

82. DESCRIPTION: The KYTC will design and construct as part of this project a hike-bike trail between Kenlake State Resort Park and the Cadiz bypass. The design and location of the hike-bike trail will be refined during the final design of the project. KYTC will construct as part of the Design Build Project, the initial segments (in the area of Fenton Campground and from the Lake Barkley Bridge to Bacons Creek Road). The "cross-country" section will be constructed at a later date by KYTC with a separate project. USFS in conjunction with KYTC will provide design standards for this segment of the trail. Final segments of the trail will be constructed as part of the Lake Barkley and KY Lake Bridge projects. (2-14, 5-9)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Included in Phase II Design – See Plans

83. DESCRIPTION: As part of the Lake Barkley bridge project, KYTC shall provide a walkway under the new bridge to improve access to the shoreline for fishing. Included in this shall be provisions for a parking area on the north side of the roadway. USFS will be provided opportunity to provide input into design of this walkway. (5-12)*

- SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- DATE: September 2006
- RESOLUTION: Not applicable to this construction project

84. DESCRIPTION: Improvements to the internal road system are provided at Fenton as per a plan to be provided by USFS. Fishing areas along the jetty are to be constructed in the Elbow Bay area. Access will be provided for the Golden Pond Picnic Area. Three Turnarounds are to be constructed at USFS

approved sites to be used as a location to provide information subject to final USFS approval. (A-35, A-36, A-41)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

85. DESCRIPTION: Access to existing causeway at Canton

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

KENLAKE STATE RESORT PARK

86. DESCRIPTION: Efforts will be made during final design to avoid the placement of piers or fill in the lagoon on the north side of US 68/KY 80. The KYTC will continue to coordinate with the Department of Parks through the project design on the issue of minimizing the use of the lagoon. During final design, the KYTC will investigate the possibility of additional landscaping (trees) on the north side of US 68/KY 80 to help screen the easternmost campsites in the Kenlake Campground from visual effects of the new roadway and bridge. (5-10)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction contract

87. DESCRIPTION: During the design process, the KYTC will investigate the feasibility of including in the design certain recreation-related elements for the portions of the park that are adjacent to US 68/KY 80. Part of this plan includes trail linkage from the park grounds to the new bridge. (5-10)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Included in Phase II Design – See Plans

LAND BETWEEN THE LAKES

88. DESCRIPTION: The loss of facilities at Fenton Lake Access Area will be mitigated: The loss of the swim beach north of US 68/KY 80 will be mitigated by the creation of a new beach on Lake Barkley. The KYTC will provide the funding and the USFS will construct it. (5-11)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

89. DESCRIPTION: The cement block toilet building will be replaced by the KYTC with a similar construction type. (5-11)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

90. DESCRIPTION: The loss of the western access at Fenton will be mitigated by construction of an internal road system in Fenton as part of the roadway construction contract.

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Not applicable to this construction project

91. DESCRIPTION: At Devil's Elbow Lake Access Area the KYTC will fund the replacement of the fishing pier and boat launch area, 11 primitive campsites, cement block toilet building (with a similar construction type) and portal sign and informational sign. The USFS will be responsible for designing and installing the replacement facilities. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

92. DESCRIPTION: At Golden Pond Picnic Site, the final design plans will include access to the site. The KYTC will fund and install the access. The existing picnic tables, barbeque grills, two sets of hitching posts/steps, parking area, Kentucky historical marker, and portal sign will be relocated within the picnic area. In addition, a time capsule buried at the site by former residents will be located and moved if necessary. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

93. DESCRIPTION: The southwestern embankment of the Lake Barkley Bridge will be modified to improve fishing opportunities on Lake Barkley. Access between the Energy Lake parking lot on the north side of US 68/KY 80 and the causeway on the south side will be provided as part of the construction contract. The access under the new bridge will be provided via a tunnel or walkway, which will be investigated and determined during final design. (5-12)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

94. DESCRIPTION: Mature trees will be installed in Fenton to replace the vegetated screen along the south side of US68/KY 80. The final landscape plan will include the replacement trees. (5-11)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

95. DESCRIPTION: KYTC shall fulfill the following mitigation requirements through the use of direct compensation to the USFS. Upon payment of said compensation by KYTC, USFS shall assume full responsibility. These are: Replace Vault Toilet Building at Fenton Boat Ramp (3-65)*; Interpretative Area: Old City of Fenton TBD (in-lieu of Beach Replacement (5-11)*; Bulletin Board at Fenton; Pay Station at Fenton; Replace Vault Toilet and Portal and Information signs at Devil's Elbow Area (3-67)*; Gate at Turkey Bay; Golden Pond Interpretative site at Golden Pond (3-66)*; Equestrian Trail Relocation Golden Pond\Wrangler Campground; and Informational Signs at New Turnouts (3-69)*

    - SOURCE: FONSI – US68/KY80 Item No. 1-180.00
    - DATE: September 2006
    - RESOLUTION: Not applicable to this construction project

UTILITIES

96. DESCRIPTION: The KYTC will continue to work with the USFS and the utility companies to accommodate the installation of underground utilities where possible. Where existing overhead electric lines will be disturbed by the construction or the project, KYTC will locate the replacement lines underground. Telephone lines and cables between Kentucky Lake and Lake Barkley will be buried except where geological conditions would prevent boring (such as under some streams and in areas of bedrock).(5-12)*

- Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00
- Ø DATE: September 2006
- Ø RESOLUTION: Included in Phase II Design – See Plans

97. DESCRIPTION: Upon review of roadway, plans essentially all AT&T facilities currently installed approximately parallel and adjacent to the LBL US 68|KY 80 project corridor have been deemed impacted by the roadway project and will be placed underground. Some temporary overhead work in the area of intersection with the Trace will be necessary in order for work to begin on Buildable Unit One (The Trace Grade Separated Intersection) in a timely fashion. These costs will be borne by KYTC.

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - Ø DATE: September 2006
    - Ø RESOLUTION: Not applicable to this construction project

98. DESCRIPTION: Pennyrile Rural Electrical facilities installed approximately parallel and adjacent to the US 68| KY 80 project corridor, beginning near the Kentucky Lake|Fenton Campground (exact location not yet finalized) will be installed underground to Bacon Creek Road. This includes overhead facilities in the Trace Grade Separated Intersection area to a point along the Trace beyond the disturbance limits of the project. The exact limits of work along the Trace area approximately 1000 feet north of the existing bridge. No temporary relocation work is needed to begin construction on Buildable Unit One. From Bacon Creek Road to the Energy Lake Campground area, these facilities would remain overhead (with minor adjustments to allow work on the current roadway project) until they can be addressed as part of the Lake Barkley Bridge replacement. As part of the Bridge Project, the electrical facilities to provide power for the Energy Lake Campground area will be installed on the new bridge from the Cadiz side of Lake Barkley. At that point, the overhead electrical facilities from Bacon Creek Road to the Energy Lake Campground area will be removed. KYTC responsible for cost.

    - Ø SOURCE: FONSI – US68/KY80 Item No. 1-180.00 + KYTC Letter to USFS on 10-15-2007
    - Ø DATE: September 2006
    - Ø RESOLUTION: Not applicable to this construction project

ADDITIONAL ENVIRONMENTAL COMMITMENTS (post FONSI)

FLOODPLAINS

99. DESCRIPTION: If causeways are used, opportunities to create additional storage volume areas in Kentucky Lake and Lake Barkley by creating wetlands and/or ponds will be considered to compensate for flooding and power capacity losses, as necessary.

    - Ø SOURCE: Various agency meetings
    - Ø DATE:
    - Ø RESOLUTION: See TVA and USCE permits

RECREATION

100. DESCRIPTION: It is expected that improvements to the causeway west of Lake Barkley will take place. TVA, Kentucky Department of Fish and Wildlife Resources, and US Forest Service would like for the causeways to stay in place for recreational opportunities.

    - Ø SOURCE: Various agency meetings
    - Ø DATE:
    - Ø RESOLUTION: Not applicable to this construction project

101. DESCRIPTION: Coordinate with USFS regarding special-events schedule.

    - Ø SOURCE: Various meetings with the USFS
    - Ø DATE:

- Ø RESOLUTION: Special Note added to Roadway Plans

102. DESCRIPTION: Kentucky Department of Fish and Wildlife Resources would like to assist in finding an appropriate place for a pro-size boat ramp. Preliminary preference is at Fenton.

- Ø SOURCE: Various meetings with the KDFW
- Ø DATE:
- Ø RESOLUTION: Not applicable to this construction project

VEGETATION

103. DESCRIPTION: Landscape all four highway approaches.

- Ø SOURCE: Various agency meetings
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

GENERAL

104. DESCRIPTION: Provide 'Helper Boat" to assist barges navigating thru the construction zone at the bridge site on Kentucky Lake.

- Ø SOURCE: Various meetings with the USCG
- Ø DATE:
- Ø RESOLUTION: See notes in Bridge Plans and USCG Permit

105. DESCRIPTION: Provide access to and from the Shared Use Path and KenLake State Resort Park

- Ø SOURCE: Various meetings with KenLake SRP resident manager
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

106. DESCRIPTION: Provide additional parking for visitors to the area wishing to access the Shared Use Path near the KenLake SRP campground.

- Ø SOURCE: Various meetings with KenLake SRP resident manager
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

107. DESCRIPTION: Provide additional bridge under-clearance for occasional sailboats with extra tall masts.

- Ø SOURCE: Various early public involvement meetings
- Ø DATE:
- Ø RESOLUTION: Included in Phase I and Phase II Design – See Plans

108. DESCRIPTION: Provide utility ducts on the new lake crossing bridge

- Ø SOURCE: Various meetings with utility companys by KYTC D-1 personnel.
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

109. DESCRIPTION: Reuse construction entrances created by Advanced Contract contractor.

- Ø SOURCE: Various meetings with KYTC D-1 construction personnel
- Ø DATE:
- Ø RESOLUTION: Included in Phase II Design – See Plans

110. DESCRIPTION: Provide “on-site” field office during the klife of the construction project for use by KYTC construction inspection personnel .

- SOURCE: Various meetings with KYTC D-1 construction personnel
- DATE:
- RESOLUTION: Special Note added to Roadway Plans

111. DESCRIPTION: Provide “on-site” power boat during the life of the construction project for use by KYTC construction inspection personnel.

- SOURCE: Various meetings with KYTC D-1 construction personnel
- DATE:
- RESOLUTION: Special Note added to Bridge Plans

U.S. Department of Homeland Security
United States Coast Guard

BRIDGE PERMIT

2 8 OCT 2013

(11-13-8)

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946," as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - **COMMONWEALTH OF KENTUCKY** - has submitted for approval the location and plans of a bridge to be constructed across the Tennessee River (Kentucky Lake) between Aurora and The Land Between The Lakes, Kentucky;

NOW THEREFORE, This is to certify that the location and plans dated 2 July 2013 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. The construction of falsework, pilings, cofferdams or other obstructions, if required, and the scheme for constructing the bridge shall be in accordance with plans submitted to and approved by the Commander, Eighth Coast Guard District, prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridge has been opened to traffic.

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridge when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

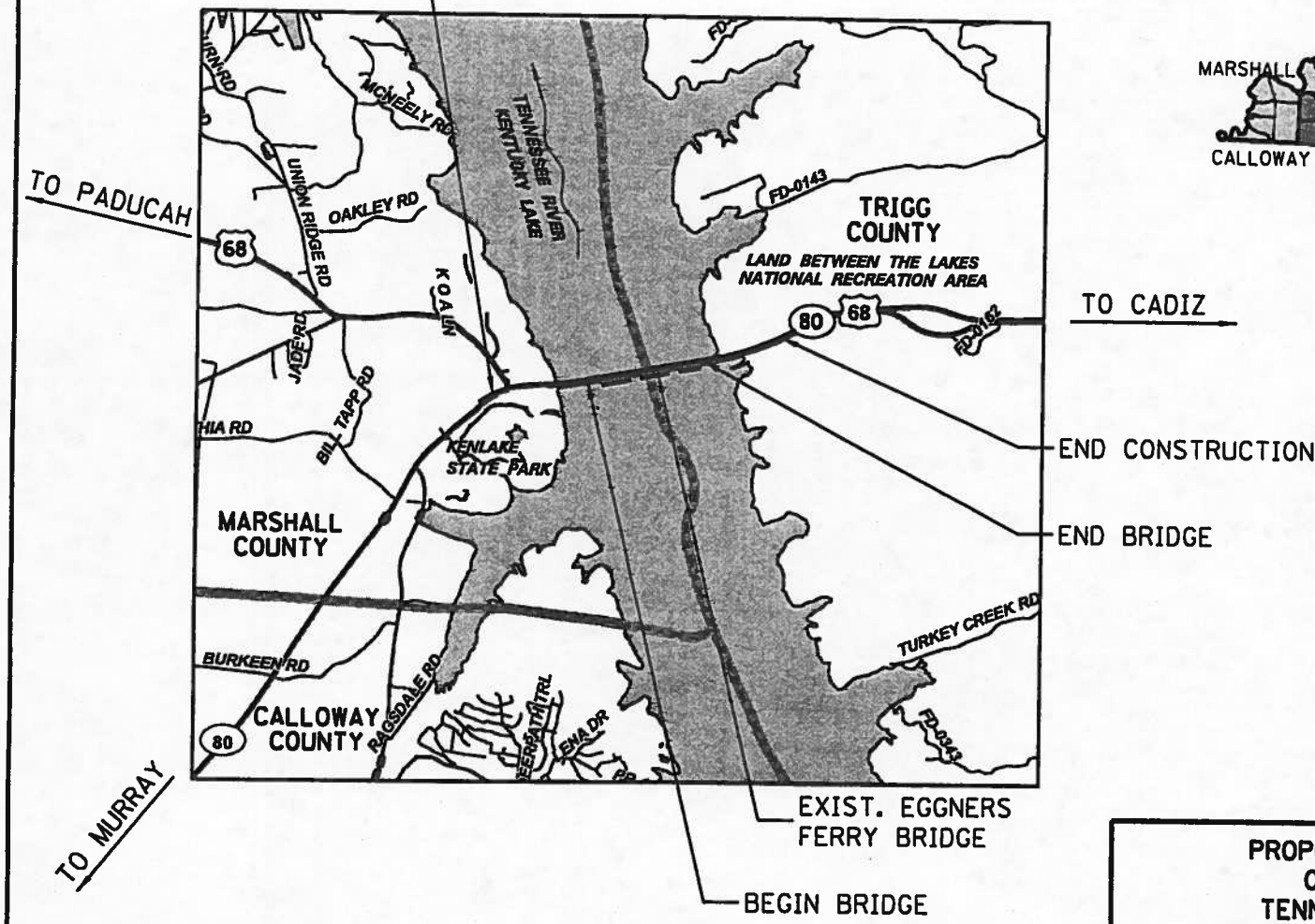
5. Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridge when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

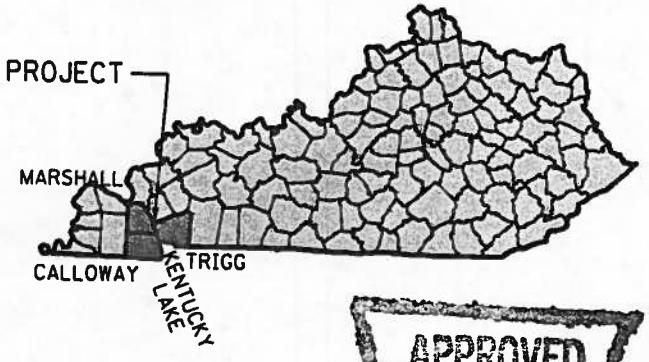
6. All parts of the existing to-be-replaced Eggners Ferry Bridge across the Tennessee River, mile 41.7, not utilized in the new bridge shall be removed down to or below the mud line or natural ground line except for the existing piers 2, 3, 4, 5 and 6 which shall be removed down to or below elevation 330.0 feet, Mean Sea Level. The waterway shall be cleared to the satisfaction of the District Commander. A period of 90 days subsequent to the opening to traffic of the new bridge, mile 41.7, will be allowed for such removal and clearance.

7. When the proposed bridge is no longer used for transportation purposes, it shall be removed in its entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridge upon due notice from the District Commander.

8. The approval hereby granted shall cease and be null and void unless construction of the bridge is commenced within five years and completed within eight years after the date of this permit.

Brian L. Dunn
Chief, Office of Bridge Programs
U.S. Coast Guard
By direction of the Commandant





APPROVED
P(11-13-8)
28 OCT 2013
U.S. COAST GUARD

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Miles

VICINITY MAP

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

STATE OF KENTUCKY
GREGORY DUNCAN STILES
32156
LICENSED PROFESSIONAL ENGINEER

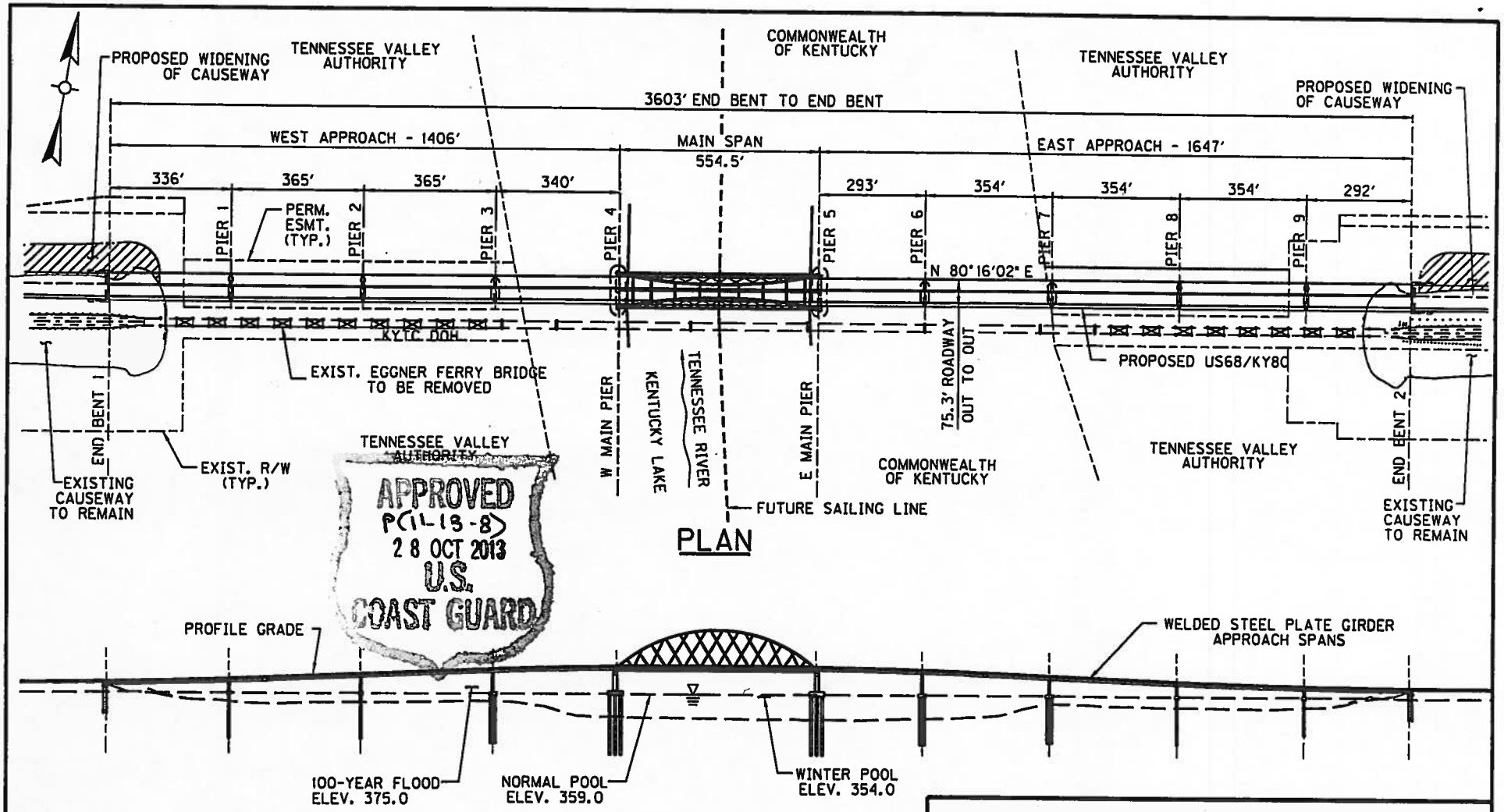
Baker
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD, SUITE 210
LOUISVILLE, KY 40223

PROPOSED US68/KY80 BRIDGE
OVER KENTUCKY LAKE
TENNESSEE RIVER MILE 41.7
MARSHALL AND TRIGG COUNTIES
BETWEEN AURORA, KY AND
THE LAND BETWEEN THE LAKES

APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013 | SHEET 1 OF 3



APPROVED
P(IL-13-8)
28 OCT 2013
U.S.
COAST GUARD

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

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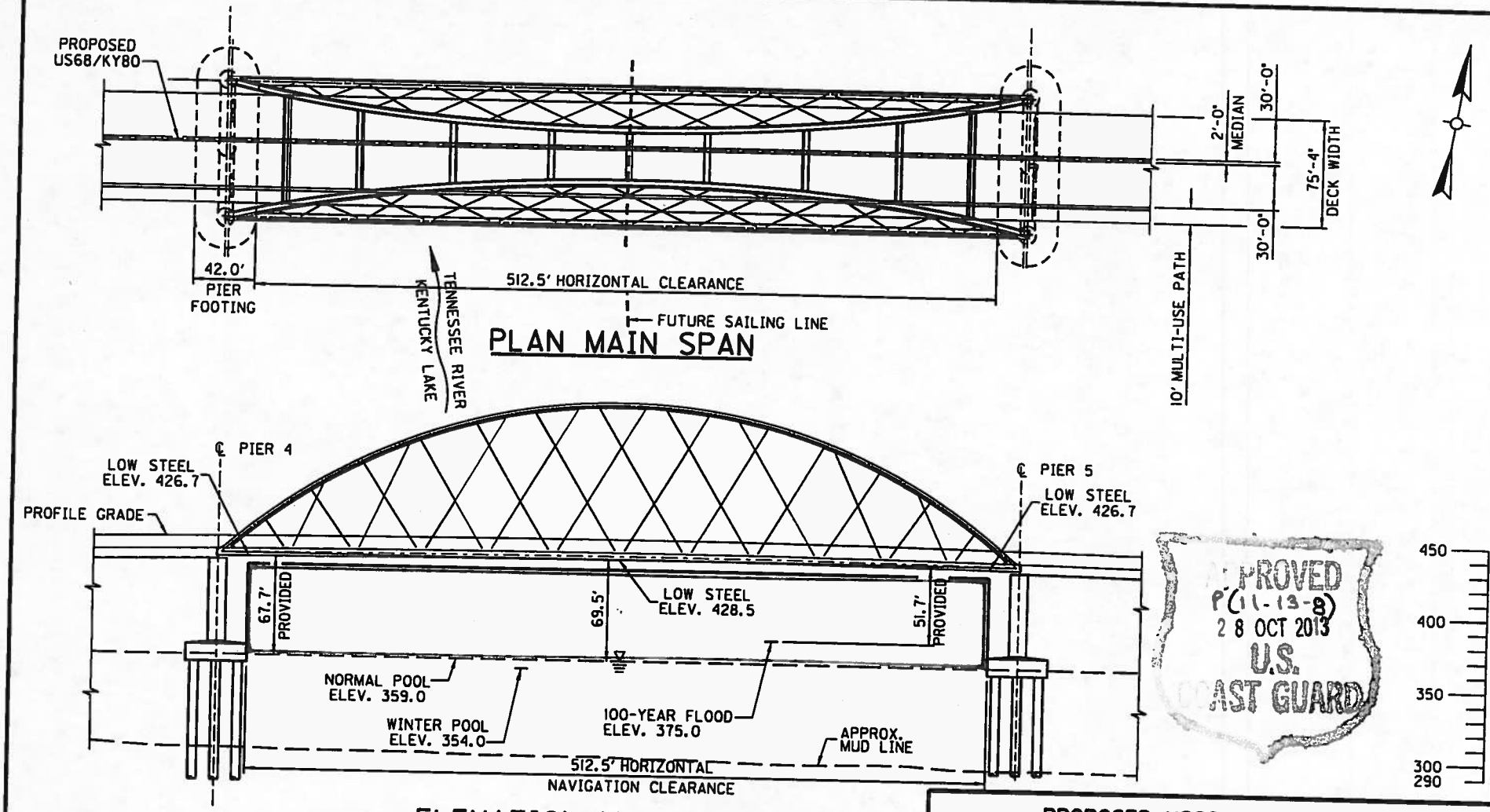
PROPOSED US68/KY80 BRIDGE OVER KENTUCKY LAKE TENNESSEE RIVER MILE 41.7 MARSHALL AND TRIGG COUNTIES BETWEEN AURORA, KY AND THE LAND BETWEEN THE LAKES

APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013 | SHEET 2 OF 3



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P(11-13-8)
28 OCT 2013
U.S.
COAST GUARD

ELEVATIONS SHOWN ON THESE DRAWINGS ARE REFERENCED TO 1929 NGVD.

0' 100' 200' 400'

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

STATE OF KENTUCKY
GREGORY DUNCAN STILES
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LICENSED PROFESSIONAL ENGINEER

Baker

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PROPOSED US68/KY80 BRIDGE OVER KENTUCKY LAKE TENNESSEE RIVER MILE 41.7 MARSHALL AND TRIGG COUNTIES BETWEEN AURORA, KY AND THE LAND BETWEEN THE LAKES

APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013

SHEET 3 OF 3

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Blake Beyer

CC: Tim Foreman

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 11/12/2013

Re: Asbestos Inspection Report for Marshall 1-180.70

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # Marshall 1-180.70

Bridge # B00023N

Description: The concrete and joint compound samples collected were negative for asbestos. No abatement necessary.

Inspection Date: November 7th, 2013

Results

The results revealed that there is no ACM abatement required at this time.

Kentucky
UNBRIDLED SPIRIT
An Equal Opportunity Employer M/F/D

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 211211115
Client Name: KY Transportation Cabinet
Sampled By: O'Dail Lawson

Address: Marshall / 1 - 180 - 70
079 B 00023 N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M1	Gray	Yes	No				None				100%
M2	Gray	Yes	No				None				100%
M3	Black	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 11-Nov-13
Analyst : Winterford Mensah

Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459

AJHA #1 02459

KENTUCKY TRANSPORTATION CABINET

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov
KYTC
Address: 200 Mero Street
Frankfort KY
Phone: 502-782-5020 Fax: 502-564-5655
PO#:

Client Information KY TRANSPORTATION CABINET
Results Code:
ND = None Detected
FTD = Filter Tampering or Damaged
N/A = Not Applicable

079 B 00023 N

Samplers (signature): O'Dail Lawson

Project or Subject Reference Marshall 1-180-70

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Grab/ Comp.	No. of Cont.	Cont. Type	Preservative
M1	Curb Concrete	11-7-13	8:25	middle South side of structure	Concrete			N/A
M2	Pier Concrete	↓	↓	↓	Concrete			
M3	Joint Seal	↓	↓	↓	Rubber			

Relinquished By: Date/Time:

Received By: Winfield Mercer Date/Time: 11/07/13 10:00AM

Relinquished By: Date/Time:

Received at Lab By: Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

Special Note for Bridge Demolition, Renovation and Asbestos Abatement

If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 days prior to commencement of any bridge demolition or renovation work.

Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor's notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.

Right-of-Way Certification Form

Revised 2/22/11

☑ Federal Funded ☑ Original

☐ State Funded ☐ 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: October 8, 2013

Project Name: Bridge Over Kentucky Lake

Letting Date: December 13, 2013

Project #:

County: Marshall/Trigg

Item #: 01-180.70

Federal #:

Description of Project: Cadiz-Aurora Bridge Over Kentucky Lake.

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 _____ 10/8/13 _____ Right-of-Way Supervisor
Printed Name Signature

Approved: DAVID L. ORR _____ 10/10/13 _____ KYTC, Director of ROW &Utilities
Printed Name Signature

Approved: _____ _____ FHWA, ROW Officer (when applicable)
Printed Name Signature

No Signature Required
as per FHWA - KYTC
2013 Stewardship Agreement

Right-of-Way Certification Form

Revised 2/22/11

Date: October 8, 2013

Project Name: Bridge Over Kentucky Lake
Project #:
Item #: 01-180.70
Letting Date: December 13, 2013

County: Marshall/Trigg
Federal #:

This project has 1 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.

1 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 ITEM 1-180.70
Kentucky Lake Bridge

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 along the south side of the existing causeway and crossing to the north side of the right of way 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

WEST KENTUCKY RURAL ELECTRIC has underground power running down the south side of the west causeway to the existing bridge. This power supply is to remain in place until a time that the structure is removed.

West Kentucky Rural Electric
1218 West Broadway

Mayfield, KY 42066-0032

Ricky Brinkley

(270) 247-1321 ext. 6944

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80 ITEM 1-180.70
Kentucky Lake Bridge

PENNYRILE RURAL ELECTRIC has underground power running down the south side of the east causeway to the existing bridge. This power supply will be relocated to the north side of the existing causeway to supply the new structure with power.

Pennyrile Rural Electric
2000 Harrison Street

P.O. Box 2900

Hopkinsville, KY 42241-2900

John Wheeler

(270) 886-2555

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

PENNYRILE RURAL ELECTRIC has underground power running down the south side of the east causeway to the existing bridge. This power supply will be relocated to the north side of the existing causeway to supply the new structure with power.

Pennyrile Rural Electric
2000 Harrison Street

P.O. Box 2900

Hopkinsville, KY 42241-2900

John Wheeler

(270) 886-2555

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80 ITEM 1-180.70
Kentucky Lake Bridge

WEST KENTUCKY RURAL ELECTRIC has underground power running down the south side of the west causeway to the existing bridge. This power supply is to remain in place until a time that the structure is removed.

West Kentucky Rural Electric
1218 West Broadway

Mayfield, KY 42066-0032

Ricky Brinkley

(270) 247-1321 ext. 6944

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 ITEM 1-180.70
Kentucky Lake Bridge

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

SPECIAL NOTES FOR UTILITY CLEARANCE

IMPACT ON CONSTRUCTION

MARSHALL / TRIGG COUNTY, BRO 0801 (093)
RECONSTRUCT US 68 / KY 80 ITEM 1-180.70
Kentucky Lake Bridge

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.

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

N O T I C E

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS & TENNESSEE VALLEY AUTHORITY & DIVISION OF WATER
(PERMIT AUTHORIZATIONS)

PROJECT: Marshall & Trigg County, Item No. 1-180.70 & .75
Bridge Replacement (US 68)

The Section 404 activities for this project have been previously permitted under the authority of the Department of the Army Individual Permit, Tennessee Valley Authority 26a permit & Division of Water Section 401 Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of this Individual Permit, TVA 26a permit and Water Quality Certification in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Corps of Engineers. A copy of any request to the Corps of Engineers to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
3701 BELL ROAD
NASHVILLE, TENNESSEE 37214

REPLY TO
ATTENTION OF:

January 15, 2013

Regulatory Branch

SUBJECT: Reference No. LRN-2011-00594; Proposed Discharge of Fill Material Associated with Kentucky Lake Bridge Construction adjacent to Eggner Ferry Bridge, on US 68/Kentucky 80, Tennessee River Mile 41.7, Kentucky Lake, Marshall and Trigg Counties, Kentucky

Mr. Roy Collins
Permit Coordinator
Kentucky Transportation Cabinet, 5th Floor DEA
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Collins:

Enclosed is the signed Department of the Army Permit. The permit authorizes the discharge of fill material associated with the construction of the Kentucky Lake Bridge adjacent to Eggner Ferry Bridge at Tennessee River Mile 41.7. The time limit for completing this work ends on January 14, 2018.

If changes in the location or plans of the work are necessary, revised plans should be submitted promptly to this office. You shall not deviate from the approved plans without first obtaining approval from this office. If you have any questions regarding this matter, please contact Amy Robinson at the above address, or telephone (615)369-7509

Sincerely,

Timothy A. Higgs
Acting Chief, Eastern Regulatory Section
Operations Division

Enclosure

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE: Kentucky Transportation Cabinet

PERMIT NUMBER: 2011-00594

ISSUING OFFICE: Nashville District Corps of Engineers

NOTE: The term you and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

PROJECT DESCRIPTION:

Proposed Kentucky Lake Bridge Construction
SEE CONTINUATION SHEET 1 FOR PROJECT DESCRIPTION

PROJECT LOCATION: New Bridge adjacent to existing Eggner Ferry Bridge, on US Highway 68/ Kentucky Highway 80, Tennessee River Mile 41.7, Kentucky Lake, Marshall and Trigg Counties, Kentucky (Fairdealing and Fenton Quads; lat 36-46-21.29; lon -88-07-14.96)

PERMIT CONDITIONS:

GENERAL CONDITIONS:

1. The time limit for completing the work authorized ends on 14 January, 2018. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you must make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity, or should you desire to abandon it without a good faith transfer, you may obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

(33 CFR 325 (Appendix A))

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: (SEE CONTINUTION SHEET 2, SPECIAL CONDITIONS)

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act 0f 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344)

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as this specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

David M. Walden — 1/7/13

(PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

James A. DeLapp, LTC Corps of Engineers — 1/14/13

(DISTRICT COMMANDER) (DATE)

By: Jim Higgs
for Bradley N. Bishop
Chief, Western Regulatory Section

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)

CONTINUATION SHEET 1
PROJECT DESCRIPTION

The proposed work consists of the discharge of fill material into waters of the United States associated with the construction of a new bridge for the replacement of the existing Eggner Ferry Bridge. A four-lane, 3,610' long span bridge would be constructed immediately north (downstream) of the existing Eggner Ferry Bridge. The new bridge would consist of a 550' long basket handle tied-arch over the main span navigable channel with approach spans on each side of the main span. Existing causeways extending into Kentucky Lake for the existing Eggner Ferry Bridge would be widened to accommodate the new four lane bridge. The west causeway (left descending bank) of the Tennessee River would involve filling 7.12 surface-acres below the normal summer pool (NSP) Elevation 359.0' of Kentucky Lake. The permanent fill would be placed in an area approximately 1,500' long by 200' wide. The east side (right descending bank) causeway construction would involve fill of 3.29 surface-acres below NSP in an area approximately 950' long by 180' maximum width. The total fill for both proposed causeways would require a total of 10.41 surface-acres of fill below NSP. The causeways would be constructed by installing a geotextile fabric on the lake bottom, filling with crushed rock to top Elevation 363.0' (which would be 4' above NSP), install a geotextile fabric layer on top of the crushed rock, install a silt fence along edge of the rock, and then finish to construction grade with soil, gravel, or crushed rock. Upon construction of the new bridge, the existing Eggner Ferry Bridge would be demolished and removed from the site.

Mitigation has been proposed by KYTC to offset the impacts to fisheries habitat associated with the permanent lake fills for the causeway construction. The mitigation proposal is referred to as the Fish and Aquatic Habitat Mitigation Plan and would involve two components. The first component would be to complete the Patterson Island shoreline restoration project located at Tennessee River Mile 55 to Mile 62, in Calloway County, Kentucky, which was initiated by the Kentucky Department of Fish and Wildlife Resources (KDFWR) and TVA in 1996. Previously, KDFWR identified a need to protect five islands in chain order, known as "Patterson Islands". The proposed mitigation plan would involve completing bank stabilization activities on Islands #2 and #5. Approximately 100' would be stabilized at Island #2 and 1300' at Island #5. The stabilization would consist of large rock placed as a foreshore dike between the islands and the main channel. The KDFWR indicated that the Patterson Islands act as an effective breakwater, protecting several hundred acres of shallow-water habitat behind them from wave action of the main lake. It is expected that without stabilization, the islands could be irretrievably lost by continual erosion. The area behind the islands provides shallow water zones providing a desirable diversity of habitat for fish, benthic macroinvertebrates, waterfowl, wading birds, forage fish, shore birds, amphibians, reptiles, and other wildlife. Additional, KDFWR stated the project would protect existing freshwater mussel habitat, providing long-term protection that would enhance the viability of existing mussel communities. The second component of the Fish and Aquatic Habitat Mitigation Plan would involve fish habitat restoration near the proposed bridge site. Five fish attractor sites

would be placed on the north side of both the west and east causeways constructed for the new bridge. A total of ten proposed attractor sites would cover an area approximately 0.5 surface-acres. Trees and/or other woody material would be placed at each site to provide shelter and cover expected to be utilized by a variety of fish at various life stages. Each attractor/structure site would be placed close enough to the causeway shorelines (extending approximately 10' to 20' lakeward) to provide bank fishing opportunities.

Associated with the proposed arch bridge over the Tennessee River, the proposed work would require construction of a 580' long, 3-span steel bridge over a wetland/lagoon area located on the west side of the proposed west causeway. Construction of the abutment slopes and foundations for this 3-span bridge would involve discharge of fill into two jurisdictional wetland areas (labeled Wetland 1A and 1B) for a total of 0.41 acres of proposed wetland impacts. The applicant proposes to mitigate for the loss of the wetlands, at a 2:1 ratio, by In-Lieu Fee payment of $29,520 to the Kentucky Department of Fish and Wildlife Resources Stream and Wetland Mitigation Fund.

Construction access and staging areas would be set up on the north side of the west and east causeways. Access platforms would be created which allow the contractor to use these areas either for constructing the basket handle arch structure or providing barge access for construction of the approach structures. Temporary fill of two-acres would be required to access docks and platforms on piling or floating barges. Also, pile load testing would be conducted to gather information for use in the final design of the proposed bridge foundations. The load testing activities would be performed between Stations 982+00 to 987+00 near the east end of the proposed west causeway and between Stations 1009+00 to 1009+75, near the east causeway of the existing Eggner Ferry Bridge. After the load testing has been performed, the test and reaction piles would be cut off at lake bottom and removed so as not to create a navigation hazard.

A construction sequence for the proposed work is attached in a summary sheet. The construction of the proposed bridges and causeways would require temporary work areas. Located on the west causeway would be a floating arch construction barge, arch construction staging/work area, a material barge, and a loading dock/platform for water access during construction. Located on the east causeway would be a material loading dock for water access to the barge mounted cranes and floating construction operations. All temporary facilities would be removed from the site upon project completion.

Approximately 6-acres of TVA property are proposed to be placed under a permanent easement for the project. Approximately 11-acres of TVA property are proposed to be placed under a temporary license for construction purposes. Approximately 128 acre-feet of flood control storage loss (between Elevation 354 and 375) are anticipated for the project. TVA would not require mitigation for flood storage loss for this project. Approximately 33.7 acre-feet of fill are proposed in the power storage zone (between Elevations 354-359). Mitigation for power storage loss would be in the form of a one-time payment to TVA based on the acre-feet of fill in the power storage zone.

CONTINUATION SHEET 2
SPECIAL CONDITIONS

Special Conditions:

1. The work must be in accordance with any plans attached to the permit.

2. A copy of the permit must be available on the site and all contractors made aware of its conditions and required to abide by them.

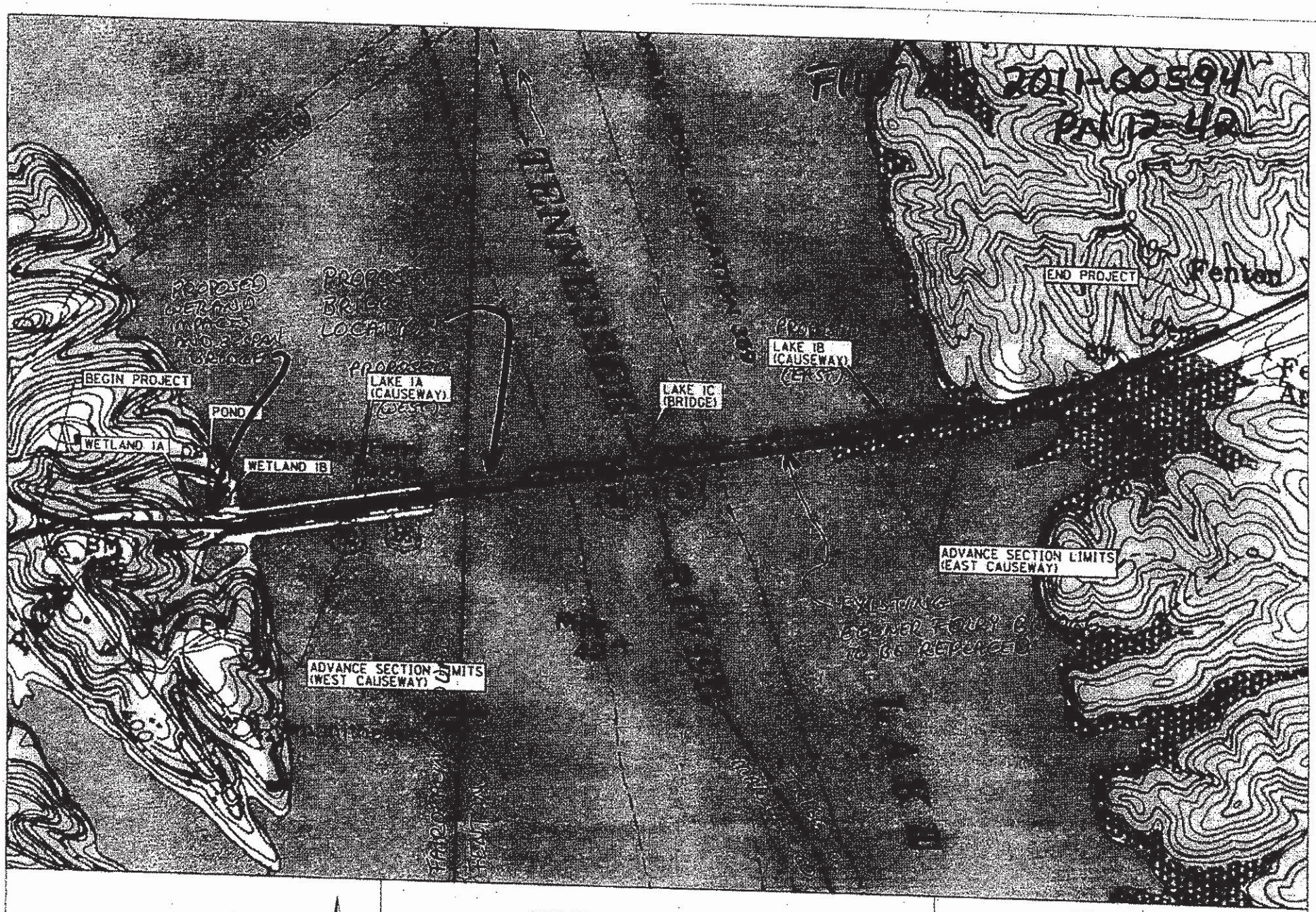
3. All fill activities shall be performed during summer months and/or periods when the wetlands are dry and/or low flow periods.

4. You must mitigate for the permanent impacts to fisheries habitat by performing the attached "Fish and Aquatic Habitat Mitigation Plan", which consists of two components. The first component requires completion of the Patterson Island shoreline restoration project by completing bank stabilization activities on Islands #2 and #5. Approximately 100' would be stabilized at Island #2 and 1300' at Island #5. You must complete the second component of the Fish and Aquatic Habitat Mitigation Plan which involves fish habitat restoration near the proposed bridge site. You shall place five fish attractor sites on the north side of both the west and east causeways constructed for the new bridge. All components of the proposed mitigation plan must be performed within one year from the start of construction of the new bridge.

5. You must mitigate for the 0.41 acres of permanent wetland impacts for the construction of the 3-span bridge by providing In-Lieu Fee payment of $29,520 (2:1 ratio) to the Kentucky Department of Fish and Wildlife Resources Stream and Wetland Mitigation Fund. This payment must be made and verification provided to this office prior to the construction of the bridge project.

6. You must carry out all requirements as specified in the Memorandum of Agreement (MOA) as agreed upon by you, FHWA, and Kentucky Heritage Council, regarding the replacement of the Eggner Ferry Bridge.

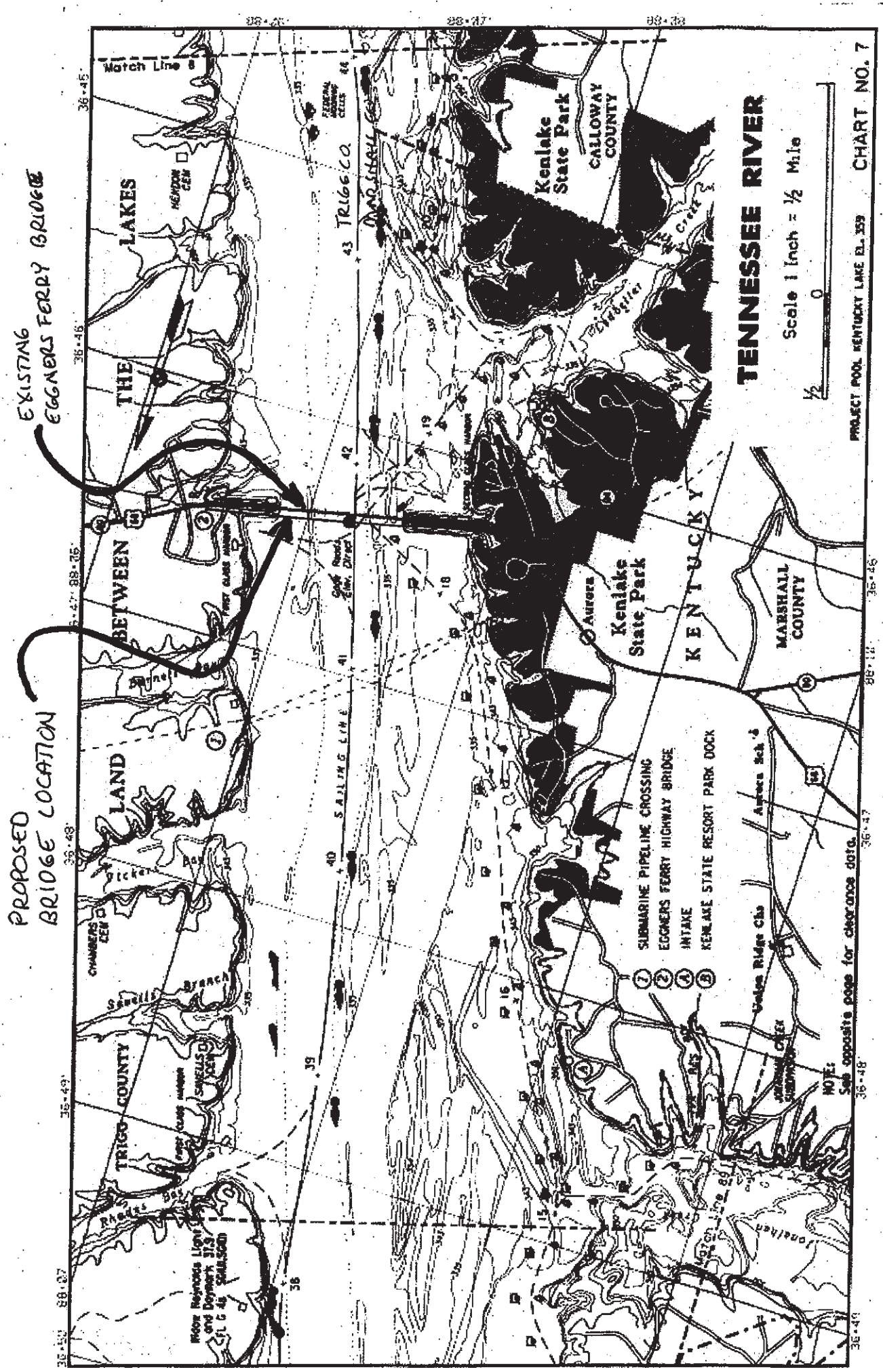
7. The Regulatory Office (Amy Robinson at 615-369-7509) and/or Navigation Office (Ray Bess at 615-736-7799) shall be contacted at least two weeks prior to construction to set up a preconstruction meeting to discuss work sequencing, construction areas, temporary facilities, and navigation traffic.



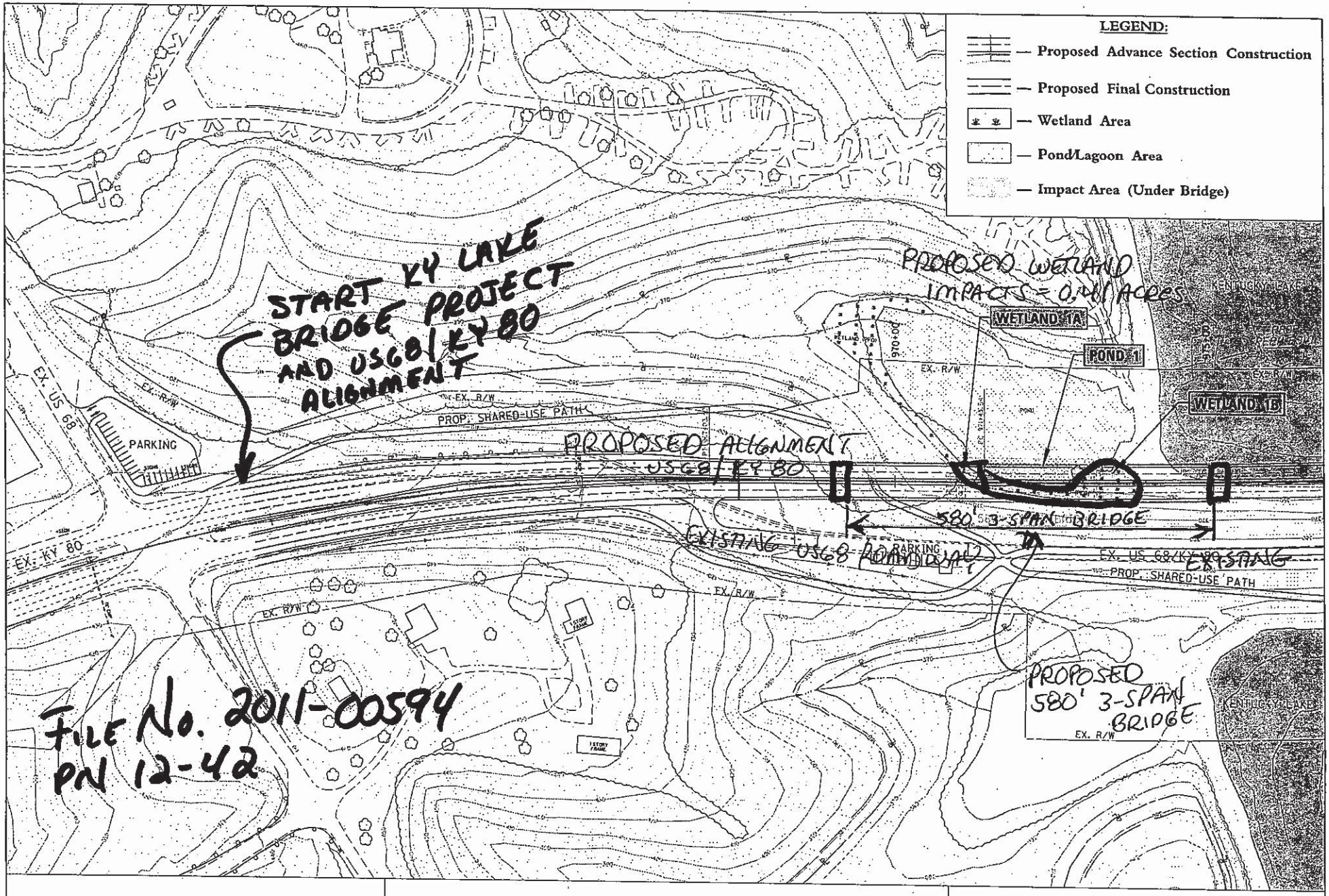
USACE - CWA SECTION 404
USACE - RHA SECTION 10
KDOW - CWA SECTION 401
TVA - TVA ACT SECTION 26A

EXHIBIT 2
IMPACT SITE MAP

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



File No. 2011-00594
PN 12-42

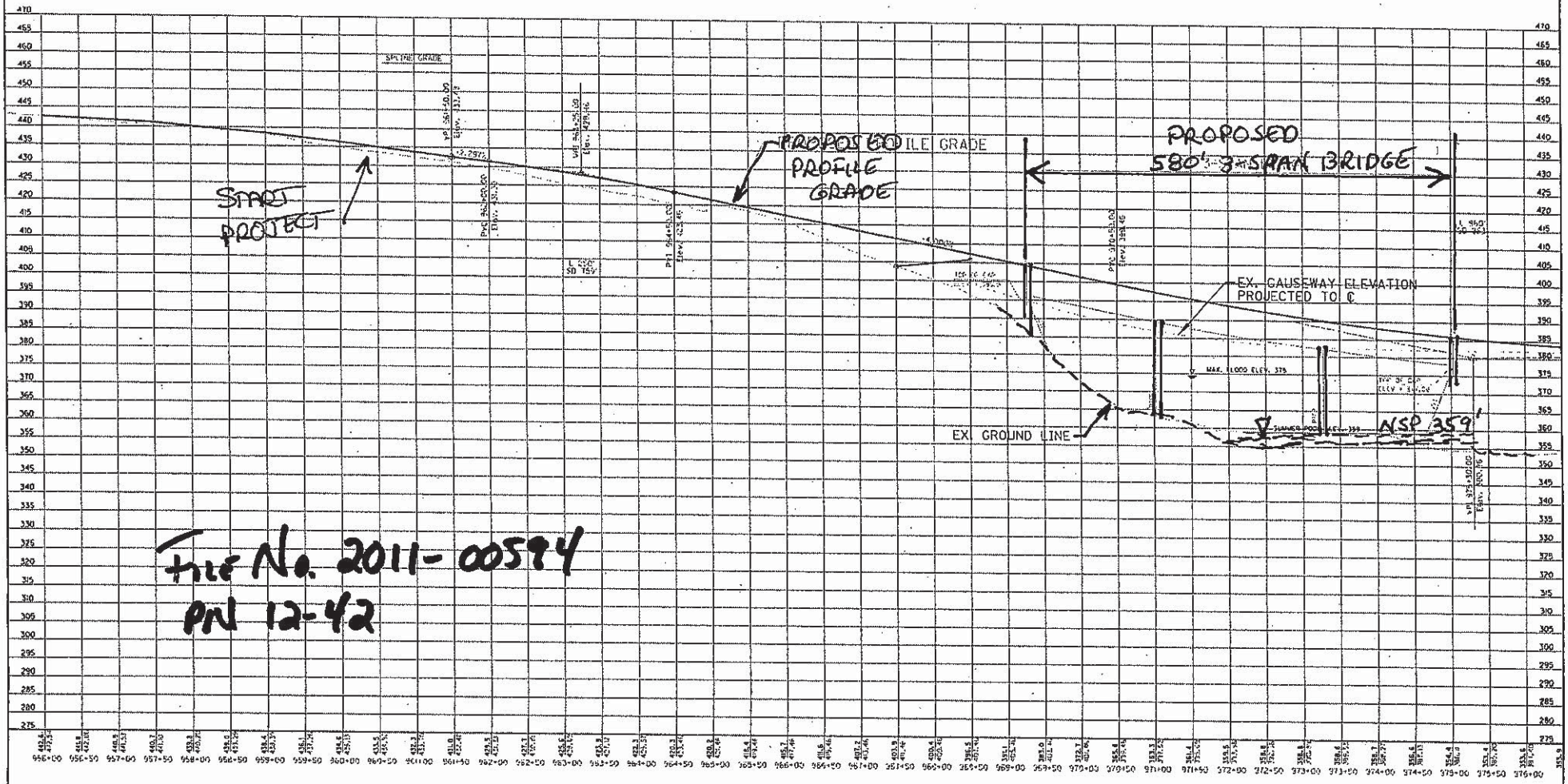


0' 100' 200' 400'

USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 1
PLAN VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY

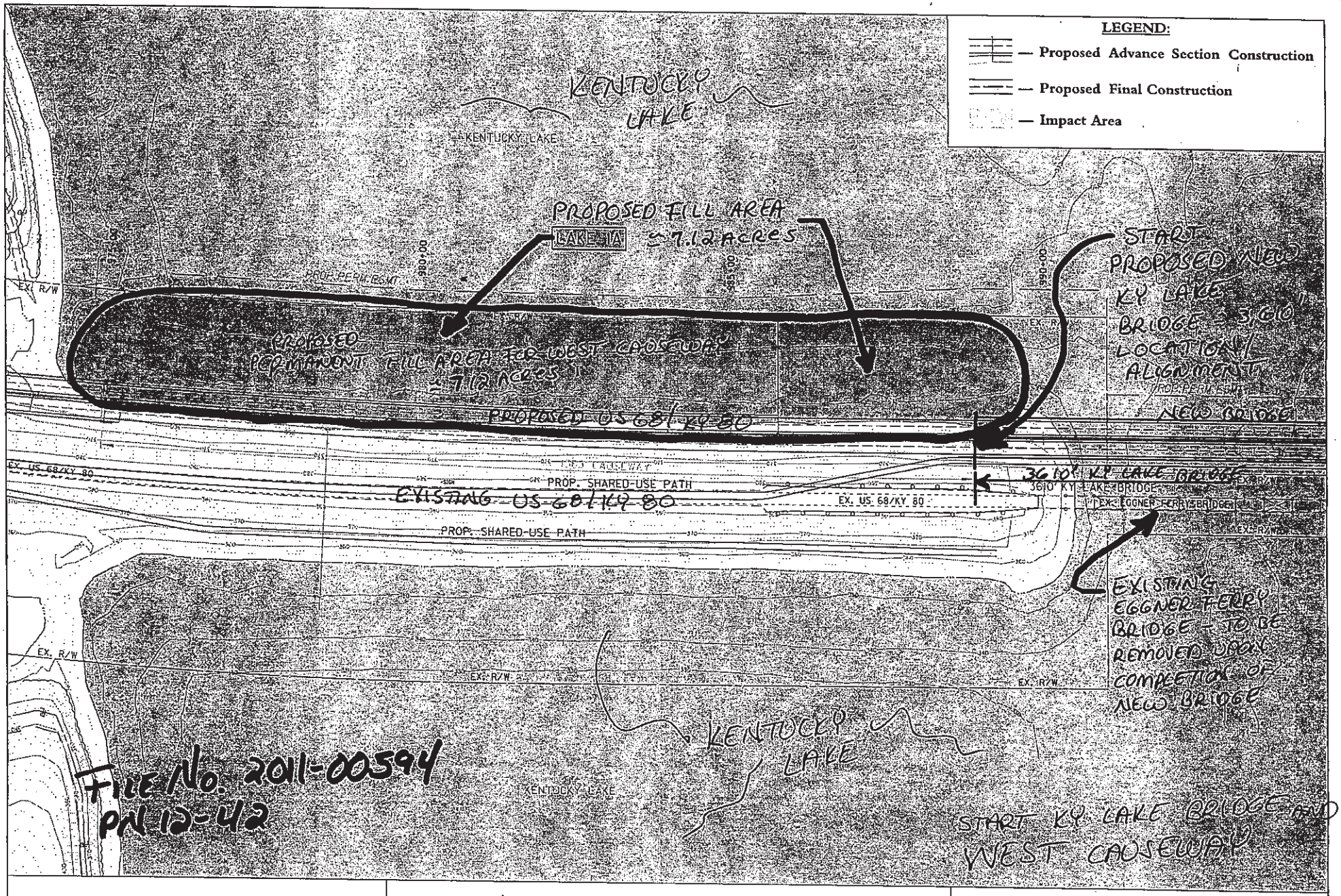


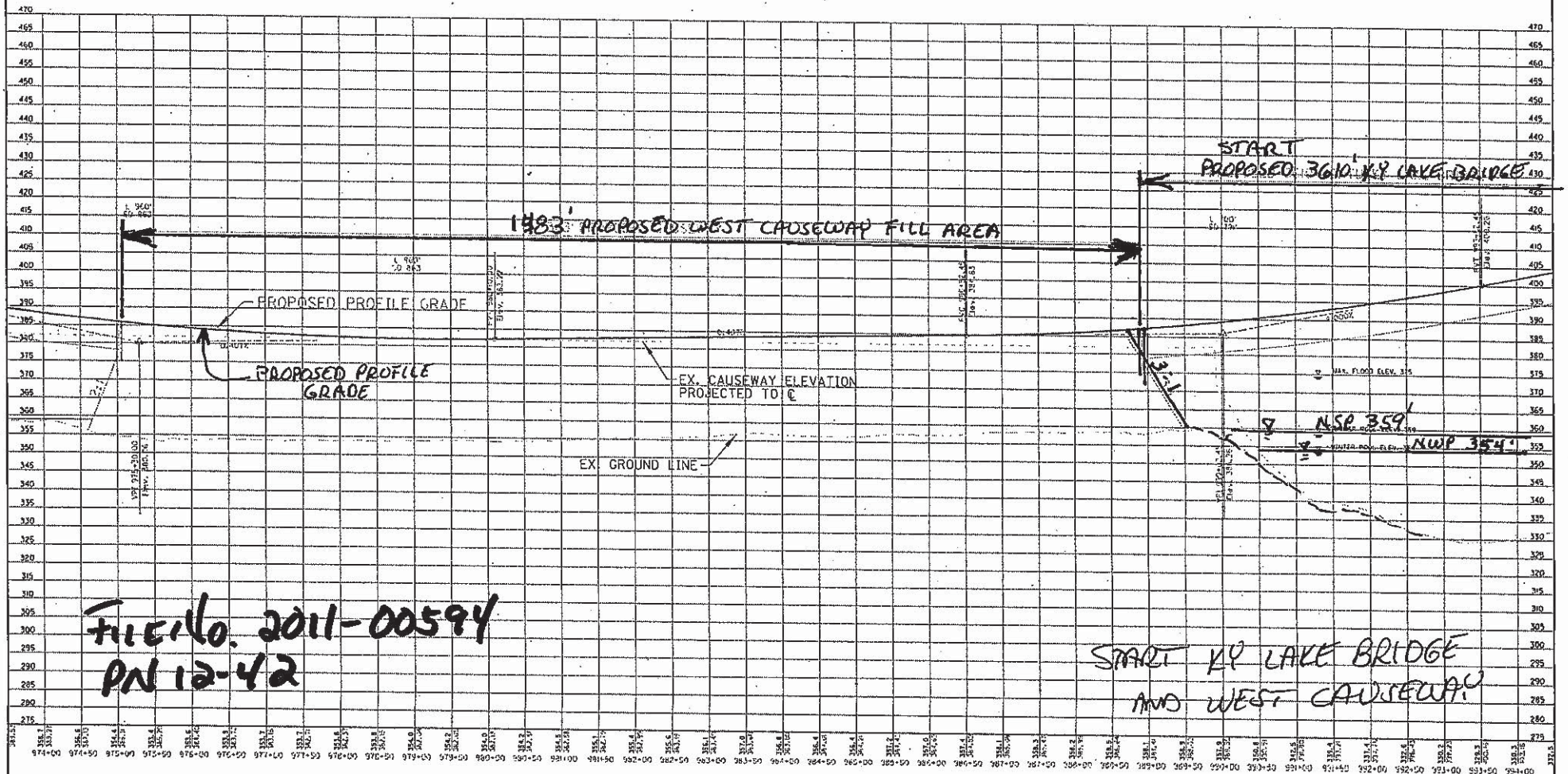
0' 100' 200' 400'

USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 1A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY


LEGEND:
— Proposed Advance Section Construction
— Proposed Final Construction
— Impact Area
KENTUCKY LAKE
KENTUCKY LAKE
PROPOSED FILL AREA
LAKE "A" ≈ 7.12 ACRES
PROPOSED PERMANENT FILL AREA FOR WEST CAUSEWAY ≈ 7.12 ACRES
PROPOSED US 68/KY 80
START PROPOSED NEW KY LAKE BRIDGE - 3,610' LOCATION/ ALIGNMENT
NEW BRIDGE
3610' KY LAKE BRIDGE
EXISTING US 68/KY 80
EX. US 68/KY 80
PROP. SHARED-USE PATH
EXISTING EGGNER FERRY BRIDGE - TO BE REMOVED UPON COMPLETION OF NEW BRIDGE
EX. R/W
KENTUCKY LAKE
START KY LAKE BRIDGE AND WEST CAUSEWAY
FILE No. 2011-00594
PN 12-42
0' 100' 200' 400'
USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A
SHEET 2
PLAN VIEW
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY

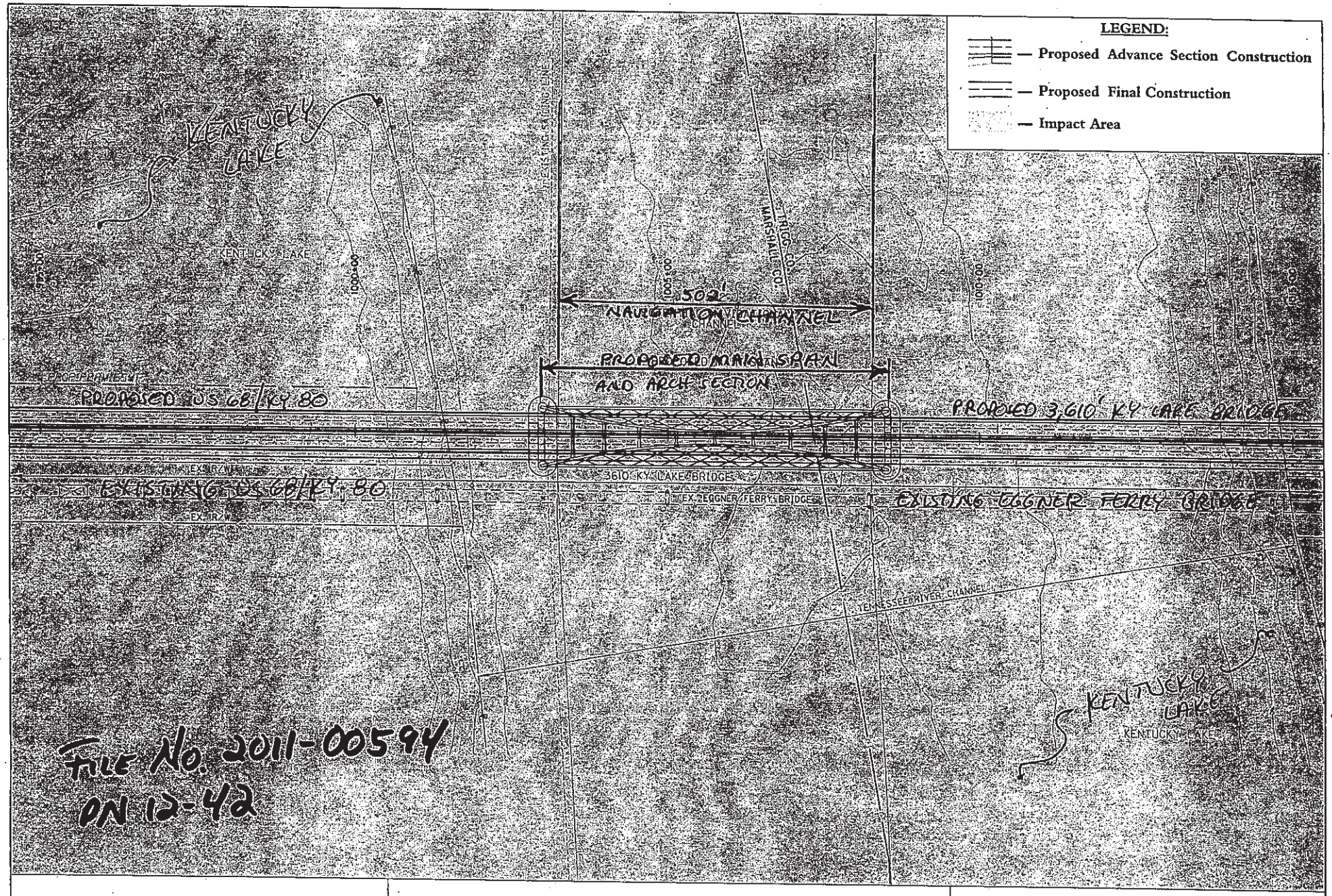


0' 100' 200' 400'

USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 2A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



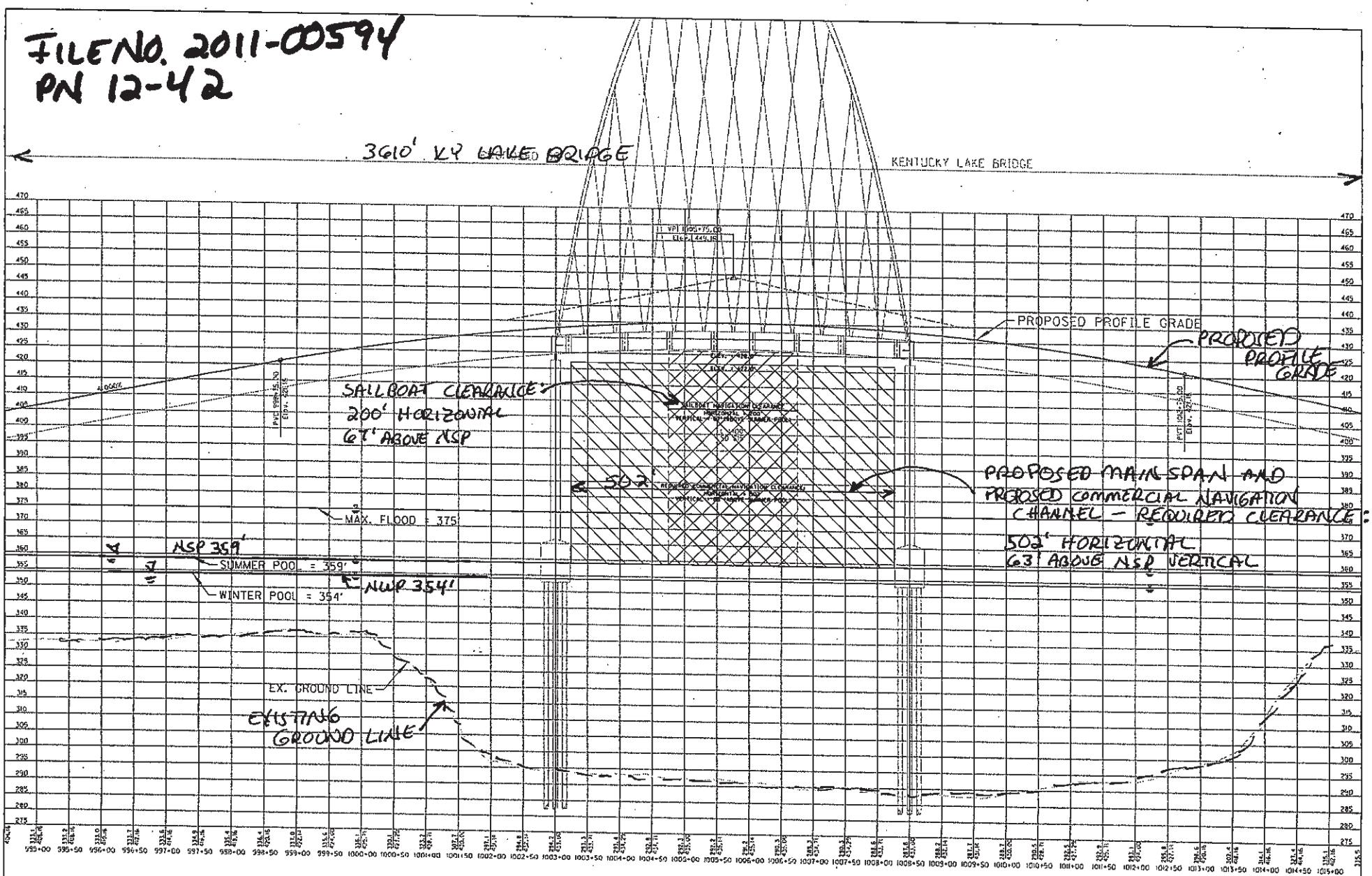
0' 100' 200' 400'

USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 3
PLAN VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY

FILE NO. 2011-00594
PN 12-42

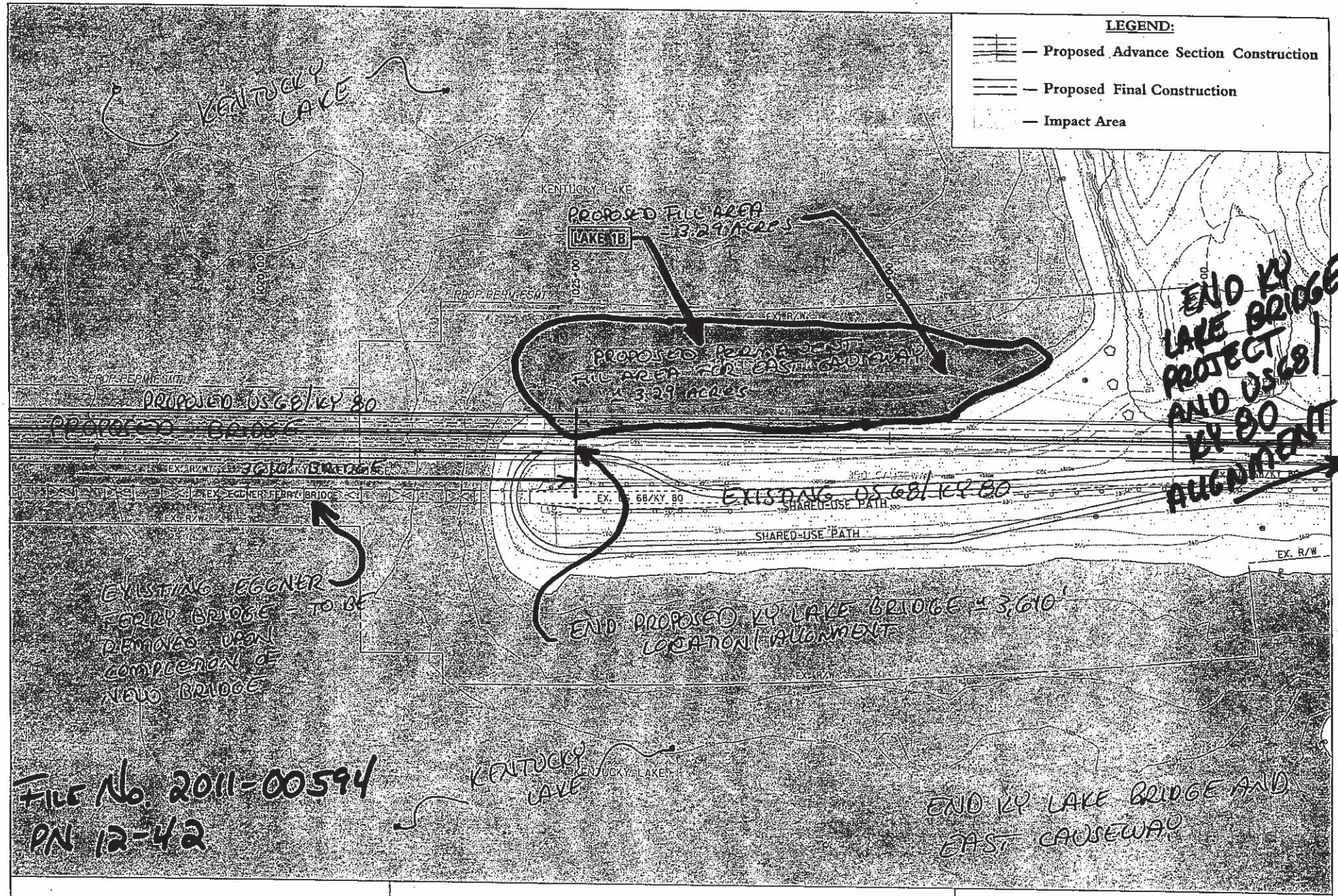


0' 100' 200' 400'

USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 3A
PROFILE VIEW

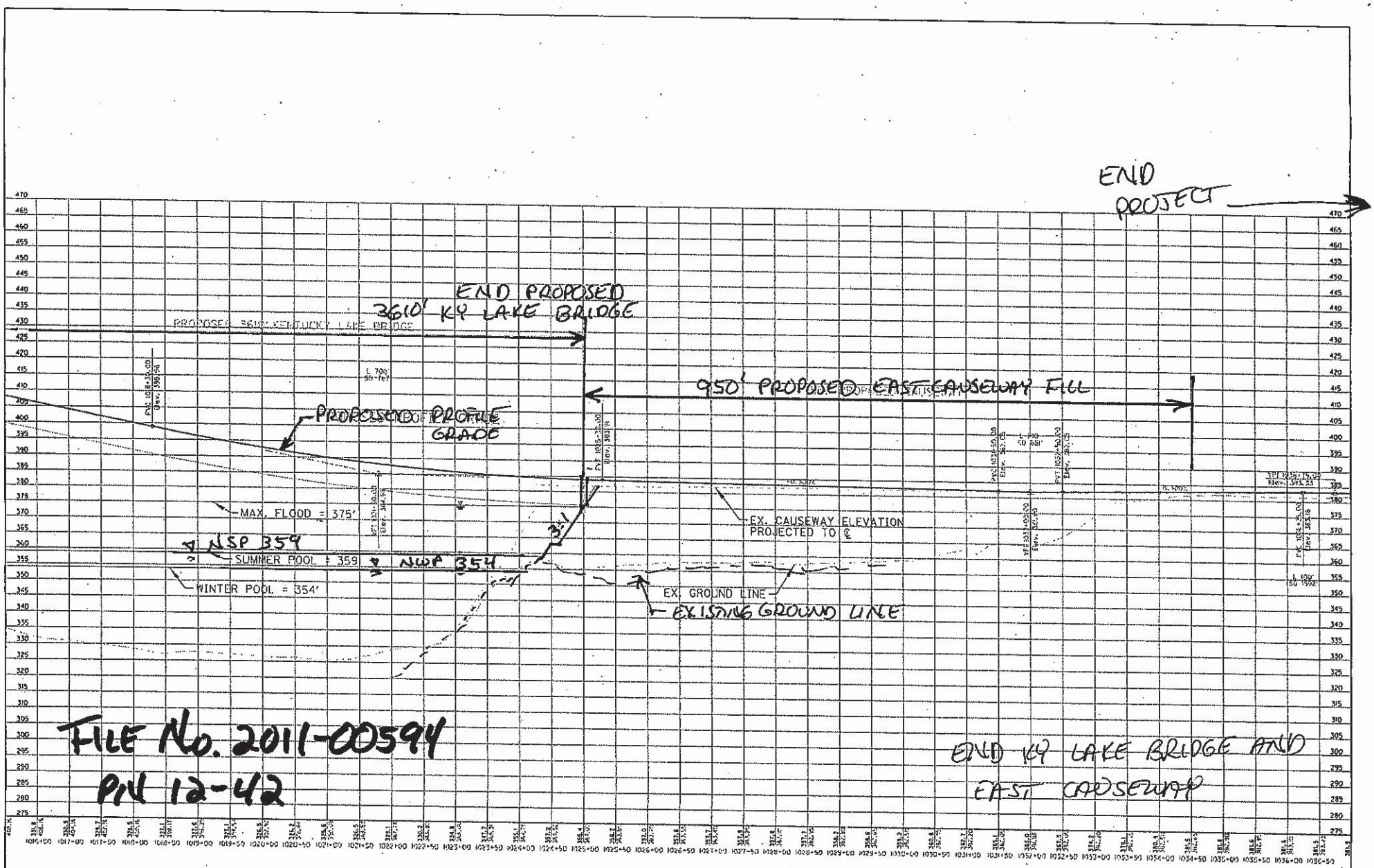
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 4
PLAN VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY

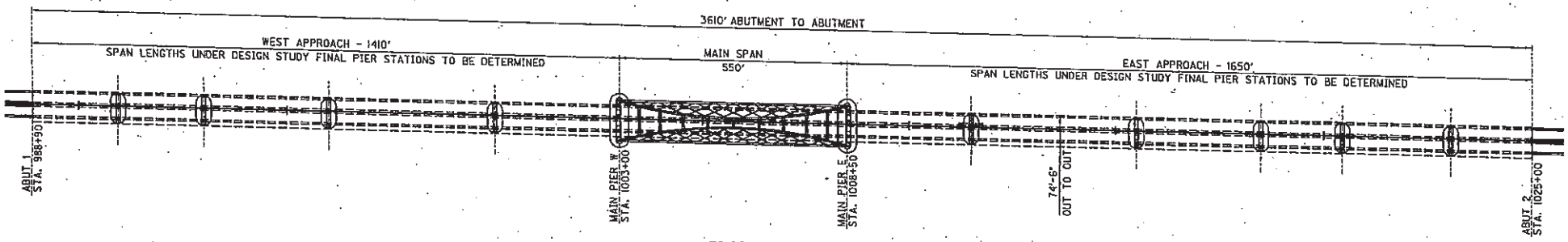


0' 100' 200' 400'

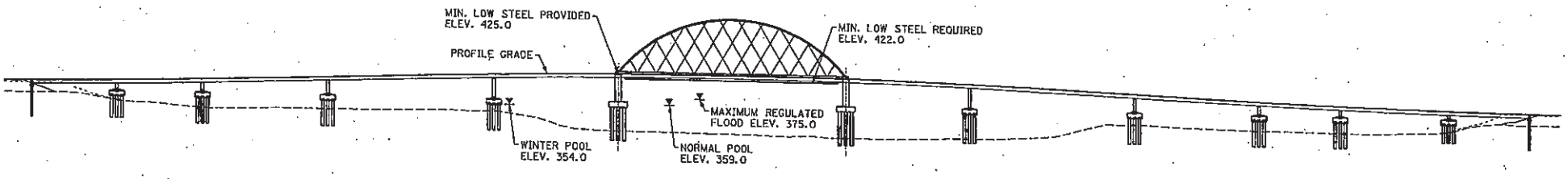
USACE – CWA SECTION 404
USACE – RHA SECTION 10
KDOW – CWA SECTION 401
TVA – TVA ACT SECTION 26A

SHEET 4A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



PLAN



ELEVATION

PROPOSED BRIDGE OVER TN RIVER / KY LAKE
TO REPLACE EGGNERS FERRY BRIDGE

FILE NO. 2011-00594
PN 12-42

REVISION	DATE

DATE:
DESIGNED BY:
DETAILED BY: CEW
CHECKED BY

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: TRIGG & MARSHALL

ROUTE: US68
CROSSING: KENTUCKY LAKE

KEY PLAN

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ITEM NUMBER
01-180.70

PREPARED BY
Baker
MICHAEL BAKER JR., INC.
9751 ORMSBY STATION ROAD
SUITE 210
LOUISVILLE, KY 40223

SHEET NO.
DRAWING NO.

USER: CWathington
DATE PLOTTED: September 6, 2012
FILE NAME: C:\PWWI-LOCAL\BAKER_PROJECTS\CWETHINGTON\D0\41982\S24686 KP.DGN
E-SHEET NAME:
MicroStation v8.11.9.252

File No. 2011-00594
P/N 12-42

Table 3 - Kentucky Lake Power And Flood Storage Loss Summary

	Elevation Range	Causeways Fill Impact (Cu. Yd.)	Approach Spans Piers Fill Impacts (Cu. Yd.)	Main Span Piers Fill Impacts (Cu. Yd.)	Total Loss (Cu. Yd.)	Total Loss (Ac-ft)
Flood Control Storage Loss*	354-375	218,650	25,887	6,503	251,040	155.6
Power Storage Loss	354-359	50,567	11,259	2,047	63,873	39.6

* Flood Control Storage Zone = Elev. 354-375; it includes the Power Storage Zone of 354-359

Table 1 - TVA Property and Easement Areas of Fill for US 68/KY 80

Elevation	Total Area of Fill Within Elevation Range (acres)	Permanent Easement Area Required (acres)
West Causeway		
Below 359 (Normal Summer Pool)	7.12	1.18
Below 375 (TVA Property)	8.82	
375 to 381 (TVA Easement)	0.09	
Proposed Kentucky Lake Bridge		
N/A	N/A	4.87
East Causeway		
Below 354 (TVA Property)	2.79	0.12
Below 359 (Normal Summer Pool)	3.29	
354 to 378 (TVA Easement)	1.53	

Table 6 - Kentucky Lake Power And Flood Storage Loss Mitigation Summary

	Elevation Range	Total Storage Loss (Cu. Yd.)	Individual Storage Loss Offsets: Ex. Causeway Removal for Path Grading (Cu. Yd.)	Ex. Bridge Removal (Cu. Yd.)	Total Storage Loss Offset (Cu. Yd.)	Net Impact (Cu. Yd.)	Net Impact (Acre)
Flood Control Storage (1) (2)	354-375	251,040	10,567	2295	12,862	238,179	147.6
Power Storage	354-359	63,873	0	475	475	63,398	39.3
Winter Pool (1)	< 354	88,065					

(1) Mitigation of volume in this elevation range, outside of the Power Storage zone, is not required. This data is included for information purposes only.

(2) Flood Control Storage Zone = Elev. 354-375; it includes the Power Storage Zone of 354-359.

File No. 2011-00594
PN 12-42

LAKE BRIDGES
Over Kentucky Lake & Lake Barkley

ANTICIPATED CONSTRUCTION SEQUENCE SUMMARY
For KENTUCKY LAKE BRIDGE PROJECT

ADVANCE CONSTRUCTION PACKAGE

This first contract will include construction of the 580' long bridge structure over the lagoon west of Kentucky Lake and the widening of the existing Kentucky Lake causeways. Sequencing of the components to construct will be left to the contractor. The project will also include pile load testing for both constructability and performance purposes at the Lagoon Bridge, Shallow Water Test Area, and Deep Water Test Area. Contract language will include early completion milestones on the load testing component, the results of which are needed to progress the lake crossing bridge design.

KENTUCKY LAKE BRIDGE CONSTRUCTION PROJECT

The second contract will include the 3,600' long bridge crossing Kentucky Lake from causeway to causeway. **Proposed sequence of construction:**

STAGE 1: CONSTRUCT EAST APPROACHES AND EAST MAIN PIER SUBSTRUCTURE
- DRIVE PIPE PILES
- FLOAT IN FOOTING TUB FORMS
- CAST IN PLACE CONCRETE PIERS

STAGE 2: CONSTRUCT WEST APPROACHES SUBSTRUCTURE
- DRIVE PIPE PILES
- FLOAT IN FOOTING TUB FORMS
- CAST IN PLACE CONCRETE PIERS

CONSTRUCT EAST APPROACH SUPERSTRUCTURE
- SET GIRDERS
- CAST CONCRETE BRIDGE DECK

STAGE 3: SHIFT NAVIGATION TO SPAN C

STAGE 4: CONSTRUCT WEST MAIN PIER
- DRIVE PIPE PILES
- FLOAT IN FOOTING TUB FORMS
- CAST IN PLACE CONCRETE PIERS

STAGE 5: CONSTRUCT REMAINING WEST APPROACH SUPERSTRUCTURE

STAGE 6: HIGH FLOAT IN ARCH MAINSPAN
- CONSTRUCT ARCH ON or NEAR SHORE
- JACK UP ON TOWERS ON BARGES
- FLOAT INTO POSITION

STAGE 7: SHIFT TRAFFIC ONTO NEW BRIDGE

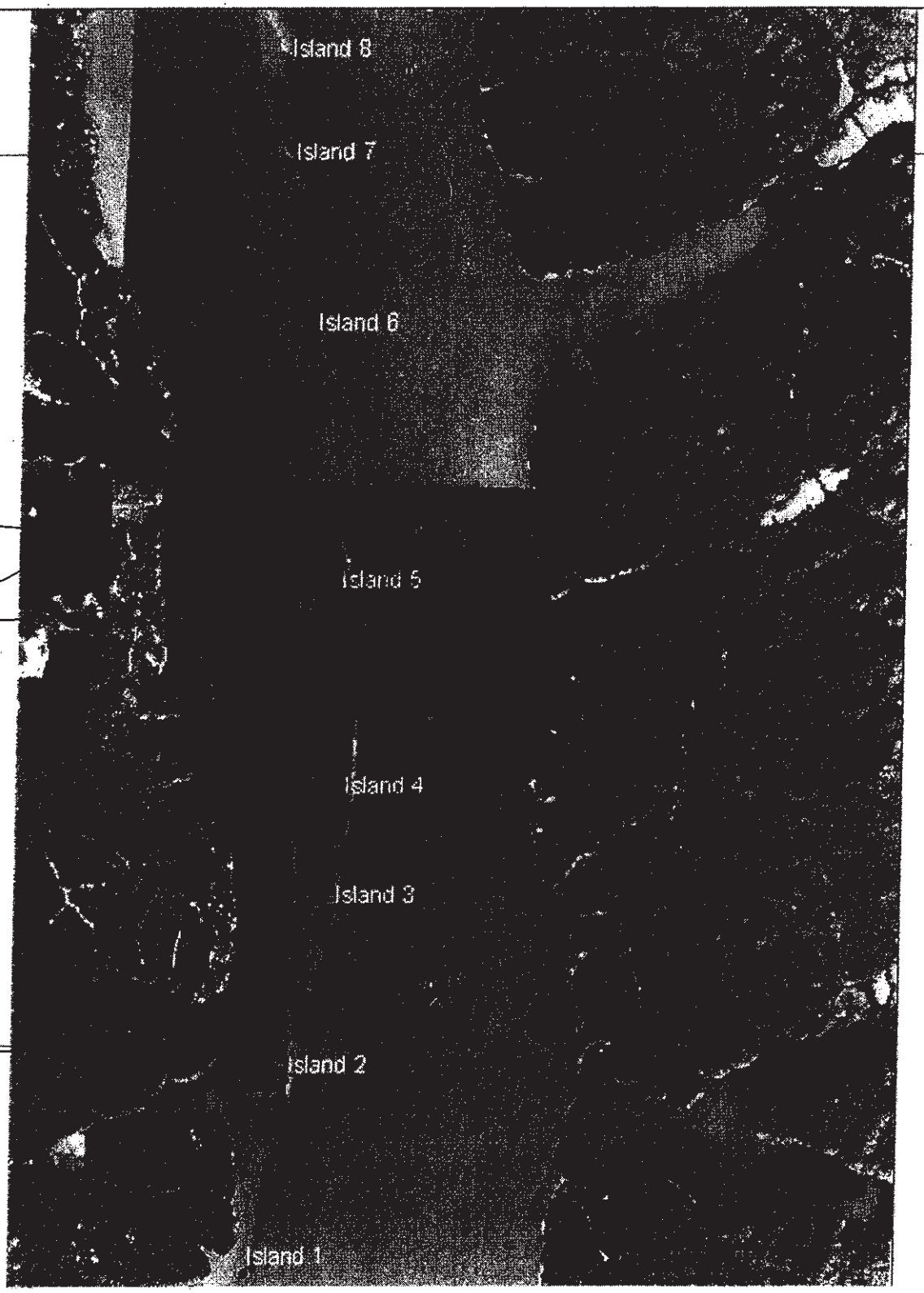
AWAIT DEMOLITION SEASON

STAGE 8: DEMOLISH OLD STRUCTURE

FILE NO. 2011-00594

CALLOWAY CO, KY
HAMLIN QUAD

PN 12-42



PROPOSED 1,314' OF STABILIZATION ON ISLAND #5

PROPOSED 100' OF STABILIZATION ON ISLAND #2

1,300' OF SHORELINE STABILIZATION COMPLETED

PROPOSED FISH AND AQUATIC HABITAT MITIGATION PLAN

PATTERSON ISLANDS RESTORATION LOCATIONS

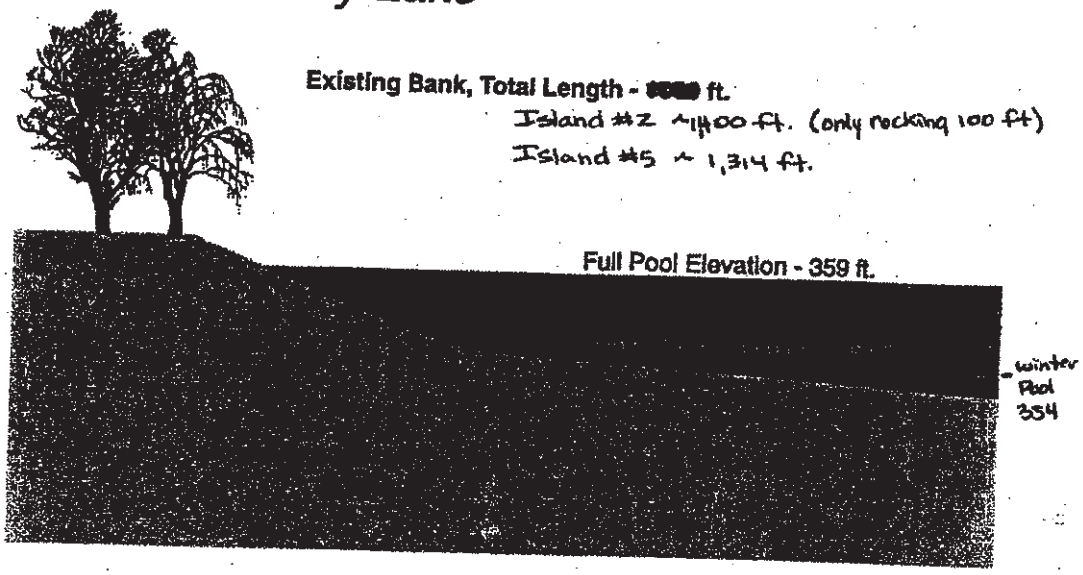
PROPOSED FISH AND AQUATIC HABITAT RESTORATION

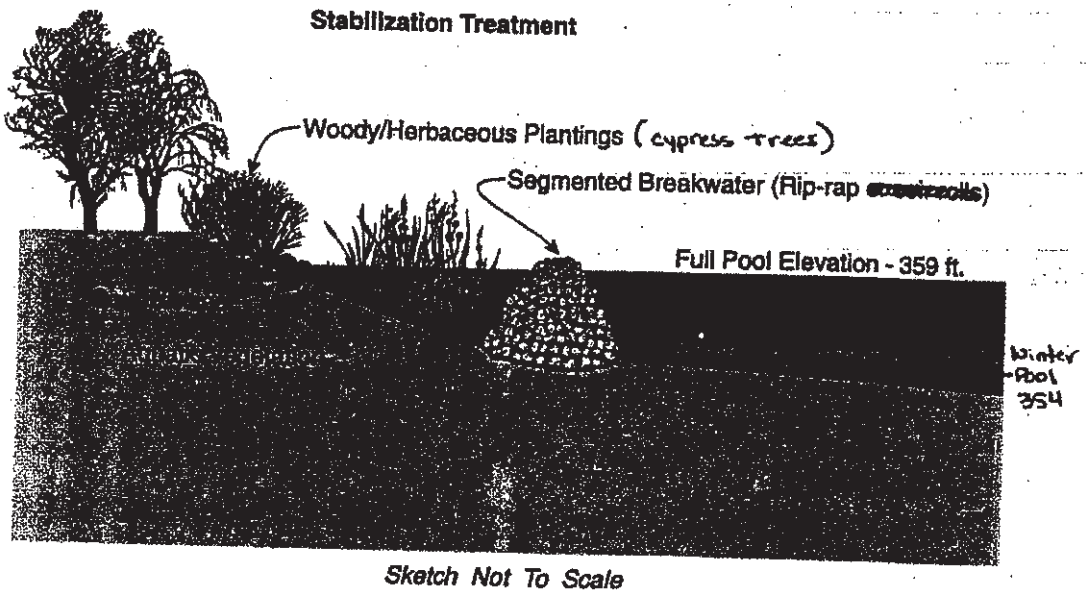
PATTERSON ISLANDS
TYPICAL SECTIONS

Figure 2

TVA Shoreline Stabilization Project

Kentucky Lake





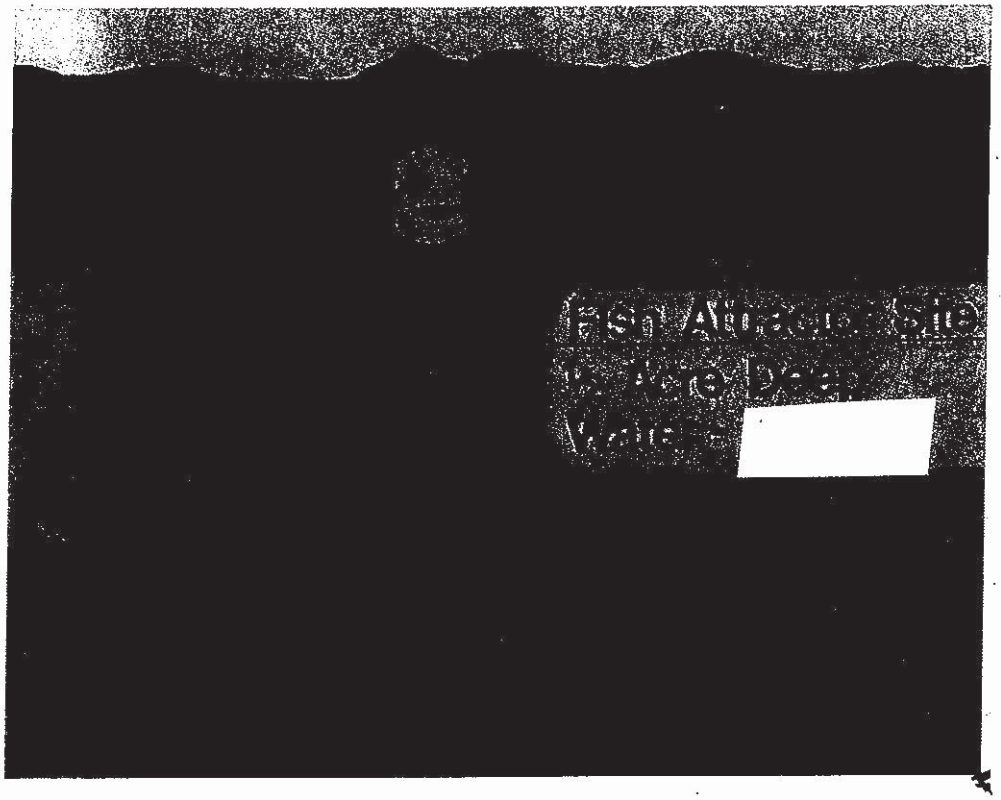
Sketch Not To Scale

Ky Lake Summer Pool - 359 fasl
Ky Lake Winter Pool - 354 fasl
Bottom of Rip Rap - 355 fasl

Approximate Bank Stabilization Activity Dimension
Island # 2 100' x 5' x 4'
Island # 5 1,314 x 5' x 4'

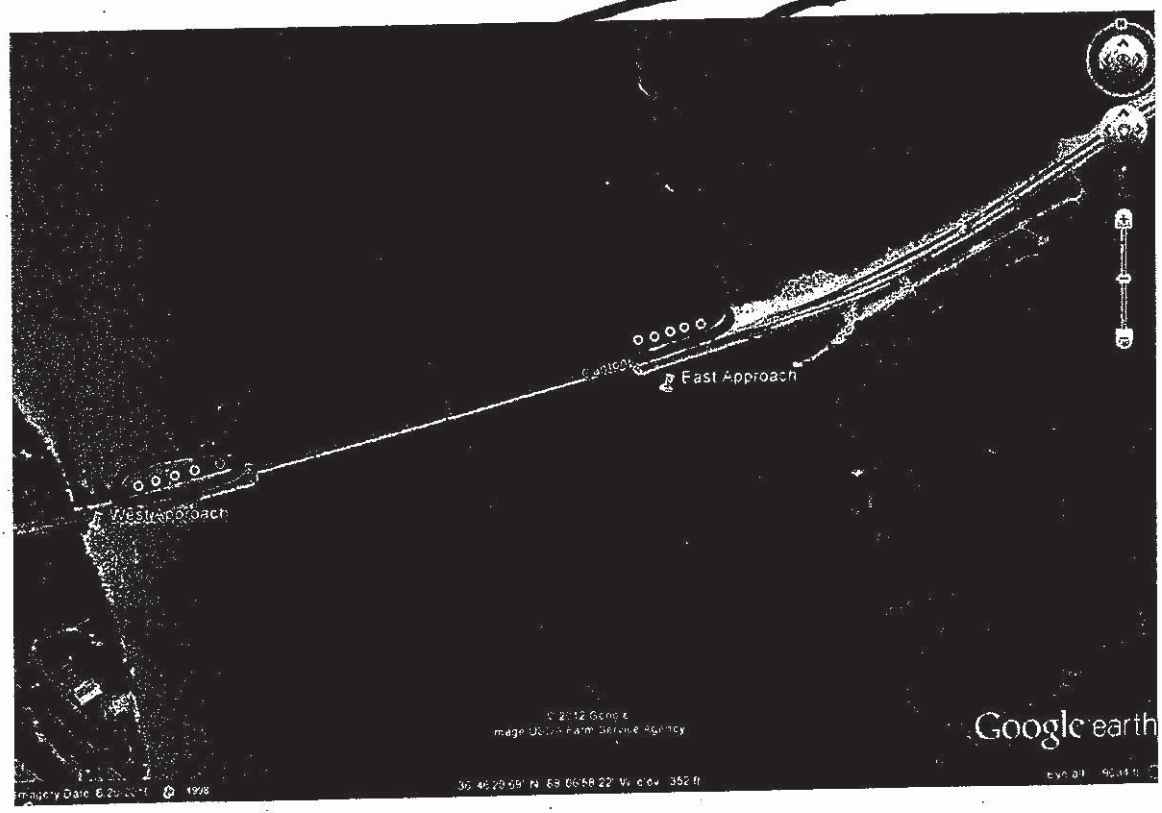
File No. 2011-00594
PN 12-42

FILE No. 2011-00594
PN 12-42



PROPOSED LOCATION OF TEN FISH ATTRACTORS

5 SITES ON NORTH SIDE OF WEST AND EAST CAUSEWAY



PROPOSED FISH AND AQUATIC HABITAT MITIGATION PLAN
FISH HABITAT RESTORATION / ATTRACTORS

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

November 30, 2012

David Waldner, Director
KYTC, Division of Environmental Analysis
200 Mero Street 5th Floor
Frankfort, KY 40622

Re: Water Quality Certification #2012-062-7
US 68 Eggners Ferry Bridge
KYTC Item No. 1-180.70
USACE Public Notice No.: 12-42
AI No.: 115918, Activity ID: APE20120001
TN River Mile 41.7 – KY Lake
Marshall & Trigg County, Kentucky

Dear Mr. Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 115918**. **The attached document is your official Water Quality Certification; please read it carefully.** If you should have any questions concerning the conditions of this water quality certification, please contact Adam Jackson of my staff by calling (502) 564-3410.

Sincerely,

Barbara J. Scott

Barbara Scott, Supervisor
Water Quality Certification Section
Kentucky Division of Water

BJS: AJ
Attachment
cc: Amy Robinson, USACE: Nashville District
Lee Andrews, USFWS: Frankfort
Mike Hardin, KDFWR: Frankfort
Roy Collins, KYTC DEA: Frankfort
Samantha Strickland, TVA: Memphis

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

November 30, 2012

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200 Mero Street 5th Floor
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Barbara Scott, Supervisor
Water Quality Certification Section
Kentucky Division of Water

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Lee Andrews, USFWS: Frankfort
Mike Hardin, KDFWR: Frankfort
Roy Collins, KYTC DEA: Frankfort
Samantha Strickland, TVA: Memphis

KTC Water Quality Certification

US 68 Eggners Ferry Bridge - Marshall Co
Facility Requirements
Permit Number:WQC #2012-062-7
Activity ID No.: APE20120001

ACTV0000000001 (TN River Mile 41.7 - KY Lake) Eggner Ferry Bridge Reconstruction:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The Kentucky Transportation Cabinet shall submit notification: Due prior to any construction activity to the Kentucky Division of Water (KDOW), Water Quality Certification (WQC) Section. Notification shall confirm the purchase of 0.82 wetland credits from the Kentucky Department of Fish and Wildlife Resources (KDFWR) Stream and Wetland Restoration Fund. The U.S. Army Corps of Engineers (USACE) may require a different amount. [Clean Water Act]
S-2	The KYTC must notify the Division: Due prior to any construction activity. Notify the WQC Section of the KDOW at (502) 564-3410 at least two weeks prior to construction. [Clean Water Act]
S-3	The KYTC must notify the Division: Due when construction is complete. Notify the WQC Section of the KDOW at (502) 564-3410 no later than two weeks post-construction. [Clean Water Act]
S-4	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Surface Water Permits Branch. The contact person is Todd Powers. If this project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a KPDES general storm water permit will be required from the Surface Water Permits Branch. The contact person is Cassie Campbell. Both can be reached at (502) 564-3410. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - the filling of approximately 7.12 surface-acres below the normal summer pool (NSP) elevation of 359.0 of Kentucky Lake. More specifically approximately 1500-feet long by 200-feet wide to accomodate construction of the west causeway (Left descending bank of Tennessee River Mile 41.7). - the filling of approximately 3.29 surface-acres below the normal summer pool (NSP) elevation of 359.0 of Kentucky Lake. More specifically approximately 950-feet long by 180-feet wide to accomodate construction of the east causeway (Right descending bank of Tennessee River Mile 41.7). - the filling of 0.41 acres of jurisdictional wetland (Wetlands 1A and 1B) to accomodate the abutment slopes and foundations for 3-span steel bridge. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the application package received by KDOW on August 21, 2012, as well as the USACE Public Notice No. 12-42 issued on October 3, 2012; the Debris Removal Plan Conditions issued by the USACE on October 22, 2012; and the Fish and Aquatic Habitat Mitigation Plan. [Clean Water Act]

KTC Water Quality Certification

US 68 Eggners Ferry Bridge - Marshall Co
Facility Requirements
Permit Number:WQC #2012-062-7
Activity ID No.: APE20120001

ACTV0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	The KDOW requires mitigation for the 0.41 acres of jurisdictional wetland impacts listed within this project. The KYTC shall purchase 0.82 wetland credits from the KDFWR Stream and Wetland Restoration Fund to mitigate the 0.41 acres of wetland impacts. The USACE may require a different amount. In addition, the KDOW accepts the KYTC's proposal to offset fishery habitat impacts by fulfilling the items listed within the Fish and Aquatic Habitat Mitigation Plan by completing the Patterson Island shoreline restoration project between Tennessee River Mile 55 to 62 in Calloway County, bank stabilization of Island #2 (100 linear feet) and Island #5 (1300 linear feet); as well as the placement of 10 fish attractor sites on the north side of the east and west causeways (5 attractors on each side). [Clean Water Act]
T-4	The KYTC is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-5	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-6	If construction does not commence within two years of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-7	Mitigation for impacts shall begin prior to or concurrently with impacts. [Clean Water Act]
T-8	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project if the project has been determined to likely have a significant adverse effect upon water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.

2. Nationwide permits issued by the U.S. Army Corps of Engineers for projects in Outstanding State Resource Waters, Cold Water Aquatic Habitats, and Exceptional Waters as defined by 401 KAR 10:026 shall require individual water quality certifications.

3. Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur.

4. Sediment and erosion control measures (e.g., check-dams, silt fencing, or hay bales) shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, placement shall not be conducted in such a manner that may cause instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control measures shall be removed and the natural grade restored prior to withdrawal from the site.

5. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

6. To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow.

7. Heavy equipment (e.g. bulldozers, backhoes, draglines, etc.), if required for this project, should not be used or operated within the stream channel. In those instances where such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize re-suspension of sediments and disturbance to the channel, banks, or riparian vegetation.

8. If there are water supply intakes located downstream that may be affected by increased turbidity, the permittee shall notify the operator when work will be performed.

9. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

10. Should stream pollution, wetland impairment, and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

Tennessee Valley Authority, 1101 Market Street (PSC 1E), Chattanooga, Tennessee 37402

December 11, 2012

Mr. Roy Collins III
Permits Coordinator
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Collins:

KENTUCKY RESERVOIR – TENNESSEE RIVER MILE 41.7 – RLR 223864 – PRIOR ENTRY LETTER – TVA TRACT XTGIR-159H – KENTUCKY TRANSPORTATION CABINET – PERMANENT EASEMENT FOR SR 80/US 68 BRIDGE REPLACEMENT AND APPROACHES – MARSHALL AND TRIGG COUNTIES, KENTUCKY

This is in response to your request for Tennessee Valley Authority (TVA) approval to allow Kentucky Transportation Cabinet (KYTC) to begin construction activities on TVA Tract XTGIR-159H associated with bridge replacement and approaches over Kentucky Reservoir prior to the execution of the necessary road easement document. The improvements include replacing the existing bridge with a four lane approximately 3,600-foot long span arch bridge with new approach fills.

The TVA Chief Executive Officer (CEO), under the authority delegated by the TVA Board of Directors, has determined that the granting of the permanent easement for a road right-of-way over approximately 6 acres, subject to such conditions, reservations, and restrictions as TVA deems necessary in the interests of its programs and statutory obligations, will not be adverse to the interests of the United States of America (USA) or TVA and has authorized its conveyance pursuant to 40 U.S.C. § 1314.

TVA hereby acknowledges prior receipt of plans (Plans) for construction of the above described improvements.

TVA understands that you wish to begin construction activities and would like to enter upon the TVA property involved in advance of conveyance of the easement rights. TVA is willing to allow you to begin this work as set forth under the terms of this letter, and pursuant to the Plans received, conditioned upon payment to TVA of the remaining balance due for the easement, which we estimate to be $15,323. This amount includes $8,941 for compensation of lost power storage and $6,382 for the estimated administrative costs to complete the easement grant. Since we have not yet finalized the instrument, it should be understood that the balance of $6,382 represents our best estimate of the total cost and that you will be invoiced for and will be obligated to pay any additional costs exceeding $6,382 at the time the instrument is provided to you. Likewise, any unused monies will be refunded to you.

Pending such conveyance and in keeping with your request , TVA hereby grants KYTC, subject to KYTC's agreement (evidenced by your signature below) to all of the terms and conditions herein, a nonexclusive license (License) to occupy said proposed easement area as shown on the attached Exhibit Map for the purpose of engaging in construction activities related to the road and bridge improvements, in accordance with the previously received Plans, with the understanding that such entry is at KYTC's sole risk.

This permission is granted solely as an accommodation to KYTC. TVA makes no representations as to the safety or suitability of the site for the use proposed. Any activity under this agreement by KYTC or its employees, representatives, agents, contractors, or designees shall be at the sole risk of and the sole responsibility of KYTC. To the extent permitted by law, KYTC shall indemnify USA, TVA, and their respective agents and employees harmless from any and all claims, damages, demands, actions, costs and charges to which they or either of them may be subject or which they or either of them may have to pay by reason of any personal injuries, property damage, or loss of life or property resulting from, or in any way connected with, the condition or use of the premises covered by this License, including any means of ingress thereto or egress therefrom, except liability for personal injuries, property damage, or loss of life or property caused by the sole negligence of USA or TVA. Should KYTC fail to accept the easement document when tendered, KYTC must cease construction activities and use of the proposed easement area and, if requested by TVA, grade, shape, remove debris, and stabilize with grass seed and mulch all exposed soil surfaces to the satisfaction of TVA.

All work must be completed in accordance with the enclosed Section 26a permit. In addition, KYTC will follow the requirements as set out below:

1. KYTC shall control all emissions of pollutants that might be discharged or released directly or indirectly into the atmosphere, into any stream, lake, reservoir, watercourse, or surface or subterranean waters, or into or on the ground on the proposed easement area or on adjoining land, in full compliance with all applicable standards and requirements relating to pollution control of any kind now in effect or hereafter established by or pursuant to federal, state, or local statutes, ordinances, codes, or regulations. To the extent permitted by law, KYTC shall indemnify, defend, and hold harmless USA and TVA from any and all claims, costs, or losses that may arise as a result of the KYTC's breach of this provision.

   If there is a discharge or release of a hazardous substance, material, or waste, or of any pollutant or other substance, in or from the proposed easement area by any person or entity other than USA or TVA for which a cleanup, remediation, restoration, removal, or other action (hereinafter, individually and collectively, referred to as "Environmental Response") is ordered or required pursuant to any federal, state, or local statute, regulation, code, or ordinance (including, without limitation, discharges or releases which spread or move in whole or in part beyond the proposed easement area to other areas owned by USA), KYTC shall bear full responsibility for the cost (including, without limitation, natural resources damages and costs) of said Environmental Response, and shall not seek any contribution or indemnification from USA or TVA for all or any portion of said costs; provided, however, that nothing in this covenant is intended to or shall preclude KYTC from seeking indemnification or contribution from any person or entity

other than USA or TVA, and provided further that nothing herein shall create any rights in or be enforceable by any person or entity other than USA, TVA, or their respective successors and assigns.

2. KYTC will not permit or suffer any offensive use of the proposed easement area and will keep the proposed easement area and all improvements thereon in a safe condition and in good order and appearance; and it will collect and dispose of all trash, garbage, and other solid wastes accumulated or left on said proposed easement area in accordance with applicable laws and regulations and with sufficient frequency to keep the proposed easement area orderly and sanitary.

3. KYTC shall incorporate construction Best Management Practices for soil and erosion control, including practices such as the use of hay bales and silt fencing, to establish a perimeter to protect trees and water from construction activities and erosion damage.

4. KYTC shall conduct all land-disturbing activities on the proposed easement area in accordance with best management practices to control erosion and sedimentation so as to prevent adverse impacts on water quality and related aquatic interests in order to meet the requirements of Section 208 of the Clean Water Act and implementing regulations.

5. KYTC will not disturb or alter in any way the existing state of any archaeological sites, human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archaeological resources which may be discovered or identified on or under the proposed road easement. Upon the discovery of any such items, KYTC shall immediately stop all activity in the area of the discovery, make a reasonable effort to protect such items, and notify TVA's Reservoir Land Use and Permitting Office at (423) 876-6700. KYTC shall also provide written notification of such discovery to TVA, 1101 Market Street, PSC-1E, Chattanooga, Tennessee 37402-2801. KYTC will not resume work in the area of the discovery until approved by TVA.

6. KYTC shall procure and maintain a policy or policies of commercial general liability insurance in such form as TVA may approve in the minimum amount of ONE MILLION AND NO/100 DOLLARS ($1,000,000.00) per occurrence for bodily injury and property damage combined single limits, under which USA, TVA, and their respective agents, servants, and employees shall be named as additional insureds, as their interests may appear, and insuring against any and all claims, demands, damages, actions, causes of action, costs, and charges to which they or any of them may be subject resulting from or in any way connected with the condition or use of the easement area. The policy or policies shall be written by insurance company or companies which shall be rated "A" or better by A.M. Best Company and are licensed to do business in Kentucky, or are an accepted surplus lines carrier. The insurance carrier or carriers and form of policies shall be subject to TVA's acceptance. A certificate of insurance evidencing such policy or policies shall be delivered to TVA by KYTC in advance of the commencement of operations by KYTC hereunder. If KYTC shall be in default in procuring or maintaining such insurance, TVA may procure such insurance, in which event the premium or premiums therefore shall be paid by KYTC within thirty (30) days after receipt of TVA's

invoice therefore. TVA accepts KYTC as self-insured. However, KYTC agrees that nothing diminishes its responsibilities to TVA that would have otherwise been covered by insurance if KYTC were not self-insured.

7. KYTC shall conduct all activities associated with the exercise of rights granted hereunder in such a manner: (1) to comply with all applicable local, state, and federal laws and regulations and (2) to protect the environment. Furthermore, KYTC shall be responsible for obtaining all necessary licenses, permits, and/or approvals required by local, state, or federal laws and regulations.

This License shall terminate automatically upon the execution of the right-of-way easement. Also, this License also may be revoked on 15 days' notice.

Please indicate your acceptance of the foregoing terms and conditions in the space provided below and return the original of this letter to TVA Reservoir Land Use and Permitting, Attention Samantha Strickland, Post Office Box 1010, MPB 1H-M, Muscle Shoals, Alabama 35662. The extra copy is for your records. Payment in the amount of $15,323 should be sent to:

TVA Treasurer
Department 888018
Knoxville, TN 37995-8018
To ensure proper credit, please reference RLR 223864 when making payment.

Alternatively, you may make electronic payments at:

Online via Credit Card or ACH Debit - visit
https://webp.tva.gov/ecolWeb/servlet/common.ConnectServlet
ACH Credit - ABA 051036706 - ACCT# 349000
FEDWIRE - ABA 021030004 - ACCT# 4912 Bank Name: TREAS NYC
To ensure proper credit, please reference RLR 223864 when making payment.
Direct electronic payment inquiries to: Hayley Huskey (865) 632-4411

This agreement will not become valid until a signed copy of this agreement and full payment are received by TVA. If you have any questions, please contact Samantha Strickland at 256-386-2643.

Sincerely,

Angela B. Sims
Senior Manager
Reservoir Land Use and Permitting

Mr. Roy Collins III
Page 5
December 11, 2012

Accepted without qualification this

18 day of JAN, 20~~12~~13

Roy Collins III Roy Collins III

Enclosure

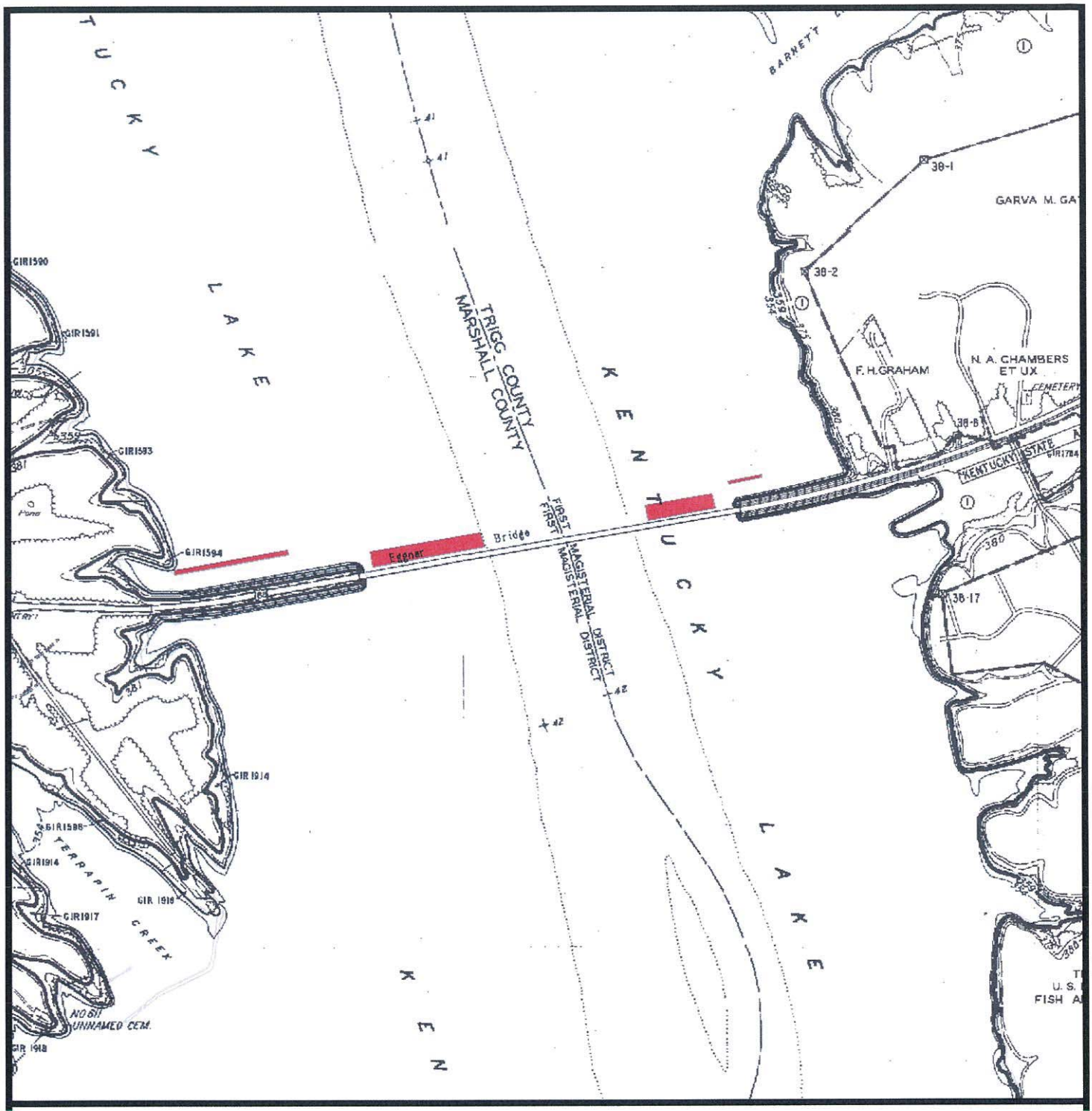


Exhibit Map

RLR 223864
Prior Entry License
Kentucky Transportation Cabinet
Tract No. XTGIR-159H
Kentucky Reservoir
TN River Mile 41.7 B

Map Reference:
C/D Stage: 35-D & 38-D
Quad: 17SW & 17SE

N

Prior Entry License Location
(Approx. 6 acres)

0 500 1,000 2,000 3,000 4,000 Feet

Property and Natural Resources

October 22, 2012

Tennessee Valley Authority
Section 26a Approval

Permit # 223874 **Reservoir** Kentucky **Category** 3
DOT Project # KYTC Item No 1-180.70

Name	Company	Address	Phone/Email
	Division of Environmental Analysis, KYTC	200 Mero Street Frankfort KY 40622	502--56-4-72

Tract(s) GIR-1785; GIR-1594; XTGIR-159H

Subdivision/Lot(s)	Stream	Mile	Bank	Map Sheet(s)
Subdivision: N/A Lot(s): [Lot#: N/A]	Tennessee R	41.7	B	38 C/D Stage
				35 C/D Stage
				17 Quad Sheet NW
				17 Quad Sheet SE

The facilities and/or activities listed below are APPROVED subject to the plans and general and special conditions attached.

1. Bridge - Vehicular — Length (ft., in.): 4000'; Width (ft., in.): 74'
2. Bridge - Vehicular — Length (ft., in.): 580'; Width (ft., in.): 74'
3. Fill - Causeway/Roadway — Volume (cu yd): 345,000

This permit SUPERSEDES all previous TVA approvals at this location including permits approved under land record numbers:

TVA Representative: Samantha J Strickland **Date:** 12-05-2012

May require review by U.S. Army Corps of Engineers (USACE). Plans have been forwarded to the USACE.
No construction shall commence until you have written approval or verification that no permit is required.

Applicant is also responsible for all local and state approvals that may be required relating to water quality.
No construction shall commence until you have written approval or verification that no permit is required.

Rlr Id: 223874

GENERAL AND STANDARD CONDITIONS
Section 26a and Land Use

General Conditions

1) You agree to make every reasonable effort to construct and operate the facility authorized herein in a manner so as to minimize any adverse impact on water quality, aquatic life, wildlife, vegetation, and natural environmental values.

2) This permit may be revoked by TVA by written notice if:

a) the structure is not completed in accordance with approved plans;

b) if in TVA's judgement the structure is not maintained in a good state of repair and in good, safe, and substantial condition;

c) the structure is abandoned;

d) the structure or work must be altered to meet the requirements of future reservoir management operations of the United States or TVA, or;

e) TVA finds that the structure has an adverse effect upon navigation, flood control, or public lands or reservations.

f) all invoices related to this permit are not timely paid.

3) If this permit for this structure is revoked, you agree to remove the structure, at your expense, upon written notice from TVA. In the event you do not remove the structure within 30 days of written notice to do so, TVA shall have the right to remove or cause to have removed, the structure or any part thereof. You agree to reimburse TVA for all costs incurred in connection with removal.

4) In issuing this Approval of Plans, TVA makes no representations that the structures or work authorized or properly used temporarily or permanently in connection therewith will not be subject to damage due to future operations undertaken by the United States and/or TVA for the conservation or improvement of navigation, for the control of floods, or for other purposes, or due to fluctuations in elevations of the water surface of the river or reservoir, and no claim or right to compensation shall accrue from any such damage. By the acceptance of this approval, applicant covenants and agrees to make no claim against TVA or the United States by reason of any such damage, and to indemnify and save harmless TVA and the United States from any and all claims by other persons arising out of any such damage.

5) In issuing this Approval of Plans, TVA assumes no liability and undertakes no obligation or duty (in tort, contract, strict liability or otherwise) to the applicant or to any third party for any damages to property (real or personal) or personal injuries (including death) arising out of or in any way connected with applicant's construction, operation, or maintenance of the facility which is the subject of this Approval of Plans.

6) This approval shall not be construed to be a substitute for the requirements of any federal, state, or local statute, regulation, ordinance, or code, including, but not limited to, applicable building codes, now in effect or hereafter enacted. State 401 water quality certification may apply.

7) The facility will not be altered, or modified, unless TVA's written approval has been obtained prior to commencing work.

8) You understand that covered second stories are prohibited by Section 1304.204 of the Section 26a Regulations.

9) You agree to notify TVA of any transfer of ownership of the approved structure to a third party. Third party is required to make application to TVA for permitting of the structure in their name (1304.10). Any permit which is not transferred within 60 days is subject to revocation.

10) You agree to stabilize all disturbed areas within 30 days of completion of the work authorized. All land-disturbing activities shall be conducted in accordance with Best Management Practices as defined by Section 208 of the Clean Water Act to control erosion and sedimentation to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable federal, state, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation, including any required conditions under Section 6 of the Standard Conditions.

11) You agree not to use or permit the use of the premises, facilities, or structures for any purposes that will result in draining or dumping into the reservoir of any refuse, sewage, or other material in violation of applicable standards or requirements relating to pollution control of any kind now in effect or hereinafter established.

Rlr Id: 223874

12) The Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act apply to archaeological resources located on the premises of land connected to any application made unto TVA. If LESSEE {or licensee or grantee (for easement) or applicant (for 26a permit)} discovers human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archaeological resources on or under the premises, LESSEE {or licensee, grantee, or applicant} shall immediately stop activity in the area of the discovery, make a reasonable effort to protect the items, and notify TVA by telephone (865-228-1374). Work may not be resumed in the area of the discovery until approved by TVA.

13) You should contact your local government official(s) to ensure that this facility complies with all applicable local floodplain regulations.

14) You agree to abide by the conditions of the vegetation management plan. Unless otherwise stated on this permit, vegetation removal is prohibited on TVA land.

15) You agree to securely anchor all floating facilities to prevent them from floating free during major floods.

16) You are responsible for accurately locating your facility, and this authorization is valid and effective only if your facility is located as shown on your application or as otherwise approved by TVA in this permit. The facility must be located on land owned or leased by you, or on TVA land at a location approved by TVA.

17) You agree to allow TVA employees access to your water use facilities to ensure compliance with any TVA issued approvals.

18) It is understood that you own adequate property rights at this location. If at any time it is determined that you do not own sufficient property rights, or that you have only partial ownership rights in the land at this location, this permit may be revoked. TVA may require the applicant to provide appropriate verification of ownership.

19) In accordance with 18 CFR Part 1304.9, Approval for construction covered by this permit expires 18 months after the date of issuance unless construction has been initiated.

Standard Conditions (Only items that pertain to this request have been listed.)

1) Structures and Facilities

r) You are hereby advised that the subject facilities will be on a recreational navigation channel and may be vulnerable to wave wash and possible collision damage from passing vessels.

2) Ownership Rights

b) You are advised that TVA retains the right to flood this area and that TVA will not be liable for damages resulting from flooding.

e) You recognize and understand that this authorization conveys no property rights, grants no exclusive license, and in no way restricts the general public's privilege of using shoreland owned by or subject to public access rights owned by TVA. It is also subject to any existing rights of third parties. Nothing contained in this approval shall be construed to detract or deviate from the rights of the United States and TVA held over this land under the Grant of Flowage Easement. This Approval of Plans does not give any property rights in real estate or material and does not authorize any injury to private property or invasion of private or public rights. It merely constitutes a finding that the facility, if constructed at the location specified in the plans submitted and in accordance with said plans, would not at this time constitute an obstruction unduly affecting navigation, flood control, or public lands or reservations.

3) Shoreline Modification and Stabilization

b) You agree that spoil material will be disposed of and contained on land lying and being above the 375-foot contour. Every precaution will be made to prevent the reentry of the spoil material into the reservoir.

c) Bank, shoreline, and floodplain stabilization will be permanently maintained in order to prevent erosion, protect water quality, and preserve aquatic habitat.

d) You agree to reimburse TVA $8,941, which is the current value of the 39.7 acre feet of power storage volume displaced by fill into the reservoir.

5) Bridges and Culverts

a) You agree to design/construct any instream piers in such a manner as to discourage river scouring or sediment deposition.

e) You agree to remove demolition and construction by-products from the site for recycling if practicable, or proper disposal--outside of the 100-year floodplain. Appropriate BMPs will be used during the removal of any abandoned roadway or structures.

6) Best Management Practices

Rlr Id: 223874

e) You agree to avoid contact of wet concrete with the stream or reservoir, and avoid disposing of concrete washings, or other substances or materials, in those waters.

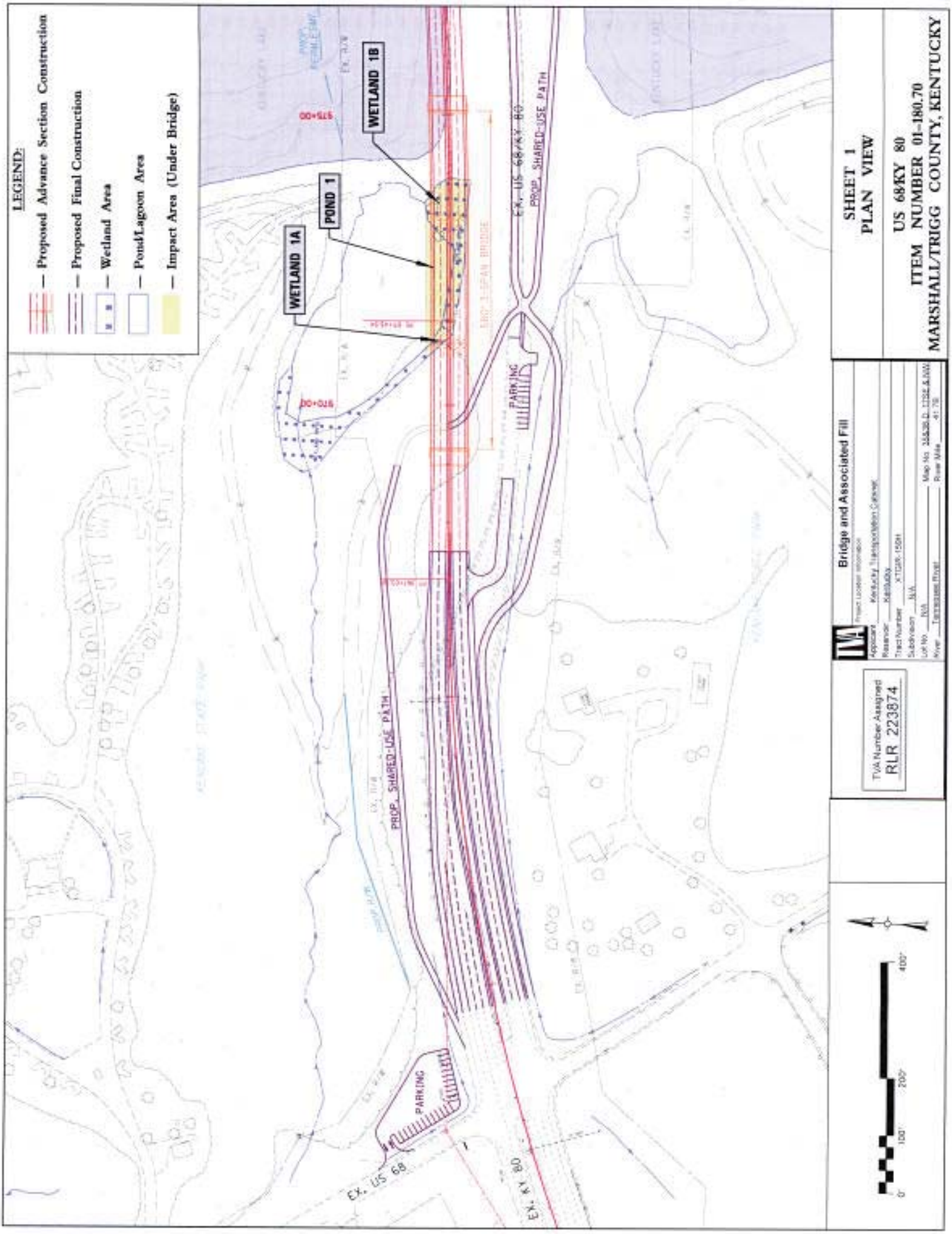
f) You agree to use erosion control structures around any material stockpile areas.

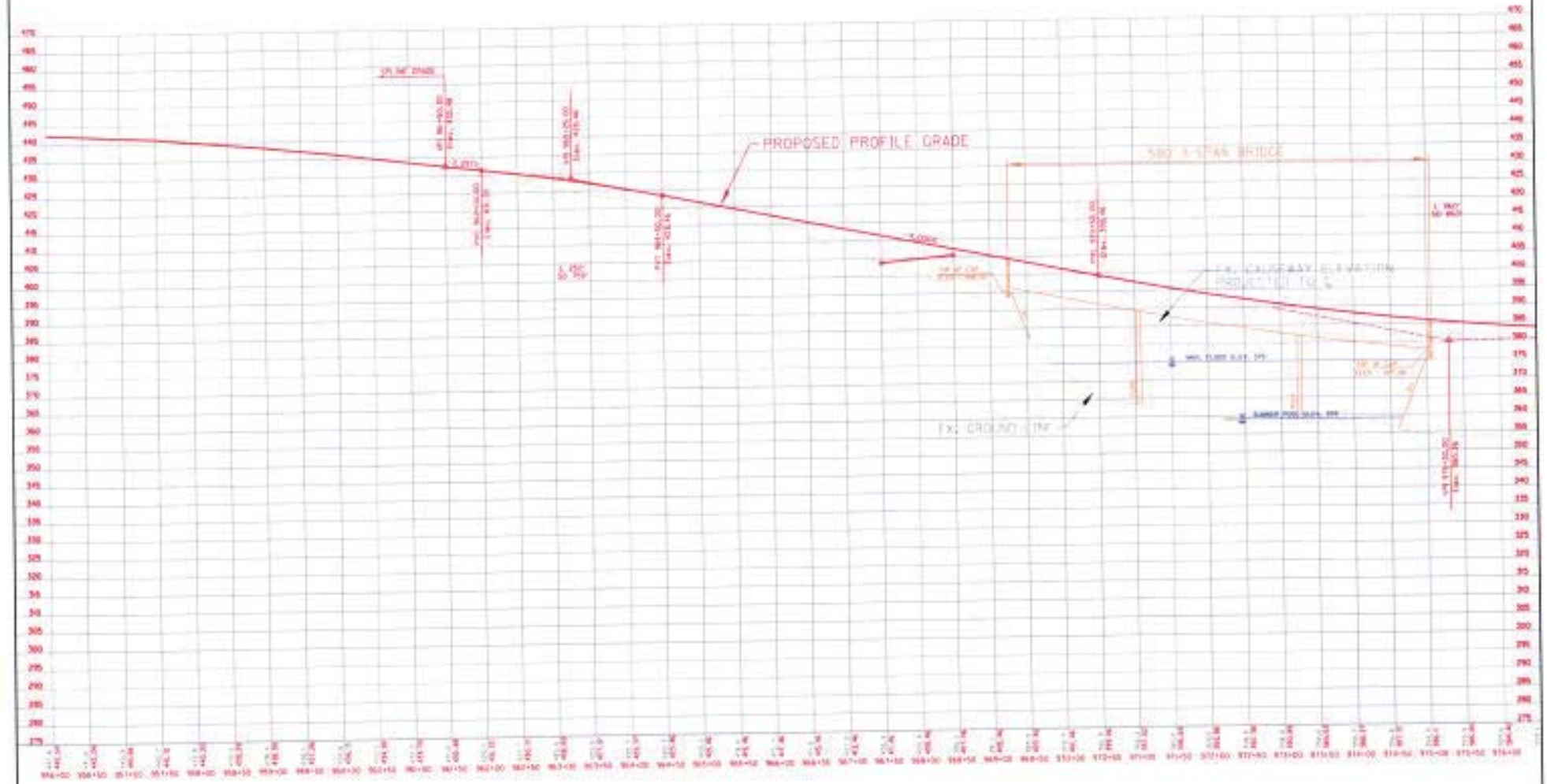
g) You agree to apply clean/shaken riprap or shot rock (where needed at water/bank interface) over a water permeable/soil impermeable fabric or geotextile and in such a manner as to avoid stream sedimentation or disturbance, or that any rock used for cover and stabilization shall be large enough to prevent washout and provide good aquatic habitat.

Additional Conditions

1. This Section 26a Approval for a IS CONTINGENT upon the subsequent removal of the existing Eggners Ferry bridge and piers. You agree that when the existing structure is removed, all materials must be disposed of properly, above the 375' contour.

2. The embankment will consist of rock up to elevation 363 (above normal summer pool of 359). Geotextile fabric placed between the rock and the existing ground/existing lake bottom. The rock embankment will be end dumped and graded until a firm working platform is constructed above water. The dirt embankment will be placed on top of the rock embankment above elevation 363. There will be geotextile fabric placed between the rock and dirt embankment.


LEGEND:
Proposed Advance Section Construction
Proposed Final Construction
Wetland Area
Pond/Lagoon Area
Impact Area (Under Bridge)
WETLAND 1B
POND 1
WETLAND 1A
575+00
575+00
EX. US 68/KY 80
PROP. SHARED-USE PATH
PARKING
PROP. SHARED-USE PATH
PARKING
EX. US 68
EX. KY 80
SHEET 1
PLAN VIEW
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY
Bridge and Associated Fill
TVA Number Assigned
RLR 223874
0'
100'
200'
400'



0' 100' 200' 400'

TVA Number Assigned
RLR 223874

TVA

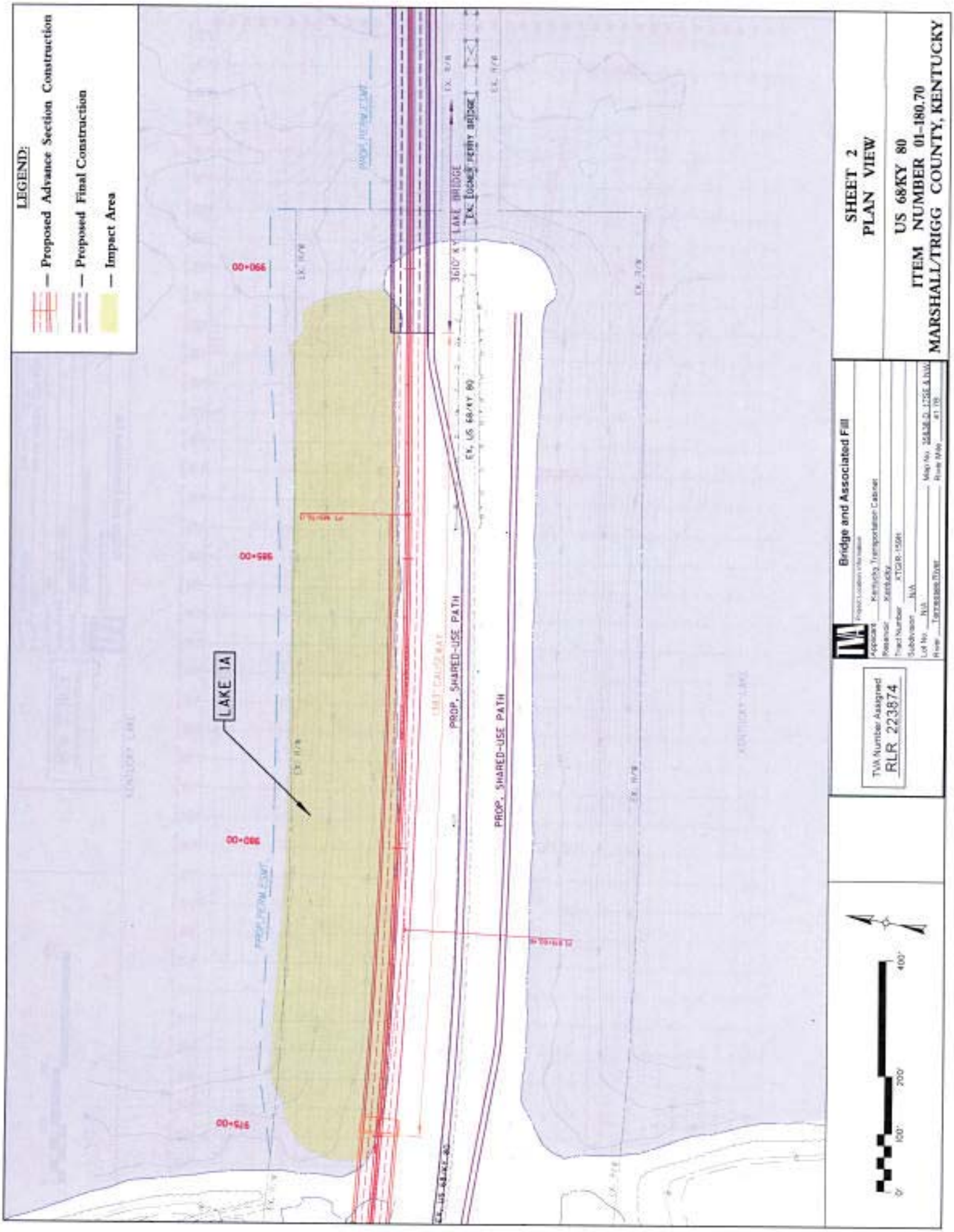
Bridge and Associated Fill

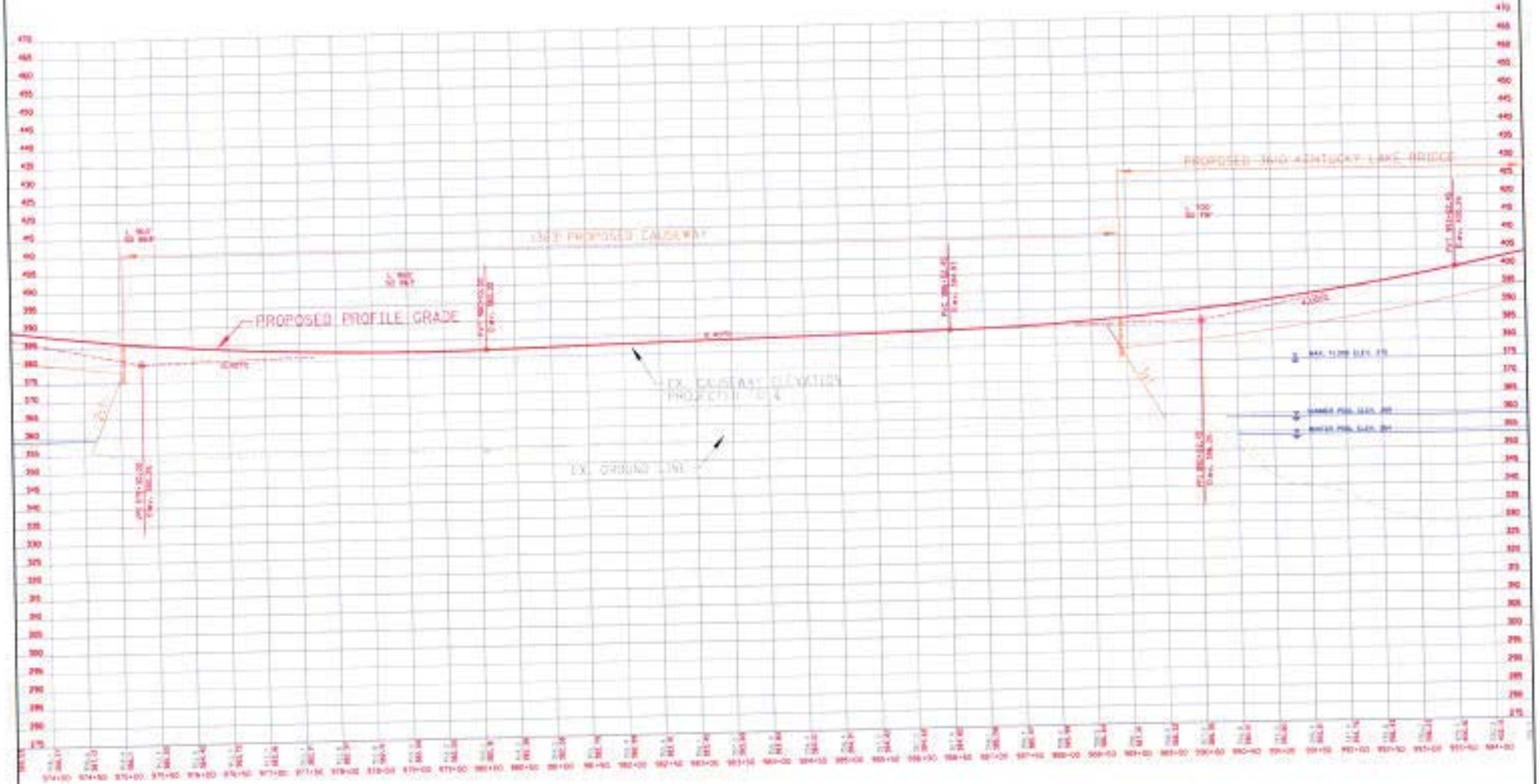
Project Location Information

Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: XTGR-158H
Subdivision: N/A
Lot No.: N/A — Map No.: 35&39 D, 17SE & NW
River: Tennessee River — River Mile: 41.78

SHEET 1A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY


LEGEND:
Proposed Advance Section Construction
Proposed Final Construction
Impact Area
LAKE 1A
PROP. SHARED-USE PATH
PROP. SHARED-USE PATH
EX. US 68/KY 80
EX. LAKE BRIDGE
EX. LAKE FERRY BRIDGE
KENTUCKY LAKE
KENTUCKY LAKE
SHEET 2
PLAN VIEW
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY
Bridge and Associated Fill
TVA Number Assigned
RLR 223874
0'
100'
200'
400'



0' 100' 200' 400'

TVA Number Assigned
RLR 223874

TVA

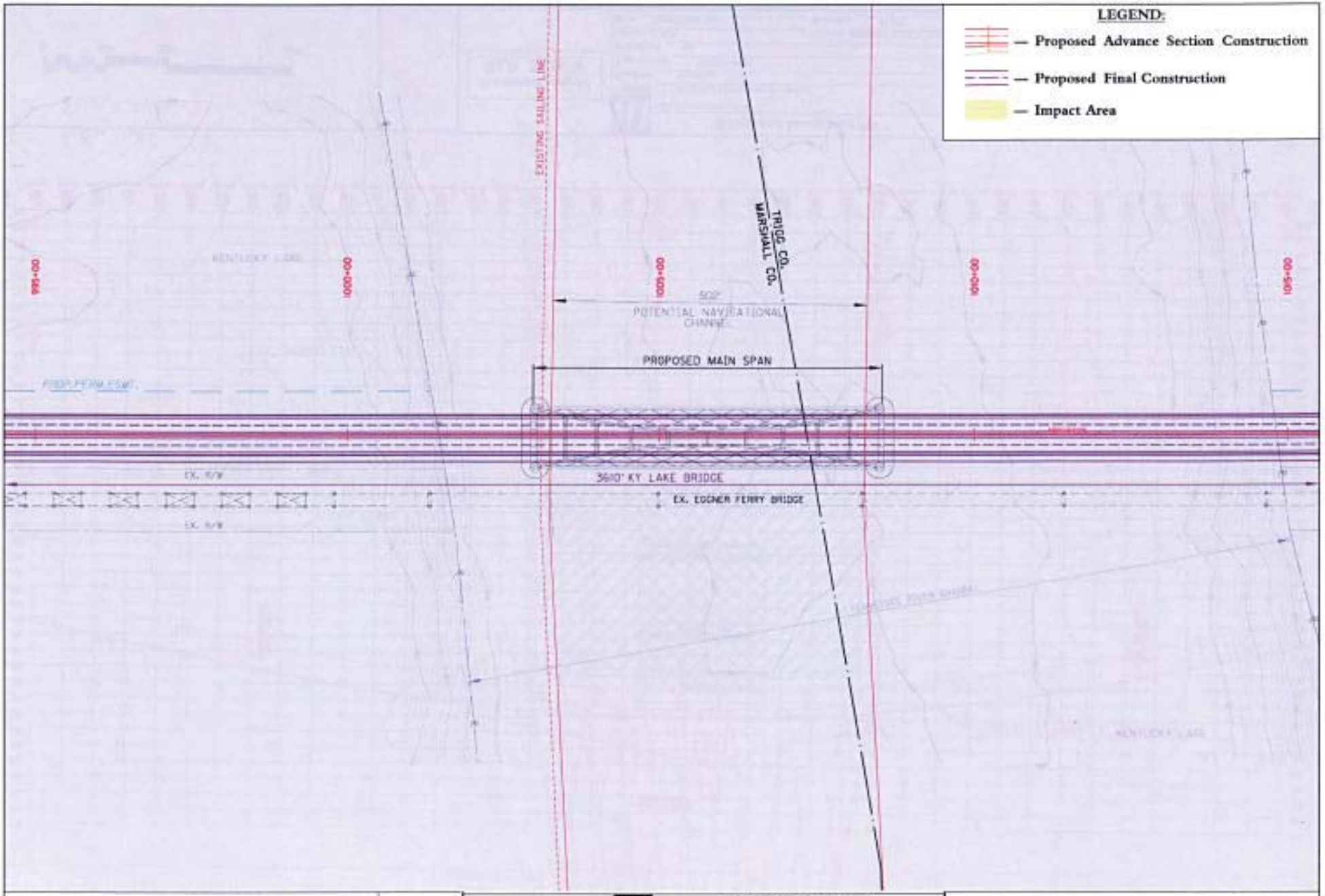
Bridge and Associated Fill

Project Location Information

Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: XTGIR-1594
Subdivision: N/A
Lot No.: N/A — Map No.: 35&39 D, 17SE & NW
River: Tennessee River — River Mile: 41.78

SHEET 2A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



0' 100' 200' 400'

TVA Number Assigned
RLR 223874

TVA

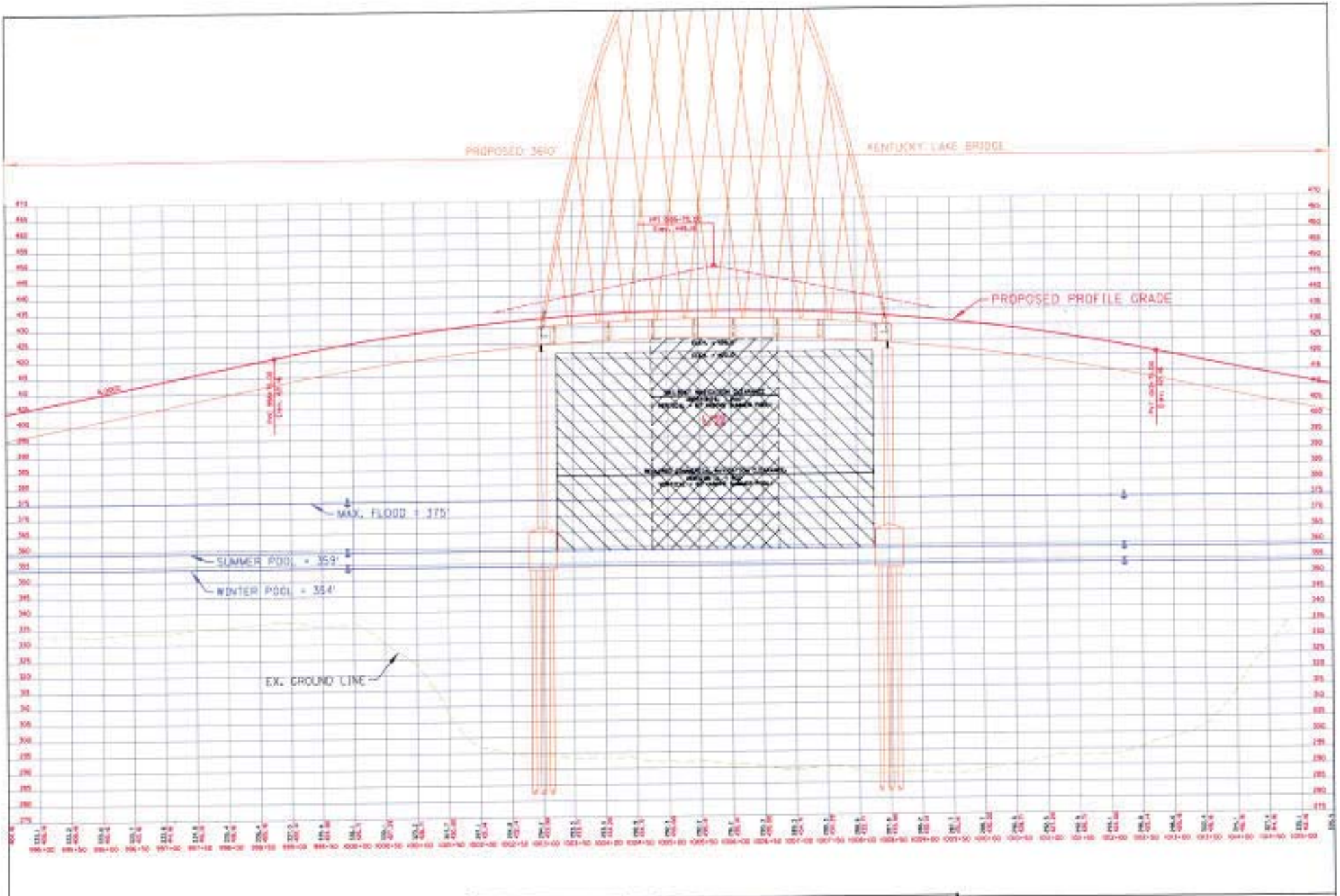
Bridge and Associated Fill

Project Location Information

Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: XTGR-158H
Subdivision: N/A
Lot No.: N/A — Map No.: 35&38-D, 37SE & N/A
River: Tennessee River — River Mile: 41.78

SHEET 3
PLAN VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY



0' 100' 200' 400'

TVA Number Assigned
RLR 223874

TVA

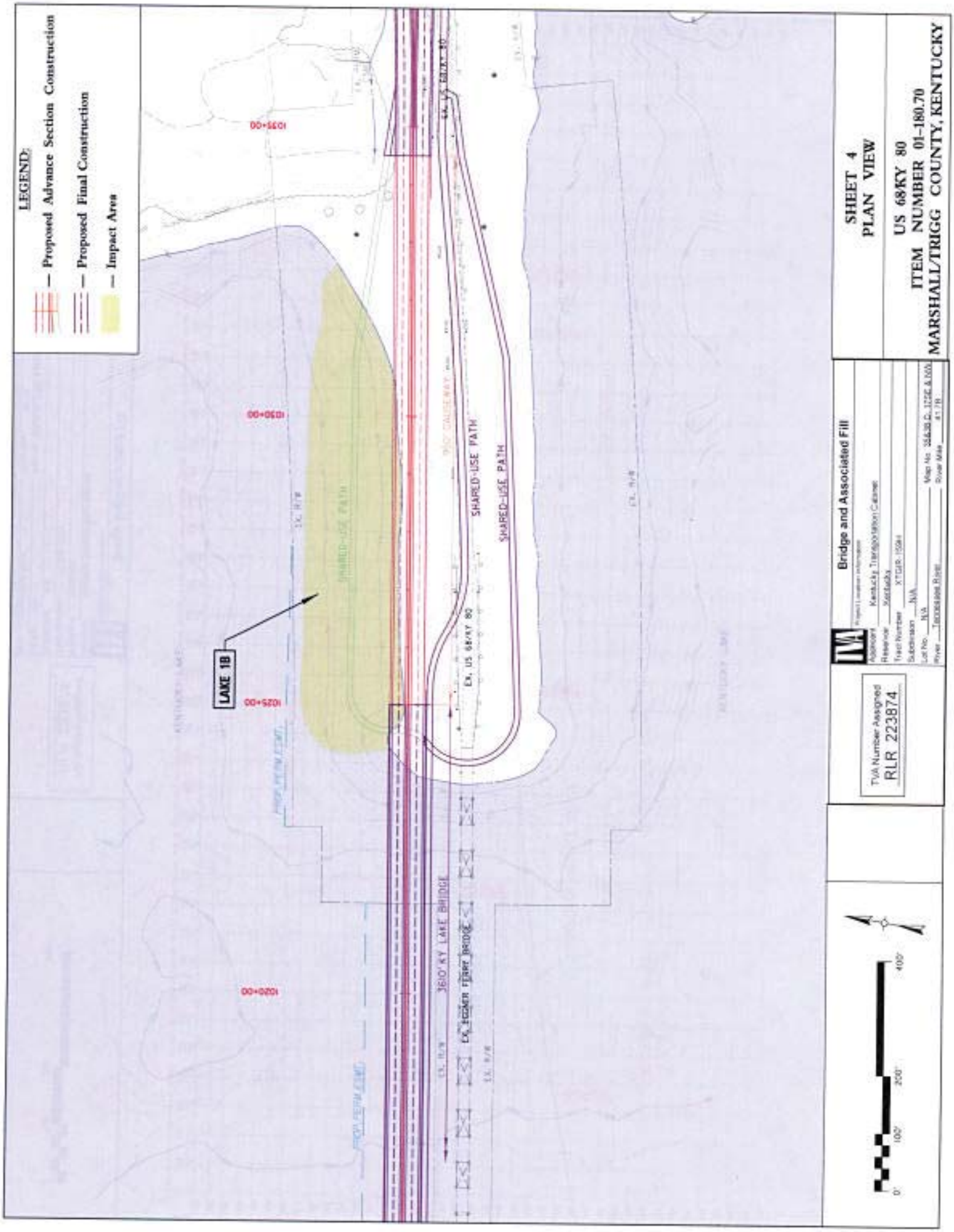
Bridge and Associated Fill

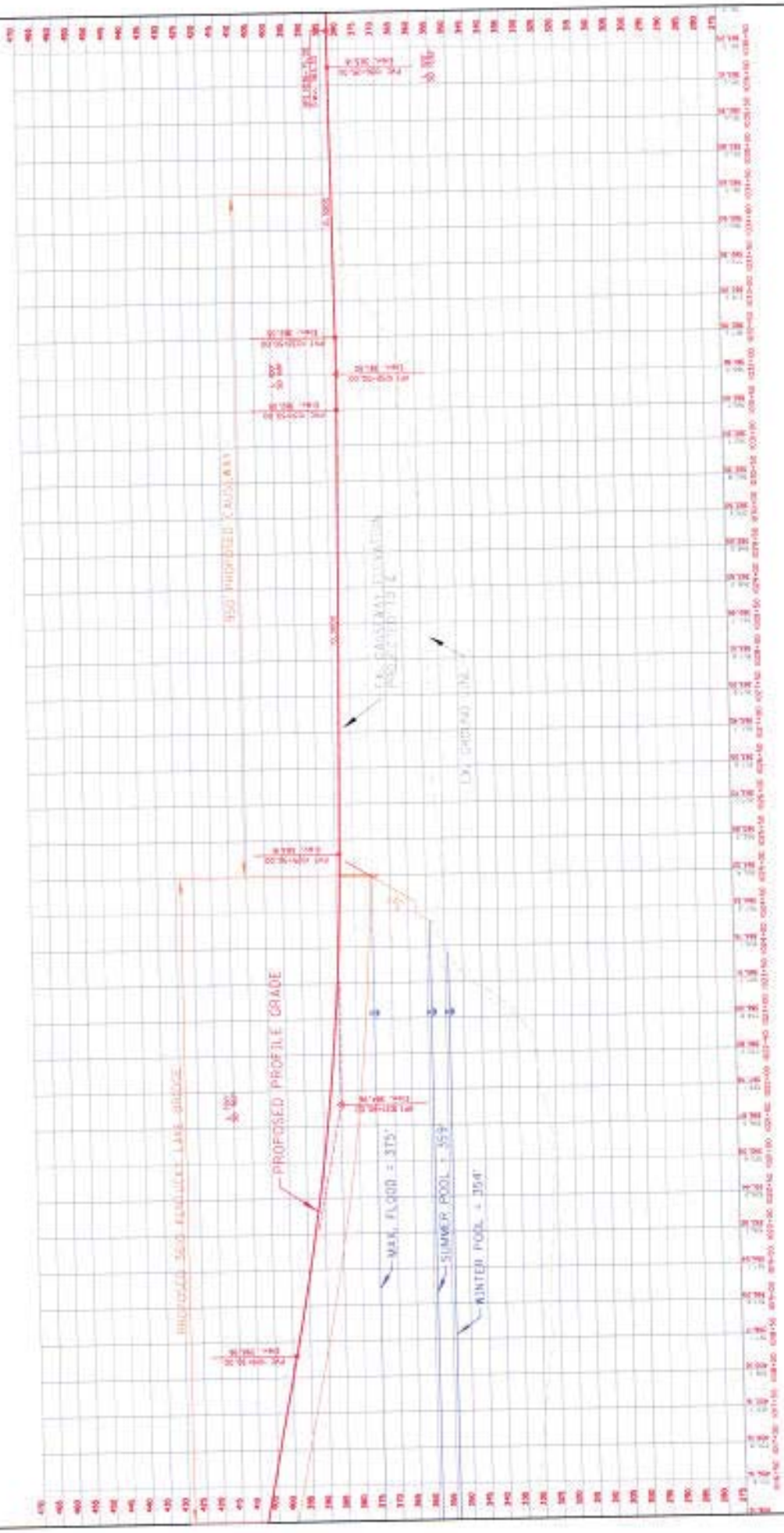
Project Location Information

Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: XTGIR-159H
Subdivision: N/A
Lot No.: N/A
Map No.: 158&39 D, 159R & NW
River: Tennessee River
River Mile: 41.79

SHEET 3A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY


LEGEND:
Proposed Advance Section Construction
Proposed Final Construction
Impact Area
SHEET 4
PLAN VIEW
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY
Bridge and Associated Fill
TVA Number Assigned
RLR 223874
LAKE 1B
SHARED-USE PATH
SHARED-USE PATH
EX. US 68/KY 80
EX. US 68/KY 80
360' KY LAKE BRIDGE
EX. LEGEN FERRY BRIDGE
1025+00
1030+00
1035+00
1020+00
0'
100'
200'
400'



SHEET 4A
PROFILE VIEW

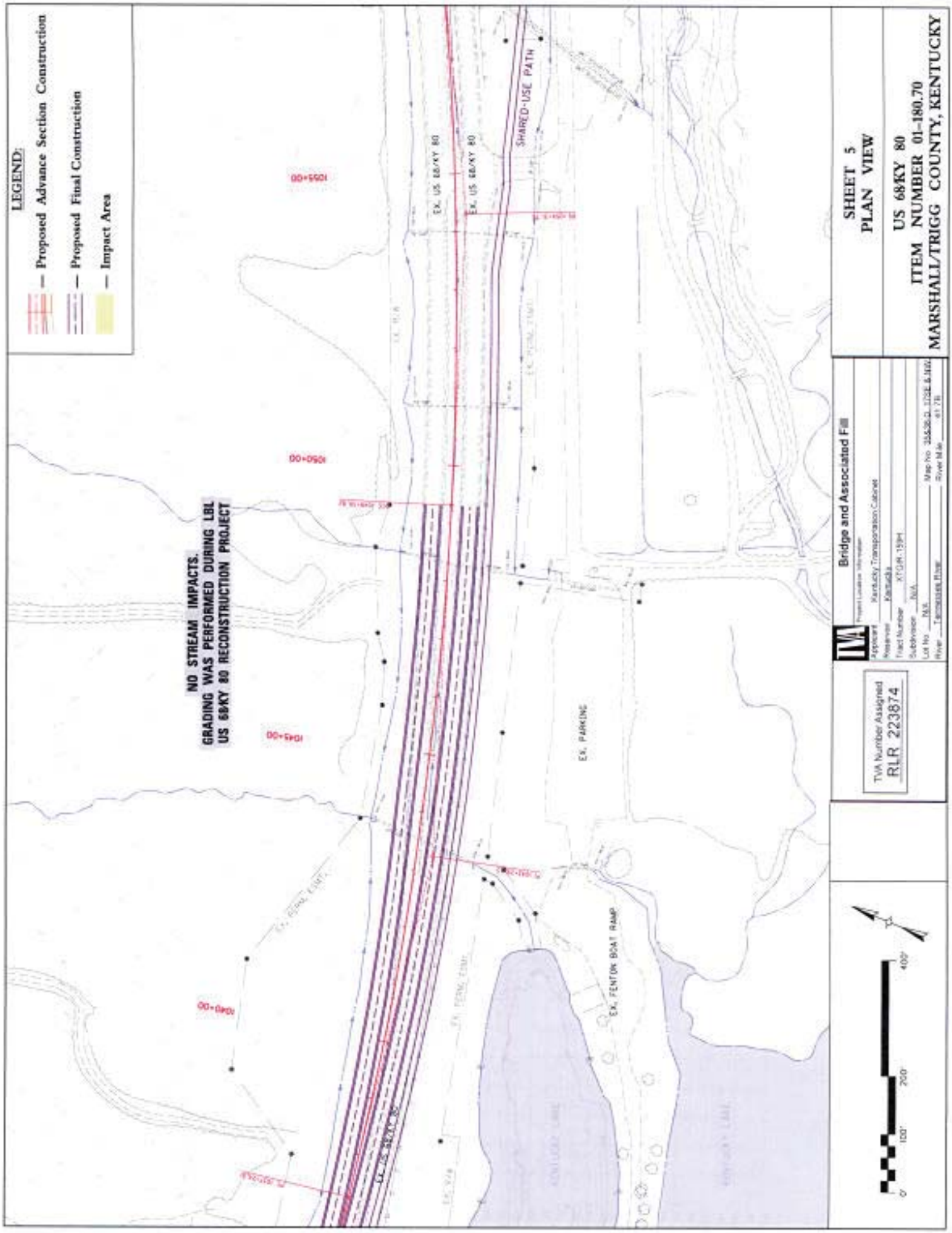
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY

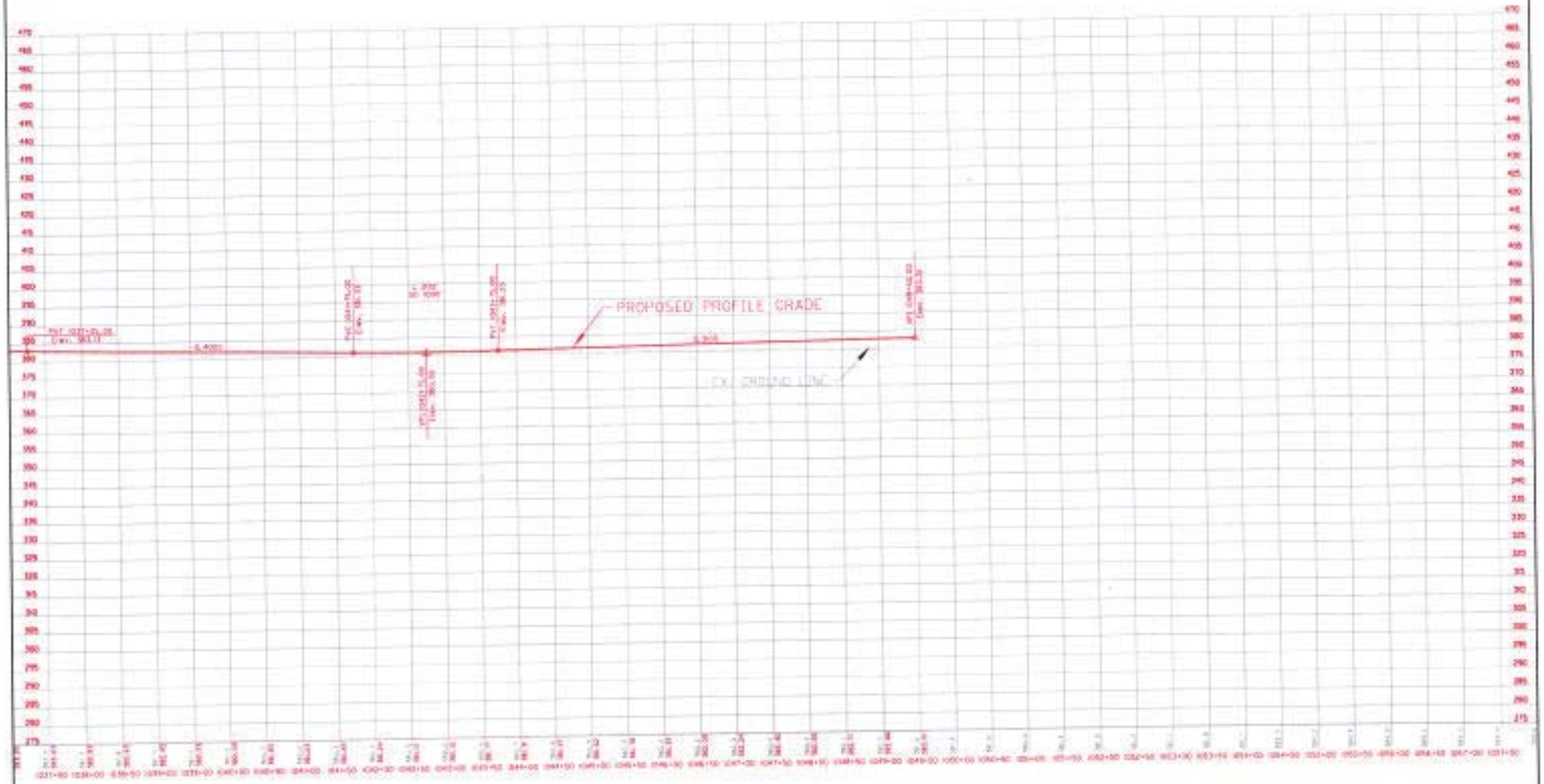
Bridge and Associated Fill

Project Location Information

Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: KTGR-1091
Subdivision: N/A
Lot No: N/A
River: Tennessee River
Map No: 38A38 D, 42SE & 43A
River Mile: 41.78

TVA Number Assigned
RLR 223874


LEGEND:
Proposed Advance Section Construction
Proposed Final Construction
Impact Area
NO STREAM IMPACTS.
GRADING WAS PERFORMED DURING LBL
US 68/KY 80 RECONSTRUCTION PROJECT
EX. US 68/KY 80
EX. US 68/KY 80
SHARED-USE PATH
EX. PARKING
EX. FENTON BOAT RAMP
1055+00
1050+00
1045+00
1040+00
SHEET 5
PLAN VIEW
US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY
Bridge and Associated Fill
Applicant Kentucky Transportation Cabinet
Waterway Kentucky
Tract Number XTGR-159H
Subdivision N/A
Lot No. N/A
River Tennessee River
TVA Number Assigned
RLR 223874
0'
100'
200'
400'



0' 100' 200' 400'

TVA Number Assigned
RLR 223874

TVA

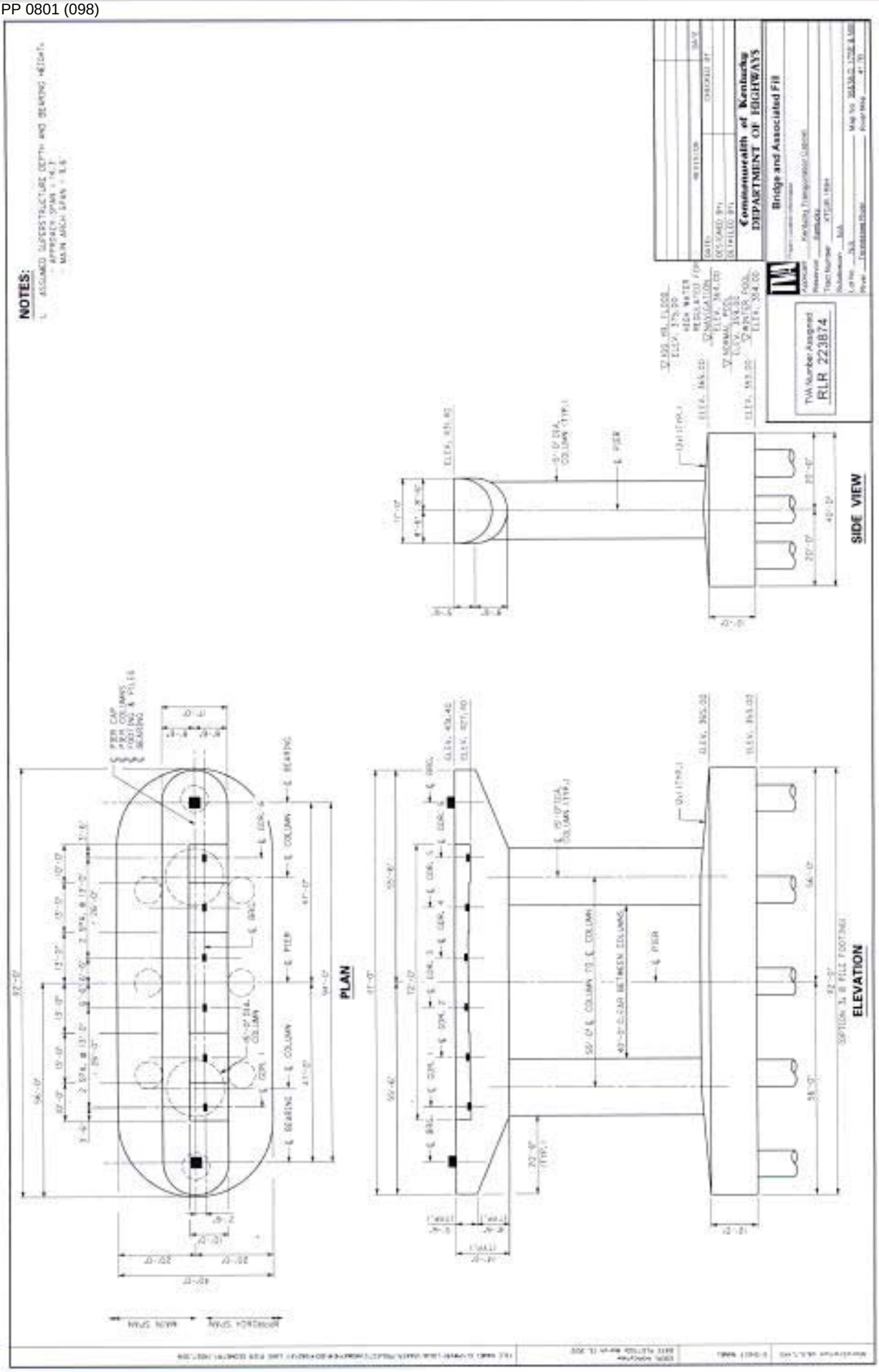
Bridge and Associated Fill

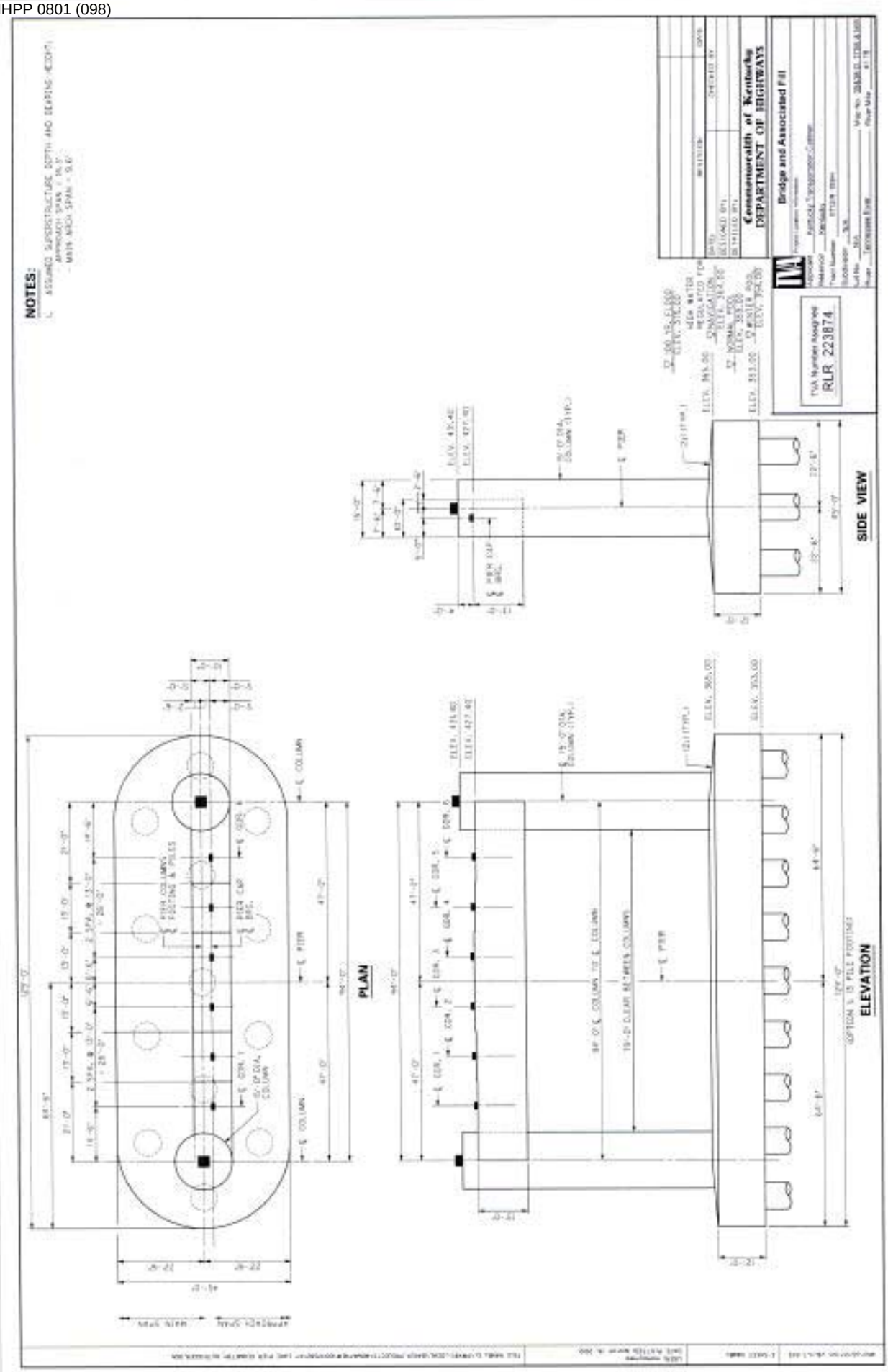
Project Location Information

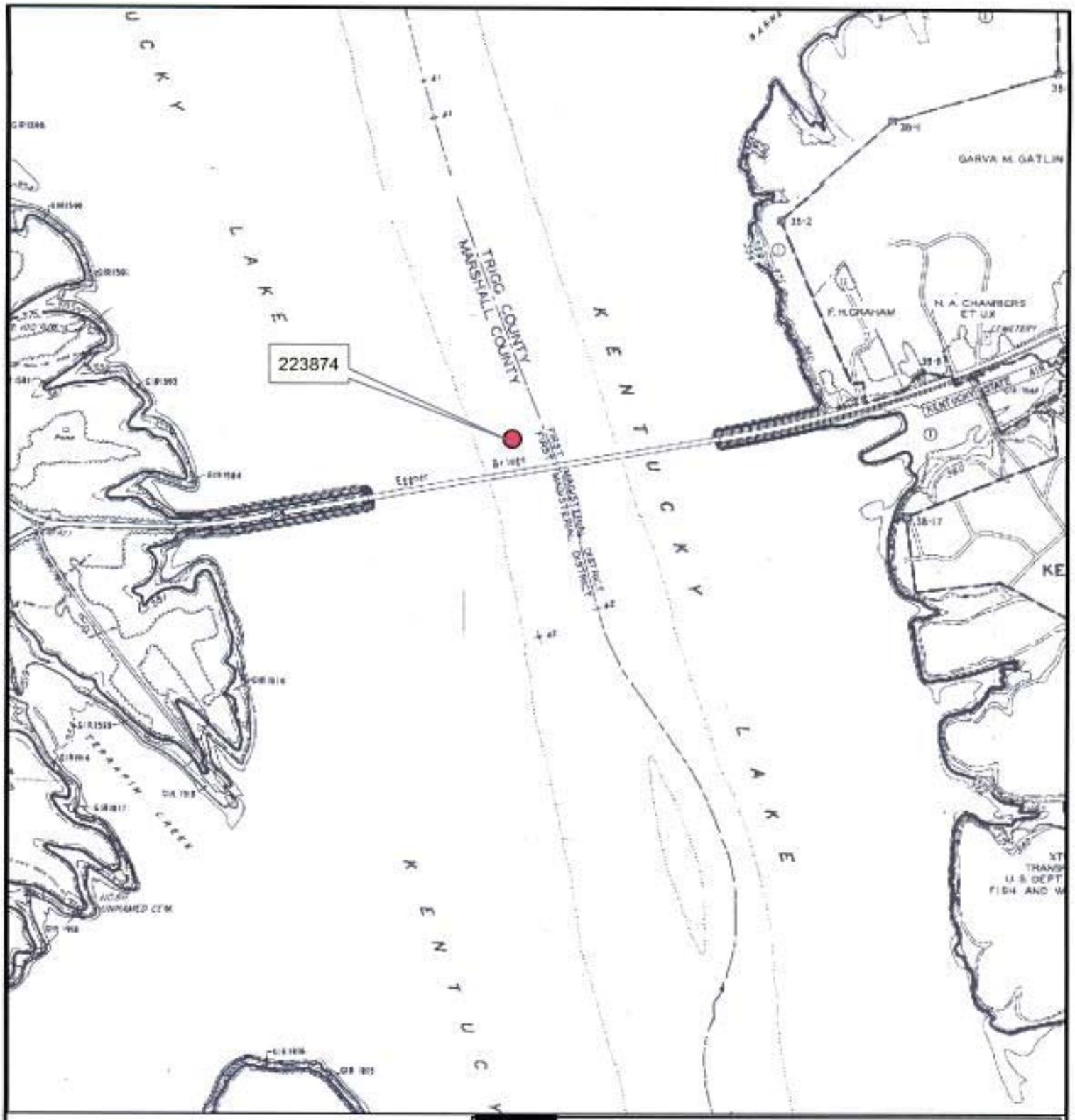
Applicant: Kentucky Transportation Cabinet
Reservoir: Kentucky
Tract Number: XTGIR-159H
Subdivision: N/A
Lot No: N/A
Map No: 35A30-D, 175E & 30A
River: Tennessee River
River Mile: 41.79

SHEET 5A
PROFILE VIEW

US 68/KY 80
ITEM NUMBER 01-180.70
MARSHALL/TRIGG COUNTY, KENTUCKY


NOTES:
1. ASSUMED SUPERSTRUCTURE DEPTH AND BEARING HEIGHTS
APPROACH SPAN = 14.7'
MAIN ARCH SPAN = 16.6'
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
Bridge and Associated Fill
TVA Number Assigned
RLR 223874
SIDE VIEW
PLAN
ELEVATION
MAIN SPAN
APPROACH SPAN


NOTES:
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
Bridge and Associated Fill
TVA Number Assigned
RLR 223874
SIDE VIEW
PLAN
ELEVATION



N

TVA Number Assigned

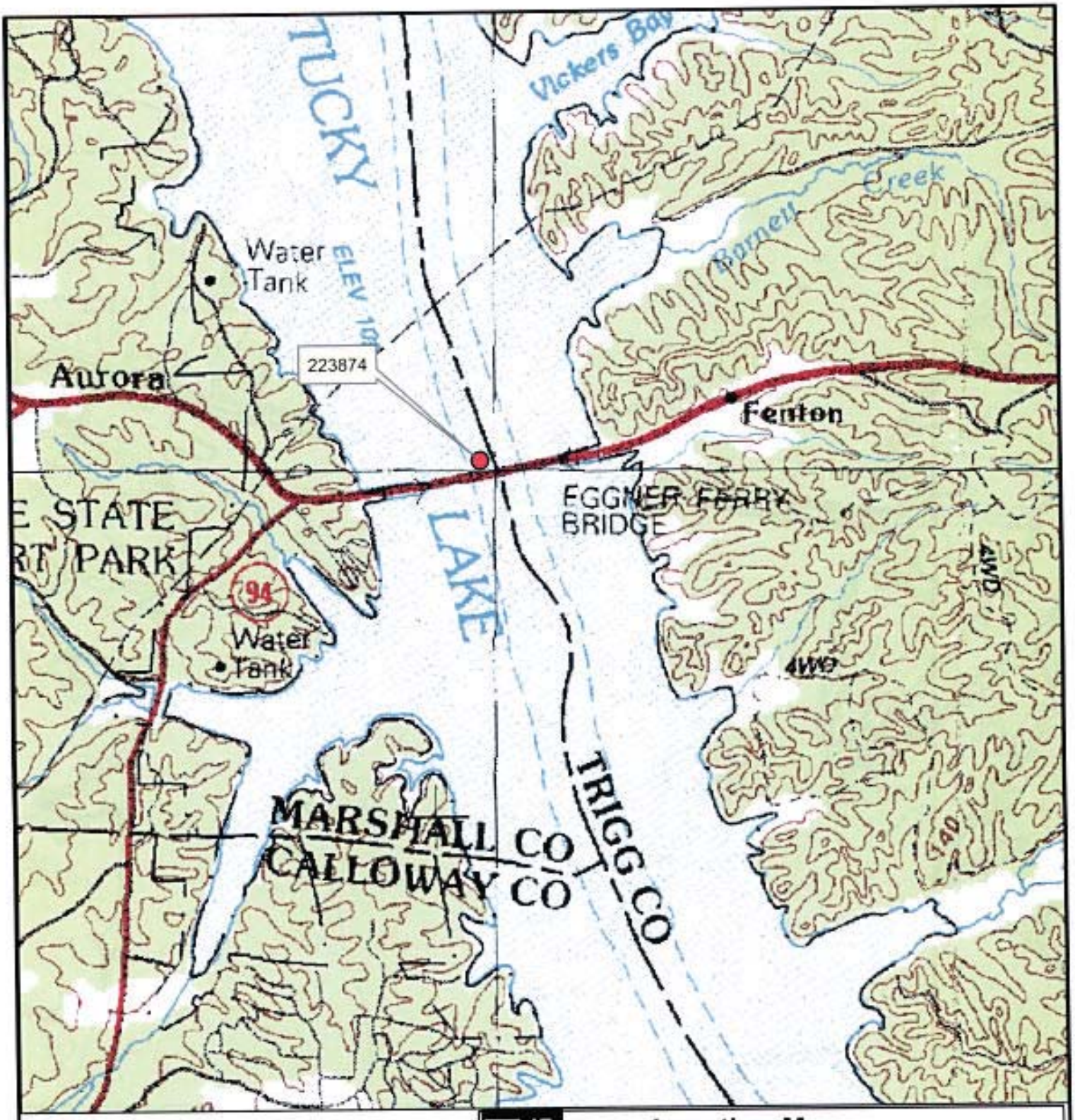
RLR 223874

TVA

Location Map

Project Location Information

Applicant Kentucky Transportation Cabinet
Reservoir Kentucky
Tract Number XTGIR-159H
Subdivision N/A
Lot No. N/A Map No. 35&38-D: 17SE & NW
River Tennessee River River Mile 41.7B



N

TVA Number Assigned

RLR 223874

TVA

Location Map

Project Location Information

Applicant Kentucky Transportation Cabinet
Reservoir Kentucky
Tract Number XTGIR-159H
Subdivision N/A
Lot No. N/A Map No. 35&38-D: 17SE & NW
River Tennessee River River Mile 41.7B

PAID
MAR 30 2012
Paidunder
By RLR-223864

C-3

OMB No. 3316-0060
Exp. Date 03/31/2007

JOINT APPLICATION FORM
Department of the Army/TVA

The Department of the Army (DA) permit program is authorized by **Section 10 of the Rivers and Harbors Act of 1899** and **Section 404 of the Clean Water Act (P.L. 95-217).** These laws require permits authorizing structures and work in or affecting navigable waters of the United States and the discharge of dredged or fill material into waters of the United States. **Section 26a of the Tennessee Valley Authority Act,** as amended, prohibits the construction, operation, or maintenance of any structure affecting navigation, flood control, or public lands or reservations across, along, or in the Tennessee River or any of its tributaries until plans for such construction, operation, and maintenance have been submitted to and approved by the Tennessee Valley Authority (TVA).

Name and Address of Applicant:	Name, Address, and Title of Authorized Agent:
Roy C. Collins III, Permits Coordinator Division of Environmental Analysis, KYTC 200 Mero Street Frankfort, Kentucky 40622	James B. Williams, PE Michael Baker Jr., Inc. 9750 Ormsby Station Road, Suite 210 Louisville, KY 40223
Telephone Number: Home _____	Telephone Number: Home _____
Office (502) 564-7250	Office (502) 339-3557

Location where activity exists or will occur *(include Stream Name and Mile, if known)*:
US68/KY80 Bridge (Eggner Ferry Bridge) over Kentucky Lake at mile 41.7 of Tennessee River.

Application submitted to: ☒ DA ☒ TVA

Date activity is proposed to commence: October 2012 Date activity is proposed to be completed: October 2016

Describe in detail the proposed activity, its purpose and intended use *(private, public, commercial, or other)*. Describe structures to be erected including those placed on fills, piles, or floating platforms. Also describe the type, composition, and quantity of materials to be discharged or placed in the water; the means of conveyance; and the source of discharge or fill material. Please attach additional sheets if needed.

The proposed activity is the reconstruction of US 68/KY 80 from its current 2-lane condition to a 4-lane facility across Kentucky Lake in Marshall and Trigg Counties, Kentucky. The proposed improvements will serve to enhance the safety along the travel system, provide improved linkage between Murray and Cadiz along US 68/KY 80, provide additional mobility within the project area, add pedestrian/multiuse paths for enhanced tourism and fishing access for KY Lake, and encourage economic development. The project will be separated into two construction contracts. The first contract, the Kentucky Lake Advance Section, includes grading of the proposed causeways and construction of a 580', 3-span steel girder bridge over a lagoon located on the north side of the west causeway. The second contract will include construction of the proposed bridge over Kentucky Lake to replace the existing Eggner Ferry Bridge. It will also include completion and paving of the approach roadways and causeways that were graded in the Advance Section. Material discharged will consist of select limestone, standard roadway fill material, rock channel protection, or other materials as appropriate. The means of discharge will be via conventional/heavy roadway construction. For additional site specific details, see the attached sheets.

Application is hereby made for approval of the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. **I agree that, if this application is approved by TVA, I will comply with the attached terms and conditions and any special conditions that may be imposed by TVA at the time of approval. Please note the U.S. Army Corps of Engineers may impose additional conditions or restrictions.**

3/22/12 — Date

Roy Collins — Signature of Applicant

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both. The appropriate DA fee will be assessed when a permit is issued.

Names, addresses, and telephone numbers of adjoining property owners, lessees, etc., whose properties also join the waterway:

East Side of Kentucky Lake:	West Side of Kentucky Lake
U.S. Department of Agriculture Forest Service Land Between the Lakes NRA 100 Van Morgan Drive Golden Pond, KY 42211 (270) 924-2000 1-800-525-7077	Kentucky Department of Parks Kenlake State Park 542 Kenlake Road Hardin, KY 42048 (270) 474-2211

RLR NO. 223874

List of previous DA/TVA permits/approvals: ☐ DA _____ (Permit Number) ☐ TVA _____ (Date)

Is any portion of the activity for which authorization is sought now complete? ☐ Yes ☒ No *(If "Yes" attach explanation)*
Month and year the activity was completed: _____ Indicate the existing work on the drawings.

List all approvals or certifications required by other federal, interstate, state, or local agencies for any structures, construction, discharges, deposits, or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
KDOW	401 WQC			
USCG	Rivers & Harbors Sect. 9			

Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein?
☐ Yes ☒ No *(If "Yes" attach explanation)*

Project plans or drawings should accompany the application. These should be on paper suitable for reproduction no larger than 11 x 17 inches or contained on a 3-1/2 inch floppy computer disc in "dxf" format, and should be submitted to the appropriate TVA and U.S. Army Corps of Engineers offices. An application that is not complete will be returned for additional information.

U.S.A.C.E. Offices		TVA Office Location
U.S. Army Corps of Engineers Eastern Regulatory Field Office Spring Cress Business Park 501 Adessa Blvd., Suite 250 Lenoir City, Tennessee 37771 (865) 986-7296	U.S. Army Corps of Engineers Savannah District The Plaza, Suite 130 1590 Adamson Parkway Morrow, Georgia 30260-1763 (678) 422-2729	Tennessee Valley Authority Kentucky Watershed Team 2835-A East Wood Street Paris, TN 38242-5948 (731) 641-2000
U.S. Army Corps of Engineers Regulatory Branch 3701 Bell Road Nashville, Tennessee 37214 (615) 369-7500	U.S. Army Corps of Engineers Western Regulatory Field Office 2042 Beltline Road, SW, Bldg C, Suite 415 Decatur, Alabama 35602 (256) 350-5620	
U.S. Army Corps of Engineers Norfolk District P.O. Box 338 Abingdon, Virginia 24212 (276) 623-5259	U.S. Army Corps of Engineers Asheville Regulatory Field Office 151 Patton Avenue, Room 208 Asheville, North Carolina 28801-5006 (828) 271-4856	

Privacy Act Statement

This information is being requested in accordance with Section 26a of the TVA Act as cited on the front page of this form. Disclosure of the information requested is voluntary; however, failure to provide any required information or documents may result in a delay in processing your application or in your being denied a Section 26a permit. An application that is not complete will be returned for additional information. TVA uses this information to assess the impact of the proposed project on TVA programs and the environment and to determine if the project can be approved. Information in the application is made a matter of public record through issuance of a public notice if warranted. Routine uses of this information include providing to federal, state, or local agencies, and to consultants, contractors, etc., for use in program evaluations, studies, or other matters involving support services to the program; to respond to a congressional inquiry concerning the application or Section 26a program; and for oversight or similar purposes, corrective action, litigation or law enforcement.

Burden Estimate Statement

Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Agency Clearance Officer, Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402, and to the Office of Management and Budget, Paperwork Reduction Project (3316-0060), Washington, D.C. 20503.

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Mar. 26, 2012

Mr. Bradley Bishop
Dept. of Army Corps of Engineers – Nashville District
3701 Bell Road
Nashville, TN. 37214

Ms. Leslie White
TVA Section 26a
2835-A Eastwood St.
Paris, Tennessee 38242

Subject: **Application for Section 404 Nationwide Permit, WQC & TVA 26a**
Kentucky 80/ US 68 Kentucky Lagoon Bridge
Marshall & Trigg County, Kentucky
KYTC Item No: 1-180.70

Dear Mr. Bishop, Jackson and Ms. White:

The Kentucky Transportation Cabinet respectfully submits this application for a Section 404 Nationwide Permit, Section 401 Water Quality Certification & TVA 26a permit. This project would entail the work required to construct a 580' 3span steel girder bridge over a lagoon located on the north side of the west causeway and the grading for the causeways for the upcoming Kentucky Lake bridges. Based on the proposed impacts, .41 acres of wetland impact will occur and fill from construction of the causeways will be placed within the regulated power storage loss elevations. For all the impacts (all within one 14 digit HUC) that will require mitigation KYTC respectfully request that all mitigation be handled through payments into the In Lieu Fee program.

Section 106 of the National Historic Preservation Act has been addressed through consultation with the KY SHPO. This project is federally funded and, as such, the Federal Highway Administration has addressed issues related to the NHPA. Attached for your consideration is a copy of the Memorandum of Agreement, signed by FHWA and the SHPO to mitigate for adverse effects created by the undertaking.

Section 7 of the Endangered Species Act (ESA) is currently being addressed through consultation with the US Fish and Wildlife Service through their due process. This project is federally funded and, as such, the Federal Highway Administration is currently addressing issues related to the ESA. Attached for your consideration is a copy of the endangered species list for Marshall & Trigg Counties, provided by USFWS. The KYTC is waiting for a formal response and it will be sent to your office upon receipt.

Enclosed you should find all necessary information in order to make a permit determination. As for TVA's application processing fee your package submittal includes the required fee. Also all applications include a digital copy of the permit application to help expedite your review process. If anything is missing that you need to assist you or you have any questions please contact me by email RoyC.Collins@ky.gov or by phone 502-564-7250.

Sincerely,

Roy Collins
Permit Coordinator
Cc: Adam Jackson

Tennessee Valley Authority, 1101 Market Street (PSC 1E), Chattanooga, Tennessee 37402

December 31, 2012

Mr. Roy Collins III
Permits Coordinator
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Collins:

REQUEST FOR TEMPORARY CONSTRUCTION LICENSE FOR STATE ROUTE 80 / US68 BRIDGE REPLACEMENT AND APPROACHES – TRACT XTGIR-159H – KENTUCKY RESERVOIR – MARSHALL AND TRIGG COUNTIES, KENTUCKY

Please find enclosed two copies of a 60-day revocable license agreement between the Kentucky Transportation Cabinet (KYTC) and the Tennessee Valley Authority.

The license is for the temporary construction areas located on TVA Tract GIR-1594 and GIR-1785. Please sign both copies of the license and return them to our office using the enclosed envelope. Once the signed copies are received by our office, TVA will sign the agreement and provide KYTC with an executed copy.

If you have any questions, please contact Samantha Strickland at 256-386-2643.

Sincerely,

Angela B. Sims
Senior Manager
Reservoir Land Use and Permitting

Printed on recycled paper

License Agreement for Occupancy and Use of TVA Land

Contract No. 227525
Tract No. GIR-1594, GIR-1785

A. **Date of Agreement:** 12 (Month) 31 (Day) 2012 (Year)

B. **Name of Licensee:** Kentucky Transportation Cabinet (KYTC)
Address: Div. Of Environmental Analysis, 200 Mero Street, Frankfort, Kentucky 40622
Telephone Number: 502-564-7250

C. **Licensee is a:** ☒ GOVERNMENT ☐ CORPORATION ☐ PARTNERSHIP ☐ INDIVIDUAL
☐ LOCAL
☒ STATE
☐ FEDERAL

D. **Description and Location of Premises:**
A portion of TVA Tract No.s GIR-1594 and GIR-1785, Tennessee River Mile 41.7B, Kentucky Reservoir, consisting of approximately 12 acres (See Attached Exhibit Map)

E. **Permitted Use of Premises:**
Temporary construction area for construction of SR - 80/US 68 bridge across the Tennessee River in Marshall and Trigg Counties.

F. **Period of Occupancy Is to Begin:** 12 (Month) 31 (Day) 2012 (Year)

G. **IF APPLICABLE - Cost of license per year** $N/A

H. **Notice of Termination of Agreement (By Either Party) Must Be Given Prior to Actual Date Of Termination:**
☐ 30 days ☒ 60 days

I. **TVA Designated Representative:** Angela B. Sims
Address: 1101 Market St. (PSC 1E), Chattanooga, TN
Telephone Number: 423-876-4010 Zip Code: 37402-2801

This agreement, made and entered into as of the date first written above, by and between TENNESSEE VALLEY AUTHORITY (hereinafter called "TVA"), a corporation created by the Tennessee Valley Authority Act of 1933, and the party described in section (b) above (hereinafter called "Licensee"), whose address is described in section (B) above.

WITNESSETH

In consideration of the mutual covenants hereinafter stated, the parties hereto agree as follows:

1. TVA hereby grants to the Licensee a license to occupy and use, subject to all of the terms and conditions hereinafter stated, the premises described in section (D) above for the purposes described in section (E) above during the term of this agreement. Said premises are more specifically described and designated on the sketch map labeled "EXHIBIT A," which is attached hereto and made a part hereof.

2. In all matters relating to this license, the TVA designated representative, whose name and address appear in the section (I) above, shall act for TVA, unless or until TVA shall designate a different representative or address.

3. The Licensee shall have the right, upon receipt of TVA's written approval of Licensee's plans, to dig; excavate; install pipe, wire, and poles; cut, trim, and clear trees and brush; and destroy or otherwise dispose of such trees and brush and other obstructions, but only to the extent reasonably necessary to the occupancy and the use of the premises for the purpose for which this license is granted.

4. The Licensee shall maintain the premises in as good condition as they were in when first entered upon pursuant to this license, ordinary wear and tear excepted, and damage caused by acts of God, civil commotion, or negligence of TVA excepted. If the Licensee shall fail to restore the premises to their original condition and to make any repairs or replacements required by this article, TVA may make such repairs or replacements, and in that event the Licensee shall reimburse TVA the full cost thereof within thirty (30) days after notice of payment therefor.

5. Either party may terminate this agreement at any time without regard to payment periods, by giving written notice to the other, specifying the date of termination, such notice to be given not less than the time period specified in section (H) above. Any notice mailed, addressed to the Licensee at the address indicated herein, or delivered to the Licensee shall be notice hereunder by TVA. Any notice mailed or delivered to the TVA designated representative at the address indicated herein, unless and until TVA shall designate a different representative or address, shall be notice hereunder by the Licensee.

6. The Licensee shall have the right, during the period of this agreement, to make improvements, erect structures and install equipment in or upon the premises, upon receipt of advance written approval from TVA's designated representative listed in section (I) above. Such structures and equipment so placed in or upon or attached to the said premises shall be and remain the property of the Licensee and may be removed therefrom by the Licensee at any time prior to any termination of this agreement and within thirty (30) days after any termination of this agreement; provided; however, that no structures may be erected upon the said premises unless and until the design and proposed location thereof have been approved by TVA; and provided, further, that the Licensee shall, upon the removal of said structures and equipment, promptly repair any damage to the premises resulting from the erection, installation, or removal of said structures, and equipment. Title to structures and equipment not removed from the premises within thirty (30) days after any termination of this agreement shall automatically vest in TVA without further consideration. All property, structures, and equipment of the Licensee placed in or upon or attached to the premises shall be at the sole risk of the Licensee. The Licensee shall, upon the removal of any or all of its property promptly repair any damage to the premises resulting from the placing, construction, maintenance, and removal of said property. No fill material may be placed on or removed from the premises without advance written approval from TVA's designated representative.

7. The licensee shall not, during its occupancy and use of the premises, reconstruct, relocate, or structurally alter any structure or fixed improvement upon the premises, unless such reconstruction, relocation, or structural alteration is made with the prior written approval of TVA.

8. TVA reserves the right to enter upon the premises for the purpose of inspecting the premises, conducting any operations or programs upon the premises that will not interfere with the continued use of the premises by the Licensee under the terms of this agreement, and going to and from any lands of TVA which adjoin the premises.

9. The Licensee's occupancy and use of the premises covered by this agreement are subject to, and the Licensee shall comply with, all applicable laws and governmental regulations and all rules and regulations prescribed by TVA with respect thereto. The Licensee shall promptly pay all ad valorem taxes which lawfully may be imposed upon its property on the premises.

10. All land-disturbing activities shall be conducted by the Licensee in accordance with best management practices as defined by Section 208 of the Clean Water Act and implementing regulations to control erosion and sedimentation so as to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable Federal, State, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation. The Licensee shall do all in its power to prevent and suppress forest and grass fires upon or in the vicinity of the premises. The Licensee shall keep the premises at all times in a clean and sanitary condition.

11. Licensee will control all emissions of pollutants that might be discharged directly or indirectly into the atmosphere, into any stream, lake, reservoir, watercourse, or surface or subterranean waters, or into or on the ground from any part of the premises, in full compliance with all applicable standards and requirements relating to pollution control of any kind now in effect or hereafter established by or pursuant to federal, state, or local statutes, ordinances, codes, or regulations. If there is a discharge of a hazardous substance, material, or waste, or of any pollutant or other substance, in or from the premises by any person or entity other than TVA for which a cleanup, remediation, restoration, removal, or other action (hereinafter, individually and collectively, referred to as "environmental response") is ordered or required pursuant to any federal, state, or local statute, regulation, or ordinance (including, without limitation, discharges which spread or move in whole or in part beyond the premises to other areas owned by TVA), Licensee shall bear full responsibility for the cost (including, without limitation, natural resources damages and costs) of said environmental response, and shall not seek any contribution or indemnification from TVA for all or any portion of said costs; provided, however, that nothing in this covenant is intended to or shall preclude Licensee from seeking indemnification or contribution from any other person or entity, and provided further that nothing herein shall create any rights in or be enforceable by any person or entity other than TVA, or its successors and assigns.

12. The Licensee agrees to fully indemnify and hold the United States of America, TVA, and its directors, officers, agents, and employees, harmless from and against any and all claims, demands, liability, losses, damage, costs, or expenses (including attorney's fees and other costs of defense), of any nature or kind whatsoever, arising out of or otherwise resulting from the Licensee's activities on the premises or the condition or use of the premises covered by this agreement, except liability for personal injuries, or property damage caused by the sole negligence of TVA, its directors, officers, agents, or employees.

13. No assignment of this agreement or any interest herein and no sublicense for any purpose shall be made or granted by the Licensee.

14. The Licensee agrees that it does not, and shall not, claim at any time any interest or estate of any kind or extent whatsoever in the premises, by virtue of this license or its occupancy or use hereunder.

15. TVA does not warrant or represent that the premises are safe, healthful, or suitable for the purposes for which they are permitted to be used under the terms of this agreement.

16. No member of or delegate to Congress or Resident Commissioner or any officer, employee, special Government employee, or agent of TVA shall be admitted to any share or part of this agreement or to any benefit that might arise therefrom, but this provision shall not be construed to extend to a corporation or unit of Government contracting for its or for the public's general benefit; nor shall the Licensee offer or give, directly or indirectly, to any officer, employee, special Government employee, or agent of TVA, any gift, gratuity, favor, entertainment, loan, or any other thing of monetary value, except as provided in 18 C.F.R. Section 1300.735-12 or -34. Breach of this provision shall constitute a material breach of this agreement.

17. Any relocation or adjustment of Licensee's equipment or related facilities necessitated by TVA's activities during the term of this license shall be performed at the sole expense of the Licensee.

18. Licensee shall pay TVA interest, at the rate payable by TVA under Prompt Payment Act (31 U.S.C 3901-3906), on any overdue amount. Interest shall run from the date payment is due under this license until the date TVA receives payment or the date the remittance is postmarked, whichever is earlier. In addition to the interest charge for late payment, Licensee shall pay TVA an administrative fee currently fixed at Fifteen Dollars ($15) as a result of such late payment. Payment of interest and the administrative fee shall be due thirty (30) days after the date of TVA's invoice for said payment. Failure to make any payment as required by this license shall be basis for termination.

19. The Native American Graves Protection and Repatriation Act and the Archeological Resources Protection Act apply to archeological resources located on the premises. If LESSEE (for licensee or grantee (for easement) or applicant (for 26a permit of Federal land) discovers human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archeological resources on or under the premises, LESSEE (for licensee, grantee, or applicant) shall immediately stop activity in the area of the discovery, make a reasonable effort to protect the items, and notify TVA by telephone 1-800-882-5263, with written confirmation to TVA at 400 W. Summitt Hill Dr. WT-11D, Knoxville, TN 37902. Work may not be resumed in the area of the discovery until approved by TVA.

20. No person shall, on the grounds of race, color, religion, sex, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be subjected to any discrimination under any program activity carried out by the licensee utilizing benefits or assets obtained by reason of the license. In conducting such programs and activities, the licensee shall comply with applicable Federal laws, regulations, and Executive Orders together with any further amendments thereto.

In addition to the above, the following items WHICH HAVE BEEN CHECKED (X) also apply:

☒ 21. This agreement in no way constitutes approval by TVA, within the meaning of Section 26a of the Tennessee Valley Authority Act of 1933, of any structures, utilities, or facilities constructed or to be constructed hereunder. The Licensee will not construct any structures, utilities, or facilities for which approval is required under said Section 26a until plans for such structure, utility, or facility have been submitted to TVA for approval in accordance with established procedures.

☐ 22. The Licensee shall pay TVA for this license at the rate specified in section (G) above, payable in advance. The first annual payment shall be made on the date specified in Article (F) above. Subsequent annual payments shall be made in advance promptly by the month and day specified in Article (F) above. Payment for any period less than one (1) year shall be apportioned on a 365-day basis, and upon any termination of this agreement, TVA shall refund the unearned portion of the fee paid in advance; provided, however, that no payment or refunds shall be made in amounts less than ONE DOLLAR ($1).

☐ 23. TVA reserves the right to evaluate and change the annual fee rates which is documented as a part of this agreement. If a new fee structure is initiated, a change in the annual license payment will be required. TVA will notify the holder of the agreement and give at least 90 days notice if and when a change is required.

☒ 24. TVA reserves the right to manipulate the levels of any of its lakes in any manner whatsoever, and to drawdown said lakes at any time. TVA shall not be liable to the Licensee by reason of any injury to person or property or for loss of life or property suffered or sustained in, upon, or about any of the premises as a result of the operations of TVA.

☒ 25. The Licensee shall have the right to pass and repass over existing access roads of TVA not included in the licensed premises in going to and from said premises. Such existing access roads will be designated by TVA. In the event that the Licensee shall require additional access roads in going to and from the licensed premises, the Licensee may construct, at its own expense, such additional access roads, but such additional access roads may not be constructed in locations other than those designated by TVA. Access roads so constructed by the Licensee shall be maintained in usable condition by the Licensee during the period of use thereof by the Licensee.

☒ 26. Without limiting any obligations or liabilities under this agreement, the Licensee shall, at its own expense, provide and maintain in effect throughout the term of this agreement, Commercial General Liability insurance, occurrence form, with bodily injury and property damage combined single limits of at least $1,000,000 per occurrence. The policy or policies of insurance shall be written by insurance company or companies which shall be rated A or better by A.M. Best Company and are licensed to do business in Kentucky, or are an accepted surplus lines carrier. The insurance carrier or carriers and form of policies shall be subject to TVA's acceptance.

The Licensee shall require its insurers to amend its Commercial General Liability and if applicable, Umbrella or Excess Liability policies to provide that:

(a) TVA, the U.S., their directors, officers, agents, and employees are Additional Insureds under this policy; and
(b) It states that it is primary, noncontributory insurance; and
(c) It includes an insurer's waiver of rights of subrogation in favor of TVA, The U.S., their directors, officers, agents and employees; and
(d) It contains a cross liability or severability of interest clause; and
(e) It states the policy may not be canceled, non-renewed, or materially changed by the insurer without giving thirty (30) days prior written notice to TVA (except that notice of cancellation for nonpayment of premium may be ten (10) days).

Prior to beginning operations under this agreement, Licensee shall cause its insurers or agents to provide TVA with an annual Certificate of Insurance evidencing the policies and endorsements above. Failure by the Licensee to provide and maintain current, valid certificates of insurance throughout the agreement shall be material breach of the agreement for which TVA may exercise any rights or remedies it may have under the agreement or by law. If requested by TVA, the Licensee shall promptly provide or cause its agents to provide a certified copy of the insurance policy.

Licensee will promptly notify TVA of any accidents on and /or damage to the licensed premises or the facilities thereon. If this is a long-term lease, TVA may require the Licensee at any time to obtain and maintain increased minimum amounts of insurance coverage to the extent it reasonably believes such increased minimum amounts of insurance coverage are necessary in accordance with standard insurance industry practice or to cover changes caused by inflation.

☐ 27. **Special Provisions:**
N/A

IN WITNESS whereof, the parties have executed this instrument on the day and year first above written.

LICENSEE

By _____

Title _____

TENNESSEE VALLEY AUTHORITY

By _____

Title Senior Manager RLU&P

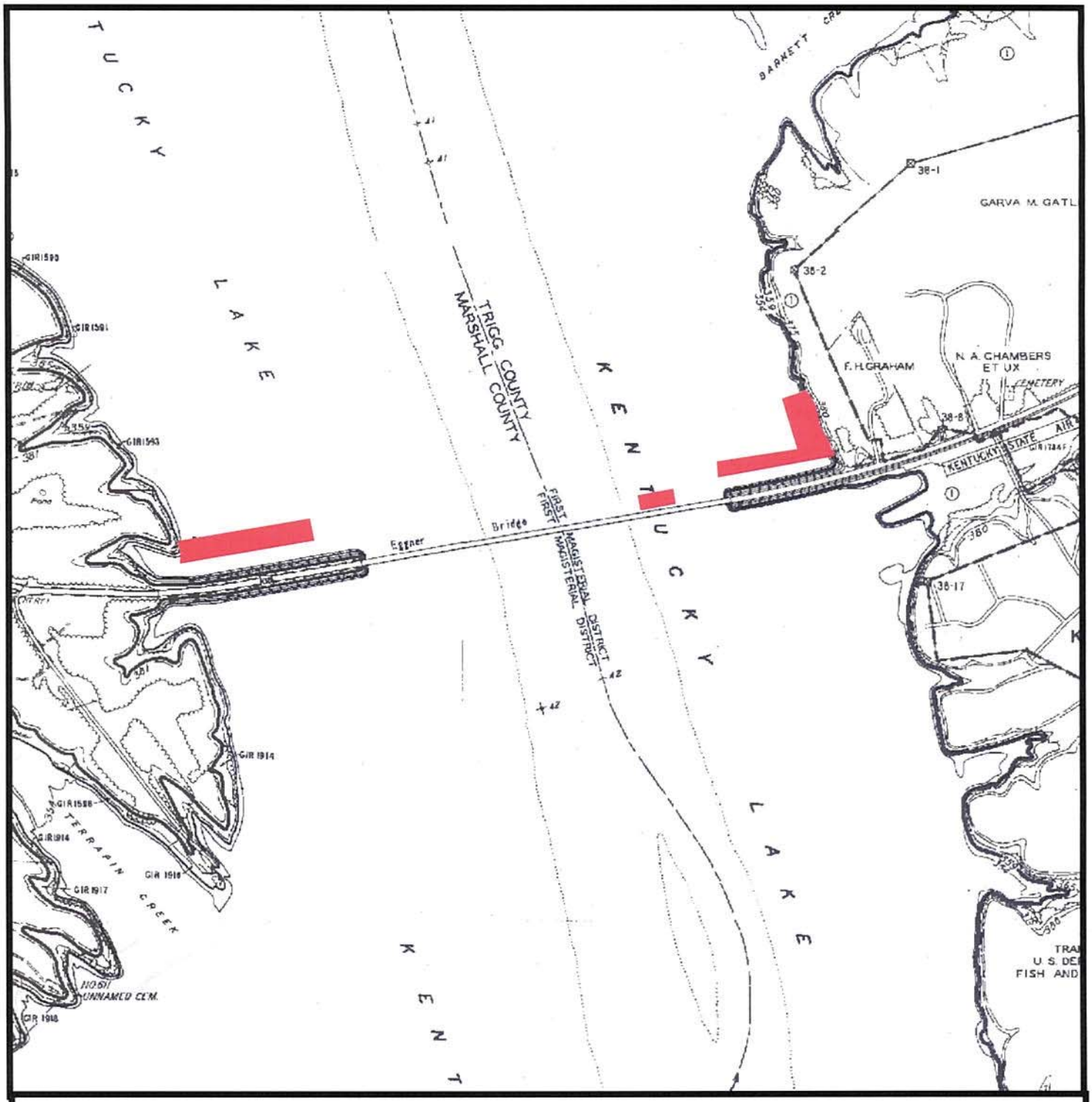


Exhibit Map

Kentucky Reservoir
Kentucky Transportation Cabinet
GIR-1594 & GIR-1785
TN River Mile 41.7 B

Map Reference:
C/D Stage: 35 & 38-D
Quad: 17SW & 17SE

License Location
(Approx. 12 acres)

0 375 750 1,500 2,250 3,000
Feet

N

TVA

Property and Natural Resources

November 19, 2012

U.S. Department of Homeland Security
United States Coast Guard

BRIDGE PERMIT

2 8 OCT 2013

(11-13-8)

WHEREAS by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946," as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

AND WHEREAS the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

AND WHEREAS the - **COMMONWEALTH OF KENTUCKY** - has submitted for approval the location and plans of a bridge to be constructed across the Tennessee River (Kentucky Lake) between Aurora and The Land Between The Lakes, Kentucky;

NOW THEREFORE, This is to certify that the location and plans dated 2 July 2013 are hereby approved by the Commandant, subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Commandant.

2. The construction of falsework, pilings, cofferdams or other obstructions, if required, and the scheme for constructing the bridge shall be in accordance with plans submitted to and approved by the Commander, Eighth Coast Guard District, prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case later than 90 days after the bridge has been opened to traffic.

2 8 OCT 2013
BRIDGE PERMIT

Continuation Sheet

Bridge across the Tennessee River between Aurora and The Land Between The Lakes, Kentucky

(11-13-8)

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridge when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

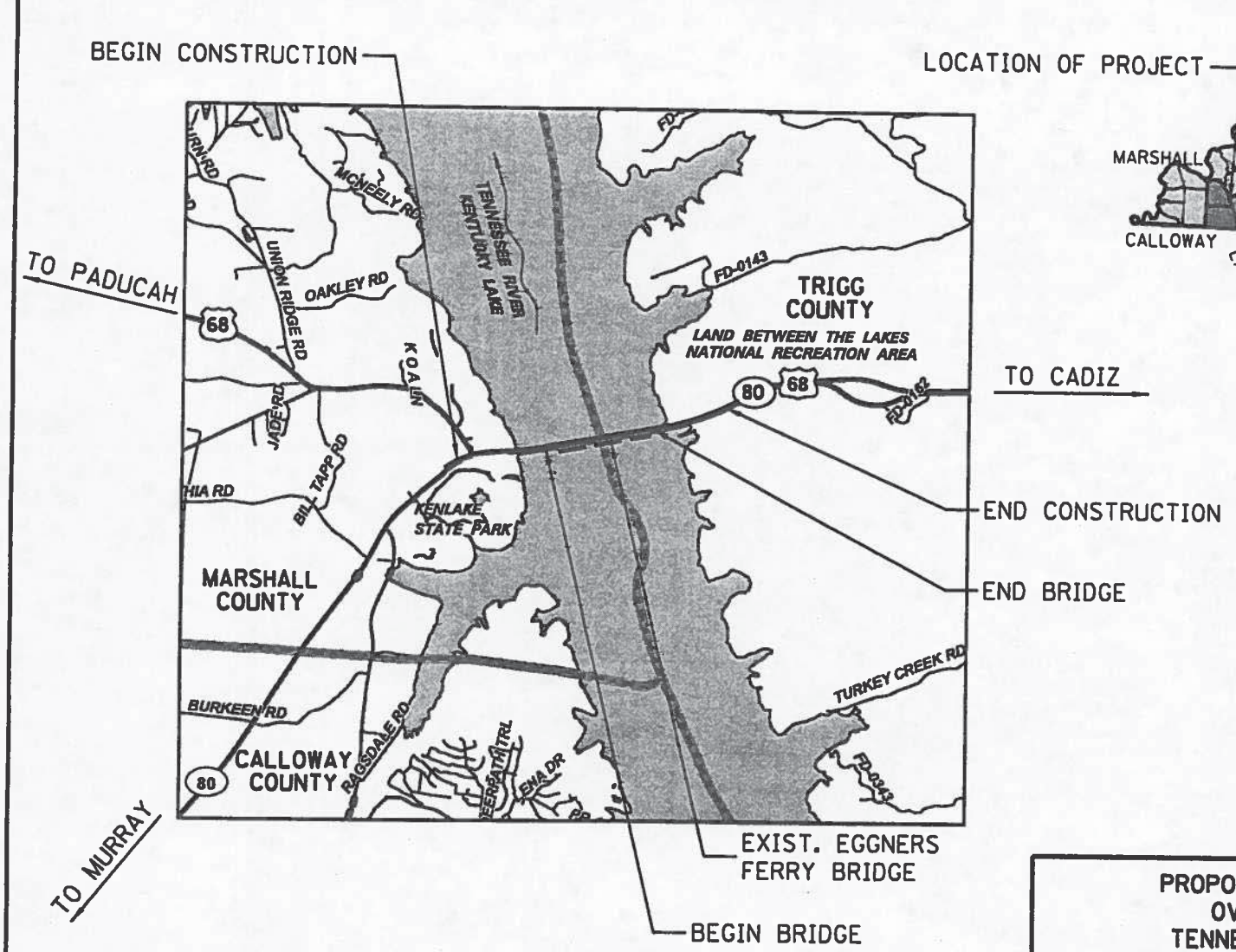
5. Clearance gauges shall be installed and maintained in a good and legible condition by and at the expense of the owner of the bridge when so required by the District Commander. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.

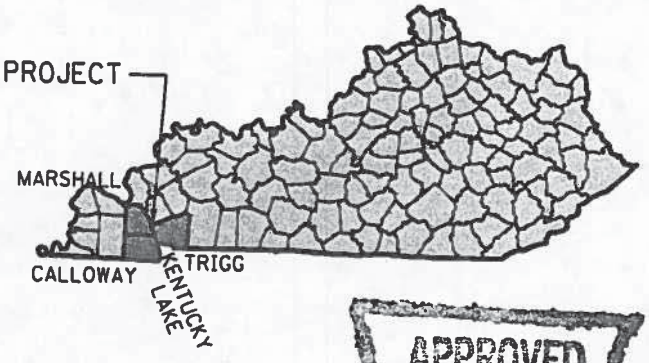
6. All parts of the existing to-be-replaced Eggners Ferry Bridge across the Tennessee River, mile 41.7, not utilized in the new bridge shall be removed down to or below the mud line or natural ground line except for the existing piers 2, 3, 4, 5 and 6 which shall be removed down to or below elevation 330.0 feet, Mean Sea Level. The waterway shall be cleared to the satisfaction of the District Commander. A period of 90 days subsequent to the opening to traffic of the new bridge, mile 41.7, will be allowed for such removal and clearance.

7. When the proposed bridge is no longer used for transportation purposes, it shall be removed in its entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridge upon due notice from the District Commander.

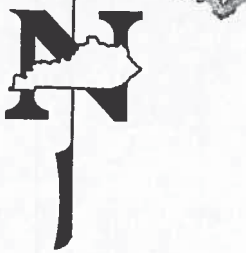
8. The approval hereby granted shall cease and be null and void unless construction of the bridge is commenced within five years and completed within eight years after the date of this permit.

Brian L. Dunn
Chief, Office of Bridge Programs
U.S. Coast Guard
By direction of the Commandant





APPROVED
P(11-13-8)
28 OCT 2013
U.S. COAST GUARD



0 1 2
Miles

VICINITY MAP

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

STATE OF KENTUCKY
GREGORY DUNCAN STILL
27156
PROFESSIONAL ENGINEER

Baker

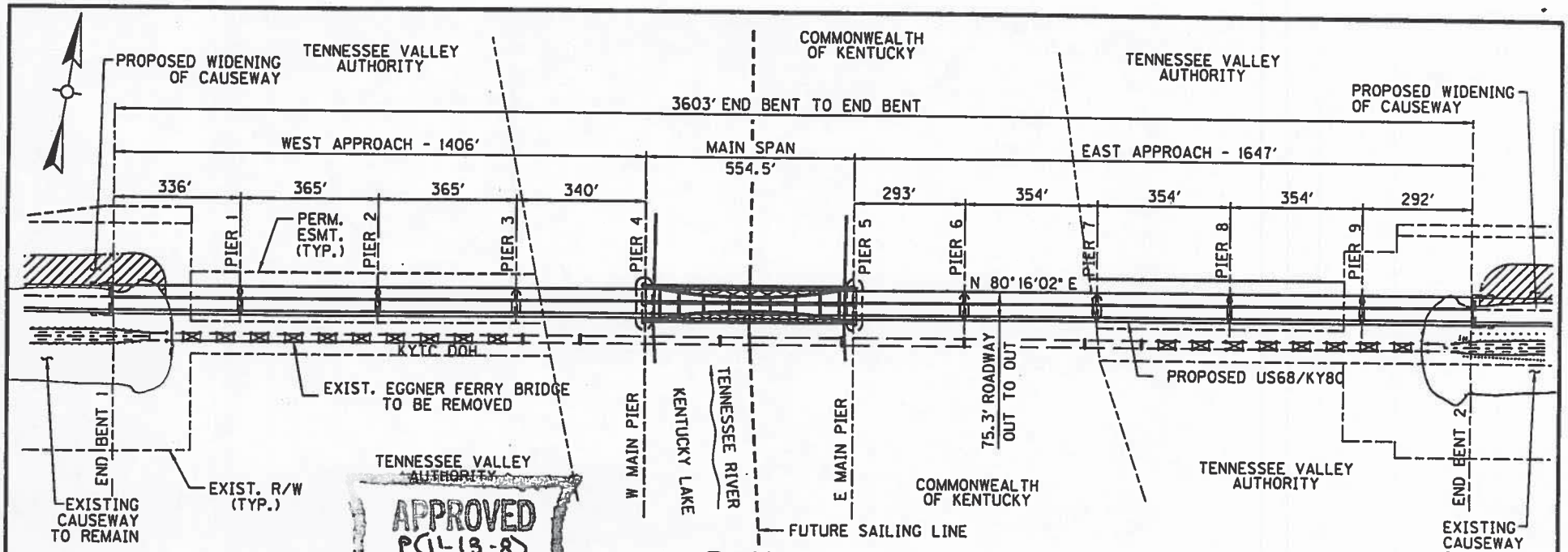
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD, SUITE 210
LOUISVILLE, KY 40223

PROPOSED US68/KY80 BRIDGE
OVER KENTUCKY LAKE
TENNESSEE RIVER MILE 41.7
MARSHALL AND TRIGG COUNTIES
BETWEEN AURORA, KY AND
THE LAND BETWEEN THE LAKES

APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013 | SHEET 1 OF 3



PLAN

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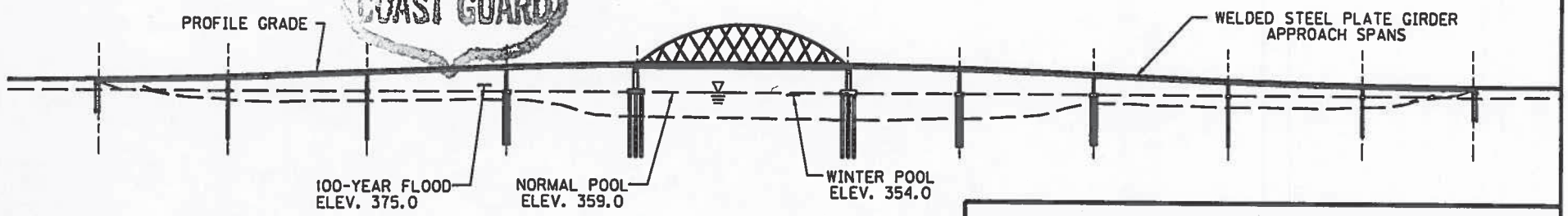
P(IL-13-8)
28 OCT 2013
U.S.
COAST GUARD



ELEVATION

ELEVATIONS SHOWN ON THESE DRAWINGS ARE REFERENCED TO 1929 NGVD.

0' 400' 800' 1600'

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

STATE OF KENTUCKY
GREGORY DUNCAN STILES
156
PROFESSIONAL ENGINEER

Baker

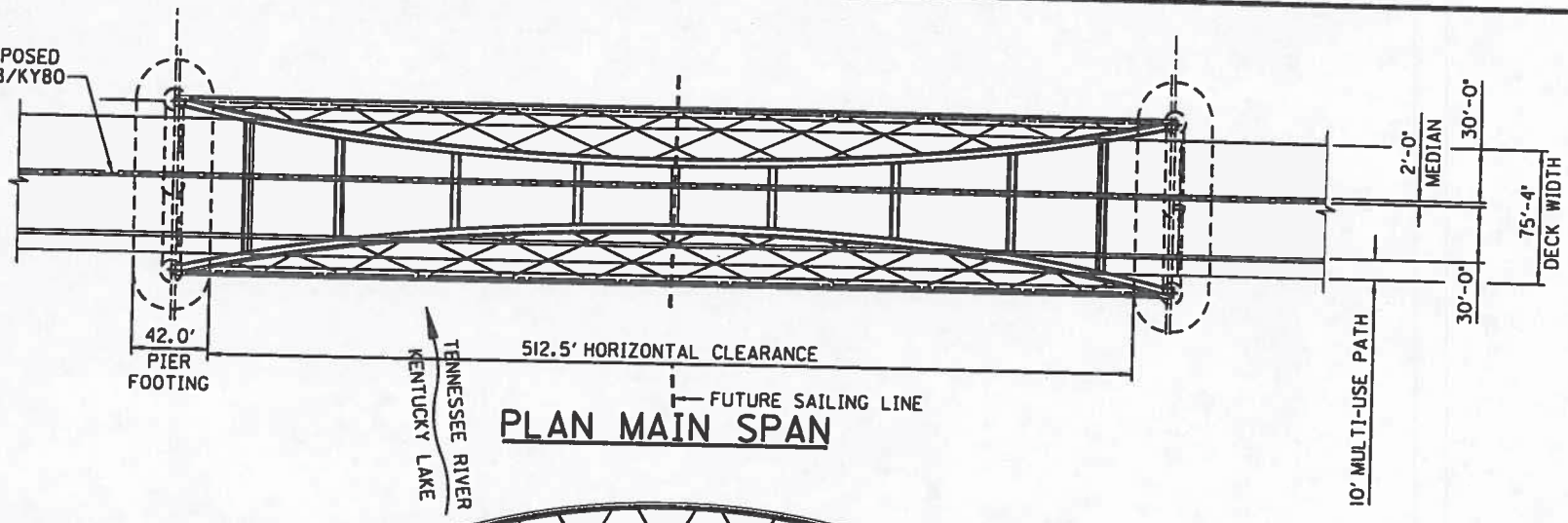
MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD, SUITE 210
LOUISVILLE, KY 40223

PROPOSED US68/KY80 BRIDGE
OVER KENTUCKY LAKE
TENNESSEE RIVER MILE 41.7
MARSHALL AND TRIGG COUNTIES
BETWEEN AURORA, KY AND
THE LAND BETWEEN THE LAKES

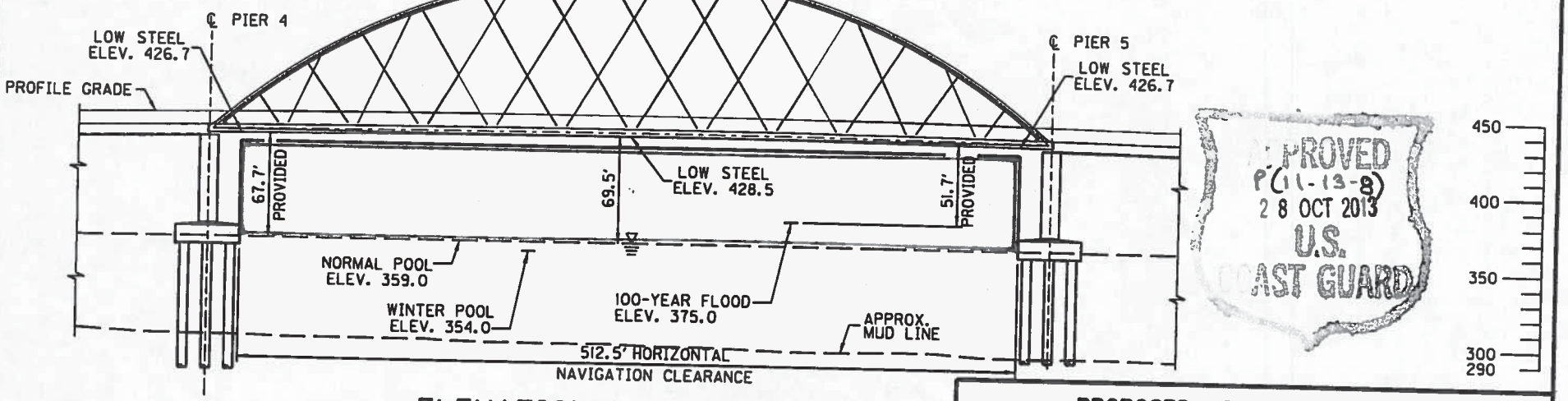
APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013 | SHEET 2 OF 3



PLAN MAIN SPAN



APPROVED
P(11-13-8)
28 OCT 2013
U.S. COAST GUARD

ELEVATION MAIN SPAN

ELEVATIONS SHOWN ON THESE DRAWINGS ARE REFERENCED TO 1929 NGVD.

0' 100' 200' 400'

THE DESIGN OF THE PROPOSED US 68/KY 80 OVER KENTUCKY LAKE BRIDGE MEETS AASHTO STANDARDS AND HAS BEEN DESIGNED TO WITHSTAND VESSEL IMPACT. THE TYPICAL VESSEL WHICH THE MAIN PIERS WERE DESIGNED TO WITHSTAND IS THE 15-BARGE TOW WITH JUMBO HOPPER INLAND RIVER BARGES AND A 8400-HP TUG. PIERS FURTHER FROM THE NAVIGATION CHANNEL WERE DESIGNED TO WITHSTAND GRADUALLY SMALLER VESSELS.

STATE OF KENTUCKY
GREGORY DUNCAN STILES
27156
LICENSED PROFESSIONAL ENGINEER

Baker

MICHAEL BAKER JR., INC.
9750 ORMSBY STATION ROAD, SUITE 210
LOUISVILLE, KY 40223

PROPOSED US68/KY80 BRIDGE
OVER KENTUCKY LAKE
TENNESSEE RIVER MILE 41.7
MARSHALL AND TRIGG COUNTIES
BETWEEN AURORA, KY AND
THE LAND BETWEEN THE LAKES

APPLICATION BY:
KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

KYTC BRIDGE ITEM NO. 01-180.70

DATE: JULY 2, 2013 | SHEET 3 OF 3

N O T I C E

DIVISION OF WATER
(WATER QUALITY CERTIFICATION)

PROJECT: Marshall & Trigg County, Item 1-180.70
Kentucky 80 / US 68 Kentucky Lagoon Bridge & Kentucky Lake Causeway

The Division of Water has approved the Section 401 activities for this project by issuance of an Individual Water Quality Certification pending the approval of the Letter of Permission (LOP) by the USACOE. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Water Quality Certification in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the appropriate permit agency. A copy of any request to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

November 30, 2012

David Waldner, Director
KYTC, Division of Environmental Analysis
200 Mero Street 5th Floor
Frankfort, KY 40622

Re: Water Quality Certification #2012-062-7
US 68 Eggners Ferry Bridge
KYTC Item No. 1-180.70
USACE Public Notice No.: 12-42
AI No.: 115918, Activity ID: APE20120001
TN River Mile 41.7 – KY Lake
Marshall & Trigg County, Kentucky

Dear Mr. Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 115918**. **The attached document is your official Water Quality Certification; please read it carefully**. If you should have any questions concerning the conditions of this water quality certification, please contact Adam Jackson of my staff by calling (502) 564-3410.

Sincerely,

Barbara J. Scott

Barbara Scott, Supervisor
Water Quality Certification Section
Kentucky Division of Water

BJS: AJ
Attachment
cc: Amy Robinson, USACE: Nashville District
Lee Andrews, USFWS: Frankfort
Mike Hardin, KDFWR: Frankfort
Roy Collins, KYTC DEA: Frankfort
Samantha Strickland, TVA: Memphis

KTC Water Quality Certification

US 68 Eggners Ferry Bridge - Marshall Co
Facility Requirements
Permit Number:WQC #2012-062-7
Activity ID No.: APE20120001

ACTV0000000001 (TN River Mile 41.7 - KY Lake) Eggner Ferry Bridge Reconstruction:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The Kentucky Transportation Cabinet shall submit notification: Due prior to any construction activity to the Kentucky Division of Water (KDOW), Water Quality Certification (WQC) Section. Notification shall confirm the purchase of 0.82 wetland credits from the Kentucky Department of Fish and Wildlife Resources (KDFWR) Stream and Wetland Restoration Fund. The U.S. Army Corps of Engineers (USACE) may require a different amount. [Clean Water Act]
S-2	The KYTC must notify the Division: Due prior to any construction activity. Notify the WQC Section of the KDOW at (502) 564-3410 at least two weeks prior to construction. [Clean Water Act]
S-3	The KYTC must notify the Division: Due when construction is complete. Notify the WQC Section of the KDOW at (502) 564-3410 no later than two weeks post-construction. [Clean Water Act]
S-4	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Surface Water Permits Branch. The contact person is Todd Powers. If this project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a KPDES general storm water permit will be required from the Surface Water Permits Branch. The contact person is Cassie Campbell. Both can be reached at (502) 564-3410. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - the filling of approximately 7.12 surface-acres below the normal summer pool (NSP) elevation of 359.0 of Kentucky Lake. More specifically approximately 1500-feet long by 200-feet wide to accomodate construction of the west causeway (Left descending bank of Tennessee River Mile 41.7). - the filling of approximately 3.29 surface-acres below the normal summer pool (NSP) elevation of 359.0 of Kentucky Lake. More specifically approximately 950-feet long by 180-feet wide to accomodate construction of the east causeway (Right descending bank of Tennessee River Mile 41.7). - the filling of 0.41 acres of jurisdictional wetland (Wetlands 1A and 1B) to accomodate the abutment slopes and foundations for 3-span steel bridge. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the application package received by KDOW on August 21, 2012, as well as the USACE Public Notice No. 12-42 issued on October 3, 2012; the Debris Removal Plan Conditions issued by the USACE on October 22, 2012; and the Fish and Aquatic Habitat Mitigation Plan. [Clean Water Act]

KTC Water Quality Certification

US 68 Eggners Ferry Bridge - Marshall Co
Facility Requirements
Permit Number:WQC #2012-062-7
Activity ID No.: APE20120001

ACTV0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	The KDOW requires mitigation for the 0.41 acres of jurisdictional wetland impacts listed within this project. The KYTC shall purchase 0.82 wetland credits from the KDFWR Stream and Wetland Restoration Fund to mitigate the 0.41 acres of wetland impacts. The USACE may require a different amount. In addition, the KDOW accepts the KYTC's proposal to offset fishery habitat impacts by fulfilling the items listed within the Fish and Aquatic Habitat Mitigation Plan by completing the Patterson Island shoreline restoration project between Tennessee River Mile 55 to 62 in Calloway County, bank stabilization of Island #2 (100 linear feet) and Island #5 (1300 linear feet); as well as the placement of 10 fish attractor sites on the north side of the east and west causeways (5 attractors on each side). [Clean Water Act]
T-4	The KYTC is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-5	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-6	If construction does not commence within two years of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-7	Mitigation for impacts shall begin prior to or concurrently with impacts. [Clean Water Act]
T-8	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project if the project has been determined to likely have a significant adverse effect upon water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.

2. Nationwide permits issued by the U.S. Army Corps of Engineers for projects in Outstanding State Resource Waters, Cold Water Aquatic Habitats, and Exceptional Waters as defined by 401 KAR 10:026 shall require individual water quality certifications.

3. Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur.

4. Sediment and erosion control measures (e.g., check-dams, silt fencing, or hay bales) shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, placement shall not be conducted in such a manner that may cause instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control measures shall be removed and the natural grade restored prior to withdrawal from the site.

5. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

6. To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow.

7. Heavy equipment (e.g. bulldozers, backhoes, draglines, etc.), if required for this project, should not be used or operated within the stream channel. In those instances where such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize re-suspension of sediments and disturbance to the channel, banks, or riparian vegetation.

8. If there are water supply intakes located downstream that may be affected by increased turbidity, the permittee shall notify the operator when work will be performed.

9. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

10. Should stream pollution, wetland impairment, and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

MATERIAL SUMMARY

CONTRACT ID: 131212 **121GR13D012 - NHPP 0801 (098)** **DE07900681312**

CADIZ-AURORA ROAD (US 68/KY 80) CADIZ-AURORA; BRIDGE OVER KENTUCKY LAKE. BRIDGE WITH GRADE, DRAIN & SURFACE, A DISTANCE OF .95 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0010	00001	DGA BASE	11,274.00	TON
0020	00003	CRUSHED STONE BASE	419.00	TON
0030	00018	DRAINAGE BLANKET-TYPE II-ASPH	3,557.00	TON
0040	00212	CL2 ASPH BASE 1.00D PG64-22	476.00	TON
0050	00214	CL3 ASPH BASE 1.00D PG64-22	10,234.00	TON
0060	00309	CL2 ASPH SURF 0.50D PG64-22	868.00	TON
0070	00324	CL3 ASPH SURF 0.50B PG64-22	1,627.00	TON
0080	00071	CRUSHED AGGREGATE SIZE NO 57	444.00	TON
0090	00078	CRUSHED AGGREGATE SIZE NO 2	15.00	TON
0100	00100	ASPHALT SEAL AGGREGATE	50.00	TON
0110	00103	ASPHALT SEAL COAT	6.00	TON
0120	01000	PERFORATED PIPE-4 IN	3,920.00	LF
0130	01001	PERFORATED PIPE-6 IN	935.00	LF
0140	01010	NON-PERFORATED PIPE-4 IN	277.00	LF
0150	01011	NON-PERFORATED PIPE-6 IN	40.00	LF
0160	01020	PERF PIPE HEADWALL TY 1-4 IN	4.00	EACH
0170	01021	PERF PIPE HEADWALL TY 1-6 IN	1.00	EACH
0180	01024	PERF PIPE HEADWALL TY 2-4 IN	8.00	EACH
0190	01028	PERF PIPE HEADWALL TY 3-4 IN	1.00	EACH
0200	01032	PERF PIPE HEADWALL TY 4-4 IN	2.00	EACH
0210	01741	CORED HOLE DRAINAGE BOX CON-6 IN	4.00	EACH
0220	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	53.00	EACH
0230	01984	DELINEATOR FOR BARRIER - WHITE	50.00	EACH
0240	01985	DELINEATOR FOR BARRIER - YELLOW	97.00	EACH
0250	02014	BARRICADE-TYPE III	2.00	EACH
0260	02091	REMOVE PAVEMENT	2,027.00	SQYD
0270	02159	TEMP DITCH	3,255.00	LF
0280	02160	CLEAN TEMP DITCH	9,765.00	LF
0290	02200	ROADWAY EXCAVATION	35,073.00	CUYD
0300	02204	SPECIAL EXCAVATION	2,220.00	CUYD
0310	02241	RESHAPING AND COMPACTING	1,638.00	LF
0320	02242	WATER	1.00	MGAL
0330	02381	REMOVE GUARDRAIL	3,553.00	LF
0340	02432	WITNESS POST	3.00	EACH
0350	02436	R/W MARKER RURAL TYPE 3	7.00	EACH
0360	02483	CHANNEL LINING CLASS II	33.00	TON
0370	02545	CLEARING AND GRUBBING - (APPROXIMATELY 1.5 ACRES IN MARSHALL COUNTY)	1.00	LS
0380	02562	TEMPORARY SIGNS - (FOR TRAFFIC MAINTENANCE)	606.00	SQFT
0390	02570	PROJECT CPM SCHEDULE SEE DESIGN FOR SPECIAL NOTE	1.00	LS
0400	02585	EDGE KEY	180.00	LF
0410	02596	FABRIC-GEOTEXTILE TYPE I	6,721.00	SQYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0420	02599	FABRIC-GEOTEXTILE TYPE IV	4,551.00	SQYD
0430	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	1,514.00	SQYD
0440	02650	MAINTAIN & CONTROL TRAFFIC - (MARSHALL COUNTY)	1.00	LS
0450	02673	PRECAST VEHICLE STOP	172.00	LF
0460	02696	SHOULDER RUMBLE STRIPS-SAWED	4,564.00	LF
0470	02701	TEMP SILT FENCE	3,255.00	LF
0480	02703	SILT TRAP TYPE A	19.00	EACH
0490	02704	SILT TRAP TYPE B	19.00	EACH
0500	02705	SILT TRAP TYPE C	19.00	EACH
0510	02706	CLEAN SILT TRAP TYPE A	57.00	EACH
0520	02707	CLEAN SILT TRAP TYPE B	57.00	EACH
0530	02708	CLEAN SILT TRAP TYPE C	57.00	EACH
0540	02709	CLEAN TEMP SILT FENCE	9,765.00	LF
0550	02726	STAKING - (MARSHALL COUNTY)	1.00	LS
0560	02731	REMOVE STRUCTURE - (EGGNER FERRY BRIDGE)	1.00	LS
0570	02998	MASONRY COATING	1,092.00	SQYD
0580	03144	CONC MEDIAN BARRIER TYPE 9C1	1,776.00	LF
0590	05950	EROSION CONTROL BLANKET	935.00	SQYD
0600	05952	TEMP MULCH	94,703.00	SQYD
0610	05953	TEMP SEEDING AND PROTECTION	9,470.00	SQYD
0620	05966	TOPDRESSING FERTILIZER	12.00	TON
0630	05985	SEEDING AND PROTECTION	94,703.00	SQYD
0640	05989	SPECIAL SEEDING CROWN VETCH	133,033.00	SQYD
0650	06510	PAVE STRIPING-TEMP PAINT-4 IN	20,057.00	LF
0660	06514	PAVE STRIPING-PERM PAINT-4 IN	24,659.00	LF
0670	06550	PAVE STRIPING-TEMP REM TAPE-W	5,238.00	LF
0680	06551	PAVE STRIPING-TEMP REM TAPE-Y	6,999.00	LF
0690	06574	PAVE MARKING-THERMO CURV ARROW	6.00	EACH
0700	06575	PAVE MARKING-THERMO COMB ARROW	2.00	EACH
0710	06592	PAVEMENT MARKER TYPE V-B W/R	58.00	EACH
0720	06593	PAVEMENT MARKER TYPE V-B Y/R	93.00	EACH
0730	08019	CYCLOPEAN STONE RIP RAP	11,316.00	TON
0740	10020NS	FUEL ADJUSTMENT	72,080.00	DOLL
0750	10030NS	ASPHALT ADJUSTMENT	100,825.00	DOLL
0760	20060ES719	GUARDRAIL STEEL W BEAM-S FACE CR	3,763.00	LF
0770	20062ES719	GUARDRAIL TERMINAL SECT NO.1 CR	3.00	EACH
0780	20206EC	PAVE MARK HANDICAP SYMBOL	2.00	EACH
0790	20285ES719	GUARDRAIL END TREATMENT TY 2A-CR	1.00	EACH
0800	20382ES719	G/R CONN TO BRIDGE END TY A-CR	3.00	EACH
0810	21325ND	CONSTRUCTION TRAILER	1.00	LS
0820	23131ER701	PIPELINE VIDEO INSPECTION	510.00	LF
0830	23143EN	DECORATIVE HANDRAIL - (STEEL POWDER COATED FINISH)	1,280.00	LF
0840	23162EN	GUARDRAIL CONN TO BR END TY A-1 CR	3.00	EACH
0850	23274EN11F	TURF REINFORCEMENT MAT 1	912.00	SQYD
0860	23394EC	CRASH CUSHION TY VI CLASS C TL3-1	1.00	EACH
0870	23912EC	WEB CAMERA CONST MONITORING SYSTEM	1.00	LS
0880	23979EC	CRASH CUSHION TY VI CLASS C TL3	1.00	EACH
0890	24620EC	HELPER BOAT	1.00	LS
0900	24626EC	PROJECT INSPECTION BOAT	1.00	LS

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0910	24636EC	GUARDRAIL TERMINAL SECT NO.3 CR	1.00	EACH
0920	24637EC	GUARDRAIL STEEL W BEAM-D FACE CR	694.00	LF
0930	30000	REMOVABLE BOLLARD	1.00	EACH
0940	00440	ENTRANCE PIPE-15 IN	65.00	LF
0950	00521	STORM SEWER PIPE-15 IN	189.00	LF
0960	00522	STORM SEWER PIPE-18 IN	289.00	LF
0970	01202	PIPE CULVERT HEADWALL-15 IN	1.00	EACH
0980	01204	PIPE CULVERT HEADWALL-18 IN	2.00	EACH
0990	01432	SLOPED BOX OUTLET TYPE 1-15 IN	3.00	EACH
1000	01505	DROP BOX INLET TYPE 5B	1.00	EACH
1010	01621	CONC MED BARR BOX INLET TY 9B1	2.00	EACH
1020	08100	CONCRETE-CLASS A - (FOR END ANCHORS)	2.82	CUYD
1030	23952EC	DRAINAGE JUNCTION BOX TY B	1.00	EACH
1040	02231	STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD
1050	02599	FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD
1060	02998	MASONRY COATING	5,578.00	SQYD
1070	08001	STRUCTURE EXCAVATION-COMMON	2,483.00	CUYD
1080	08033	TEST PILES - (INSTALL 30 IN PIPE PILE - 1 IN)	459.00	LF
1090	08033	TEST PILES - (INSTALL 72 IN PIPE PILE - 2 IN)	448.00	LF
1100	08033	TEST PILES - (FURNISH 30 IN PIPE PILE - 1 IN)	468.00	LF
1110	08033	TEST PILES - (FURNISH 72 IN PIPE PILE - 2 IN)	516.00	LF
1120	08100	CONCRETE-CLASS A	2,288.00	CUYD
1130	08101	CONCRETE-CLASS A MOD	258.00	CUYD
1140	08104	CONCRETE-CLASS AA	3,733.00	CUYD
1150	08150	STEEL REINFORCEMENT	517,011.00	LB
1160	08151	STEEL REINFORCEMENT-EPOXY COATED	1,251,172.00	LB
1170	08160	STRUCTURAL STEEL - (APPROACH SPANS, APPROXIMATELY 9,276,108 LBS.)	1.00	LS
1180	08170	SHEAR CONNECTORS - (APPROXIMATELY 19,856 LBS)	1.00	LS
1190	08267	NAVIGATION LIGHTING	1.00	LS
1200	08500	APPROACH SLAB	204.00	SQYD
1210	08820	DRAIN PIPE-6 IN - (FIBERGLASS)	200.00	LF
1220	20154ND	DRAIN ASSEMBLY	16.00	EACH
1230	23233EC	DYNAMIC PILE TESTING - (ON WATER - RESTRIKE)	15.00	EACH
1240	23233EC	DYNAMIC PILE TESTING - (ON LAND - INITIAL)	5.00	EACH
1250	23233EC	DYNAMIC PILE TESTING - (ON LAND - RESTRIKE)	10.00	EACH
1260	23233EC	DYNAMIC PILE TESTING - (ON WATER - INITIAL)	9.00	EACH
1270	23538EC	PEDESTRIAN RAIL	1,452.00	LF
1280	23859EC	FINGER EXPANSION JOINT	74.00	LF
1290	23868EC	STRUCTURE LIGHTNING PROTECTION	1.00	LS
1300	24538ED	RAIL SYSTEM TYPE 11	2,880.00	LF
1310	24550EC	VIBRATION MONITORING	1.00	LS
1320	24606ED	HSS BARRIER RAIL - 3 RAIL	1,429.00	LF
1330	24607ED	HSS BARRIER RAIL - 1 RAIL	1,451.00	LF
1340	24611EC	SEISMIC DAMPERS - (BENT ENDS)	6.00	EACH
1350	24611EC	SEISMIC DAMPERS - (PIERS 4 & 5)	6.00	EACH
1360	24614EC	DISK EXPANSION BEARING	12.00	EACH
1370	24616EC	PATH DELINEATION LIGHTING	1.00	LS
1380	24617EC	INSTALL - (AT&T DUCTBANK)	1,407.00	LF
1390	24618EC	PIPE PILES - (INSTALL 72 IN PIPE PILE - 2 IN)	836.00	LF

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1400	24618EC	PIPE PILES - (FURNISH 30 IN PIPE PILE - 1 IN)	3,393.00	LF
1410	24618EC	PIPE PILES - (INSTALL 30 IN PIPE PILE - 1 IN)	3,585.00	LF
1420	24618EC	PIPE PILES - (FURNISH 72 IN PIPE PILE - 2 IN)	909.00	LF
1430	24619EC	SPLICE PILES - (30 IN PIPE PILE - 1 IN)	13.00	EACH
1440	24619EC	SPLICE PILES - (72 IN PIPE PILE - 2 IN)	3.00	EACH
1450	24627EC	OPEN END INSIDE FIT CUTTING SHOE - (72 IN - 2 IN)	9.00	EACH
1460	24627EC	OPEN END INSIDE FIT CUTTING SHOE - (30 IN - 1 IN)	28.00	EACH
1470	24628EC	PILE CONSTRICTOR PLATE - (72 IN - 2 IN)	9.00	EACH
1480	24629EC	DECORATIVE FENCE PANEL	17.00	EACH
1490	02998	MASONRY COATING	5,303.00	SQYD
1500	08033	TEST PILES - (FURNISH 72 IN PIPE PILE - 2 IN)	760.00	LF
1510	08033	TEST PILES - (INSTALL 72 IN PIPE PILE - 2 IN)	468.00	LF
1520	08100	CONCRETE-CLASS A	7,174.00	CUYD
1530	08101	CONCRETE-CLASS A MOD - (PIPE PILE INFILL)	2,066.00	CUYD
1540	08104	CONCRETE-CLASS AA	1,118.00	CUYD
1550	08150	STEEL REINFORCEMENT	1,463,804.00	LB
1560	08151	STEEL REINFORCEMENT-EPOXY COATED	458,567.00	LB
1570	08160	STRUCTURAL STEEL - (ARCH SPAN, APPROXIMATELY 4,734,847 LBS.)	1.00	LS
1580	08170	SHEAR CONNECTORS - (APPROXIMATELY 28,433 LBS.)	1.00	LS
1590	08267	NAVIGATION LIGHTING	1.00	LS
1600	08534	CONCRETE OVERLAY-LATEX	180.00	CUYD
1610	08752	PAINT CLEARANCE GAUGES	1.00	LS
1620	08820	DRAIN PIPE-6 IN - (FIBERGLASS)	36.00	LF
1630	20154ND	DRAIN ASSEMBLY	10.00	EACH
1640	23233EC	DYNAMIC PILE TESTING - (ON WATER - INITIAL)	8.00	EACH
1650	23233EC	DYNAMIC PILE TESTING - (ON WATER - RESTRIKE)	16.00	EACH
1660	23538EC	PEDESTRIAN RAIL	566.00	LF
1670	23868EC	STRUCTURE LIGHTNING PROTECTION	1.00	LS
1680	24112EC	STEEL REINFORCEMENT STAINLESS STEEL	283,139.00	LB
1690	24538ED	RAIL SYSTEM TYPE 11	1,108.00	LF
1700	24550EC	VIBRATION MONITORING	1.00	LS
1710	24606ED	HSS BARRIER RAIL - 3 RAIL	550.00	LF
1720	24607ED	HSS BARRIER RAIL - 1 RAIL	550.00	LF
1730	24608EC	BRIDGE STRAND HANGER-FABRICATE & INSTALL - (APPROXIMATE LENGTH - 5,440 LF)	1.00	LS
1740	24610EC	MODULAR EXPANSION JOINT	120.00	LF
1750	24612EC	SEISMIC ISOLATION BEARING - TYPE A	4.00	EACH
1760	24613EC	SEISMIC ISOLATION BEARING - TYPE B	2.00	EACH
1770	24615EC	ARCH FEATURE LIGHTING	1.00	LS
1780	24616EC	PATH DELINEATION LIGHTING	1.00	LS
1790	24617EC	INSTALL - (AT&T DUCTBANK)	556.00	LF
1800	24618EC	PIPE PILES - (INSTALL 72 IN PIPE PILE -2 IN)	2,568.00	LF
1810	24618EC	PIPE PILES - (FURNISH 72 IN PIPE PILES - 2 IN)	4,080.00	LF
1820	24619EC	SPLICE PILES - (72 IN PIPE - 2 IN)	12.00	EACH
1830	24627EC	OPEN END INSIDE FIT CUTTING SHOE - (72 IN - 2 IN)	28.00	EACH
1840	24628EC	PILE CONSTRICTOR PLATE - (72 IN - 2 IN)	28.00	EACH
1850	24629EC	DECORATIVE FENCE PANEL	7.00	EACH
1860	02568	MOBILIZATION	1.00	LS
1870	02569	DEMOBILIZATION	1.00	LS

MATERIAL SUMMARY

CONTRACT ID: 131212 **121GR13D012 - NHPP 0801 (098)** **DE11100681312**

CADIZ-AURORA ROAD (US 68/KY 80) CADIZ-AURORA; BRIDGE OVER KENTUCKY LAKE. BRIDGE WITH GRADE, DRAIN & SURFACE, A DISTANCE OF .95 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0010	00001	DGA BASE	10,395.00	TON
0020	00003	CRUSHED STONE BASE	575.00	TON
0030	00018	DRAINAGE BLANKET-TYPE II-ASPH	3,651.00	TON
0040	00212	CL2 ASPH BASE 1.00D PG64-22	217.00	TON
0050	00214	CL3 ASPH BASE 1.00D PG64-22	9,557.00	TON
0060	00309	CL2 ASPH SURF 0.50D PG64-22	1,284.00	TON
0070	00324	CL3 ASPH SURF 0.50B PG64-22	1,523.00	TON
0080	00071	CRUSHED AGGREGATE SIZE NO 57	535.00	TON
0090	00078	CRUSHED AGGREGATE SIZE NO 2	14.00	TON
0100	00100	ASPHALT SEAL AGGREGATE	22.00	TON
0110	00103	ASPHALT SEAL COAT	3.00	TON
0120	01000	PERFORATED PIPE-4 IN	3,559.00	LF
0130	01001	PERFORATED PIPE-6 IN	1,380.00	LF
0140	01010	NON-PERFORATED PIPE-4 IN	248.00	LF
0150	01011	NON-PERFORATED PIPE-6 IN	152.00	LF
0160	01024	PERF PIPE HEADWALL TY 2-4 IN	7.00	EACH
0170	01028	PERF PIPE HEADWALL TY 3-4 IN	3.00	EACH
0180	01029	PERF PIPE HEADWALL TY 3-6 IN	1.00	EACH
0190	01032	PERF PIPE HEADWALL TY 4-4 IN	2.00	EACH
0200	01033	PERF PIPE HEADWALL TY 4-6 IN	1.00	EACH
0210	01741	CORED HOLE DRAINAGE BOX CON-6 IN	4.00	EACH
0220	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	29.00	EACH
0230	01984	DELINEATOR FOR BARRIER - WHITE	36.00	EACH
0240	01985	DELINEATOR FOR BARRIER - YELLOW	76.00	EACH
0250	02014	BARRICADE-TYPE III	2.00	EACH
0260	02091	REMOVE PAVEMENT	782.00	SQYD
0270	02159	TEMP DITCH	2,630.00	LF
0280	02160	CLEAN TEMP DITCH	7,890.00	LF
0290	02200	ROADWAY EXCAVATION	16,289.00	CUYD
0300	02204	SPECIAL EXCAVATION	1,754.00	CUYD
0310	02241	RESHAPING AND COMPACTING	948.00	LF
0320	02242	WATER	1.00	MGAL
0330	02381	REMOVE GUARDRAIL	3,506.00	LF
0340	02483	CHANNEL LINING CLASS II	65.00	TON
0350	02562	TEMPORARY SIGNS - (FOR TRAFFIC MAINTENANCE)	561.00	SQFT
0360	02585	EDGE KEY	60.00	LF
0370	02596	FABRIC-GEOTEXTILE TYPE I	5,520.00	SQYD
0380	02599	FABRIC-GEOTEXTILE TYPE IV	5,501.00	SQYD
0390	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	368.00	SQYD
0400	02650	MAINTAIN & CONTROL TRAFFIC - (TRIGG COUNTY)	1.00	LS
0410	02696	SHOULDER RUMBLE STRIPS-SAWED	1,996.00	LF

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0420	02701	TEMP SILT FENCE	2,630.00	LF
0430	02703	SILT TRAP TYPE A	14.00	EACH
0440	02704	SILT TRAP TYPE B	14.00	EACH
0450	02705	SILT TRAP TYPE C	14.00	EACH
0460	02706	CLEAN SILT TRAP TYPE A	42.00	EACH
0470	02707	CLEAN SILT TRAP TYPE B	42.00	EACH
0480	02708	CLEAN SILT TRAP TYPE C	42.00	EACH
0490	02709	CLEAN TEMP SILT FENCE	7,890.00	LF
0500	02726	STAKING - (TRIGG COUNTY)	1.00	LS
0510	02998	MASONRY COATING	1,081.00	SQYD
0520	03144	CONC MEDIAN BARRIER TYPE 9C1	1,567.00	LF
0530	05950	EROSION CONTROL BLANKET	1,599.00	SQYD
0540	05952	TEMP MULCH	75,957.00	SQYD
0550	05953	TEMP SEEDING AND PROTECTION	6,873.00	SQYD
0560	05966	TOPDRESSING FERTILIZER	6.00	TON
0570	05985	SEEDING AND PROTECTION	68,729.00	SQYD
0580	05989	SPECIAL SEEDING CROWN VETCH	37,628.00	SQYD
0590	06510	PAVE STRIPING-TEMP PAINT-4 IN	18,793.00	LF
0600	06514	PAVE STRIPING-PERM PAINT-4 IN	19,203.00	LF
0610	06550	PAVE STRIPING-TEMP REM TAPE-W	3,534.00	LF
0620	06551	PAVE STRIPING-TEMP REM TAPE-Y	5,209.00	LF
0630	06592	PAVEMENT MARKER TYPE V-B W/R	61.00	EACH
0640	06593	PAVEMENT MARKER TYPE V-B Y/R	80.00	EACH
0650	08019	CYCLOPEAN STONE RIP RAP	7,953.00	TON
0660	20060ES719	GUARDRAIL STEEL W BEAM-S FACE CR	1,709.00	LF
0670	20062ES719	GUARDRAIL TERMINAL SECT NO.1 CR	3.00	EACH
0680	20382ES719	G/R CONN TO BRIDGE END TY A-CR	1.00	EACH
0690	23131ER701	PIPELINE VIDEO INSPECTION	51.00	LF
0700	23143EN	DECORATIVE HANDRAIL - (STEEL POWDER COATED FINISH)	697.00	LF
0710	23162EN	GUARDRAIL CONN TO BR END TY A-1 CR	1.00	EACH
0720	23274EN11F	TURF REINFORCEMENT MAT 1	166.00	SQYD
0730	23651ES719	G/R END TREATMENT TY 1-CR	1.00	EACH
0740	23979EC	CRASH CUSHION TY VI CLASS C TL3	1.00	EACH
0750	24636EC	GUARDRAIL TERMINAL SECT NO.3 CR	1.00	EACH
0760	24637EC	GUARDRAIL STEEL W BEAM-D FACE CR	2,074.00	LF
0770	30000	REMOVABLE BOLLARD	2.00	EACH
0780	00443	ENTRANCE PIPE-24 IN	130.00	LF
0790	01208	PIPE CULVERT HEADWALL-24 IN	2.00	EACH
0800	01538	DROP BOX INLET TYPE 7	1.00	EACH
0810	02231	STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD
0820	02599	FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD
0830	02998	MASONRY COATING	6,760.00	SQYD
0840	08001	STRUCTURE EXCAVATION-COMMON	2,371.00	CUYD
0850	08033	TEST PILES - (FURNISH - 30 IN PIPE - 1 IN)	441.00	LF
0860	08033	TEST PILES - (INSTALL - 30 IN PIPE - 1 IN)	435.00	LF
0870	08033	TEST PILES - (FURNISH 17 IN PIPE PILE - 2 IN)	914.00	LF
0880	08033	TEST PILES - (INSTALL - 72 IN - 2 IN)	706.00	LF
0890	08100	CONCRETE-CLASS A	3,021.00	CUYD
0900	08101	CONCRETE-CLASS A MOD - (PIPE PILE INFILL)	627.00	CUYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0910	08104	CONCRETE-CLASS AA	4,355.00	CUYD
0920	08150	STEEL REINFORCEMENT	729,951.00	LB
0930	08151	STEEL REINFORCEMENT-EPOXY COATED	1,468,512.00	LB
0940	08160	STRUCTURAL STEEL - (APPROACH SPAN, APPROXIMATELY 10,339,811 LBS.)	1.00	LS
0950	08170	SHEAR CONNECTORS - (APPROXIMATELY 30,733 LBS.)	1.00	LS
0960	08267	NAVIGATION LIGHTING	1.00	LS
0970	08500	APPROACH SLAB	204.00	SQYD
0980	08820	DRAIN PIPE-6 IN - (FIBERGLASS)	270.00	LF
0990	20154ND	DRAIN ASSEMBLY	22.00	EACH
1000	23233EC	DYNAMIC PILE TESTING - (ON WATER - INITIAL)	13.00	EACH
1010	23233EC	DYNAMIC PILE TESTING - (ON WATER - RESTRIKE)	23.00	EACH
1020	23233EC	DYNAMIC PILE TESTING - (ON LAND - RESTRIKE)	10.00	EACH
1030	23233EC	DYNAMIC PILE TESTING - (ON LAND - INITIAL)	5.00	EACH
1040	23538EC	PEDESTRIAN RAIL	1,696.00	LF
1050	23859EC	FINGER EXPANSION JOINT	74.00	LF
1060	23868EC	STRUCTURE LIGHTNING PROTECTION	1.00	LS
1070	24538ED	RAIL SYSTEM TYPE 11	3,378.00	LF
1080	24550EC	VIBRATION MONITORING	1.00	LS
1090	24606ED	HSS BARRIER RAIL - 3 RAIL	1,678.00	LF
1100	24607ED	HSS BARRIER RAIL - 1 RAIL	1,700.00	LF
1110	24611EC	SEISMIC DAMPERS - (END BENTS)	6.00	EACH
1120	24611EC	SEISMIC DAMPERS - (PIERS 4 & 5)	6.00	EACH
1130	24614EC	DISK EXPANSION BEARING	12.00	EACH
1140	24616EC	PATH DELINEATION LIGHTING	1.00	LS
1150	24617EC	INSTALL - (AT&T DUCTBANK)	1,651.00	LF
1160	24618EC	PIPE PILES - (FURNISH - 30 IN - 1 IN)	3,185.00	LF
1170	24618EC	PIPE PILES - (INSTALL - 30 IN - 1 IN)	3,385.00	LF
1180	24618EC	PIPE PILES - (FURNISH - 72 IN PIPE PILE - 2 IN)	1,445.00	LF
1190	24618EC	PIPE PILES - (INSTALL - 72 IN PIPE PILE - 2 IN)	1,197.00	LF
1200	24619EC	SPLICE PILES - (30 IN PIPE - 1 IN)	13.00	EACH
1210	24619EC	SPLICE PILES - (72 IN PIPE PILE - 2 IN)	5.00	EACH
1220	24627EC	OPEN END INSIDE FIT CUTTING SHOE - (30 IN - 1 IN)	28.00	EACH
1230	24627EC	OPEN END INSIDE FIT CUTTING SHOE - (72 IN - 2 IN)	14.00	EACH
1240	24628EC	PILE CONSTRICTOR PLATE - (72 IN - 2 IN)	14.00	EACH
1250	24629EC	DECORATIVE FENCE PANEL	20.00	EACH

SPECIAL NOTE FOR PRE-BID CONFERENCE
CID Number - 131212

The Department will conduct a Pre-Bid Conference of the subject project on **Monday, December 2, 2013 at 1:30 PM Eastern Standard Time at:**

Kentucky Transportation Cabinet Central Office
Auditorium C105
200 Mero Street
Frankfort, KY 40622
Phone: (502) 564-3500

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

The purpose of the conference is to familiarize the prospective bidders with the contract requirements.

Department of Highways officials present at the conference will answer questions concerning the projects.

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 September 27, 2013 Letting

Subsection: **Revision:**	108.03 Preconstruction Conference. Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	109.07.02 Fuel. Revise item Crushed Aggregate Used for Embankment Stabilization to the following: Crushed Aggregate Used for Stabilization of Unsuitable Materials Used for Embankment Stabilization
Subsection: **Revision:**	110.02 Demobilization. Replace the first part of the first sentence of the second paragraph with the following: Perform all work and operations necessary to accomplish final clean-up as specified in the first paragraph of Subsection 105.12;
Subsection: **Revision:**	112.03.12 Project Traffic Coordinator (PTC). Replace the last paragraph of this subsection with the following: Ensure the designated PTC has sufficient skill and experience to properly perform the task assigned and has successfully completed the qualification courses.
Subsection: **Revision:**	112.04.18 Diversions (By-Pass Detours). Insert the following sentence after the 2nd sentence of this subsection. The Department will not measure temporary drainage structures for payment when the contract documents provide the required drainage opening that must be maintained with the diversion. The temporary drainage structures shall be incidental to the construction of the diversion. If the contract documents fail to provide the required drainage opening needed for the diversion, the cost of the temporary drainage structure will be handled as extra work in accordance with section 109.04.
Subsection: **Revision:**	201.03.01 Contractor Staking. Replace the first paragraph with the following: Perform all necessary surveying under the general supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	201.04.01 Contractor Staking. Replace the last sentence of the paragraph with the following: Complete the general layout of the project under the supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	206.04.01 Embankment-in-Place. Replace the fourth paragraph with the following: The Department will not measure **suitable** excavation included in the original plans that is disposed of for payment and will consider it incidental to Embankment-in-Place.
Subsection: **Revision:**	208.02.01 Cement. Replace paragraph with the following: Select Type I or Type II cement conforming to Section 801. Use the same type cement throughout the work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the September 27, 2013 Letting

Subsection: **Revision:**	208.03.06 Curing and Protection. Replace the fourth paragraph with the following: Do not allow traffic or equipment on the finished surface until the stabilized subgrade has cured for a total of 7-days with an ambient air temperature above 40 degrees Fahrenheit. A curing day consists of a continuous 24-hour period in which the ambient air temperature does not fall below 40 degrees Fahrenheit. Curing days will not be calculated consecutively, but must total seven (7) , 24-hour days with the ambient air temperature remaining at or above 40 degrees Fahrenheit before traffic or equipment will be allowed to traverse the stabilized subgrade. The Department may allow a shortened curing period when the Contractor requests. The Contractor shall give the Department at least 3 day notice of the request for a shortened curing period. The Department will require a minimum of 3 curing days after final compaction. The Contractor shall furnish cores to the treated depth of the roadbed at 500 feet intervals for each lane when a shortened curing time is requested. The Department will test cores using an unconfined compression test. Roadbed cores must achieve a minimum strength requirement of 80 psi.
Subsection: **Revision:**	208.03.06 Curing and Protection. Replace paragraph nine with the following: At no expense to the Department, repair any damage to the subgrade caused by freezing.
Subsection: **Part:** **Number:** **Revision:**	212.03.03 Permanent Seeding and Protection. A) Seed Mixtures for Permanent Seeding. 2) Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 4, 5, 6, and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre. If adjacent to a golf course replace the crown vetch with Kentucky 31 Tall Fescue.
Subsection: **Part:** **Number:** **Revision:**	212.03.03 Permanent Seeding and Protection. A) Seed Mixtures for Permanent Seeding. 3) Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum application rate of 100 pounds per acre. If adjacent to crop land or golf course, replace the Sericea Lespedeza with Kentucky 31 Fescue.
Subsection: **Revision:**	213.03.02 Progress Requirements. Replace the last sentence of the third paragraph with the following: Additionally, the Department will apply a penalty equal to the liquidated damages when all aspects of the work are not coordinated in an acceptable manner within 7 calendar days after written notification.
Subsection: **Part:** **Revision:**	213.03.05 Temporary Control Measures. E) Temporary Seeding and Protection. Delete the second sentence of the first paragraph.
Subsection: **Table:** **Revision:**	304.02.01 Physical Properties. Required Geogrid Properties Replace all references to Test Method "GRI-GG2-87" with ASTM D 7737.

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Subsection: **Part:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. B) Sampling. Replace the second sentence with the following: The Department will determine when to obtain the quality control samples using the random-number feature of the mix design submittal and approval spreadsheet. The Department will randomly determine when to obtain the verification samples required in Subsections 402.03.03 and 402.03.04 using the Asphalt Mixture Sample Random Tonnage Generator.
Subsection: **Part:** **Number:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. D) Testing Responsibilities. 3) VMA. Add the following paragraph below Number 3) VMA: Retain the AV/VMA specimens and one additional corresponding G_{mm} sample for 5 working days for mixture verification testing by the Department. For Specialty Mixtures, retain a mixture sample for 5 working days for mixture verification testing by the Department. When the Department's test results do not verify that the Contractor's quality control test results are within the acceptable tolerances according to Subsection 402.03.03, retain the samples and specimens from the affected sublot(s) for the duration of the project.
Subsection: **Part:** **Number:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. D) Testing Responsibilities. 4) Density. Replace the second sentence of the Option A paragraph with the following: Perform coring by the end of the following work day.
Subsection: **Part:** **Number:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. D) Testing Responsibilities. 5) Gradation. Delete the second paragraph.
Subsection: **Part:** **Number:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. H) Unsatisfactory Work. 1) Based on Lab Data. Replace the second paragraph with the following: When the Engineer determines that safety concerns or other considerations prohibit an immediate shutdown, continue work and the Department will make an evaluation of acceptability according to Subsection 402.03.05.

Subsection: **Revision:**	402.03.03 Verification. Replace the first paragraph with the following: **402.03.03 Mixture Verification.** For volumetric properties, the Department will perform a minimum of one verification test for AC, AV, and VMA according to the corresponding procedures as given in Subsection 402.03.02. The Department will randomly determine when to obtain the verification sample using the Asphalt Mixture Sample Random Tonnage Generator. For specialty mixtures, the Department will perform one AC and one gradation determination per lot according to the corresponding procedures as given in Subsection 402.03.02. However, Department personnel will not perform AC determinations according to KM 64-405. The Contractor will obtain a quality control sample at the same time the Department obtains the mixture verification sample and perform testing according to the procedures given in Subsection 402.03.02. If the Contractor's quality control sample is verified by the Department's test results within the tolerances provided below, the Contractor's sample will serve as the quality control sample for the affected sublot. The Department may perform the mixture verification test on the Contractor's equipment or on the Department's equipment.
Subsection: **Part:** **Revision:**	402.03.03 Verification. A) Evaluation of Sublot(s) Verified by Department. Replace the third sentence of the second paragraph with the following: When the paired *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the first paragraph with the following: When differences between test results are not within the tolerances listed below, the Department will resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the second paragraph with the following: When the *F* -test or *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection: **Part:** **Revision:**	402.03.03 Verification. C) Test Data Patterns. Replace the second sentence with the following: When patterns indicate substantial differences between the verified and non-verified sublots, the Department will perform further comparative testing according to subsection 402.03.05.

Subsection: **Revision:**	402.03 CONSTRUCTION. Add the following subsection: **402.03.04 Testing Equipment and Technician Verification.** For mixtures with a minimum quantity of 20,000 tons and for every 20,000 tons thereafter, the Department will obtain an additional verification sample at random using the Asphalt Mixture Sample Random Tonnage Generator in order to verify the integrity of the Contractor's and Department's laboratory testing equipment and technicians. The Department will obtain a mixture sample of at least 150 lb at the asphalt mixing plant according to KM 64-425 and split it according to AASHTO R 47. The Department will retain one split portion of the sample and provide the other portion to the Contractor. At a later time convenient to both parties, the Department and Contractor will simultaneously reheat the sample to the specified compaction temperature and test the mixture for AV and VMA using separate laboratory equipment according to the corresponding procedures given in Subsection 402.03.02. The Department will evaluate the differences in test results between the two laboratories. When the difference between the results for AV or VMA is not within ± 2.0 percent, the Department will investigate and resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Revision:**	402.03.04 Dispute Resolution. Change the subsection number to 402.03.05.
Subsection: **Part:** **Table:** **Revision:**	402.05 PAYMENT. Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures AC Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to ±0.6.
Subsection: **Revision:**	403.02.10 Material Transfer Vehicle (MTV). Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:
Subsection: **Revision:**	412.02.09 Material Transfer Vehicle (MTV). Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.
Subsection: **Revision:**	412.03.07 Placement and Compaction. Replace the first paragraph with the following: Use a MTV when placing SMA mixture in the driving lanes. The MTV is not required on ramps and/or shoulders unless specified in the contract. When the Engineer determines the use of the MTV is not practical for a portion of the project, the Engineer may waive its requirement for that portion of pavement by a letter documenting the waiver.
Subsection: **Revision:**	412.04 MEASUREMENT. Add the following subsection: 412.04.03. Material Transfer Vehicle (MTV). The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.

Subsection: **Part:** **Revision:**	501.03.19 Surface Tolerances and Testing Surface. B) Ride Quality. Add the following to the end of the first paragraph: The Department will specify if the ride quality requirements are Category A or Category B when ride quality is specified in the Contract. Category B ride quality requirements shall apply when the Department fails to classify which ride quality requirement will apply to the Contract.
Subsection: **Revision:**	603.03.06 Cofferdams. Replace the seventh sentence of paragraph one with the following: Submit drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	605.03.04 Tack Welding. Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
Subsection: **Part:** **Number:** **Revision:**	606.03.17 Special Requirements for Latex Concrete Overlays. A) Existing Bridges and New Structures. 1) Prewetting and Grout-Bond Coat. Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection: **Revision:**	609.03 Construction. 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.
Subsection: **Revision:**	611.03.02 Precast Unit Construction. Replace the first sentence of the subsection with the following: Construct units according to ASTM C1577, **replacing Table 1 (Design Requirements for Precast Concrete Box Sections Under Earth, Dead and HL-93 Live Load Conditions) with KY Table 1 (Precast Culvert KYHL-93 Design Table)**, and Section 605 with the following exceptions and additions:
Subsection: **Number:** **Revision:**	613.03.01 Design. 2) Replace "AASHTO Standard Specifications for Highway Bridges" with "AASHTO LRFD Bridge Design Specifications"
Subsection: **Revision:**	615.06.02 Add the following sentence to the end of the subsection. The ends of units shall be normal to walls and centerline except exposed edges shall be beveled ¾ inch.
Subsection: **Revision:**	615.06.03 Placement of Reinforcement in Precast 3-Sided Units. Replace the reference of 6.6 in the section to 615.06.06.
Subsection: **Revision:**	615.06.04 Placement of Reinforcement for Precast Endwalls. Replace the reference of 6.7 in the section to 615.06.07.

Subsection: **Revision:**	615.06.06 Laps, Welds, and Spacing for Precast 3-Sided Units. Replace the subsection with the following: Tension splices in the circumferential reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be no less than 2 inches and no more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
Subsection: **Revision:**	615.06.07 Laps, Welds, and Spacing for Precast Endwalls. Replace the subsection with the following: Splices in the reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. The spacing center-to-center of the wire fabric sheet shall not be less than 2 inches or more than 8 inches.
Subsection: **Revision:**	615.08.01 Type of Test Specimen. Replace the subsection with the following: Start-up slump, air content, unit weight, and temperature tests will be performed each day on the first batch of concrete. Acceptable start-up results are required for production of the first unit. After the first unit has been established, random acceptance testing is performed daily for each 50 yd^3 (or fraction thereof). In addition to the slump, air content, unit weight, and temperature tests, a minimum of one set of cylinders shall be required each time plastic property testing is performed.
Subsection: **Revision:**	615.08.02 Compression Testing. Delete the second sentence.
Subsection:	615.08.04 Acceptability of Core Tests. Delete the entire subsection.
Subsection: **Revision:**	615.12 Inspection. Add the following sentences to the end of the subsection: Units will arrive at jobsite with the "Kentucky Oval" stamped on the unit which is an indication of acceptable inspection at the production facility. Units shall be inspected upon arrival for any evidence of damage resulting from transport to the jobsite.

Subsection: **Revision:**	716.02.02 Paint. Replace sentence with the following: Conform to Section 821.
Subsection: **Revision:**	716.03 CONSTRUCTION. Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection: **Revision:**	716.03.02 Lighting Standard Installation. Replace the second sentence with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.
Subsection: **Part:** **Revision:**	716.03.02 Lighting Standard Installation. A) Conventional Installation. Replace the third sentence with the following: Orient the transformer base so the door is positioned on the side away from on-coming traffic.
Subsection: **Part:** **Number:** **Revision:**	716.03.02 Lighting Standard Installation. A) Conventional Installation. 1) Breakaway Installation and Requirements. Replace the first sentence with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Part:** **Revision:**	716.03.02 Lighting Standard Installation. B) High Mast Installation Replace the first sentence with the following: Install each high mast pole as noted on plans.
Subsection: **Part:** **Number:** **Revision:**	716.03.02 Lighting Standard Installation. B) High Mast Installation 2) Concrete Base Installation Modification of Chart and succeeding paragraphs within this section:

Drilled Shaft Depth Data							
Level Ground		3:1 Ground Slope		2:1 Ground Slope		1.5:1 Ground Slope (2)	
Soil	Rock	Soil	Rock	Soil	Rock	Soil	Rock
17 ft	7 ft	19 ft	7 ft	20 ft	7 ft	(1)	7 ft

Steel Requirements			
Vertical Bars		Ties or Spiral	
Size	Total	Size	Spacing or Pitch
#10	16	#4	12 inch

	(1): Shaft length is 22' for cohesive soil only. For cohesionless soil, contact geotechnical branch for design. (2): Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic. If rock is encountered during drilling operations and confirmed by the engineer to be of sound quality, the shaft is only required to be further advanced into the rock by the length of rock socket shown in the table. The total length of the shaft need not be longer than that of soil alone. Both longitudinal rebar length and number of ties or spiral length shall be adjusted accordingly. If a shorter depth is desired for the drilled shaft, the contractor shall provide, for the state's review and approval, a detailed column design with individual site specific soil and rock analysis performed and approved by a Professional Engineer licensed in the Commonwealth of Kentucky. Spiral reinforcement may be substituted for ties. If spiral reinforcement is used, one and one-half closed coils shall be provided at the ends of each spiral unit. Subsurface conditions consisting of very soft clay or very loose saturated sand could result in soil parameters weaker than those assumed. Engineer shall consult with the geotechnical branch if such conditions are encountered. The bottom of the drilled hole shall be firm and thoroughly cleaned so no loose or compressible materials are present at the time of the concrete placement. If the drilled hole contains standing water, the concrete shall be placed using a tremie to displace water. Continuous concrete flow will be required to insure full displacement of any water. The reinforcement and anchor bolts shall be adequately supported in the proper positions so no movement occurs during concrete placement. Welding of anchor bolts to the reinforcing cage is unacceptable, templates shall be used. Exposed portions of the foundation shall be formed to create a smooth finished surface. All forming shall be removed upon completion of foundation construction.
Subsection: **Part:** **Revision:**	716.03.03 Trenching. A) Trenching of Conduit for Highmast Ducted Cables. Add the following after the first sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection: **Part:** **Revision:**	716.03.03 Trenching. B) Trenching of Conduit for Non-Highmast Cables. Add the following after the second sentence: If depths greater than 24 inches are necessary for either situation listed previously, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection: **Revision:**	716.03.10 Junction Boxes. Replace subsection title with the following: Electrical Junction Box.

Subsection: **Revision:**	716.04.07 Pole with Secondary Control Equipment. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breaker, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.08 Lighting Control Equipment. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure constructing the concrete base, excavation, backfilling, restoration, any necessary anchors, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breakers, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.09 Luminaire. Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection: **Revision:**	716.04.10 Fused Connector Kits. Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection: **Revision:**	716.04.13 Junction Box. Replace the subsection title with the following: Electrical Junction Box Type Various.
Subsection: **Part:** **Revision:**	716.04.13 Junction Box. A) Junction Electrical. Rename A) Junction Electrical to the following: A) Electrical Junction Box.
Subsection: **Revision:**	716.04.14 Trenching and Backfilling. Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.18 Remove Lighting. Replace the paragraph with the following: The Department will measure the quantity as a lump sum for the removal of lighting equipment. The Department will not measure the disposal of all equipment and materials off the project by the contractor. The Department also will not measure the transportation of the materials and will consider them incidental to this item of work.

Subsection: **Revision:**	716.04.20 Bore and Jack Conduit. Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.
Subsection: **Revision:**	716.05 PAYMENT. Replace items 04810-04811, 20391NS835 and, 20392NS835 under Code, Pay Item, and Pay Unit with the following: Code — Pay Item — Pay Unit 04810 — Electrical Junction Box — Each 04811 — Electrical Junction Box Type B — Each 20391NS835 — Electrical Junction Box Type A — Each 20391NS835 — Electrical Junction Box Type C — Each
Subsection: **Revision:**	723.03 CONSTRUCTION. Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection: **Revision:**	723.02.02 Paint. Replace sentence with the following: Conform to Section 821.
Subsection: **Revision:**	723.03.02 Poles and Bases Installation. Replace the first sentence with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. A) Steel Strain and Mastarm Poles Installation Replace the second paragraph with the following: For concrete base installation, see Section 716.03.02, B), 2), Paragraphs 2-7. Drilled shaft depth shall be based on the soil conditions encountered during drilling and slope condition at the site. Refer to the design chart below:
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. B) Pedestal or Pedestal Post Installation. Replace the fourth sentence of the paragraph with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Part:** **Revision:**	723.03.03 Trenching. A) Under Roadway. Add the following after the second sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain ether required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.

Subsection:	723.03.11 Wiring Installation.
Revision:	Add the following sentence between the fifth and sixth sentences: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.03.12 Loop Installation.
Revision:	Replace the fifth sentence with the following: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.04.02 Junction Box.
Revision:	Replace subsection title with the following: Electrical Junction Box Type.
Subsection:	723.04.03 Trenching and Backfilling.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.
Subsection:	723.04.10 Signal Pedestal.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, specified conduits, fittings, ground rod, ground wire, backfilling, restoring disturbed areas, or other necessary hardware and will consider them incidental to this item of work.
Subsection:	723.04.15 Loop Saw Slot and Fill.
Revision:	Replace the second sentence with the following: The Department will not measure sawing, cleaning and filling induction loop saw slot, loop sealant, backer rod, and grout and will consider them incidental to this item of work.
Subsection:	723.04.16 Pedestrian Detector.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished, installed and connected to pole/pedestal. The Department will not measure installing R10-3e (with arrow) sign, furnishing and installing mounting hardware for sign and will consider them incidental to this item of work.
Subsection:	723.04.18 Signal Controller- Type 170.
Revision:	Replace the second sentence with the following: The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure furnishing and connecting the induction of loop amplifiers, pedestrian isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.

Subsection: **Revision:**	723.04.20 Install Signal Controller - Type 170. Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, and excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure connecting the induction loop amplifiers, pedestrian, isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.22 Remove Signal Equipment. Replace the paragraph with the following: The Department will measure the quantity as a lump sum removal of signal equipment. The Department will not measure the return of control equipment and signal heads to the Department of Highways as directed by the District Traffic Engineer. The Department also will not measure the transportation of materials of the disposal of all other equipment and materials off the project by the contractor and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.28 Install Pedestrian Detector Audible. Replace the second sentence with the following: The Department will not measure installing sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection: **Revision:**	723.04.29 Audible Pedestrian Detector. Replace the second sentence with the following: The Department will not measure furnishing and installing the sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection: **Revision:**	723.04.30 Bore and Jack Conduit. Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.
Subsection: **Revision:**	723.04.31 Install Pedestrian Detector. Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed and connected to pole/pedestal. The Department will not measure installing sign R 10-3e (with arrow) and will consider it incidental to this item of work.
Subsection: **Revision:**	723.04.32 Install Mast Arm Pole. Replace the second sentence with the following: The Department will not measure arms, signal mounting brackets, anchor bolts, or any other necessary hardware and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.33 Pedestal Post. Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.

Subsection: **Revision:**	723.04.36 Traffic Signal Pole Base. Replace the second sentence with the following: The Department will not measure excavation, reinforcing steel, anchor bolts, specified conduits, ground rods, ground wires, backfilling, or restoration and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.37 Install Signal Pedestal. Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.38 Install Pedestal Post. Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.
Subsection: **Revision:**	723.05 PAYMENT. Replace items 04810-04811, 20391NS835 and, 20392NS835 under Code, Pay Item, and Pay Unit with the following: Code — Pay Item — Pay Unit 04810 — Electrical Junction Box — Each 04811 — Electrical Junction Box Type B — Each 20391NS835 — Electrical Junction Box Type A — Each 20391NS835 — Electrical Junction Box Type C — Each
Subsection: **Revision:**	813.04 Gray Iron Castings. Replace the reference to "AASHTO M105" with "ASTM A48".
Subsection: **Number:** **Revision:**	813.09.02 High Strength Steel Bolts, Nuts, and Washers. A) Bolts. Delete first paragraph and "Hardness Number" Table. Replace with the following: A) Bolts. Conform to ASTM A325 (AASHTO M164) or ASTM A490 (AASHTO 253) as applicable.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Replace the first sentence of the fourth paragraph with the following: Use any of the species of wood for round or square posts covered under AWPA U1.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Delete the second sentence of the fourth paragraph.
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".

Subsection: **Revision:**	816.07.02 Wood Posts and Braces. Delete the second sentence of the first paragraph.
Subsection: **Revision:**	818.07 Preservative Treatment. First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".
Subsection: **Revision:**	834.14 LIGHTING POLES. Replace the first sentence with the following: Lighting pole design shall be in accordance with loading and allowable stress requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	834.14.03 High Mast Poles. *Remove the second and fourth sentence from the first paragraph. *Replace the third paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace paragraph six with the following: Provide a pole section that conforms to ASTM A 595 grade A with a minimum yield strength of 55 KSI or ASTM A 572 with a minimum yield strength of 55 KSI. Use tubes that are round or 16 sided with a four inch corner radius, have a constant linear taper of .144 in/ft and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Provide pole sections that are telescopically slip fit assembled in the field to facilitate inspection of interior surface welds and the protective coating. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. Use longitudinal seam welds as commended in Section 5.15 of the AASHTO 2013 Specifications. The thickness of the transverse base shall not be less than 2 inches. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration groove weld with backup bar. The handhole cover shall be removable from the handhole frame. One the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM A 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7-guage stainless steel to provide adjustability to insure weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube of the pole but needs to be at least 15 inches. The handhole frame width shall be 0.4 times the diameter of the bottom tube. Provide products that are hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A 153 (hardware items).
Subsection: **Revision:**	834.16 ANCHOR BOLTS. Insert the following sentence at the beginning of the paragraph: The anchor bolt design shall follow the NCHRP Report 494 Section 2.4 and NCHRP 469 Appendix A Specifications.

Subsection: **Revision:**	834.17.01 Conventional. Add the following sentence after the second sentence: Provide a waterproof sticker mounted on the bottom of the housing that is legible from the ground and indicates the wattage of the fixture by providing the fist to numbers of the wattage.
Subsection: **Revision:**	834.21.01 Waterproof Enclosures. *Add the following sentence in the second paragraph in the thirteenth sentence: Provide a cabinet door with a louvered air vent, Filter-retaining brackets and an easy clean metal filter. *Replace sentence sixteen with the following: Use a 120-volt fixture and utilize a compact fluorescent or L.E.D. bulb (equivalent to 60 watt minimum).
Subsection: **Revision:**	835.07 Traffic Poles. Replace the first sentence of the first paragraph with the following: Pole diameter and wall thickness shall be calculated in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	835.07 Traffic Poles. *Replace the first sentence of the fourth paragraph with the following: Ensure transverse plats have a thickness ≥ 2 inches. *Add the following sentence to the end of the fourth paragraph: The bottom pole diameter shall not be less than 16.25 inches.
Subsection: **Revision:**	835.07 Traffic Poles. Replace the second sentence of the fifth paragraph with the following: For anchor bolt design, pole forces shall be positioned in such a manner to maximize the force on any individual anchor bolt regardless of the actual anchor bolt orientation with the pole.
Subsection: **Revision:**	835.07 Traffic Poles. Replace the first and second sentence of the sixth paragraph with the following: The pole handhole shall be 25 inches by 6.5 inches. The handhole cover shall be removable from the handhole frame. On the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7 gauge stainless steel to provide adjustability to insure a weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube but needs to be at least 12 inches.
Subsection: **Revision:**	835.07 Traffic Poles. *Replace the first sentence of the last paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace the third sentence of the last paragraph with the following: All tables referenced in 835.07 are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.

Subsection: **Revision:**	835.07.01 Steel Strain Poles. Replace the second sentence of the second paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	835.07.01 Steel Strain Poles. Replace number 7. after the second paragraph with the following: 7. Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection: **Revision:**	835.07.02 Mast Arm Poles. Replace the second sentence of the fourth paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	835.07.02 Mast Arm Poles. Replace number 7) after the fourth paragraph with the following: 7) Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection: **Revision:**	835.07.03 ANCHORS. Add the following to the end of the paragraph: There shall be two steel templates (one can be used for the headed part of the anchor bolt when designed in this manner) provided per pole. Templates shall be contained within a 26.5 inch diameter. All templates shall be fully galvanized (ASTM A 153).
Subsection: **Revision:**	835.16.05 Optical Units. Replace the 3rd paragraph with the following: The list of certified products can be found on the following website: http://www.intertek.com.
Subsection: **Revision:**	835.19.01 Pedestrian Detector Body. Replace the first sentence with the following: Provide a four holed pole mounted aluminum rectangular housing that is a compatible with the pedestrian detector.

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SPECIAL NOTE FOR STRUCTURAL MASS CONCRETE

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This Special Note covers requirements for structural mass concrete placement. The Department considers mass concrete to be any concrete placement, excluding drilled shafts, with its least plan dimension being 6 feet or greater.

2.0 MATERIALS AND EQUIPMENT.

2.1 Cement. Conform to Section 801 or ASTM C595 for blended cements, Type IS or Type I(SM), except the slag constituent in Type IS is limited to 50 percent of the mass of the portland blast furnace slag.

2.2 Mineral Admixtures. Conform to Section 844 except the Department will permit fly ash Class F and Grade 100 ground granular blast furnace slag (GGBF) in addition to Grade 120.

2.3 Aggregate. Use coarse aggregate conforming to the freeze-thaw expansion requirements of Subsection 805.04.01 for use in all classes of structural mass concrete, excluding seal concrete.

2.4 Temperature Sensing Equipment. Use thermistor type temperature sensing devices, or an approved equal, capable of indicating temperatures over a range of 50 to 200 °F, with an accuracy of ± 1 °F and a precision of 1 °F. Connect the sensors to a device that continuously records and displays temperatures at intervals no greater than 4 hours, and produces a record that can be detached and filed.

3.0 CONSTRUCTION. When placing the mixture, do not allow its temperature to exceed 70 °F. Insulate the concrete until the thermal control is finished. Do not allow the concrete to exceed the maximum temperature of 160 °F at any time during the curing period.

3.1 Thermal Control Plan. Submit for approval a written Thermal Control Plan describing the procedures to be used to minimize temperature differentials within the concrete. Include all items required by this note, and other items deemed necessary or prudent.

Submit the Thermal Control Plan at least 30 calendar days before the first intended structural mass concrete placement. The Engineer will respond within 21 calendar days after receipt of the plan. Make any changes required by the Engineer and resubmit the plan. Continue this process until the Engineer approves the Thermal Control Plan.

Do not place structural mass concrete before receiving written approval of the Thermal Control Plan and having all equipment and materials necessary to facilitate the plan on the site and ready for use.

Approval of the Thermal Control Plan is independent of the submission of the trial mixtures.

The Department will allow the inclusion of the following items in the Thermal Control Plan.

1) Reduction of the total cement content by the use of mineral admixtures. Mineral admixtures derived from blended cements, used as processing additions, or as ingredient materials will apply toward stated maximums.

    a. Substitution of Class F fly ash for cement at the rate of 25 to 30 percent, by mass, applying a substitution rate of 1.0 to 1.25 pounds of fly ash added.
    b. Substitution of GGBF for cement up to a maximum of 50 percent, by mass, applying a substitution rate of one pound of GGBF for each one pound of cement.
    c. Mixes with both GGBF and Class F fly ash, permit up to but no more than 20 percent of the 50 percent GGBF maximum as Class F fly ash.

2) Sprinkle the mixer trucks' drums for cooling.
3) Arrange with supplier to avoid delivery of hot cement.
4) Cooling of aggregate stockpiles.
5) Use of a nitrogen gas cooling system to cool the concrete mass before placement.
6) Use of shaved, flaked, or chipped ice as part of the mixing water.
7) Embedment in the structural mass concrete of a cooling system, approved by the Engineer, consisting of non-corrosive piping and circulating fresh water. Filling of the pipe with concrete or grout after its usefulness has ended is required.
8) Placing concrete during the coolest part of the day, or during cooler weather.
9) Use of special cements or additives that will reduce heat of hydration without affecting strength or durability.

3.2 Thermal Control.

3.2.1 Temperature Differential Restrictions. Ensure that the temperature differential between the geometric center of each placement and the geometric surface does not exceed 35 °F at any time. Maintain thermal control of each placement until the temperature at the center is within 35 °F of the average outside air temperature. Determine the average outside air temperature by averaging the daily high and low temperatures over the preceding 7 calendar days.

3.2.2 Temperature Sensing and Recording. For each placement of structural mass concrete, install 4 temperature sensors, 2 at separate locations near the geometric center of each concrete placement and 2 at the approximate center of the exterior face that has the least sun exposure with the longest distance to the interior sensors. Place the exterior side sensors two inches below the exterior surface. The Department requires 2 sensors at each location in order to have a primary and secondary backup.

3.2.3 Failure to Comply. If the temperature differential within any structural mass concrete placement exceeds 35 °F, take immediate corrective action, suspend future placement of structural mass concrete, and submit a revised Thermal Control Plan to the Engineer for approval. Do not resume placing mass concrete without written approval from the Engineer.

3.3 Trial Mixtures. At least 30 calendar days prior to concrete placement, for each class of concrete used in structural mass concrete, make trial batches according to Subsection 601.03.02 G).

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3.4 Seal Concrete. Conform to all requirements herein this note for underwater placement of concrete seals, with the following exceptions.

1) The Department will not require thermistor devices.
2) The Department will not require insulation.
3) The Department will not require monitoring of the differential between interior and exterior temperatures.
4) When placing the mixture, do not allow its temperature to exceed 60° F.
5) Ensure seal concrete has the following properties:

Cementitious Content	564 lbs/cy
Maximum Free Water	0.47 lb water/lb cement
Slump	4-8 inches
Air Content	0-5%
28-day Compressive Strength	3,500 psi

3.5 Acceptance Testing. Conform to the specified 28-day compressive strength requirements for each class of concrete. The Department will make extra cylinders at the rate of one set per 100 cubic yards, except seal concrete shall be one set per 200 cubic yards, and will test them at an age of 7 days. The Department will cure the extra cylinders, after the first 24 hours, at a temperature between 60 °F and 80 °F. The extra cylinders will be expected to achieve a minimum 7-day compressive strength of 2,600 psi. If the 2,600 psi is not consistently achieved, take corrective action on future pours.

4.0 MEASUREMENT. The Department will not measure the work required by this Special Note as a separate pay unit and will consider it incidental to the various concrete bid items.

5.0 PAYMENT. When the temperature differential exceeds 35 °F during the thermal control period, the Department will adjust payment for the concrete within the affected placement by multiplying the contract unit price by the appropriate factor in the following table:

Temperature Differential	Pay Factor
36 to 40 °F	0.96
41 to 45 °F	0.90
46 °F or higher	0.80

When the 35 °F differential is exceeded for more than one 24-hour period, the Department will apply the pay factor for the maximum differential that occurs. Begin measuring temperature differential 12 hours after the last concrete placement.

June 15, 2012

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SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties[1]	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818[2]
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355[3] (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft^2 Channel applications	6.0[4]	8.0[4]	10.0[4]	12.0[4]	ASTM D6459 ASTM D6460-07

[1] For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.
[2]Minimum Average Roll Values for tensile strength of sample material machine direction.
[3]Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.
[4]Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

2.3 Quality Assurance Sampling, Testing, and Acceptance

A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.

B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.

C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION. When requested by the Engineer, provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

3.1 Site Preparation. Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface.

4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

This Special Provision will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Construct a soil, granular, or rock embankment with granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the 2012 Standard Specifications.

2.0 MATERIALS.

2.1 Granular Embankment. Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

2.2 Rock Embankment. Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

2.3 Granular Pile Core. Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

2.4 Cohesive Pile Core. Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 6 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain excavation stability, at no expense to the Department.

2.5 Structure Granular Backfill. Conform to Subsection 805.11

2.6 Geotextile Fabric. Conform to Type I or Type IV in Section 214 and 843 as required in the plans.

3.0 CONSTRUCTION.

3.1 General. Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

Place and compact granular or cohesive pile core, soil, granular or rock embankment, and structure granular backfill according to the applicable density requirements for the project. When constructing granular or rock embankments, use granular pile core for driven pile foundations and use cohesive pile core for pre-drilled pile or drilled shaft foundations. Place geotextile fabric, Type IV between cohesive pile core and structure

granular backfill and granular or rock embankment.

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B). In addition, place the material in no greater than 2-foot lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling or install shafts, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

Certain projects may require widening of existing embankments and the removal of substructures. Construct embankment according to the plans. Substructure removal shall be completed according to the plans and Section 203. Excavation may be required at the existing embankment in order to place the structure granular backfill as shown in the Standard Drawings.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and removing adjacent forms, fill the excavation with structure granular backfill material to the level of the berm prior to placing beams for the bridge. For soil embankments, place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end wall, place the structure granular backfill to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means the Engineer approves. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

3.2 Special Construction Methods. Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at “dry land” structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the

end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place geotextile fabric between the embankment and the specified slope protection.

4.0 MEASUREMENT.

4.1 Granular Embankment. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

4.2 Rock Embankment. The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. Rock embankments will be constructed using granular embankment on projects where there is no available rock present within the excavation limits of the project.

4.3 Granular Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment furnishing and placing 8-inch perforated underdrain pipe and will consider it incidental to the Granular pile core. The Department will not measure for payment any granular pile core that is necessary because the contractor elects to use granular or rock embankment when it is not specified in the plans.

4.4 Cohesive Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204.

4.5 Structure Granular Backfill. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will consider it incidental to the work.

The Department will not measure structure excavation at the end bent or an existing embankment for payment and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the 4-inch perforated underdrain pipe and will consider it incidental to the Structure Granular Backfill.

4.6 Geotextile Fabric. The Department will measure the quantities as specified in Section 214. The Department will not measure the quantity of fabric used for separating granular or rock embankment and cohesive pile core and will consider it incidental to cohesive pile core.

4.7 End Bent. The Department will measure the quantities according to the

Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards
02596, 02599	Geotextile Fabric, Type	See Section 214

The Department will consider payment as full compensation for all work required in this provision.

June 15, 2012

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

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.

General Decision Number: KY130102 11/08/2013 KY102

Superseded General Decision Number: KY20120127

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	01/04/2013
1	02/01/2013
2	04/05/2013
3	04/26/2013
4	05/03/2013
5	05/31/2013
6	06/07/2013
7	06/14/2013
8	06/21/2013
9	06/28/2013
10	07/05/2013
11	07/26/2013
12	08/09/2013
13	09/20/2013
14	10/04/2013
15	11/08/2013

* BRIN0004-002 06/01/2013

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		

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     Counties....................$ 24.61            10.22
     Daviess, Hancock,
     Henderson, McLean, Union,
     and Webster Counties........$ 28.68            13.72
-----------------------------------------------------------------
 BRTN0004-005 05/01/2009

ALLEN, CALLOWAY, CHRISTIAN, LOGAN, SIMPSON, TODD, TRIGG, and
WARREN COUNTIES


                                  Rates          Fringes

BRICKLAYER.......................$ 24.52             1.83
-----------------------------------------------------------------
 CARP0357-002 04/01/2013

                                  Rates          Fringes

CARPENTER........................$ 26.90            14.42
Diver............................$ 40.73            14.42
PILEDRIVERMAN....................$ 27.15            14.42
-----------------------------------------------------------------
 ELEC0369-006 05/29/2013

BUTLER, EDMONSON, LOGAN, TODD & WARREN COUNTIES:

                                  Rates          Fringes

ELECTRICIAN......................$ 29.48            14.37
-----------------------------------------------------------------
 ELEC0429-001 02/01/2010

ALLEN & SIMPSON COUNTIES:

                                  Rates          Fringes

ELECTRICIAN......................$ 21.85            10.35
-----------------------------------------------------------------
 ELEC0816-002 06/01/2013

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......................$ 30.40       25.5%+5.60

Cable spicers receive $.25 per hour additional.
-----------------------------------------------------------------
 ELEC1701-003 06/01/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO,
UNION & WEBSTER COUNTIES:


                                  Rates          Fringes
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ELECTRICIAN.....$ 30.03 13.72

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 07/01/2013

	Rates	Fringes
Operating Engineer:		
GROUP 1	$ 28.00	13.90
GROUP 2	$ 25.45	13.90
GROUP 3	$ 25.85	13.90
GROUP 4	$ 25.17	13.90

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 06/01/2013

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	$ 26.47	19.30

IRON0103-004 04/01/2013

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:.....	$ 27.82	16.555

IRON0492-003 05/01/2013

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:.....	$ 23.84	10.96

IRON0782-006 05/01/2013

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.....	$ 26.46	19.91
All Other Work.....	$ 24.95	18.65

LABO0189-005 07/01/2013

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL & MCCRACKEN COUNTIES

	Rates	Fringes
Laborers:		

GROUP 1.....$ 20.95 12.01
GROUP 2.....$ 21.20 12.01
GROUP 3.....$ 21.25 12.01
GROUP 4.....$ 21.85 12.01

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 07/01/2013

ALLEN, BUTLER, CALDWELL, CHRISTIAN, DAVIESS, EDMONSON, HANCOCK, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, SIMPSON, TODD, TRIGG & WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 21.96	11.00
GROUP 2	$ 22.21	11.00
GROUP 3	$ 22.26	11.00
GROUP 4	$ 22.86	11.00

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 07/01/2013

CRITTENDEN, HENDERSON, UNION & WEBSTER COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 21.11	12.25
GROUP 2	$ 21.36	12.25
GROUP 3	$ 21.41	12.25
GROUP 4	$ 22.01	12.25

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 05/01/2013

BALLARD COUNTY

	Rates	Fringes
Painters:		
Bridges	$ 30.56	15.18
All Other Work	$ 28.26	15.18

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 07/01/2013

CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES:

	Rates	Fringes
Painters:		
Bridges	$ 25.80	11.95
All Other Work	$ 19.55	11.95

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

PLUM0184-002 07/01/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN and TRIGG COUNTIES

	Rates	Fringes
Plumber; Steamfitter	$ 33.11	14.83

PLUM0502-004 08/01/2013

ALLEN, BUTLER, EDMONSON, SIMPSON & WARREN

	Rates	Fringes
Plumber; Steamfitter	$ 32.00	17.17

PLUM0633-002 08/01/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, TODD, UNION & WEBSTER COUNTIES:

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 29.87	14.25

TEAM0089-003 03/31/2013

ALLEN, BUTLER, EDMONSON, LOGAN, SIMPSON & WARREN COUNTIES

	Rates	Fringes
Truck drivers:		
Zone 1:		
Group 1	$ 19.38	16.85

Group 2.....$ 19.56 16.85
Group 3.....$ 19.64 16.85
Group 4.....$ 19.66 16.85

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

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TEAM0215-003 03/31/2013

DAVIESS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO & WEBSTER COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1	$ 20.93	16.85
Group 2	$ 21.16	16.85
Group 3	$ 21.23	16.85
Group 4	$ 21.24	16.85

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; Low Boy; 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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TEAM0236-001 03/31/2013

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN,TODD & TRIGG COUNTIES

	Rates	Fringes
TRUCK DRIVER		

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     Group 1.....................$ 19.38           16.85
     Group 2.....................$ 19.56           16.85
     Group 3.....................$ 19.56           16.85
     Group 4.....................$ 19.66           16.85
     Group 5.....................$ 19.64           16.85

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; Drivers 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

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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)).


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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
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example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

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 majority 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-13-I-HWY dated April 15, 2013.

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, Acting 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

131212

PROPOSAL BID ITEMS

Report Date 1/15/13

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0010	00001		DGA BASE	21,669.00	TON		$	
0020	00003		CRUSHED STONE BASE	994.00	TON		$	
0030	00018		DRAINAGE BLANKET-TYPE II-ASPH	7,208.00	TON		$	
0040	00212		CL2 ASPH BASE 1.00D PG64-22	693.00	TON		$	
0050	00214		CL3 ASPH BASE 1.00D PG64-22	19,791.00	TON		$	
0060	00309		CL2 ASPH SURF 0.50D PG64-22	2,152.00	TON		$	
0070	00324		CL3 ASPH SURF 0.50B PG64-22	3,150.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0080	00071		CRUSHED AGGREGATE SIZE NO 57	979.00	TON		$	
0090	00078		CRUSHED AGGREGATE SIZE NO 2	29.00	TON		$	
0100	00100		ASPHALT SEAL AGGREGATE	72.00	TON		$	
0110	00103		ASPHALT SEAL COAT	9.00	TON		$	
0120	01000		PERFORATED PIPE-4 IN	7,479.00	LF		$	
0130	01001		PERFORATED PIPE-6 IN	2,315.00	LF		$	
0140	01010		NON-PERFORATED PIPE-4 IN	525.00	LF		$	
0150	01011		NON-PERFORATED PIPE-6 IN	192.00	LF		$	
0160	01020		PERF PIPE HEADWALL TY 1-4 IN	4.00	EACH		$	
0170	01021		PERF PIPE HEADWALL TY 1-6 IN	1.00	EACH		$	
0180	01024		PERF PIPE HEADWALL TY 2-4 IN	15.00	EACH		$	
0190	01028		PERF PIPE HEADWALL TY 3-4 IN	4.00	EACH		$	
0200	01029		PERF PIPE HEADWALL TY 3-6 IN	1.00	EACH		$	
0210	01032		PERF PIPE HEADWALL TY 4-4 IN	4.00	EACH		$	
0220	01033		PERF PIPE HEADWALL TY 4-6 IN	1.00	EACH		$	
0230	01741		CORED HOLE DRAINAGE BOX CON-6 IN	8.00	EACH		$	
0240	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	82.00	EACH		$	
0250	01984		DELINEATOR FOR BARRIER - WHITE	86.00	EACH		$	
0260	01985		DELINEATOR FOR BARRIER - YELLOW	173.00	EACH		$	
0270	02014		BARRICADE-TYPE III	4.00	EACH		$	
0280	02091		REMOVE PAVEMENT	2,809.00	SQYD		$	
0290	02159		TEMP DITCH	5,885.00	LF		$	
0300	02160		CLEAN TEMP DITCH	17,655.00	LF		$	
0310	02200		ROADWAY EXCAVATION	51,362.00	CUYD		$	
0320	02204		SPECIAL EXCAVATION	3,974.00	CUYD		$	
0330	02241		RESHAPING AND COMPACTING	2,586.00	LF		$	
0340	02242		WATER	2.00	MGAL		$	
0350	02381		REMOVE GUARDRAIL	7,059.00	LF		$	
0360	02432		WITNESS POST	3.00	EACH		$	
0370	02436		R/W MARKER RURAL TYPE 3	7.00	EACH		$	
0380	02483		CHANNEL LINING CLASS II	98.00	TON		$	
0390	02545		CLEARING AND GRUBBING (APPROXIMATELY 1.5 ACRES IN MARSHALL COUNTY)	1.00	LS		$	

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PROPOSAL BID ITEMS

Report Date 1/15/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0400	02562		TEMPORARY SIGNS (FOR TRAFFIC MAINTENANCE)	1,167.00	SQFT		$	
0410	02570		PROJECT CPM SCHEDULE SEE DESIGN FOR SPECIAL NOTE	1.00	LS		$	
0420	02585		EDGE KEY	240.00	LF		$	
0430	02596		FABRIC-GEOTEXTILE TYPE I	12,241.00	SQYD		$	
0440	02599		FABRIC-GEOTEXTILE TYPE IV	10,052.00	SQYD		$	
0450	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	1,882.00	SQYD	$2.00	$	$3,764.00
0460	02650		MAINTAIN & CONTROL TRAFFIC (TRIGG COUNTY)	1.00	LS		$	
0470	02650		MAINTAIN & CONTROL TRAFFIC (MARSHALL COUNTY)	1.00	LS		$	
0480	02673		PRECAST VEHICLE STOP	172.00	LF		$	
0490	02696		SHOULDER RUMBLE STRIPS-SAWED	6,560.00	LF		$	
0500	02701		TEMP SILT FENCE	5,885.00	LF		$	
0510	02703		SILT TRAP TYPE A	33.00	EACH		$	
0520	02704		SILT TRAP TYPE B	33.00	EACH		$	
0530	02705		SILT TRAP TYPE C	33.00	EACH		$	
0540	02706		CLEAN SILT TRAP TYPE A	99.00	EACH		$	
0550	02707		CLEAN SILT TRAP TYPE B	99.00	EACH		$	
0560	02708		CLEAN SILT TRAP TYPE C	99.00	EACH		$	
0570	02709		CLEAN TEMP SILT FENCE	17,655.00	LF		$	
0580	02726		STAKING (TRIGG COUNTY)	1.00	LS		$	
0590	02726		STAKING (MARSHALL COUNTY)	1.00	LS		$	
0600	02731		REMOVE STRUCTURE (EGGNER FERRY BRIDGE)	1.00	LS		$	
0610	02998		MASONRY COATING	2,173.00	SQYD		$	
0620	03144		CONC MEDIAN BARRIER TYPE 9C1	3,343.00	LF		$	
0630	05950		EROSION CONTROL BLANKET	2,534.00	SQYD		$	
0640	05952		TEMP MULCH	170,660.00	SQYD		$	
0650	05953		TEMP SEEDING AND PROTECTION	16,343.00	SQYD		$	
0660	05966		TOPDRESSING FERTILIZER	18.00	TON		$	
0670	05985		SEEDING AND PROTECTION	163,432.00	SQYD		$	
0680	05989		SPECIAL SEEDING CROWN VETCH	170,661.00	SQYD		$	
0690	06510		PAVE STRIPING-TEMP PAINT-4 IN	38,850.00	LF		$	
0700	06514		PAVE STRIPING-PERM PAINT-4 IN	43,862.00	LF		$	
0710	06550		PAVE STRIPING-TEMP REM TAPE-W	8,772.00	LF		$	
0720	06551		PAVE STRIPING-TEMP REM TAPE-Y	12,208.00	LF		$	
0730	06574		PAVE MARKING-THERMO CURV ARROW	6.00	EACH		$	
0740	06575		PAVE MARKING-THERMO COMB ARROW	2.00	EACH		$	
0750	06592		PAVEMENT MARKER TYPE V-B W/R	119.00	EACH		$	
0760	06593		PAVEMENT MARKER TYPE V-B Y/R	173.00	EACH		$	
0770	08019		CYCLOPEAN STONE RIP RAP	19,269.00	TON		$	
0780	10020NS		FUEL ADJUSTMENT	72,080.00	DOLL	$1.00	$	$72,080.00
0790	10030NS		ASPHALT ADJUSTMENT	100,825.00	DOLL	$1.00	$	$100,825.00
0800	20060ES719		GUARDRAIL STEEL W BEAM-S FACE CR	5,472.00	LF		$	
0810	20062ES719		GUARDRAIL TERMINAL SECT NO.1 CR	6.00	EACH		$	
0820	20206EC		PAVE MARK HANDICAP SYMBOL	2.00	EACH		$	
0830	20285ES719		GUARDRAIL END TREATMENT TY 2A-CR	1.00	EACH		$	
0840	20382ES719		G/R CONN TO BRIDGE END TY A-CR	4.00	EACH		$	
0850	21325ND		CONSTRUCTION TRAILER	1.00	LS		$	

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PROPOSAL BID ITEMS

Report Date 1/15/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0860	23131ER701		PIPELINE VIDEO INSPECTION	561.00	LF		$	
0870	23143EN		DECORATIVE HANDRAIL (STEEL POWDER COATED FINISH)	1,977.00	LF		$	
0880	23162EN		GUARDRAIL CONN TO BR END TY A-1 CR	4.00	EACH		$	
0890	23274EN11F		TURF REINFORCEMENT MAT 1	1,078.00	SQYD		$	
0900	23394EC		CRASH CUSHION TY VI CLASS C TL3-1	1.00	EACH		$	
0910	23651ES719		G/R END TREATMENT TY 1-CR	1.00	EACH		$	
0920	23912EC		WEB CAMERA CONST MONITORING SYSTEM	1.00	LS		$	
0930	23979EC		CRASH CUSHION TY VI CLASS C TL3	2.00	EACH		$	
0940	24620EC		HELPER BOAT	1.00	LS		$	
0950	24626EC		PROJECT INSPECTION BOAT	1.00	LS		$	
0960	24636EC		GUARDRAIL TERMINAL SECT NO.3 CR	2.00	EACH		$	
0970	24637EC		GUARDRAIL STEEL W BEAM-D FACE CR	2,768.00	LF		$	
0980	30000		REMOVABLE BOLLARD	3.00	EACH		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0990	00440		ENTRANCE PIPE-15 IN	65.00	LF		$	
1000	00443		ENTRANCE PIPE-24 IN	130.00	LF		$	
1010	00521		STORM SEWER PIPE-15 IN	189.00	LF		$	
1020	00522		STORM SEWER PIPE-18 IN	289.00	LF		$	
1030	01202		PIPE CULVERT HEADWALL-15 IN	1.00	EACH		$	
1040	01204		PIPE CULVERT HEADWALL-18 IN	2.00	EACH		$	
1050	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		$	
1060	01432		SLOPED BOX OUTLET TYPE 1-15 IN	3.00	EACH		$	
1070	01505		DROP BOX INLET TYPE 5B	1.00	EACH		$	
1080	01538		DROP BOX INLET TYPE 7	1.00	EACH		$	
1090	01621		CONC MED BARR BOX INLET TY 9B1	2.00	EACH		$	
1100	08100		CONCRETE-CLASS A (FOR END ANCHORS)	2.82	CUYD		$	
1110	23952EC		DRAINAGE JUNCTION BOX TY B	1.00	EACH		$	

Section: 0004 - BRIDGE - WEST APPROACH

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1120	02231		STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD		$	
1130	02599		FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD		$	
1140	02998		MASONRY COATING	5,578.00	SQYD		$	
1150	08001		STRUCTURE EXCAVATION-COMMON	2,483.00	CUYD		$	
1160	08033		TEST PILES (INSTALL 30 IN PIPE PILE - 1 IN)	459.00	LF		$	
1170	08033		TEST PILES (INSTALL 72 IN PIPE PILE - 2 IN)	448.00	LF		$	
1180	08033		TEST PILES (FURNISH 30 IN PIPE PILE - 1 IN)	468.00	LF		$	
1190	08033		TEST PILES (FURNISH 72 IN PIPE PILE - 2 IN)	516.00	LF		$	
1200	08100		CONCRETE-CLASS A	2,288.00	CUYD		$	
1210	08101		CONCRETE-CLASS A MOD	258.00	CUYD		$	
1220	08104		CONCRETE-CLASS AA	3,733.00	CUYD		$	
1230	08150		STEEL REINFORCEMENT	517,011.00	LB		$	

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PROPOSAL BID ITEMS

Report Date 1/15/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1240	08151		STEEL REINFORCEMENT-EPOXY COATED	1,251,172.00	LB		$	
1250	08160		STRUCTURAL STEEL (APPROACH SPANS, APPROXIMATELY 9,276,108 LBS.)	1.00	LS		$	
1260	08170		SHEAR CONNECTORS(APPROXIMATELY 19,856 LBS)	1.00	LS		$	
1270	08267		NAVIGATION LIGHTING	1.00	LS		$	
1280	08500		APPROACH SLAB	204.00	SQYD		$	
1290	08820		DRAIN PIPE-6 IN (FIBERGLASS)	200.00	LF		$	
1300	20154ND		DRAIN ASSEMBLY	16.00	EACH		$	
1310	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	15.00	EACH		$	
1320	23233EC		DYNAMIC PILE TESTING (ON LAND - INITIAL)	5.00	EACH		$	
1330	23233EC		DYNAMIC PILE TESTING (ON LAND - RESTRIKE)	10.00	EACH		$	
1340	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	9.00	EACH		$	
1350	23538EC		PEDESTRIAN RAIL	1,452.00	LF		$	
1360	23859EC		FINGER EXPANSION JOINT	74.00	LF		$	
1370	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
1380	24538ED		RAIL SYSTEM TYPE 11	2,880.00	LF		$	
1390	24550EC		VIBRATION MONITORING	1.00	LS		$	
1400	24606ED		HSS BARRIER RAIL - 3 RAIL	1,429.00	LF		$	
1410	24611EC		SEISMIC DAMPERS (BENT ENDS)	6.00	EACH		$	
1420	24611EC		SEISMIC DAMPERS (PIERS 4 & 5)	6.00	EACH		$	
1430	24614EC		DISK EXPANSION BEARING	12.00	EACH		$	
1440	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
1450	24617EC		INSTALL (AT&T DUCTBANK)	1,407.00	LF		$	
1460	24618EC		PIPE PILES (INSTALL 72 IN PIPE PILE - 2 IN)	836.00	LF		$	
1470	24618EC		PIPE PILES (FURNISH 30 IN PIPE PILE - 1 IN)	3,393.00	LF		$	
1480	24618EC		PIPE PILES (INSTALL 30 IN PIPE PILE - 1 IN)	3,585.00	LF		$	
1490	24618EC		PIPE PILES (FURNISH 72 IN PIPE PILE - 2 IN)	909.00	LF		$	
1500	24619EC		SPLICE PILES (30 IN PIPE PILE - 1 IN)	13.00	EACH		$	
1510	24619EC		SPLICE PILES (72 IN PIPE PILE - 2 IN)	3.00	EACH		$	
1520	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	9.00	EACH		$	
1530	24627EC		OPEN END INSIDE FIT CUTTING SHOE (30 IN - 1 IN)	28.00	EACH		$	
1540	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	9.00	EACH		$	
1550	24629EC		DECORATIVE FENCE PANEL	17.00	EACH		$	

Section: 0005 - BRIDGE - EAST APPROACH

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1560	02231		STRUCTURE GRANULAR BACKFILL	1,115.00	CUYD		$	
1570	02599		FABRIC-GEOTEXTILE TYPE IV	328.00	SQYD		$	
1580	02998		MASONRY COATING	6,760.00	SQYD		$	
1590	08001		STRUCTURE EXCAVATION-COMMON	2,371.00	CUYD		$	
1600	08033		TEST PILES (FURNISH - 30 IN PIPE - 1 IN)	441.00	LF		$	
1610	08033		TEST PILES (INSTALL - 30 IN PIPE - 1 IN)	435.00	LF		$	
1620	08033		TEST PILES (FURNISH 17 IN PIPE PILE - 2 IN)	914.00	LF		$	

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PROPOSAL BID ITEMS

Report Date 1/15/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1630	08033		TEST PILES (INSTALL - 72 IN - 2 IN)	706.00	LF		$	
1640	08100		CONCRETE-CLASS A	3,021.00	CUYD		$	
1650	08101		CONCRETE-CLASS A MOD (PIPE PILE INFILL)	627.00	CUYD		$	
1660	08104		CONCRETE-CLASS AA	4,355.00	CUYD		$	
1670	08150		STEEL REINFORCEMENT	729,951.00	LB		$	
1680	08151		STEEL REINFORCEMENT-EPOXY COATED	1,468,512.00	LB		$	
1690	08160		STRUCTURAL STEEL (APPROACH SPAN, APPROXIMATELY 10,339,811 LBS.)	1.00	LS		$	
1700	08170		SHEAR CONNECTORS (APPROXIMATELY 30,733 LBS.)	1.00	LS		$	
1710	08267		NAVIGATION LIGHTING	1.00	LS		$	
1720	08500		APPROACH SLAB	204.00	SQYD		$	
1730	08820		DRAIN PIPE-6 IN (FIBERGLASS)	270.00	LF		$	
1740	20154ND		DRAIN ASSEMBLY	22.00	EACH		$	
1750	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	13.00	EACH		$	
1760	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	23.00	EACH		$	
1770	23233EC		DYNAMIC PILE TESTING (ON LAND - RESTRIKE)	10.00	EACH		$	
1780	23233EC		DYNAMIC PILE TESTING (ON LAND - INITIAL)	5.00	EACH		$	
1790	23538EC		PEDESTRIAN RAIL	1,696.00	LF		$	
1800	23859EC		FINGER EXPANSION JOINT	74.00	LF		$	
1810	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
1820	24538ED		RAIL SYSTEM TYPE 11	3,378.00	LF		$	
1830	24550EC		VIBRATION MONITORING	1.00	LS		$	
1840	24606ED		HSS BARRIER RAIL - 3 RAIL	1,678.00	LF		$	
1850	24611EC		SEISMIC DAMPERS (END BENTS)	6.00	EACH		$	
1860	24611EC		SEISMIC DAMPERS (PIERS 4 & 5)	6.00	EACH		$	
1870	24614EC		DISK EXPANSION BEARING	12.00	EACH		$	
1880	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
1890	24617EC		INSTALL (AT&T DUCTBANK)	1,651.00	LF		$	
1900	24618EC		PIPE PILES (FURNISH - 30 IN - 1 IN)	3,185.00	LF		$	
1910	24618EC		PIPE PILES (INSTALL - 30 IN - 1 IN)	3,385.00	LF		$	
1920	24618EC		PIPE PILES (FURNISH - 72 IN PIPE PILE - 2 IN)	1,445.00	LF		$	
1930	24618EC		PIPE PILES (INSTALL - 72 IN PIPE PILE - 2 IN)	1,197.00	LF		$	
1940	24619EC		SPLICE PILES (30 IN PIPE - 1 IN)	13.00	EACH		$	
1950	24619EC		SPLICE PILES (72 IN PIPE PILE - 2 IN)	5.00	EACH		$	
1960	24627EC		OPEN END INSIDE FIT CUTTING SHOE (30 IN - 1 IN)	28.00	EACH		$	
1970	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	14.00	EACH		$	
1980	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	14.00	EACH		$	
1990	24629EC		DECORATIVE FENCE PANEL	20.00	EACH		$	

Section: 0006 - BRIDGE - MAIN SPAN

131212

PROPOSAL BID ITEMS

Report Date 1/15/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2000	02998		MASONRY COATING	5,303.00	SQYD		$	
2010	08033		TEST PILES (FURNISH 72 IN PIPE PILE - 2 IN)	760.00	LF		$	
2020	08033		TEST PILES (INSTALL 72 IN PIPE PILE - 2 IN)	468.00	LF		$	
2030	08100		CONCRETE-CLASS A	7,174.00	CUYD		$	
2040	08101		CONCRETE-CLASS A MOD (PIPE PILE INFILL)	2,066.00	CUYD		$	
2050	08104		CONCRETE-CLASS AA	1,118.00	CUYD		$	
2060	08150		STEEL REINFORCEMENT	1,463,804.00	LB		$	
2070	08151		STEEL REINFORCEMENT-EPOXY COATED	458,567.00	LB		$	
2080	08160		STRUCTURAL STEEL (ARCH SPAN, APPROXIMATELY 4,734,847 LBS.)	1.00	LS		$	
2090	08170		SHEAR CONNECTORS (APPROXIMATELY 28,433 LBS.)	1.00	LS		$	
2100	08267		NAVIGATION LIGHTING	1.00	LS		$	
2110	08534		CONCRETE OVERLAY-LATEX	180.00	CUYD		$	
2120	08752		PAINT CLEARANCE GAUGES	1.00	LS		$	
2130	08820		DRAIN PIPE-6 IN (FIBERGLASS)	36.00	LF		$	
2140	20154ND		DRAIN ASSEMBLY	10.00	EACH		$	
2150	23233EC		DYNAMIC PILE TESTING (ON WATER - INITIAL)	8.00	EACH		$	
2160	23233EC		DYNAMIC PILE TESTING (ON WATER - RESTRIKE)	16.00	EACH		$	
2170	23538EC		PEDESTRIAN RAIL	566.00	LF		$	
2180	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		$	
2190	24112EC		STEEL REINFORCEMENT STAINLESS STEEL	283,139.00	LB		$	
2200	24538ED		RAIL SYSTEM TYPE 11	1,108.00	LF		$	
2210	24550EC		VIBRATION MONITORING	1.00	LS		$	
2220	24606ED		HSS BARRIER RAIL - 3 RAIL	550.00	LF		$	
2230	24608EC		BRIDGE STRAND HANGER-FABRICATE & INSTALL (APPROXIMATE LENGTH - 5,440 LF)	1.00	LS		$	
2240	24610EC		MODULAR EXPANSION JOINT	120.00	LF		$	
2250	24612EC		SEISMIC ISOLATION BEARING - TYPE A	4.00	EACH		$	
2260	24613EC		SEISMIC ISOLATION BEARING - TYPE B	2.00	EACH		$	
2270	24615EC		ARCH FEATURE LIGHTING	1.00	LS		$	
2280	24616EC		PATH DELINEATION LIGHTING	1.00	LS		$	
2290	24617EC		INSTALL (AT&T DUCTBANK)	556.00	LF		$	
2300	24618EC		PIPE PILES (INSTALL 72 IN PIPE PILE -2 IN)	2,568.00	LF		$	
2310	24618EC		PIPE PILES (FURNISH 72 IN PIPE PILES - 2 IN)	4,080.00	LF		$	
2320	24619EC		SPLICE PILES (72 IN PIPE - 2 IN)	12.00	EACH		$	
2330	24627EC		OPEN END INSIDE FIT CUTTING SHOE (72 IN - 2 IN)	28.00	EACH		$	
2340	24628EC		PILE CONSTRICTOR PLATE (72 IN - 2 IN)	28.00	EACH		$	
2350	24629EC		DECORATIVE FENCE PANEL	7.00	EACH		$	

Section: 0007 - MOBILIZATION & DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2360	02568		MOBILIZATION	1.00	LS		$	
2370	02569		DEMOBILIZATION	1.00	LS		$	

131212

PROPOSAL BID ITEMS

Report Date 1/15/13