CALL NO. 100

CONTRACT ID. 245366

HARLAN COUNTY

FED/STATE PROJECT NUMBER STP BRZ 9030 (484)

DESCRIPTION KY 72

WORK TYPE BRIDGE REPLACEMENT

PRIMARY COMPLETION DATE 11/1/2025

LETTING DATE: October 24,2024

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME October 24,2024. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 2.50%

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

TABLE OF CONTENTS

PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 11

CONTRACT ID - 245366

STP BRZ 9030 (484)

COUNTY - HARLAN

PCN - BR04800722401
STP BRZ 9030 (484)

KY 72 (MP 13.313) ADDRESS DEFICIENCIES ON KY 72 OVER POOR FORK OF CUMBERLAND RIVER (048B00138N) (MP 13.403), A DISTANCE OF 0.09 MILES.BRIDGE REPLACEMENT SYP NO. 11-10196.00.

GEOGRAPHIC COORDINATES LATITUDE 36:51:35.00 LONGITUDE 83:19:32.00

ADT 2,634

COMPLETION DATE(S):

COMPLETED BY 11/01/2025 APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

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

BID SUBMITTAL

Bidder must use the Department's electronic bidding software. 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 shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

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 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/construction-procurement). 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 US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, 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 state. 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 state agency certifies that it is in compliance with the provisions of KRS 45A.150, "Access to contractor's books, documents, papers, records, or other evidence directly pertinent to the contract." The Contractor, as defined in KRS 45A.030, 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 agreement for

the purpose of financial audit or program review. 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. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the agreement and shall be exempt from disclosure as provided in KRS 61.878(1)(c).

BOYCOTT PROVISIONS

If applicable, the contractor represents that, pursuant to KRS 45A.607, they are not currently engaged in, and will not for the duration of the contract engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which Kentucky can enjoy open trade. **Note:** The term Boycott does not include actions taken for bona fide business or economic reasons, or actions specifically required by federal or state law.

If applicable, the contractor verifies that, pursuant to KRS 41.480, they do not engage in, and will not for the duration of the contract engage in, in energy company boycotts as defined by KRS 41.472.

LOBBYING PROHIBITIONS

The contractor represents that they, and any subcontractor performing work under the contract, have not violated the agency restrictions contained in KRS 11A.236 during the previous ten (10) years, and pledges to abide by the restrictions set forth in such statute for the duration of the contract awarded.

The contractor further represents that, pursuant to KRS 45A.328, they have not procured an original, subsequent, or similar contract while employing an executive agency lobbyist who was convicted of a crime related to the original, subsequent, or similar contract within five (5) years of the conviction of the lobbyist.

SPECIAL NOTE – BUY AMERICA REQUIREMENTS AND BUILD AMERICA, BUY AMERICA (BABA) ACT 10/26/2023

1.0 BUY AMERICA REQUIREMENT.

Follow the "Buy America" provisions as required by 23 U.S.C. § 313 and 23 C.F.R. § 635.410. Except as expressly provided herein all manufacturing processes of steel or iron materials including but not limited to structural steel, guardrail materials, corrugated steel, culvert pipe, structural plate, prestressing strands, and steel reinforcing bars shall occur in the United States of America, including the application of:

- Coating,
- Galvanizing,
- Painting, and
- Other coating that protects or enhances the value of steel or iron products.

The following are exempt, unless processed or refined to include substantial amounts of steel or iron material, and may be used regardless of source in the domestic manufacturing process for steel or iron material:

- Pig iron,
- Processed, pelletized, and reduced iron ore material, or
- Processed alloys.

The Contractor shall submit a certification stating that all manufacturing processes involved with the production of steel or iron materials occurred in the United States.

Produce, mill, fabricate, and manufacture in the United States of America all aluminum components of bridges, tunnels, and large sign support systems, for which either shop fabrication, shop inspection, or certified mill test reports are required as the basis of acceptance by the Department.

Use foreign materials only under the following conditions:

1) When the materials are not permanently incorporated into the project; or
2) When the delivered cost of such materials used does not exceed 0.1 percent of the total Contract amount or $2,500.00, whichever is greater.

The Contractor shall submit to the Engineer the origin and value of any foreign material used.

2.0 – BUILD AMERICA, BUY AMERICA (BABA)

Contractor shall comply with the Federal Highway Administration (FHWA) Buy America Requirement in 23 C.F.R. § 635.410 and all relevant provisions of the Build America, Buy America Act (BABA), contained within the Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 70901-52 enacted November 15, 2021. The BABA requires iron, steel, manufactured products, and construction materials used in infrastructure projects funded by federal financial assistance to be produced in the United States. Comply with 2 C.F.R § 184.

BABA permits FHWA participation in the Contract only if domestic steel and iron will be used on the Project. To be considered domestic, all steel and iron used, and all products manufactured from steel and iron must be produced in the United States and all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. This requirement does not preclude a minimal use of foreign steel and iron materials, provided the cost of such materials does not exceed 0.1% of the total contract amount under the Contract or $2,500.00 whichever is greater.

BABA permits FHWA participation in the Contract only if all "construction materials" as defined in the Act are made in the United States. The Buy America preference applies to the following construction materials

incorporated into infrastructure projects: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); Fiber optic cable; optical fiber; lumber; engineered wood; and drywall. Contractor will be required to use construction materials produced in the United States on this Project. The Contractor shall submit a certification stating that all construction materials are certified to be BABA compliant.

Finally, BABA permits the continuation of FHWA's current general applicability waivers for manufactured products, raw materials, and ferryboat parts, but these waivers are subject to reevaluation, specifically the general applicability waiver for manufactured products.

The Contractor has completed and submitted, or shall complete and submit, to the Cabinet a Buy America/ Build America, Buy America Certificate prior to the Cabinet issuing the notice to proceed, in the format below. After submittal, the Contractor is bound by its original certification.

A false certification is a criminal act in violation of 18 U.S.C. § 1001. The Contractor has the burden of proof to establish that it is in compliance.

At the Contractor's request, the Cabinet may, but is not obligated to, seek a waiver of Buy America requirements if grounds for the waiver exist under 23 C.F.R. § 635.410(c) or will comply with the applicable Buy America requirements if a waiver of those requirements is not available or not pursued by the Cabinet.

Please refer to the Federal Highway Administration's Buy America webpage for more information.

Buy America - Construction Program Guide - Contract Administration - Construction - Federal Highway Administration (dot.gov)

BUY AMERICA / BUILD AMERICA, BUY AMERICA (ACT) MATERIALS CERTIFICATE OF COMPLIANCE

The Contractor hereby certifies that it will comply with all relevant provisions of the Build America, Buy America Act, contained within the Infrastructure Investment and Jobs Act, Pub. L. NO. 117-58, §§ 70901-52, the requirements of 23 U.S.C. § 313, 23 C.F.R. § 635.410 and 2 C.F.R § 184.

Date Submitted:_____

Contractor:_____

Signature:_____

Printed Name:_____

Title:_____

NOTE: THIS CERTIFICATION IS IN ADDITION TO ANY AND ALL REQUIREMENTS OUTLINED IN THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND/OR SPECIAL NOTES CONTAINED IN THE PROJECT PROPOSAL.

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 Rating
102.13 Irregular Bid Proposals
102.09 Proposal Guaranty
102.08 Preparation and Delivery of Proposals
102.14 Disqualification of Bidders

CIVIL RIGHTS ACT OF 1964

The Kentucky Transportation Cabinet, Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, disability, income- level, or Limited English Proficiency (LEP)in consideration for an award.

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 are acceptable per Section 108.01 of the Standard Specifications for Road and Bridge Construction. S u b - Contractors fulfilling a disadvantaged business enterprise goal on a project may enter into a 2nd tier subcontract with a Non-DBE Subcontractor. However, in this instance, none of the work subcontracted to the Non-DBE Contractor will count toward fulfilling the established Disadvantaged Goal for the project.

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 14-35 DBE, within 5 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 Proposal Line Number, 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.

AFTER PROJECT AWARD AND BEFORE NOTICE TO PROCEED/WORK ORDER IS ISSUED (SEE SECTION 103.06, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

Prime Contractors awarded a federally funded project with a DBE Goal greater than zero will be required to submit a fully executed DBE Subcontract, along with the attached FHWA 1273 and Certificate of Liability Insurance for each DBE Firm submitted as part of the previously approved DBE Utilization Plan (TC 14-35). A signed quote or purchase order shall be attached when the DBE subcontractor is a material supplier or broker.

The Certificate of Liability Insurance submitted must meet the requirements outlined in Section 107.18 of the Standard Specifications for Road and Bridge Construction.

Changes to ***APPROVED*** DBE Participation Plans must be approved by the Office for Civil Rights & Small Business Development. 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 (hard copy along with an electronic copy) of this information must be received in 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 Disadvantaged Enterprise Business Liaison Officer (DEBLO) in the Office for Civil Rights and Small Business Development 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 out 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:

- Suspension of Prequalification;
- 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 and Non-DBE Subcontractors 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 complete and submit a ***signed and notarized*** Affidavit of Subcontractor Payment (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These documents must be completed and signed within 7 days of being paid by the Cabinet.

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.

******* IMPORTANT *******

Please mail the original, signed and completed TC (18-7) Affidavit of Subcontractor Payment form and all copies of checks for payments listed above to the following address:

Office for Civil Rights and Small Business Development
6th Floor West 200 Mero Street
Frankfort, KY 40622

The prime contractor should notify the KYTC Office for Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact in this office is Mr. Tony Youssefi. Mr. Youssefi's current contact information is email address – tyousseffi@ky.gov and the telephone number is (502) 564-3601.

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.

PROHIBITION ON TELECOMMUNICATIONS EQUIPMENT OR SERVICES

In accordance with the FY 2019 National Defense Authorization Act (NDAA), 2 CFR 200.216, and 2 CFR 200.471, Federal agencies are prohibited, after August 13, 2020, from obligating or expending financial assistance to obtain certain telecommunications and video surveillance services and equipment from specific producers. As a result of these regulations, contractors and subcontractors are prohibited, on projects with federal funding participation, from providing telecommunication or video surveillance equipment, services, or systems produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities)
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities)

LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC – CARGO PREFERENCE ACT (CPA).

(REV 12-17-15) (1-16)

SECTION 7 is expanded by the following new Article:

102.10 **Cargo Preference Act – Use of United States-flag vessels.**

Pursuant to Title 46CFR Part 381, the Contractor agrees

- To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 1 of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

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.

OPTION B

Be advised that the Department will control and accept compaction of asphalt mixtures furnished on this project under OPTION B in accordance with Sections 402 and 403.

SPECIAL NOTE FOR TRAFFIC CONTROL ON BRIDGE REPAIR CONTRACTS

I. TRAFFIC CONTROL GENERAL

Except as provided herein, traffic shall be maintained in accordance with the current standard specifications, section 112. The contractor will be responsible for developing and implementing the maintenance of traffic details with guidance through standard drawings and the MUTCD current editions. The developed traffic control plan must be approved by the Engineer prior to implementation. The contractor is expected to provide at a minimum the items listed in this note; however this note does not relieve the contractor of other items that may be necessary to comply with current standards. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic".

Contrary to section 106.01, traffic control devices used on this project may be new or used in new condition, at the beginning of the work and maintained in like new condition until completion of the work.

The contractor must notify the engineer and public information officer at least 14 calendar days prior to the beginning work. Please see the Special Note for Liquidated Damages for additional information.

II. TRAFFIC COORDINATOR

Furnish a traffic coordinator as per section 112. The traffic coordinator shall inspect the project maintenance of traffic, at least three times daily, or as directed by the engineer, during the contractor's operations and at any time a bi-directional lane closure or road closure is in place. The personnel shall have access on the project to a radio or telephone to be used in case of emergencies or accidents. The traffic coordinator shall report all incidents throughout the work zone to the engineer on the project. The contractor shall furnish the name and telephone number where the traffic coordinator can be always contacted.

III. SIGNS

The contractor is responsible for all signage during construction. The contractor shall adhere to the standard drawings and manual on uniform traffic control devices (MUTCD) for guidance. If, at any time, the engineer requests a change in the maintenance of traffic signage, the contractor shall implement the change within 8 hours. Failure to implement these changes within the required eight hours will result in liquidated damages of $5,000 per day.

The contractor shall provide all detour signing needed for the bridge closure, if allowed in the contract documents. All signing required will be incidental to the lump sum bid item "Maintain and Control Traffic".

The department will not measure installation, maintenance, or removal for payment of any detour signage or standard construction signage, and will consider these incidental to "Maintain and Control Traffic"

Closure signs, detour signs, and bi-directional lane closure signs should be placed no sooner than two weeks prior to the closing of the bridge (when applicable) or placing lane closures. Wayfinding detour signs should be placed a maximum of 2 miles apart unless specified by the engineer. Signs shall be covered or removed within 24 hours of opening the bridge to traffic.

Road closed signs (when applicable) should be double signed and placed a minimum of 1500', 1000', and 500' in advance of the closure, in addition to signage required by the MUTCD and standard drawings.

IV. TEMPORARY PAVEMENT STRIPING

For projects where road closures are allowed in the contract documents, it is not anticipated that temporary pavement striping will be needed since the bridge will be closed. However, if the contractor's means and methods allow for need for temporary striping, conflicting pavement marking will be covered with 6" black removable tape. However, for bi-directional lane closures or if the plans call for a diversion, temporary striping will be required per the plans and MUTCD. Contrary to the standard specifications, no direct payment will be made for any temporary striping, pavement striping removal, or any other temporary striping item. If temporary striping is used, the contractor shall replace any temporary striping that becomes damaged or fails to adhere to the pavement before dark on the day of the notification. Liquidated damages shall be assessed to the contractor at a rate of $500 per day for failing to replace temporary striping within this time limit.

V. PROJECT PHASING & CONSTRUCTION PROCEDURES

Project phasing shall be as directed by the plans, special notes, and the approved Traffic Control Plan prepared by the contractor. Maintain traffic over the bridge as long as possible. Once work on the structure begins that impacts traffic, ensure work progresses to minimize the effected time to the public. All materials that must be made specific for the project should be ordered and made prior to closure of the bridge or implementation of bi-directional lane closures so that delivery does not delay progress of the work, unless approved by the Engineer. If the bridge is reopened prior to safety devices being in place, an approved protective barrier wall shall be placed in accordance with the standard drawings.

For projects which require an on-site diversion to be constructed to maintain traffic, the traffic control plan and project schedule prepared by the contractor shall include provisions such that traffic is not switched to the diversion until all materials that must be made specific for the project are ordered and made so that use of the diversion is minimized, unless approved by the Engineer.

VI. PAVEMENT DROP-OFF

Less than two inches - no protection required. Warning signs should be placed in advance and throughout the drop-off area.
Two to four inches - plastic drums, vertical panels or barricades every 100 feet on tangent sections for speeds of 50 mph or greater. Cones may be used in place of plastic drums, panels, and barricades during daylight hours. For tangent sections with speeds less than 50 mph and curves devices should be placed every 50 feet. Spacing of devices on tapered sections should be in accordance with the manual on uniform traffic control devices, current edition.

Greater than four inches - positive separation or wedge with 3:1 or flatter slope needed. If there is five feet or more distance between the edge of the pavement and the drop-off, then drums, panel, or barricades may be used. If the drop-off is greater than 12 inches, positive separation is strongly encouraged. If concrete barriers are used, special reflective devices or steady burn lights should be used for overnight installations.

For temporary conditions, drop-offs greater than four inches may be protected with plastic drums, vertical panels, or barricades for short distances during daylight hours while work is being done in the drop-off area.

VII. VARIABLE MESSAGE SIGNS AND TEMPORARY TRAFFIC SIGNALS

At the direction of the Engineer, the contractor is expected to provide up to four (4) message boards for use at locations determined by the Engineer. These message boards are expected to be in place one week prior to the closure of the roadway and remain in place for the duration of the closure. The message boards will be paid for as per the standard specifications.

For projects that involve the use of lane closures, all lane closures shall be bi-directional. The contractor shall provide temporary traffic signals and all labor, materials, and incidentals needed to maintain bi-directional traffic for the project. For short term bi-directional lane closures, the use of flaggers in lieu of temporary traffic signals may be acceptable if approved by the Engineer.

VIII. BARRICADES

For projects which allow full closure, ensure a minimum of (4) type III barricades are used at each end of the bridge for a total of (8) type III barricades. Contrary to the standard specifications, no direct payment will be made for barricades, but they will be included in the lump sum price for “Maintain and Control Traffic”.

VIII. DETOUR AND ON-SITE DIVERSIONS

For projects which allow a full closure of the bridge, or if necessary to detour trucks, the traffic control plan proposed by the contractor shall include a signed detour route for the road closure. The traffic control plan along with the proposed detour plan will be delivered to the engineer 7

days prior to the pre-construction meeting. The proposed detour route shall meet the following requirements:

1) Detour routes must remain at minimum on the same classification of roadway (i.e. AA, AAA, state, county, etc.) Unless written approval is obtained through the owner of the facility.
2) The contractor must coordinate with other projects along the detour route to avoid ongoing construction projects along those routes.
3) It may be determined that two detour routes would be needed if the first selected route cannot accommodate truck traffic. If this occurs, the contractor is expected to sign both detours per the standard drawings and MUTCD. Additional clarification signage between the detours may be needed at points where they diverge.
4) For projects that involve the use of bi-directional lane closures and the temporary lane width per the plans or as proposed by the contractor is less than 10 feet, the contractor shall be required to provide a signed detour for oversized vehicles.

The traffic control plan must be submitted and approved to allow for coordination of the public information officer with the closure notification. The public must be notified of the proposed detour route when they are notified of the closure, 2 weeks before closure. All time and expenses necessary for the development of the detour plan(s) will be incidental to the lump sum bid item “Maintain and Control Traffic”.

For projects with an on-site diversion included in the construction, the preparation of traffic control plans for a detour and implementation of a detour will not be required, unless specified in the plans.

IX. PAYMENT

Unless listed as a bid item in the contract documents, payment will only be made for the following items:

1. Maintain and Control Traffic - Lump Sum
2. Concrete Barrier Wall Type 9T – Linear Feet
3. Crash Cushions - Each
4. Portable Changeable Message Boards – Each

The quantities for barrier wall and crash cushions include initial placement only. Barrier wall will be paid per linear foot as detailed in the plans for wall placed up to the quantity specified in the plans. Any relocation or additional wall required will not be paid for directly but will be considered incidental to Maintain and Control Traffic.

All other items needed to maintain traffic in accordance with these contract documents and the approved traffic control plan shall be considered incidental to Maintain and Control Traffic. These items include but are not limited to traffic signals, signs, temporary guardrail, temporary pavement striping, barrier wall delineators, guardrail delineators, cones, barrels, flaggers, etc.

SPECIAL NOTE FOR TRUSS SCREEDS ON CONCRETE OVERLAYS

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's Current Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This specification covers the use of vibratory truss screed use on side-by-side composite box beams with designed slab thickness equal to a nominal five inches. Contrary to Kentucky Transportation Cabinet Department of Highways Standard Specifications for Road and Bridge Construction, latest edition, the use of a Vibratory Truss Screed in lieu of a self-propelled finishing machine equipped as detailed in Section 609.02.09 of the Specifications will be considered for use provided the following requirements of this Special Note are met:

2.0 EQUIPMENT AND QUALIFYING PROJECTS.

2.1 Vibratory Truss Screed. The contractor shall submit for approval, prior to use, the manufacturer's literature confirming that the vibratory truss screed proposed shall be able to meet the required cross slope of bridge and provide a minimum of 8,000 vibration cycle modes per minute (VPM). The Central Office Division of Construction will make the determination of use for each project.

2.2 Qualifying Structures. The vibratory truss screed can only be considered on structures meeting the following criteria:

- **A.** Bridge design consists of side-by-side composite box beams with concrete overlay.
- **B.** The design for the thickness of concrete for the bridge deck shall be 5-inch depth as detailed on the typical section of the bridge plans.
- **C.** The actual maximum nominal depth thickness must be less than 8" at any point on the deck.
- **D.** The side-by-side box beam bridge deck shall have only a single mat of reinforcement steel.

3.0 CONSTRUCTION.

3.1 Submittal. Submit, to the Central Office, Division of Construction, manufacturer's specifications of equipment proposed for use.

3.2 Sampling and Testing. If approved, the bridge deck may be cored to verify density and voids, at the discretion of the Director of the Division of Construction. Failure to meet proper density and consolidation will incur a penalty up to removal and replacement.

4.0 MEASUREMENT. The Department will not measure for the use of vibratory truss screeds and are incidental to the work being performed.

5.0 PAYMENT. The Department will not make payment for the use of the vibratory truss screed and shall be incidental to the following:

Code	Pay Item	Pay Unit
08104	CONCRETE-CLASS AA	Cubic Yard

SPECIAL NOTE FOR CONCRETE SEALING

These Notes or designated portions thereof, apply where so indicated on the plans, proposals or bidding instruction.

I. DESCRIPTION. Perform all work in accordance with the Department's current Standard Specifications, and applicable Supplemental Specifications, the attached sketches, and these Notes. Section references are to the Standard Specifications.

This work consists of:

1. Furnish all labor, materials, tools, equipment, and incidental items necessary to complete the work.
2. Provide safe access to the bridge, in accordance with Section 107.01.01, for the Engineer to sound possible repair areas and for workers to complete the construction.
3. Repair cracks as applicable in accordance with the Special Note for Epoxy Injection Crack Repair.
4. Repair delaminated or spalled areas as applicable in accordance with the Special Note for Concrete Patching.
5. Apply Ordinary Surface Finish
6. Prepare the surfaces to receive sealing.
7. Apply concrete sealing.
8. Any other work as specified as part of this contract.

II. MATERIALS.

A. Sealer. Use one of the following:

Product	**Supplier**
Protectosil BHN	Evonik Industries
Protectosil 300S	Evonik Industries
TK-590-40 Tri-Silane 40%	TK Products
SW-244-100	Chemical Products Industries, Inc.
TK-590-1 MS Tri-Silane	TK Products
MasterProtect H1000	BASF
Aquanil Plus 40	ChemMasters
SIL-ACT ATS-100	Advanced Chemical Technologies
Certivex Penseal BTS 100%	Vexcon
Pentreat 244-40	W.R. Meadows
Aquanil Plus 40A	ChemMasters

B. **Coverage Rate:** Follow all manufacturers recommendations for coverage rates except the application rate must not exceed the square footage coverage rate per gallon of sealer as given in the chart below. If the manufacturer recommends a coverage rate greater than given in the table below, apply sealer at the rate given in the table below for the chosen sealers silane percentage.

% Silane	Coverage rate (ft^2/gallon)
100	300
40	120
20	60

III. CONSTRUCTION.

A. **Perform Concrete Repairs.** Repair concrete surface in accordance with the Special Note for Epoxy Injection Crack Repair and/or the Special Note for Concrete Patching Repair if included in the contract documents.

B. **Curing Compound.** Contrary to Section 609.03.12 of the specifications, curing compound is not to be used on the deck due to potentially causing issues with the concrete sealer. During the deck pour, finishing, and tining operations the Class AA concrete shall be kept continuously moist with the use of a mister until burlap or curing blankets are applied to the surface. At no point should water be pooling or running off the surface or the surface of the concrete be allowed to become dry. After the burlap or curing blankets are installed, cure in accordance with the specifications. Include all costs in the unit price bid for Class AA concrete. Failure to properly cure the concrete in accordance with this note and the specifications may result in weakened or cracked concrete. If the concrete is weakened or cracked due to improper curing, the contractor will be responsible for providing alternates to fix the issues to the Engineer for review and the contractor will be solely responsible for all costs to do so, up to complete replacement. Do not begin any construction on fixing any issues without approval of the Engineer.

C. **Apply Ordinary Surface Finish.** In addition to new concrete, areas receiving epoxy injection, concrete patching, and other surface imperfections, including areas of minor cracking, should receive Ordinary Surface Finish in accordance with Section 601.03.18 of the Standard Specifications. Existing structural items not newly placed, patched, or repaired may be exempt from Ordinary Surface Finish. Use mortar of the same cement and fine aggregate as the concrete patching, or as directed by the Engineer. Payment will be incidental to Concrete Sealing. Finish surface of bridge decks in accordance with Section 609 of the Standard Specifications.

D. **Areas to Receive Concrete Sealing:**

1. Every exposed surface above a point 6” below ground or fill line of abutments, wing walls, end bent and pier caps, pedestals, back walls, columns, and exposed footings.

2. All exposed surfaces of concrete deck, barrier walls, parapets, curbs, and plinths.
3. Prestressed Concrete I-Girders, Concrete Beams, and Spread Prestressed Concrete Box Beams: The underneath surfaces of slab overhangs outside of exterior concrete girders and to the exterior side and bottom of exterior concrete girders and beams.
4. Adjacent Prestressed Concrete Composite Box Beams: Full length of the exterior face of all exterior beams from the top of the box beam to 1'-0" underneath the beams.
5. Prestressed Non-Composite Box Beams: All faces of all beams, excluding surfaces to be covered with a waterproofing membrane. Take care to ensure that the grout pockets are not sealed.
6. If the contract documents include the Special Note for Concrete Coating, do not apply concrete sealer to the areas where Concrete Coating is specified.

E. **Cleaning the Concrete Surfaces to be sealed.** Dry clean the concrete to remove all loose debris. Remove all visible hydrocarbons from the surface with detergent approved by the manufacturer of the deck sealant. Pressure wash all surfaces to be sealed at 2000 to 3000 psi. Install pressure gauges at each wand to verify pressure. Use 30° fan tip or as recommended by the manufacturer of the sealant. Hold pressure washing wand a minimum of 45° from the surfaces with a maximum stand-off distance of 12 inches.

F. **Sealing the Concrete.** Allow new concrete to cure a minimum 28 days prior to application of sealer. Monitor weather conditions prior to sealer application. Refer to manufacturer's recommendations for proper ambient conditions. Do not apply sealer if precipitation is anticipated within the time stated by the manufacturer. Allow the concrete to dry 24 hours (after washing or rain event) before sealer application. The bridge deck can be reopened to traffic while drying. Sealer must be applied within 48 hours of washing or the concrete must be rewashed. Divide the concrete into predefined areas of specific square footage to aid in determining usage. Comply with manufacturer's usage recommendation. Using a low-pressure pump, apply sealer and spread evenly with broom or squeegee; do not allow pooling to remain. When each predefined area is complete, measure the amount of sealer used to verify proper usage. After sealing, follow manufacturer's recommended cure time before opening to traffic. On vertical surfaces, apply the sealer in a flooding application from the bottom up, so the material runs down 6 to 8 inches below the spray pattern.

G. **Inspection:** Monitor all aspects of the project to assure compliance to this specification. Observe and document general conditions during the entirety of the project. Verify that each phase of work has been satisfactorily completed prior to beginning the next phase. Phases are described as follows:

1. Dry cleaning to remove loose debris, verify and document:
   a. All debris has been removed and disposed of properly.
2. Removal of hydrocarbons, verify and document:

a. The manufacturer's recommended detergent is used for removal.
b. Hydrocarbons have been satisfactorily removed.

3. Pressure washing, verify and document:
   a. Washing pressure at the wand.
   b. Tip size used.
   c. Wash angle and stand-off distance.
   d. The concrete is satisfactorily cleaned.
4. Sealer application, verify and document:
   a. Proper cure time for new concrete.
   b. Concrete surface is dry.
   c. Document time since washed.
   d. Was the bridge deck opened to traffic after washing?
   e. Document ambient temperature, surface temperature, relative humidity, and dew point.
   f. Application and distribution method.
   g. Coverage to be complete and even.
   h. Material is not allowed to remain pooled.
   i. Monitor material usage.
   j. No traffic on the bridge decks until proper cure time is allowed.

IV. MEASUREMENT

A. Concrete Sealing. The Department will measure the quantity per square feet of each area sealed.

V. PAYMENT

A. Concrete Sealing. Payment at the contract unit price per square feet is full compensation for the following: (1) Furnish all labor, materials, tools, and equipment; (2) Cleaning; (3) Sealing; (4) Maintain & control traffic; and, (5) Any other work specified as part of this contract.

SPECIAL NOTE FOR FOUNDATION PREPARATION

Foundation Preparation. For projects involving the removal and replacement of the asphalt and backfill behind the existing abutments and new abutments or end bents, the required common excavation, geotextile fabric Class 1, 4" perforated pipe, and new Structural Granular Backfill as shown in Figure 1 as well as any common excavation and grading needed to shape the bridge approaches to match the existing roadway template, will be paid for by the bid item for Foundation Preparation. See Special Provision 69 and the Standard Drawings regarding additional construction details as required.

Backfill material used behind newly constructed abutments on county routes may be constructed with Type III soil backfill. All existing abutments, abutments on state routes, and newly constructed or existing bents must be backfilled with material meeting Structural Granular Backfill specifications.

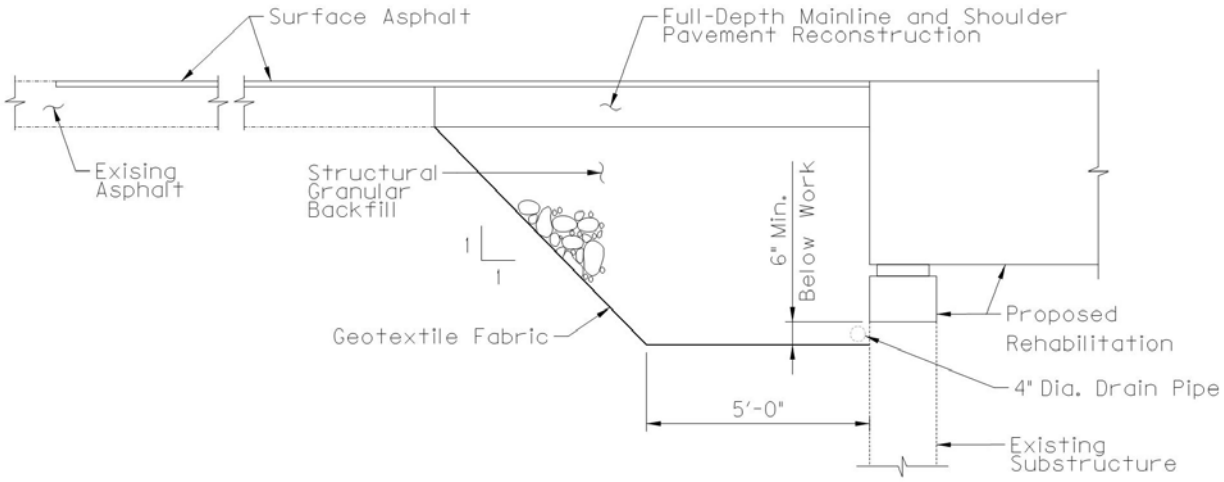


Figure 1: Detail showing proposed work for deck and superstructure replacements

I. MEASUREMENT

A. Foundation Preparation: See Section 603.

II. PAYMENT

A. Foundation Preparation: See Section 603. Payment for Structural Granular Backfill or Type III soil backfill to be incidental to Foundation Preparation.

SPECIAL NOTE FOR STRUCTURES WITH OVER THE SIDE DRAINAGE AND BRIDGE RAIL

1.0 DESCRIPTION. Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's current 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.

This note applies to structures with over the side drainage.

This work consists of: (1) Furnish all labor, materials, tools, and equipment; (2) Install the drip strip; (3) Maintain and control traffic as applicable; and (4) Any other work specified as part of this contract.

2.0 MATERIALS.

2.1 Drip Strip. Drip strip shall be hot dipped galvanized steel with a minimum of 22 gage.

3.0 CONSTRUCTION. The Contractor shall bear full responsibility and expense for any and all damage to the structure, should such damage result from the Contractor's actions.

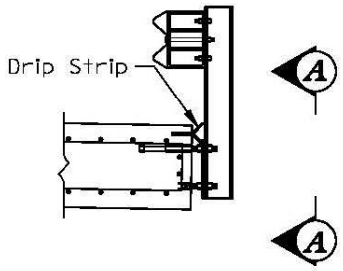
3.1 Installation of Drip Strip. Install lower drip strip, as detailed, along the full length of each side of the bridge. If splices are required in the lower drip strip, tightly butt the individual pieces together, do not lap. Install a 1'-6" long upper drip strip at each railing post.

For concrete decks/slabs: Bend up strips at 90° against the inside face of the forms before concrete is placed. After the forms are removed, bend the drip strips into the final position of 45° as shown in the attached detail drawing. Use care when stripping formwork so as not to damage or wrinkle the drip strip. To further ensure that wrinkling of the strips does not occur, use an adequate length backup bar during the bending out operation.

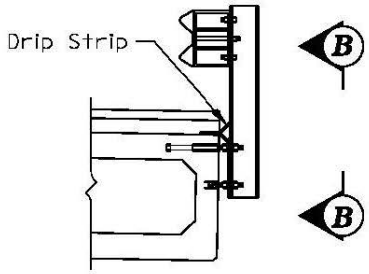
For asphalt overlays: Prior to placing the asphalt overlay, install the bent drip strips along the edge of the prestressed box beam as shown. Fasten the drip strips with (1¼" length, 3/32" shank diameter) button head spikes with deformed shanks or expansion anchors at 1'-6" c/c max. All installation devices shall be galvanized or stainless steel. Other similar devices shall not be used unless approved by the Engineer.

4.0 PAYMENT.

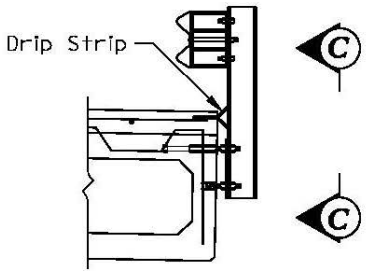
5.1 Drip Strip. Cost of all work, including all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified by this note, shall be considered incidental to the project.



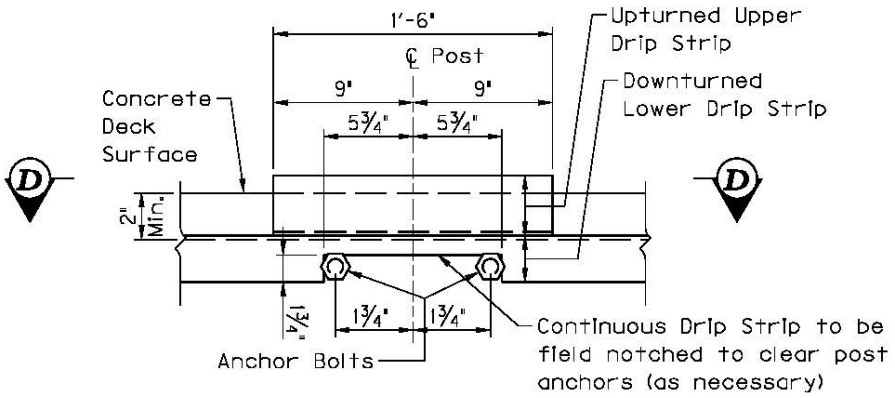
CONCRETE SLAB WITH BRIDGE RAIL



NONCOMPOSITE BOX BEAM WITH BRIDGE RAIL

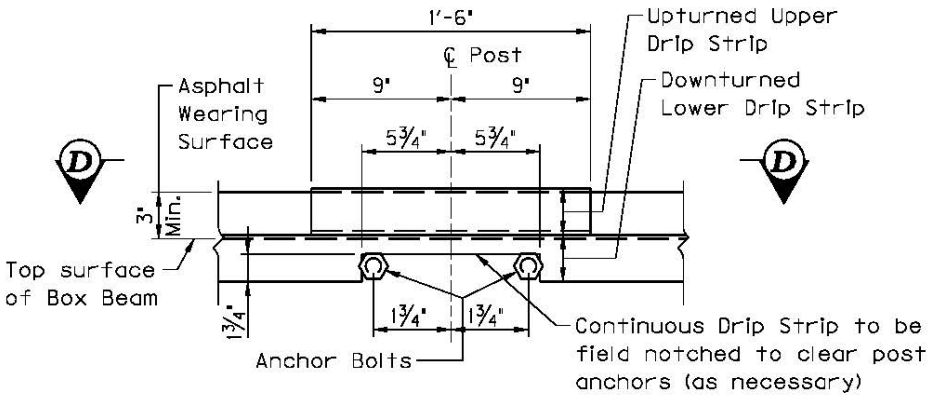


COMPOSITE BOX BEAM WITH BRIDGE RAIL

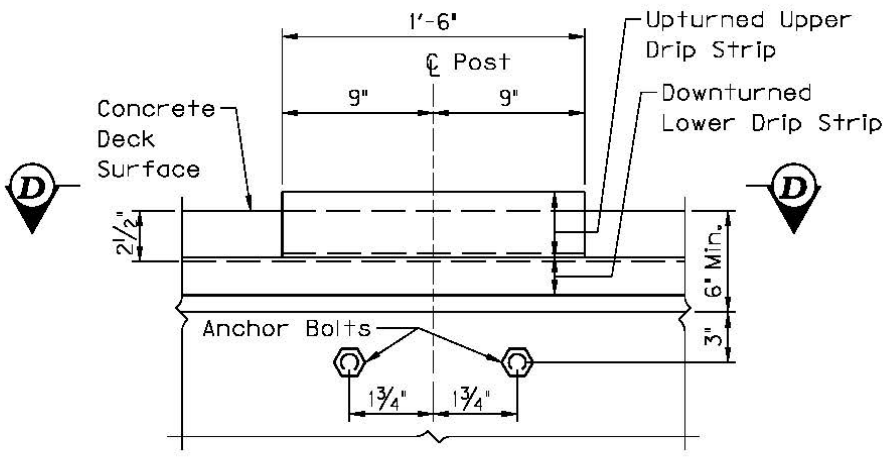


VIEW A–A

(Strip shown prior to concrete placement)

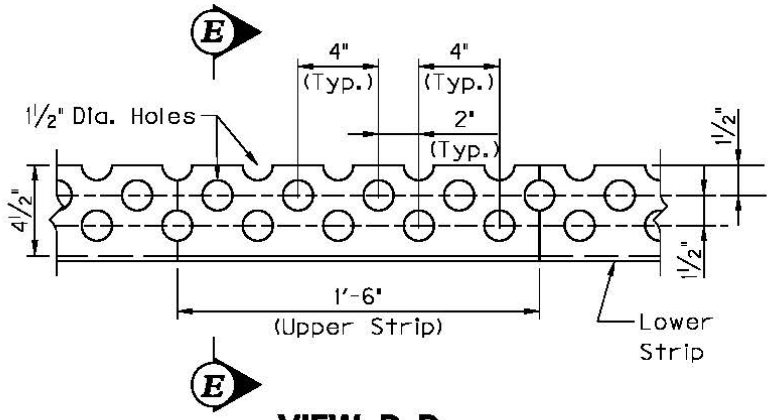


VIEW B–B

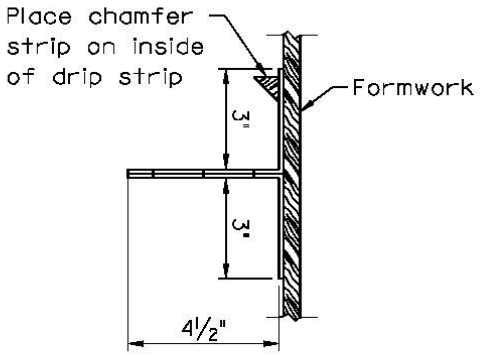


VIEW C–C

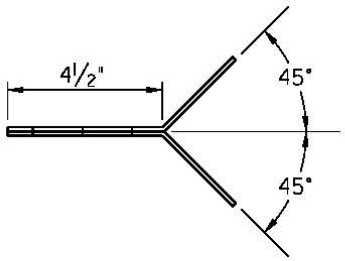
(Strip shown prior to concrete placement)



VIEW D–D



(For concrete deck prior to concrete placement)



(For concrete deck after concrete placement)

SECTION E–E

SPECIAL NOTE

FOR SEDIMENT PREVENTION AND EROSION CONTROL

FOR IMPACT REGARDLESS OF SIZE OF THE DISTRUBED AREA

Potential impacts to gray bat foraging habitat and habitat for federally listed fish and mussel species will be minimized by implementing erosion prevention and sediment control measures.

As required under Section 213 of the KYTC Standard Specifications, prior to onsite activities a **site-specific *Erosion Control Plan* including BMPs** to ensure continuous erosion control throughout the construction and post construction period. The plan will identify individual Disturbed Drainage Areas (DDA) where storm water from the construction area will be discharged off site or into waters of the Commonwealth.

Should the Contractor fail to create a BMP Plan or provide and maintain the necessary erosion control, Liquidated Damages will apply at the rate specified in the contract. If no rate is specified, Liquidated Damages will be applied at the rate specified in Section 108 of the Standard Specifications.

The erosion prevention and sediment controls proposed are presented below.

- The location of the individual erosion prevention/sediment control measures will be identified by the Resident Engineer and Contractor. The Contractor will place erosion control devices as identified in the site-specific BMP Plan prior to beginning work.
- Mulch will be placed, during grade and drain activities, across all areas where no work will be conducted for a period of 14 consecutive days.
- Tree clearing within the riparian zone will be minimized. Trees to be removed will be determined by the resident engineer and the contractor prior to disturbance. (Note: Any “Special Note for Tree Clearing Restrictions” must be adhered to.)
- Silt fence, or other approved method as appropriate, will be installed at the edge of waters within the project corridors to eliminate the deposition of rock and debris in the streams during construction activities. In the unforeseen event that unintended debris does enter the streams, the resident engineer will halt the contributing activity until appropriate remedial actions have been implemented.
- To the maximum extent plausible, construction activities will take place during low-flow periods.
- Equipment staging and cleaning areas will be located to eliminate direct inputs to waters of the Commonwealth. These areas will be located such that effluent will be filtered through vegetated areas and appropriate sediment controls prior to discharge offsite.
- Concrete will be poured in a manner to avoid spills into the streams. In the unforeseen event that a spill does occur, the USFWS will be notified, and the resident engineer will immediately halt the activity until remedial measures have been implemented.

- KYTC proposes to stabilize areas disturbed during construction activities through vegetation establishment and placement of riprap and geotextile fabric. Re-vegetation of the disturbed areas will allow thermoregulation of water within the streams, establish long-term, regenerative stabilization of the stream banks, and provide nutrients to the aquatic macroinvertebrate community through inputs of organic material.
- Areas disturbed during construction and not stabilized with rip rap and erosion blanket will be seeded using a standard seed mix. Depending on project slope and project location, application rates and seed mix types will vary. The Contractor shall perform all final seeding and protection, in accordance with the plans and Section 212 of KYTC Standard Specifications.
- Contrary to Section 213.03.03, paragraph 2, the Engineer shall conduct inspections as needed to verify compliance with Section 221 of KYTC Standard Specifications. The Engineer's inspections shall be performed a minimum of once per month and within seven (7) days after a storm of ½ inch or greater. Copies of the Engineer's inspections shall not be provided to the Contractor unless improvements to the BMPs are required. The Contractor shall initiate corrective action within 24 hours of any reported deficiency and complete the work within five (5) days. The Engineer shall use Form TC 63-61 A for this report. Inspections performed by the Engineer do not relieve the Contractor of any responsibility for compliance. If corrections are not made within the five (5) days specified, the liquidated damages will apply at the rate specified in the Liquidated Damages note in the contract.
- Contrary to Sections 212.05 and 213.05, unless listed in the proposal, bid items for temporary BMPs and items for permanent erosion control will not be measured for payment and will be replaced with one lump sum item for the services. Payment will be pro-rated based on the Project Schedule as submitted by the Contractor and as agreed to by the Engineer.
- The Contractor shall be responsible for applying "good engineering practices." The Contractor may use any temporary BMPs and permanent BMPs that fall within the guidance of the current Standard Specifications, KYTC's Best Management Practices manual, and with the approval of the KYTC Engineer.

FOR IMPACT GREATER THAN 1.0 ACRE

When the total disturbed area for a project, including laydown and waste/borrow areas, is greater than 1.0 acre, the Contractor shall be responsible for filing the Kentucky Pollution discharge Elimination System (KPDES) KYR10 permit Notice of Intent (NOI) with the Kentucky Division of Water (DOW). The Contractor will be responsible for following the KPDES requirements of local Municipal Separate Storm Sewer System (MS4) programs with jurisdiction. Required NOI shall name the Contractor as the Facility Operator and include the KYTC Contract ID Number (CID) for reference. For grouped contracts with more than one structure, each structure will be treated independently in regard to disturbed area unless another structure is within 0.25 mile of the structure. For structures within 0.25 mile of each other, the total disturbed area will be the sum of the combined disturbed areas. The Contractor shall be responsible for filing the KPDES permit Notice of Termination (NOT) with the

Kentucky DOW and any local MS4 Program that has jurisdiction. The NOT shall be filed after the Engineer agrees the project is stabilized or the project has been formally accepted.

The Contractor shall perform all temporary erosion/sediment control functions including providing a Best Management Practice (BMP) Plan, conducting required inspections, modifying the BMP Plan documents as construction progresses, and documenting the installation and maintenance of BMPs in conformance with the KPDES KYR10 permit effective on August 1, 2009, or a permit re-issued to replace that KYR10 permit. This work shall be conducted in conformance with the requirements of Section 213 of the KYTC current Department of Highways, Standard Specifications for Road and Bridge Construction (Standard Specifications).

The Contractor shall be responsible for the examination of the soils to be encountered and make his own independent determination of the temporary BMPs that will be required to accomplish effective erosion prevention and sediment control. The Contractor shall provide the Engineer copies of all documents required by the KPDES permit at the time they are prepared.

They KYR10 web page, which includes the General Permit and eNOI application is here: https://eec.ky.gov/Environmental-Protection/Water/PermitCert/KPDES/Documents/KYR10PermitPage.pdf

If there are any questions regarding this note, please contact Danny Peake, Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone (502) 564-7250.

SPECIAL NOTE

For Additional Environmental Commitments

IN ADDITION TO OTHER ENVIRONMENTAL COMMITMENTS LISTED IN THIS CONTRACT, THE FOLLOWING COMMITMENTS ALSO APPLY, AS THIS IS A FEDERALLY FUNDED UNDERTAKING AS DEFINED IN SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT, 36 CFR 800.16(Z):

1) The KYTC has completed a Phase 1 archaeological survey for a site-specific area surrounding the bridge. The cleared area is shown as "Archaeologically Cleared Area" or "Environmentally Cleared Area" on the concept plans and/or the map attached to this note or included elsewhere in the proposal. Likewise, any areas that must be avoided have been labeled "Do Not Disturb." The contractor shall install snow fencing to clearly delineate the boundary of the project lying within the bounds of the archeologically cleared area and right of way/easements. This snow fence shall be paid for per linear foot measured. If the Contractor requests additional area, and as a result additional delineation is required, the additional snow fence will not be paid and will be considered incidental to the original line item for snow fence.

   If the Contractor deems it necessary to use additional areas outside the Archaeologically/ Environmentally Cleared Area for any purposes—e.g., laydown yards, vehicle parking, parking cranes, delivering beams, borrow areas, waste areas, etc.—the Contractor must first get a written agreement with the landowner (assuming the additional area is outside the right-of-way). Then the Contractor shall seek approval of the use of the site—whether within or outside the right-of-way—by both the KYTC Section Supervisor and the Consultant Environmental Lead at dadams@hwlochner.com. The Contractor shall provide a map of the area(s) to be used, including access points, and property-owner agreements. The Environmental Team will complete initial field investigations for archaeological, historical, ecological, and other environmental clearances. If any potentially significant site or resources are found, the KYTC has the right to deny the use of the proposed site. The maps and property owner agreements are to be submitted at least ten (10) business days prior to the Preconstruction Conference, or sixty (60) days prior to the Contractors access to the site, for coordination and review by the KYTC District and Bridging Kentucky Team.

   A Liquidated Damage of $50,000 will be assessed whenever the Contractor has used any restricted areas. The fee will be assessed on a *per bridge* basis, whether the contract involves bridge bundles or a single bridge. In addition, all fines, fees, penalties, remediation costs, and other damages related to breaches of Threatened and Endangered Species Act Section 7, National Historic Preservation Act Section 106, Clean Water Act Sections 401 and 404, Kentucky General Permit for Stormwater Discharges KYR10, Environmental Protection Agency requirements, State Historic Preservation Office requirements, and other related permitting agencies will be paid by the Contractor, including all associated costs and burdens placed upon the Kentucky Transportation Cabinet.

2) If human remains are encountered during project activities, all work should be immediately stopped in the area. The area should be cordoned off, and, in accordance with KRS

72.020, the county coroner and local law enforcement must be contacted immediately. Upon confirmation that the human remains are not of forensic interest, the unanticipated discovery must be reported to Nicole Konkol at the Kentucky Heritage Council at (502) 892-3614, George Crothers at the Office of State Archaeology at (859) 257-1944, and KYTC DEA archaeologists at (502) 564-7250.

For guidance regarding inadvertent discovery and treatment of human remains, refer to the KYTC's *Right of Way Guidance Manual* (Section ROW-1202), and the Advisory Council on Historic Preservation's (ACHP) *Policy Statement Regarding Treatment of Human Remains and Grave Goods* (adopted by ACHP February 23, 2007).

3) If, during the implementation of The Project, a previously unidentified historic/ archaeological property is discovered or a previously identified historic/archaeological property is affected in an unanticipated manner, the contractor shall (1) call KYTC DEA archaeologists at (502) 564-7250, (2) call SHPO archaeologists at (502) 892-3614, and (3) ensure that all work within a reasonable area of the discovery shall cease until such time as a treatment plan can be developed and implemented.

Kentucky Transportation Cabinet

Highway District 11

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Replacement

Project: CID ## -

KyTC BMP Plan for Project CID ## - ####

Project Information

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

1. Owner – Kentucky Transportation Cabinet, District 11 (1)
2. Resident Engineer: (2)
3. Contractor Name: (2)

   Address: (2)

   Phone number: (2)

   Contact: (2)

   Contractor's agent responsible for compliance with KPDES permit requirements: (3)
4. Project Control Number: (2)
5. Route (Address): KY-72 over the Poor Fork Cumberland River (1)
6. Latitude/Longitude (project mid-point): 36°51'35.2"N 83°19'32.3"W (1)
7. County (project mid-point): Harlan County (1)
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

KyTC BMP Plan for Project CID ## - ####

A. Site Description

1. **Nature of Construction Activity (from letting project description):** Address deficiencies of KY-72 over the Poor Fork Cumberland River (048B00138N), from MP 13.327 to MP 13.365, a distance of 0.038 mile. SYP No. 11-10196.00. (1)

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

3. **Projected volume of material to be moved:** (3)

4. **Estimate of total project area (acres):** (3)

5. **Estimate of area to be disturbed (acres):** (3)

6. **Post construction runoff coefficient** will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information. (1)

7. **Data describing existing soil condition:** Two soil complexes (Udorthents-Urban land and Shelocta-Highsplint-Gilpin) were mapped for the project area, although all but a small portion was mapped as Urban Soils. (1) and (2)

8. **Data describing existing discharge water quality (if any):** (2)

9. **Receiving water name:** Poor Fork Cumberland River (1)

10. **TMDLs and Pollutants of Concern in Receiving Waters:** (1 DEA)

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

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

B. Sediment and Erosion Control Measures

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

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

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

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

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

   - **Sources**—At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.

   - **Clearing and Grubbing**—The following BMP's will be considered and used where appropriate.
     - Leaving areas undisturbed when possible.
     - Silt basins to provide silt volume for large areas.

- Silt Traps Type A for small areas.
- Silt Traps Type C in front of existing and drop inlets which are to be saved.
- Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
- Brush and/or other barriers to slow and/or divert runoff.
- Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
- Temporary mulch for areas which are not feasible for the fore mentioned types of protections.
- Non-standard or innovative methods.

➢ **Cut and Fill and Placement of Drainage Structures**—The BMP Plan will be modified to show additional BMP's such as:

- Silt Traps Type B in ditches and/or drainways as they are completed.
- Silt Traps Type C in front of pipes after they are placed.
- Channel Lining.
- Erosion Control Blanket.
- Non-standard or innovative methods.

➢ **Profile and X-Section in Place**—The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:

- Silt Trap Type A, Brush and/or other barriers, Temporary mulch, and any other BMP which had to be removed for final grading to take place.
- Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
- Additional Channel Lining and/or Erosion Control Blanket.
- Temporary mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
- Special BMP's such as Karst Policy.

➢ **Finish Work (Paving, Seeding, Protect, etc.)**—A final BMP Plan will result from modifications during this phase of construction. Probable changes include:

- Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket, or Permanent Seeding and Protection on moderate grades.
- Permanent Seeding and Protection.

- Placing Sod.
- Planting trees and/or shrubs where they are included in the project.

➢ BMP's, including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's, to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are: (3)

C. Other Control Measures

1. **Solid Materials**

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

2. **Waste Materials**

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

3. **Hazardous Waste**

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

4. **Spill Prevention**

   The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff. (3)

   ➢ **Good Housekeeping**

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

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

➢ **Hazardous Products**

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

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

5. **Product-specific Practices**

The following product-specific practices will be followed onsite:

➢ **Petroleum Products**

- Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.
- The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves

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

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

➢ **Fertilizers**

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

➢ **Paints**

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

➢ **Concrete Truck Washout**

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

➢ **Spill Control Practices**

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

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

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

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

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

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

3. Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

F. Inspections

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

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have successfully completed KEPSC-RI course as required by Section 213.02.02 of the Standard Specifications for Road and Bridge Construction, current edition.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non–Storm Water Discharges

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

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

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

H. Groundwater Protection Plan (3)

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

- Contractors statement: (3)

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

_____2. (e) Land treatment or land disposal of a pollutant;

_____2. (f) Storing…or related handling of hazardous waste, solid waste or special waste…in tanks, drums, or other containers, or in piles (does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____2. (g) …handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____2. (j) Storing or related handling of road oils, dust suppressants at a central location;

_____2. (k) Application or related handling of road oils, dust suppressants or deicing materials (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes (does not include bore holes for the purpose of explosive demolition);

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

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

The contractor is responsible for the preparation of a plan that addresses the 401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

(a) General information about this project is covered in the Project information;

(b) Activities that require a groundwater protection plan have been identified above;

(c) Practices that will protect groundwater from pollution are addressed in *Section C: Other Control Measures*.

(d) Implementation schedule—all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;

(e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor, and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provided to the resident engineer.

(f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections

(g) Certification (see signature page).

KyTC BMP Plan for Project CID ## - ####

Contractor and Resident Engineer Plan Certification

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

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

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

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____ _____, _____

Typed or printed name[2] Title Signature

(3) Signed _____ _____, _____

Typed or printed name[1] Title Signature

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

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

Sub-Contractor Certification

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

Subcontractor Name:

Address:

Phone:

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

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

Signed _____ _____, _____

Typed or printed name[1] Title Signature

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

SPECIAL NOTE FOR CONTRACT COMPLETION DATE AND LIQUIDATED DAMAGES ON BRIDGE REPAIR CONTRACTS

I. COMPLETION DATE.

Upon Notice to Proceed, the Contractor has the option of selecting the Begin Work date. Once selected, notify the Department in writing of the date selected at least two weeks prior to beginning work and provide a proposed project schedule. All work is to be completed by the specified contract completion date. The Contractor is allotted **120** calendar days once the bridge is closed to complete all work to safely reopen the structure with no lane closures. At a minimum, prior to reopening the bridge to traffic, all strength requirements and curing for materials used shall be completed per Division 600 of the Standard Specifications. Guardrail shall be installed to the satisfaction of the Engineer prior to reopening the bridge to traffic unless prior approval is obtained from the engineer for use of temporary railing.

The Engineer will begin charging calendar days for a structure on the day the Contractor closes the structure to traffic, regardless of holidays or seasonal weather limitations.

II. LIQUIDATED DAMAGES.

Liquidated damages will be assessed to the Contractor in accordance with the Transportation Cabinet, Department of Highway's current Standard Specifications for Road and Bridge Construction, Section 108.09, when either the allotted number of calendar days or the specified completion date is exceeded.

Contrary to the Standard Specifications, liquidated damages will be assessed to the Contractor during the months of December, January, February and March when the contract time has expired on any individual bridge. Contract time will be charged during these months. All construction must be completed in accordance with the weather limitations specified in Section 606 and/or Section 601 as applicable. No extension of Contract time will be granted due to inclement weather or temperature limitations that occur due to starting work on the Contract or a structure late in the construction season.

Any approval of cold weather plans or allowance of construction operations to occur outside Section 606 and/or Section 601 does not alleviate the **120-day** maximum bridge closure. In the event the closure lasts longer than **120** calendar days as specified, liquidated damages will apply to all excess days regardless of weather limitations.

SPECIAL NOTE

Seasonal Tree Clearing Restriction

DUE TO THE RECOVERY PLAN FOR ENDANGERED BATS, NO TREE CLEARING IS PERMITTED FROM JUNE 1 THROUGH JULY 31.

If there are any questions regarding this note, please contact Danny Peake, Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone (502) 564-7250.

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 working 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.

Linebach ▪ Funkhouser, Inc.
ENVIRONMENTAL COMPLIANCE & CONSULTING

Asbestos Inspection Report

To: Derek Adams, H W Lochner, Inc.

Date: September 28, 2022

Conducted By: Sam Rice, LFI, Inc.

Project and Structure Identification

Project: Harlan County: Item No. 11-10196

Structure ID: #048B00138N

Structure Location: KY-72 over Poor Fork Cumberland River, Harlan County, Kentucky

Sample Description: Bridge deck expansion caulking

Inspection Date: September 23, 2022

Results and Recommendations

The asbestos inspection was performed in accordance with current United States Environmental Protection Agency (US EPA) regulations, specifically 40 CFR Part 61, Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) revision, final rule effective November 20, 1990.

It is recommended that this report accompany the 10-Day Notice of Intent for Demolition (DEP7036 Form) which is to be submitted to the Kentucky Division of Air Quality prior to abatement, demolition, or renovation of any building or structure in the Commonwealth through the e-portal at https://dep.gateway.ky.gov/eForms/Account/Home.aspx.

No suspect asbestos containing (ACM) were detected above the regulatory screening limit of 1%.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway / Suite # 902 (502) 495-1212
Louisville, Kentucky - 40202 - 2133 Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # # 3209272 Address: LFI - Project # 292 - 22
Client Name: L F I Location: 11 - 10196
Sampled By: Sam Rice

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Sample ID	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
# 1 A	Black	Yes	No	3%	(To Be	Point Counted)		2%			95%
# 1 B	**Black**	Yes	No	3%	(To Be	Point Counted)		2%			95%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 27-Sep-22
Analyst : Winterford Mensah Reviewed By: Winterford Mensah Signature

AIHA # 102459 AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway / Suite # 902
Louisville, Kentucky - 40202 - 2133
Phone # : (502) 495-1212
E-Mail Address: CEOMRSInc@AOL.Com

Client:	**L F I**	**Project No:**	**# 3209272**
Address:	**114 Fairfax Avenue**	**Sample ID:**	**# 1 A**
	Louisville, KY	**Sampled:**	**23-Sep-22**
	40207	**Received:**	**26-Sep-22**
		Analyzed:	**27-Sep-22 - Point Count -**
	Attention: Russell Brooks		

Bulk Sample Analysis

Sampled By : **Sam Rice**
Facility/Location: **LFI - Project # 292-22 / Location: 11 - 10196**
Field Description: **Bridge Deck Expansion Caulk**
Laboratory Description:
Thick Black Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-Asbestos Fibrous Materials :

Cellulose	0.25 %
Binders(Tar)	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

AIHA #102459 / AIHA #102459 / AIHA #102459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway / Suite # 902
Louisville, Kentucky - 40202 - 2133
Phone # : (502) 495-1212
E-Mail Address: CEOMRSInc@AOL.Com

Client:	**L F I**	**Project No:**	**# 3209272**
Address:	**114 Fairfax Avenue**	**Sample ID:**	**# 1 B**
	Louisville, KY	**Sampled:**	**23-Sep-22**
	40207	**Received:**	**26-Sep-22**
		Analyzed:	**27-Sep-22 - Point Count -**
	Attention: Russell Brooks		

Bulk Sample Analysis

Sampled By : **Sam Rice**
Facility/Location: **LFI - Project # 292-22 / Location: 11 - 10196**
Field Description: **Bridge Deck Expansion Caulk**
Laboratory Description:
Thick Black Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-Asbestos Fibrous Materials :

Cellulose	0.25 %
Binders(Tar)	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

AIHA #102459 / AIHA #102459 / AIHA #102459

MRS, Inc.
P.O. Box 19424
Louisville, Kentucky 40259-0424

Phon (502) 495 - 1212
Fax (502) 491 - 7111

Client : Linebach Funkhouser, Inc.

Project : LFI Project # ~~260-22~~ 293-22

CHAIN OF CUSTODY RECORD

PROJECT: 293-22

LOCATION: 11-10196

SAMPLED BY: lee R.

DATE: 9/23/22

COMMENTS AND/OR INSTRUCTIONS:

Group Method/ Stop First Positive

Point Count <4%

SAMPLE NUMBER	LOCATION	MATRIX	COLOR	SIZE	COMMENTS	T/L W/C	PLM
1 A/B	Bridge deck expansion south						x
2 A/B							x
3 A/B							x
4 A/B							x
5 A/B							x
6 A/B							x
7 A/B							x
8 A/B							x
9 A/B							x
10 A/B							x
11 A/B							x
12 A/B							x
13 A/B							x
14 A/B							x
15 A/B							x
16 A/B							x

Relinquished By: (Signature)	Date	Time	Received By: (Signature)
lee R.	9/26		
Relinquished By: (Signature	Date	Time	Received By: (Signature)

PAGE 1 OF
INITIAL SUBMITTAL DATE
REVISION DATE
NOTIFICATION # -

NOTIFICATION OF ASBESTOS ABATEMENT/DEMOLITION/RENOVATION

(Instructions for completing form on back)

File this form with Regional Office where project will be performed

Kentucky Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

OFFICE USE ONLY
ID #
LOG #

Contractor _____
Address _____
City _____ State _____ Zip _____
Phone _____ Contact Person _____
Owner _____
Address _____
City _____ State _____ Zip _____
Phone _____ Contact Person _____
Project Location _____
Address _____
City _____ State _____ Zip _____
Facility Age (yrs.) _____ Size of Facility or Affected Part (sq.ft.) _____
#Floors Affected _____ Present and Prior Use of Facility _____

TYPE OF PROJECT (CHECK ONLY ONE):

Renovation ☐ Demolition ☐ Ordered Demolition ☐ Emergency ☐ Long-term ☐

PROJECT DATES:

Start Removal _____ End Removal _____
Start Renovation/Demolition _____ End Renovation/Demolition _____

Amount of ACM to be Removed:

	Regulated ACM (RACM)	Category II nonfriable ACM (optional)	Category I nonfriable ACM (optional)
Linear Feet			
Square Feet			
Cubic Feet			

Description of planned renovation/demolition, including abatement methods & demo/reno methods. _____

Description of affected facility components _____

Asbestos detection technique _____

Amount of Cat. I & II nonfriable ACM involved but will not be removed:

Describe **physical characteristics** that make it nonfriable and **methods** to keep it nonfriable (optional): _____

Describe **contingency plan** should nonfriable ACM become friable or additional ACM be uncovered during renovation/ demolition: _____

Transporter _____
Address _____
City _____ State _____ Zip _____
Phone _____
Disposal Site _____
Address _____
City _____ State _____ Zip _____

I hereby certify that at least one person trained as required by 40 CFR 61.145(c)(8) will supervise the abatement work described herein. (optional for strictly non-friable work)

Submitted by: _____
Company Name: _____

INSTRUCTIONS FOR COMPLETING FORM DEP7036: NOTIFICATION OF ASBESTOS ABATEMENT/DEMOLITION/RENOVATION

Filing Deadline: This form must be completed and filed with the Kentucky Division for Air Quality at least ten (10) working days before starting any asbestos removal, demolition, or other work which will disturb asbestos-containing material (ACM) in Kentucky facilities outside Jefferson County and in schools statewide, including Jefferson County. File with appropriate Regional Office.
Renotification: If developments occur that invalidate information on a notification (e.g., changes in dates, amounts, locations), file a revised form within the time frames specified in 401 KAR 58:025. Notifications may be numbered in the top-left corner (optional). First two digits are project year; remaining digits are project number (e.g., the first project in 1999 is 99-1).
Attachments: Attachments may be included to provide additional information, propose alternative procedures, declare nonfriable removal, identify secondary transporters, etc.

Line-by-Line Instructions:
Contractor/Owner: the contractor is the asbestos remover (or, for zero-asbestos demolitions, the demolition contractor). The owner is the entity having the work done.
Project Location: The location at the address given where the work is taking place (e.g., which building/floor/room?).
Present/Prior Use: Enter the present and prior use(s) of the facility.
Type of Project: Each choice shown in this category has a specific description under 401 KAR 58:025:

Emergency renovations result from a sudden, unexpected event. If the project is an emergency renovation, attach a detailed description of the sudden, unexpected event that necessitated removal. Include the exact date and hour the event occurred and explain how the event caused an unsafe condition, or would cause equipment damage or unreasonable financial burden.

Planned renovations are renovations that do not qualify as emergency renovations.

A long-term notification is a type of planned renovation which involves a number of nonscheduled small-scale removals whose annual total exceeds the NESHAP threshold amounts and can be estimated based on past years' experience. File yearly estimate at least 10 working days before the beginning of the calendar year for which a long-term notification is being given.

Demolitions involve the wrecking or taking out of a load-supporting structural member, such as a load-bearing beam or wall. Tearing down a structure, dismantling it piecemeal, and moving it from one place to another are all considered demolitions.

Ordered demolitions must result from a demolition order issued by a government agency because the building is structurally unsound and in danger of imminent collapse. For ordered demolitions, attach to the notification a signed, dated copy of order that includes demolition deadlines and name/title/authority of the government representative issuing the order.

Project Dates: Schedules must be precise and accurate. The "start removal" date is the date the removers arrive on-site and begin physically preparing the work area for removal. "End removal" is the date the removers dismantle the work area after cleaning and clearing it. If circumstances arise that invalidate previously submitted start dates, a revised notification must be submitted showing the updated, correct start date. If the start date has been moved up, submit written renotification at least ten working days before the new start date. If the start date has been moved back, telephone the Division as soon as possible before the original date and submit written renotification no later than the original start date.
Schedules for renovation and demolition (next line after removal schedule) are handled similarly, except that renotification is required only for schedule changes involving demolitions, not renovations.
Amount of ACM: In this table, enter the amount and type (RACM , Category I, and/or Category II) of asbestos that will be removed. Although the regulation does not require you to identify the amount of nonfriable ACM that will be removed, the table provides space for nonfriable ACM to accommodate those notifiers who choose to document these removals.
Description of project: Describe the demolition or renovation work to be performed and method(s) to be used , including work practices and engineering controls to be used.
Asbestos Detection Technique: Give a general description of the asbestos survey, for example, "AHERA-style survey by accredited inspector; samples analyzed by PLM."
Amount of nonfriable ...: If all nonfriable ACM will be properly removed, enter "NA."
Contingency Plans: If Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder, or if additional RACM is discovered, describe procedures to be followed. For example, "Move demolition activity away from ACM immediately; remove the ACM using regulation-required procedures." Even "Stop work, call Division for Air Quality" is OK.

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

Samuel Rice

Has met the requirements of 401 KAR 58:005 and is accredited a

Asbestos Management Planner

Agency Interest Id:	**159937**
License Number:	**70989**
Issue Date:	**02/01/2022**
Expiration Date:	**01/19/2023**

TEAM KENTUCKY TRANSPORTATION CABINET

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF RIGHT OF WAY & UTILITIES

TC 62-226
Rev. 01/2016
Page 1 of 1

RIGHT OF WAY CERTIFICATION

☒ **Original** ☐ **Re-Certification** — **RIGHT OF WAY CERTIFICATION**

ITEM #	COUNTY	PROJECT # (STATE)	PROJECT # (FEDERAL)
11-10196.00	Harlan	1100 FD55 121 9414002R	

PROJECT DESCRIPTION

Kentucky Bridge Program - 048B00138N - KY 72 at Poor Fork Cumberland River Bridge Replacement

☐ **No Additional Right of Way Required**

Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.

☒ **Condition # 1 (Additional Right of Way Required and Cleared)**

All necessary right 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. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.

☐ **Condition # 2 (Additional Right of Way Required with Exception)**

The right of way has 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. 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. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract

☐ **Condition # 3 (Additional Right of Way Required with Exception)**

The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation 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.

Total Number of Parcels on Project	4	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired			
Signed Deed	4		
Condemnation	0		
Signed ROE	0		

Notes/ Comments (Text is limited. Use additional sheet if necessary.)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mark C. Askin, P.E.
Signature		Signature	Mark Askin, P.E. Digitally signed by Mark Askin, P.E. DN: cn=Mark Askin, P.E., c=US, email=mark.askin@strand.com Date: 2024.09.17 09:23:34 -04'00'
Date		Date	09/17/24

Right of Way Director		FHWA	
Printed Name	Dean M. Loy	Printed Name	
Signature	DM Loy Digitally signed by DM Loy Date: 2024.09.17 09:27:21 -04'00'	Signature	
Date		Date	

UTILITIES AND RAIL CERTIFICATION NOTE

Harlan County
FD55 121 9414002U
Mile point: 13.327 TO 13.365
BRIDGE PROJECT IN HARLAN COUNTY ON (048B00138N) KY-72 AT POOR FK CUMBERLAND RVR
ITEM NUMBER: 11-10196.00

PROJECT NOTES ON UTILITIES

For all projects under 2000 Linear feet which require a normal excavation locate request pursuant to KRS 367.4901-4917, the awarded contractor shall field mark the proposed excavation or construction boundaries of the project (also called white lining) using the procedure set forth in KRS 367.4909(9)(k). For all projects over 2000 linear feet, which are defined as a "Large Project" in KRS 367.4903(18), the awarded contractor shall initially mark the first 2000 linear feet minimally of proposed excavation or construction boundaries of the project to be worked using the procedure set forth in KRS 367.4909(9)(k). This temporary field locating of the project excavation boundary shall take place prior to submitting an excavation location request to the underground utility protection Kentucky Contact Center. For large projects, the awarded contractor shall work with the impacted utilities to determine when additional white lining of the remainder of the project site will take place. This provision shall not alter or relieve the awarded contractor from complying with requirements of KRS 367.4905 to 367.4917 in their entirety.

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

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 sections(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.

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for

UTILITIES AND RAIL CERTIFICATION NOTE

Harlan County
FD55 121 9414002U
Mile point: 13.327 TO 13.365
BRIDGE PROJECT IN HARLAN COUNTY ON (048B00138N) KY-72 AT POOR FK CUMBERLAND RVR
ITEM NUMBER: 11-10196.00

the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

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

Black Mountain Utility District Dayhoit – Water – Located east of the bridge, crossing the road perpendicular, please use caution when working in the area of the waterline.

Kentucky Utilities Co. – Electric – Located west of the bridge and crossing the road overhead, please use caution to avoid impacting overhead facilities.

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

THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

AT&T - KY – Communication – Existing poles and overhead aerial lines will be relocated outside of project disturb limits. Please use caution with any remaining overhead lines located on site.

UTILITIES AND RAIL CERTIFICATION NOTE

Harlan County
FD55 121 9414002U
Mile point: 13.327 TO 13.365
BRIDGE PROJECT IN HARLAN COUNTY ON (048B00138N) KY-72 AT POOR FK CUMBERLAND RVR
ITEM NUMBER: 11-10196.00

Harlan Community TV – CATV – Overhead aerial lines will be relocated to AT&T poles outside of project disturb limits. Please use caution with any remaining lines located on site.

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE OWNER OR THEIR SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

Not Applicable

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

Not Applicable

RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☐ **No Rail Involvement** ☐ **Rail Involved** ☒ **Rail Adjacent**

CSX has a rail line located on the western side of the bridge, outside of the project disturb limits. Please avoid disturbing existing rail facilities. Harlan County Recycling property is leased from CSX, a permanent easement will be acquired for construction on site within the property.

UTILITIES AND RAIL CERTIFICATION NOTE

Harlan County
FD55 121 9414002U
Mile point: 13.327 TO 13.365
BRIDGE PROJECT IN HARLAN COUNTY ON (048B00138N) KY-72 AT POOR FK CUMBERLAND RVR
ITEM NUMBER: 11-10196.00

AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	Phone	Email
AT&T - KY - Communication	501 Tennessee Ave Pineville KY 40977	Jeffery Jackson	6064991745	Jj3739@att.com
Harlan Community TV - CATV	124 S. First St. Harlan KY 40831	Mark Lawrence	6065732945	HCTV@harlanonline.net
Black Mountain Utility District – Dayhoit - Water	609 Four Mile Rd. Baxter KY 40806	Dwayne Blevins	6065056255	blackmt@harlanonline.net
Kentucky Utilities Co. - Electric	180 Substation St. London KY 40741	John Alderson	6068642821	John.Alderson@lge-ku.com

Special Note for Work near Railroad

Special care shall be taken to ensure no impact to the railroad or its right of way. All work and equipment must be kept off the railroad's right of way. At no point shall the Contractor enter the railroad's right of way.

In the case that anything happens to impact the railroad right of way or foul the tracks, please immediately call the emergency contact listed below. When referring to the location, be sure to mention the DOT number and railroad mile post. Any costs associated with such an incident, including but not limited to removal of the obstruction and/or repairs to the railroad facilities shall be the responsibility of the Contractor.

Crossing:
Station 12663+00
CSX Transportation, Inc.
DOT # 347 266V
Railroad mile post: 0WC 240.630
Emergency contact: 1-800-232-0144

N O T I C E

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
NATIONWIDE #14 PERMIT AUTHORIZATION
KENTUCKY DIVISION OF WATER 401 WQC

02-26-2024

PROJECT: Harlan County, Item No. 11-10196
Replacement of KY-72

The Section 404 & 401 activities for this project have been previously permitted under the authority of the Department of the Army Nationwide Permit No. 14 "Linear Transportation Projects" & Division of Water General 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 Nationwide Permit & General WQC in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

Station 10+70 to 15 + 45	The replacement of KY 72 over Poor Fork Cumberland River, (Bridge #048B00138N) will entail removal of the existing bridge and construction of a new bridge without load restrictions. The project will replace the bridge in a location slightly shifted from the existing position at the request of KYTC. It is anticipated that the bridge width, length, and hydraulic opening, will be similar. We anticipate minimal environmental impacts, utility impacts, and will minimize the need for new right of way. The bridge will be completely closed to through traffic during construction and existing traffic will be detoured on nearby roads. There will not be an on-site diversion. Right-of-way and temporary construction easements will be required. The estimated area of impact is 69 linear ft./0.02 ac. The design layout is attached.

This project involves work near and/or within Jurisdictional Waters of the United States as defined by the United States Army Corps of Engineers and therefore requires a Nationwide 14 General 404 Permit. The Division of Water certified this General Permit with several conditions (See attached). One that should be brought to your attention is regarding the use of vehicles and/or heavy equipment in the stream channel. If there is need to cross the stream channel with vehicles and/or heavy equipment or conduct work from within the stream channel a working platform or temporary crossing is authorized. This should be constructed with clean rock and sufficient pipe to allow stream flow to continue unimpeded (see attached typical drawing).

In order for this authorization to be valid, the attached conditions must be followed. The

contractor shall post a copy of this Nationwide Approval 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 Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW 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.

Andy Beshear
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 Sower Boulevard
Frankfort, Kentucky 40601
Phone: (502) 564-2150
Fax: 502-564-4245

Rebecca W. Goodman
SECRETARY

Anthony R. Hatton
COMMISSIONER

December 8, 2023

Danny Peake
Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

Re: §401 Water Quality Certification
KY 72 - Harlan Co
Bridge ID: 048B00138N
WQC No: WQC2023-102-1
AI No.: 136137; Activity ID: APE20230001
KYTC Item No.: 11-10196
Poor Fork Cumberland River
Harlan County, Kentucky

Dear Mr. Peake:

Pursuant to Section 401 of the Clean Water Act (CWA) and 40 CFR 121.7(c), 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 a federal license or permit, and the attached conditions are met.

Other permits from the Division of Water may be required for this activity. Projects that 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 require a Kentucky Pollution Discharge Elimination System (KPDES) Stormwater Permit; contact the Surface Water Permits Branch (502-564-3410 or SWPBSupport@ky.gov). A Groundwater Protection Plan is required if activities listed in Section 2(2) of 401 KAR 5:037 are conducted. A Water Withdrawal Application is required for activities proposing raw water withdrawals of 10,000 gallons per day or more; contact the Watershed Management Branch (502-564-3410).

All future correspondence on this project must reference AI No. **136137**. **The attached document is your official Water Quality Certification; please read it carefully**. Please contact Wesley Harrod by phone at 502-782-6589 or email at wesley.harrod@ky.gov if you have any questions.

Sincerely,

Samantha Vogeler

Samantha Vogeler, Supervisor
Water Quality Certification Section
Kentucky Division of Water

SV:WH
Attachment

cc: Adam Michels, KYTC: Frankfort (via email: Adam.Michels@ky.gov)
Andrew Logsdon, KYTC: Frankfort (via email: Andrew.Logsdon@ky.gov)
Dave Harmon, KYTC: Frankfort (via email: Dave.Harmon@ky.gov)
Tony Miller, Lochner (via email: amiller@hwlochner.com)
Lee Andrews, USFWS: Frankfort (via email: kentuckyes@fws.gov)
Alice Mandt, Upper Cumberland River Basin Coordinator (via email: mandt@ky.gov)
Robert Miller, London Field Office Supervisor (via email: robertl.miller@ky.gov)

KTC Water Quality Certification

KY 72 - Harlan Co

Facility Requirements

Permit Number: WQC2023-102-1

Activity ID No.:APE20230001

ACTV0000000002 (AI 136137 KYTC) Bridge Replacement:

Submittal/Action Requirements:

Condition No.	Condition
S-1	Kentucky Transportation Cabinet (KYTC) shall notify the Water Quality Certification Project Manager or Supervisor of the scheduled start of construction activities at least two weeks before the start of construction. This condition is necessary for the Division of Water to be informed of the ongoing activity for the purposes of site visits to ensure implementation of Kentucky Regulatory Statutes and Administrative Regulations; the Division will monitor the environment, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
S-2	KYTC shall notify the Water Quality Certification Project Manager or Supervisor of substantial completion of construction no later than two weeks post-construction. This condition is necessary for the Division of Water to be informed of the ongoing activity for the purposes of site visits to ensure implementation of Kentucky Regulatory Statutes and Administrative Regulations; the Division will monitor the environment, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
S-3	KYTC shall submit as-built drawings within 90 days after substantial completion of construction to the Water Quality Certification Section Project Manager or Supervisor. This condition is necessary to monitor the aquatic resources, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to 36.859775, -83.325635: - Removal and replacement of existing bridge over the Poor Fork Cumberland River - 74 linear feet of permanent impacts to perennial streams due to scour protection - 186 linear feet of temporary impacts to perennial streams due to temporary construction access This condition is necessary to confirm activities approved by this certification. [401 KAR 10:030 Section 1, 401 KAR 9:010 Section 1(a)(2), KRS 224.10-100, KRS 224.70-110]

KTC Water Quality Certification

KY 72 - Harlan Co

Facility Requirements

Permit Number: WQC2023-102-1

Activity ID No.:APE20230001

ACTV0000000002 (AI 136137 KYTC) Bridge Replacement:

Narrative Requirements:

Condition No.	Condition
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the following document(s): - Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification received on 09/20/2023 - Pre-file Meeting Request received on 09/20/2023 - Certification Request received on 11/01/2023 - Harlan 11-10196 IWQC Package (signed).pdf - RE_ Notice of Deficiency #1.pdf - 11-10196 Harlan Co IWQC NOD Response (signed).pdf This condition is necessary to confirm activities approved by this certification. [401 KAR 10:030 Section 1, 401 KAR 9:010 Section 1(a)(2), KRS 224.10-100, KRS 224.70-110]
T-3	KYTC is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sediment control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-4	No in-stream operations or activities shall be conducted during fish spawning season (April 1 through June 30), due to the potential impacts of increased sediment load and associated water quality and designated aquatic habitat impacts. This condition is necessary to monitor the aquatic resources, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 4(1)(c,h), KRS 224.10-100, KRS 224.70-110]
T-5	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 instream 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. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-6	Erosion and sediment 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. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-7	Remove all sediment and erosion control measures after re-vegetation has become well-established. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]

KTC Water Quality Certification

KY 72 - Harlan Co

Facility Requirements

Permit Number: WQC2023-102-1

Activity ID No.:APE20230001

ACTV0000000002 (AI 136137 KYTC) Bridge Replacement:

Narrative Requirements:

Condition No.	Condition
T-8	Any fill or riprap shall be of a composition that shall not cause violations of water quality standards by adversely affecting the biological, chemical, or physical properties of waters of the Commonwealth. If riprap is used, it shall be of a weight and size that bank stress or slump conditions shall not occur. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-9	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. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-10	Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse. This condition is necessary to prevent water pollution as prohibited by statute. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-11	To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow. This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-12	Removal of existing riparian vegetation shall be restricted to the minimum necessary for project construction. This condition is necessary to minimize negative effects to the environment, protect the use of the stream, and protect aquatic resources. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-13	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. This condition is necessary to monitor the aquatic resources, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 10:031 Section 2(1)(a), KRS 224.10-100, KRS 224.70-110]
T-14	This Water Quality Certification expires on December 8, 2028. This condition is necessary for the issuance of the certification. [KRS 224.10-100, KRS 224.16-050(2), KRS 224.70-110]

KTC Water Quality Certification

KY 72 - Harlan Co

Facility Requirements

Permit Number: WQC2023-102-1

Activity ID No.:APE20230001

ACTV0000000002 (AI 136137 KYTC) Bridge Replacement:

Narrative Requirements:

Condition No.	Condition
T-15	Other permits from the Division of Water may be required for this activity. If this activity occurs within a floodplain, a Permit to Construct Across or Along a Stream may be required. Please contact the Floodplain Management Section Supervisor (502-564-3410) for more information prior to construction. If the 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 Kentucky Pollution Discharge Elimination System (KPDES) Stormwater Permit shall be required. Please contact the Surface Water Permits Branch (502-564-3410 or SWPBSupport@ky.gov) for more information. A Groundwater Protection Plan is required if any of the activities listed in Section 2(2) of 401 KAR 5:037 are conducted. A Water Withdrawal Application is required for any activities proposing raw water withdrawals of 10,000 gallons per day or more. For technical assistance contact the Watershed Management Branch at 502-564-3410 or visit eec.ky.gov. This condition is necessary for confirm authorized impacts, the appropriate responsible party, monitor the aquatic resources, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [KRS 224.10-100, KRS 224.16-050(2), KRS 224.70-110]
T-16	If there is a transfer or conveyance of the project site during the issued WQC term for the approved activity, KYTC shall submit written notice to the Water Quality Certification Section Project Manager or Supervisor of the transfer or conveyance of the project site or any part of the project site at least 60 days prior to the transfer or conveyance of the project site. The notification shall include the WQC number; the Agency Interest (AI) No.; the name, mailing address, email address, and telephone number of the current owner; the name, mailing address, email address, and telephone number of the prospective transferee; the proposed effective date of transfer/conveyance; and a copy of the documentation evidencing the transfer/conveyance. Failure to comply with this condition does not negate the validity or enforceability of this certification. This condition is necessary for confirm authorized impacts, the appropriate responsible party, monitor the aquatic resources, minimize impact to aquatic resources, protect the use and designation of resources, allow more effective and efficient control practices, identify changes and conditions in ecological systems as a result of activities, and to warn of emergency conditions. [401 KAR 10:030 Section 1, 401 KAR 9:010 Section 1(a)(2), KRS 224.10-100, KRS 224.70-110]

2021 KENTUCKY REGIONAL GENERAL CONDITIONS

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

Notifications for all Nationwide Permits (NWPs) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWPs listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs for impacts to these waters.

   NWP 3 (Maintenance)
   NWP 4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities)
   NWP 5 (Scientific Measurement Devices)
   NWP 6 (Survey Activities)
   NWP 12 (Oil or Natural Gas Pipeline Activities)
   NWP 13 (Bank Stabilization)
   NWP 14 (Linear Transportation Projects)
   NWP 15 (U.S. Coast Guard Approved Bridges)
   NWP 16 (Return Water from Upland Contained Disposal Areas)
   NWP 17 (Hydropower Projects)
   NWP 18 (Minor Discharges)
   NWP 19 (Minor Dredging)
   NWP 20 (Response Operations for Oil or Hazardous Substances)
   NWP 22 (Removal of Vessels)
   NWP 23 (Approved Categorical Exclusions)
   NWP 25 (Structural Discharges)
   NWP 30 (Moist Soil Management for Wildlife)
   NWP 32 (Completed Enforcement Actions)
   NWP 33 (Temporary Construction, Access, and Dewatering)
   NWP 36 (Boat Ramps)
   NWP 41 (Reshaping Existing Drainage Ditches)
   NWP 51 (Land-Based Renewable Energy Generation Facilities)
   NWP 57 (Electric Utility Line and Telecommunications Activities)
   NWP 58 (Utility Line Activities for Water and Other Substances)

2. In addition to the notification and agency coordination requirements in the NWPs, for impacts greater than 0.25 acres in all “waters of the U.S.” for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

NWP 3 (Maintenance)
NWP 14 (Linear Transportation Projects)

3. Nationwide Permit No. 14 – Linear Transportation Projects.

(a) New road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length or the stream bed acreages listed in the table below at each crossing. Road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream or the stream bed acreages listed in the table below associated with new alignments or realignments will be evaluated as an individual permit (i.e., a Letter of Permission or Standard Permit).

Table of Acreages at Varying Stream Widths for 500 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 500 Linear Feet of Stream
1	0.011
2	0.023
3	0.034
4	0.046
5	0.057
6	0.069
7	0.080
8	0.092
9	0.103
10	0.115

(b) In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 linear feet of stream bed or the stream bed acreages listed in the table below. (See General Condition 32 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Table of Acreages at Varying Stream Widths for 300 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 300 Linear Feet of Stream
1	0.007
2	0.014
3	0.021
4	0.028
5	0.034
6	0.041
7	0.048
8	0.055
9	0.062
10	0.069

4. Notification in accordance with General Condition 32 is required to the Corps for all activities located in the following Section 10 waterways, to include the portion of their tributaries below the Ordinary High Water Mark or navigation pool, or otherwise subject to inundation, by the Section 10 waterway:

- Mississippi River
- Ohio River
- Licking River
- Kentucky River
- Salt River
- Green River
- Cumberland River
- Tennessee River
- Big Sandy River (from mouth to Louisa, KY)

5. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

CELRL.Door.To.The.Corps@usace.army.mil

Your email should include the following:
a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.

c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

6. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: http://ecos.fws.gov/ipac to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally-listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: http://eppcapp.ky.gov/spwaters/

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: http://www.fws.gov/frankfort/EndangeredSpecies.html

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

COORDINATING RESOURCE AGENCIES

Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Region IV
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Supervisor
U.S. Fish & Wildlife Service
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Supervisor
401 Water Quality Certification
Kentucky Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Commissioner
Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601

Terms for Nationwide Permit No. 14
Linear Transportation Projects

Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, “District Engineer’s Decision.” The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

HARLAN QUADRANGLE
KENTUCKY - HARLAN COUNTY
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 17S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery........NAIP, June 2016 - September 2016
Roads........U.S. Census Bureau, 2016
Names........GNIS, 1979 - 2019
Hydrography........National Hydrography Dataset, 1899 - 2018
Contours........National Elevation Dataset, 2002
Boundaries........Multiple sources; see metadata file 2017 - 2018

Wetlands........FWS National Wetlands Inventory 1983 - 1984

MN
GN
6°26´
114 MILS
1°23´
25 MILS

UTM GRID AND 2019 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
KA
Grid Zone Designation
17S

SCALE 1:24 000

KILOMETERS 1 0.5 0 1 2
METERS 1000 500 0 1000 2000
MILES 1 0.5 0 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

KENTUCKY
QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Helton
2 Bledsoe
3 Nolansburg
4 Wallins Creek
5 Evarts
6 Ewing
7 Rose Hill
8 Hubbard Springs

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

HARLAN, KY
2019

NSN. 7643016368253
NGA REF NO. USGSX24K19334

GEOTECHNOLOGY
A UES Company

STRUCTURE GEOTECHNICAL REPORT
KY 72 BRIDGE OVER POOR FORK CUMBERLAND RIVER
HARLAN COUNTY, KENTUCKY

BRIDGE NO. 048B00138N
ITEM NO. 11-10196
KYTC STATEWIDE BRIDGE PROGRAM PROJECT DELIVERY

Prepared for:

JOHNSON, MIRMIRAN & THOMPSON, INC.
MIDDLESBORO, KENTUCKY

Prepared by:

GEOTECHNOLOGY, LLC
ERLANGER, KENTUCKY

Date:

AUGUST 1, 2023

Geotechnology Project No.:

J041928.12

SAFETY
QUALITY
INTEGRITY
PARTNERSHIP
OPPORTUNITY
RESPONSIVENESS

GEOTECHNOLOGY
A UES Company

August 1, 2023

Mr. Adam Knuckles, PE
Johnson, Mirmiran & Thompson, Inc.
109 S. 24th Street
Middlesboro, Kentucky 40965

Re: Structure Geotechnical Report
KY 72 Bridge over Poor Fork Cumberland River
Harlan County, Kentucky
Bridge No. 048B00138N
Item No. 11-10196
KYTC Statewide Bridge Program Project Delivery
Geotechnology Project No. J041928.12

Dear Mr. Knuckles:

Geotechnology, LLC is pleased to present with this letter the Structure Geotechnical Report for the KY 72 Bridge over the Poor Fork Cumberland River, located in Harlan County, Kentucky. This report was prepared as part of the Kentucky Transportation Cabinet (KYTC) Statewide Bridge Program Project Delivery (BPPD). The geotechnical work was performed in general accordance with the KYTC Geotechnical Guidance Manual and the project specific BPPD Manual. The geotechnical work for this structure included a site reconnaissance, geotechnical borings, laboratory testing, engineering analyses, and the preparation of this report.

We appreciate the opportunity to provide the geotechnical services for this project. If you have any questions regarding this report, or if we may be of any additional service to you, please do not hesitate to contact us.

Respectfully submitted,
GEOTECHNOLOGY, LLC

Michael G. Baird

Michael G. Baird, EIT
Project Engineer

Richard L. Bach

Richard L. Bach, PE
Geotechnical Manager

STATE OF KENTUCKY
RICHARD L. BACH
32694
LICENSED PROFESSIONAL ENGINEER
8/1/2023

MGB/WTB/RLB:mgb/wtb/rlb

Copies submitted: Johnson, Mirmiran & Thompson, Inc. (email)

TABLE OF CONTENTS

LIST OF TABLES

GEOTECHNOLOGY
A UES Company

STRUCTURE GEOTECHNICAL REPORT
KY 72 BRIDGE OVER POOR FORK CUMBERLAND RIVER
HARLAN COUNTY, KENTUCKY
BRIDGE NO. 048B00138N | ITEM NO. 11-10196
August 1, 2023 | Geotechnology Project No. J041928.12

1.0 PROJECT LOCATION AND DESCRIPTION

The Kentucky Transportation Cabinet (KYTC) is planning to construct a new bridge on KY 72 over the Poor Fork Cumberland River in Harlan County, Kentucky. The new bridge will replace the existing 3-span bridge, and will be in the same location as the existing bridge. A Project Location Map is included in the Appendix.

The Bridge Layout, prepared by Johnson, Mirmiran & Thompson, Inc. (JMT) in June 2023, and included in the Appendix, indicates that the replacement bridge will be a 205.5-foot-long, 20-foot-wide, 3-span structure between Stations 12+32.25 and 14+37.75. Roadway improvements in conjunction with the new bridge will be relatively minor, and new grading will be negligible.

2.0 SITE TOPOGRAPHY AND GEOLOGY

The project is located in Eastern Kentucky within the Eastern Kentucky Coal Field, which is part of the Cumberland Plateau Physiographic Region. The Eastern Kentucky Coal Field is dominated by forested hills and is highly dissected by narrow to broad, v-shaped valleys. The uplands contain high relief and surface drainage that typically follows a dendritic pattern (McDowell, 1986).

The proposed bridge crosses a southwardly flowing section of the Poor Fork Cumberland River approximately 350 feet upstream of its mouth, where it combines with Martins Fork to form the Cumberland River. The valley formed by the Poor Fork Cumberland River in the area of the proposed bridge is surrounded by tall mountains with steeply sloping terrain to the east and west, and by alluvial floodplain followed by mountains to the south. The valley in this area is fairly narrow and v-shaped across its width from east to west such that the terrain is made up of slopes that are primarily steep to very steep in nature. The valley broadens and its terrain flattens downstream of the bridge near the confluence with Martins Fork.

The project area lies in the northern part of the United States Geological Survey (USGS) Geologic Map of the Harlan Quadrangle (GQ-1015), Harlan County, Kentucky (Froelich, 1972). The referenced USGS map indicates that the bedrock underlying the overburden soils in the project area belongs to the Hance Formation. The bedrock in this area is noted to consist of siltstone, shale, sandstone, and coal. The overburden soils are mapped as alluvium consisting of sand, silt, gravel, and clay.

3.0 RESEARCH OF HISTORIC PROJECTS

3.1 Historic Plans

We have reviewed the 1970's Grade, Drain, and Surfacing Plans (Historic Plans) for the existing bridge, which were provided by the General Engineering Consultant (GEC). The Historic Plans do not appear to present geotechnical information for the existing bridge.

3.2 KYTC Geotechnical Database

We have reviewed the KYTC Geotechnical Database for projects near the proposed bridge location. Our review indicates that there are no past KYTC geotechnical projects mapped within the project area.

4.0 SITE RECONNAISANCE

On August 16, 2022, representatives from Geotechnology, LLC (Geotechnology) visited the existing bridge to perform an engineering reconnaissance of the site.

In the area of the existing bridge, the Poor Fork Cumberland River was observed to be flowing on alluvium. Bedrock was not observed in the area of the existing bridge. We note that the existing east spill-through slope was not armored with slope protection at the time of the reconnaissance, and that several erosion rills were observed across the slope. The bottoms of the erosion rills were noted to be as much as approximately 5 feet deeper than the surrounding slope grades. Scour around the existing eastern pier was not evaluated due to the depth of the river in that area during the reconnaissance. Scour did not appear to be a concern along the existing western spill-through slope, or near the other substructures.

A relatively small landslide along the east bank of the river was observed immediately upstream of the bridge. This landslide appeared to be related to the bank being near-vertical at this location. The slope above the landslide was noted to be oversteepened, but did not indicate signs of movement. Otherwise, no obvious signs of instability, other than minor surface creep, were observed at the site, including on the spill-through or approach slopes near the bridge ends.

5.0 FIELD INVESTIGATION AND LABORATORY TESTING

The subsurface exploration for this project consisted of three borings (i.e., Holes 1001, 1003, and 1004) completed in May 2023 by a Geotechnology Exploration, LLC drilling crew in general accordance with Section 300 of the KYTC Geotechnical Guidance Manual. A fourth boring (i.e., Hole 1002) was planned near the downstream side of proposed Pier 1, but was eliminated due to access and terrain issues.

The boring locations were staked by Geotechnology personnel in March 2023. The plan locations of the borings were surveyed by JMT. The boring surface elevations were estimated from the centerline profile prepared for this bridge, and from field tape measurements relative to the top of the existing bridge deck. The boring locations are summarized on the Coordinate Data Submission Form included in the Appendix.

The soil and bedrock samples were visually reviewed by a geotechnical engineer from Geotechnology. The laboratory testing of soil and bedrock samples was performed by Geotechnology personnel in compliance with the AASHTO and/or Kentucky Method (KM) test standards outlined in Section 500 of the KYTC Geotechnical Guidance Manual. The results of the drilling and laboratory testing and review are presented on the laboratory test forms and the Subsurface Data Sheet included in the Appendix.

6.0 SUBSURFACE CONDITIONS

The three borings performed for the bridge were undisturbed sample and core borings. Two of the four borings (i.e., Holes 1001 and 1004), one near each end of the proposed bridge, were drilled through the existing roadway approaches. The third boring (i.e., Hole 1003) was drilled near the upstream side of the proposed location of Pier 2, at the edge of the existing east spill-through slope.

The asphalt thicknesses in Holes 1001 and 1004 measured 6 and 13 inches, respectively. The thicknesses of the granular base underlying the asphalt measured 10 and 13 inches in Holes 1001 and 1004, respectively. The overburden soils below the granular base or ground surface classified primarily as clays and sands, although silts and lesser percentages of gravel were also encountered. Refusal (top of bedrock) depths in the borings ranged from 20.3 to 31.9 feet below the pavement or ground surface. Refusal (top of bedrock) elevations in the borings ranged from 1142.5 to 1143.6 feet. The cored bedrock consisted of nondurable and durable shale (siltstone), nondurable shale, durable sandstone, and coal from the Hance Formation.

7.0 SLOPE STABILITY

7.1 Soil Parameters

Linear effective stress shear strength envelopes were evaluated for use in the analyses for this project based on the results of the drilling and laboratory testing. Linear parameters for the clay soils were derived from Consolidated-Undrained Compressive Strength of Cohesive Soils in Triaxial Compression (CUTX) testing. Linear parameters for clays and sands were also developed using correlations from SPT N-values and index properties in published literature, including: Bowles (1996), Meyerhof (1956), U.S. Department of the Navy (1982), and FHWA NHI-06-088 (FHWA 2006). Additionally, empirical R-envelopes were developed for the cohesive soils encountered at the east spill-through based on the results of the CUTX tests for analysis of rapid drawdown conditions using the 3-stage analysis procedure recommended by Duncan, Wright, and Wong (1990), which is referenced in USACE Engineering Manual EM 1110-2-1902 (USACE 2003).

7.2 Analyses

Slope stability analyses were performed for the proposed west and east spill-through slopes at Integral End Bents 1 and 2, respectively. Short-term analyses were not considered as the existing embankments have been in place for over 50 years. Rapid drawdown conditions were evaluated using an initial water level at the 100-year flood elevation of El. 1179.1 based on information

provided by JMT. In the rapid drawdown analyses, the 3-stage analysis procedure recommended by Duncan, Wright, and Wong (1990) was implemented.

Table 1 summarizes the computed factors of safety for the slope stability analyses. The results of select slope stability analyses, including the predicted minimum factors of safety, predicted failure surfaces, and assigned soil shear strength parameters, are also graphically presented on the corresponding Embankment Stability Sheet included in the Appendix. Subsurface stratification was developed for the sections by generalizing the subsurface conditions encountered in the borings, and by using straight-line interpolation between the borings. We note that variations in the subsurface profile between the borings are likely and expected. The generalized subsurface stratification was only intended to assist in the general evaluation of the site geology for purposes of slope stability model development, and is not intended to provide specific detailed information between the borings.

Table 1. Summary of factors of safety for slope stability analyses.

Scenario	Factor of Safety	
	Long Term	Rapid Drawdown
End Bent 1 (West) Spill-Through Slope		
Proposed Conditions	1.5	1.5
End Bent 2 (East) Spill-Through Slope		
Proposed Conditions	1.4	1.2

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our engineering reconnaissance of the site, our review of the geologic mapping, the borings, visual examination of the recovered samples, the laboratory test results, our understanding of the proposed construction, and our experience as Geotechnical Engineers in the Commonwealth of Kentucky, we have reached the following conclusions and make the following recommendations.

8.1 Slope Stability

The results of the stability analyses discussed in Section 7.2 indicate that the proposed spill-through slopes for the existing bridge do not meet or exceed the minimum factors of safety outlined in the KYTC Geotechnical Guidance Manual. However, for the purposes of this Bridge Program, we recommend that the calculated factors of safety, along with the proposed slope configurations, be accepted, given that (1) the existing slopes have been in place for over 50 years and were not exhibiting signs of instability at the time of the site reconnaissance, (2) the slope geometries will either be left relatively unchanged or flattened, and (3) the end bent and pier foundations, although not modeled in the analyses, will provide some benefit to the stability of the slopes.

8.2 Settlement and Downdrag

Settlement analyses are typically performed when bridge approach embankments are greater than 20 feet in height and the thickness of the foundation soils is greater than 10 feet, according to the KYTC Geotechnical Guidance Manual. Since the existing approach embankments have been in place for over 50 years, and no new major fills are planned for this project, settlement and downdrag are not anticipated to be significant and were not evaluated.

8.3 Slope Protection

We recommend that slope protection be provided in front of the end bents to mitigate scour and erosion below the proposed abutment walls. We understand that KYTC's accepted standard is to require slope protection as laid out in Section 9.1.

8.4 Foundations

The preferred foundation type for fixed End Bents 1 and 2 is point bearing H-piles driven to practical refusal in the underlying bedrock. For Piers 1 and 2, the preferred foundation type is drilled shafts socketed into unweathered bedrock. Given the depth to bedrock encountered in the borings, pre-drilling will not be required at the end bents.

Table 2 provides the estimated tip elevations for point bearing piles on bedrock at the end bent locations. Table 3 provides the highest allowable drilled shaft tip elevations for the piers. The shaft tip elevation should be selected by the Designer from the Drilled Shaft Axial Resistance Tables located in the Appendix for the preferred bedrock socket diameter.

Note that borings were not advanced directly on the proposed substructure locations. As such, it should be expected that the pile tip and shaft tip elevations during construction may vary from those listed in Table 2.

Table 2. Estimated Pile Tip Elevations

Substructure Element	Estimated Elevation (feet)		
	Top of Bedrock	Base of Weathered Bedrock	Pile Tip
End Bent 1	1142.9	1139.9	1139.9
End Bent 2	1143.3	1137.7	1137.7

Table 3. Estimated Drilled Shaft Elevations

Substructure Location	Estimated Elevation (feet)[a]			
	Top of Bedrock	Base of Weathered Bedrock	Bottom of Permanent Casing/Top of Bedrock Socket	Highest Allowable Shaft Tip
Pier 1	1142.8	1138.9	1138.9	1133.7[b] – 1131.4[c]
Pier 2	1142.5	1137.0	1137.0	1131.8[b] – 1129.5[c]

Note:

[a] Elevations for all shafts should be verified after construction-phase rock cores have been obtained. The final shaft tip elevations and quantities may be adjusted based on the actual conditions encountered in the field at the shaft locations.

[b] 4.0-foot diameter shaft (3.5-foot diameter rock socket). Deeper shaft tips may be required if construction cores encounter coal seams within 2 shaft diameters of the planned tip elevation.

[c] 5.5-foot diameter shaft (5.0-foot diameter rock socket). Deeper shaft tips may be required if construction cores encounter coal seams within 2 shaft diameters of the planned tip elevation.

8.4.1 Point Bearing H-Piles

8.4.1.1 Pile Refusal and Protective Pile Points

We recommend that piles be driven to practical refusal in the underlying bedrock. For determining practical refusal for point-bearing steel H-piles, we recommend using KYTC Case 2; Refusal into Soft Bedrock. KYTC Case 2 indicates that minimum blow count requirements are reached after total penetration becomes ½ inch or less for 10 consecutive blows, and practical refusal is obtained after the pile is struck an additional 10 blows with total penetration of ½ inch or less. Production piling should be advanced to the driving resistance specified above and to the depths determined by test pile(s) and the provided subsurface information.

We recommend that protective pile points be used on end bearing piles to allow for embedment into the top of rock. We recommend the use of reinforced pile points capable of penetrating large cobbles, hard layers, or weathered bedrock which may be encountered. Installation of pile points should be in accordance with Section 604 of the current Kentucky Standard Specifications for Road and Bridge Construction.

8.4.1.2 Pile Axial Capacity

It is our understanding that KYTC's accepted standard is to design piles driven to practical refusal in shale and sandstone bedrock in accordance with Section 10.7.3.2.3 (Piles Driven to Hard Rock) of the current edition of the AASHTO LRFD Bridge Design Specifications (AASHTO), except that the nominal compressive resistance, P_n, is assumed to equal the nominal yield resistance, P_o, of the pile section. Therefore, the piles can be designed using the structural limit state with a resistance factor of 0.5 for severe driving conditions and the factored axial resistance for HP 12x53 piles is 388 kips, assuming Grade 50 steel.

8.4.2 Drilled Shaft Foundations

We recommend that the drilled shaft foundations be constructed in accordance with the current edition of the KYTC "Special Note for Drilled Shafts", including the construction cores outlined in Section 3.5 of the special note as the rock cores obtained during the geotechnical exploration were not drilled at the centers of the shafts and may not extend deep enough to cover the embedment lengths. The Contractor should be responsible for providing subsurface exploration drilling during construction to finalize the drilled shaft tip elevations at each drilled shaft location. Note that the depth of the construction cores may need to be extended if poor quality rock or coal seams are encountered within two shaft diameters of the design tip elevation.

We recommend that permanent casing that is 6-inches larger in diameter than the proposed rock socket diameter be used to the "Bottom of Permanent Casing" elevations provided in Table 3 to prevent collapse of the side walls, fall back of material into the excavation, or fall back into and contamination of freshly placed concrete. The permanent casing should be incidental to "Drilled Shaft (Common)" or "Drilled Shaft (Solid Rock)", as applicable.

The drilled shafts should be embedded a minimum of 1.5 times the rock socket diameter below the bottom of the permanent casing. It should be recognized that deeper shaft tips may be required based on the results of the construction cores required in the KYTC "Special Note for Drilled Shafts." Additionally, if coal seams are encountered in the construction cores within two shaft diameters of the planned shaft tip elevation, the shaft tip should extend below the encountered coal seam.

8.4.2.1 Axial Capacity and Uplift Resistance

The axial capacity and uplift resistance of multiple drilled shaft diameters were estimated using the methods discussed in Brown et al (2010), which are referenced in Article 10.8.3.5.4 of AASHTO (2020). We recommend that the axial and uplift resistances of the drilled shafts be evaluated using the Drilled Shaft Axial Resistance Tables included in the Appendix.

8.4.2.2 Lateral Capacity

We recommend that lateral load analyses be performed using the geotechnical parameters provided in the Idealized Subsurface Profiles included in the Appendix. Some of the parameters may not be required to be input, depending on the analysis software and version of the software being used.

Where the spacing of laterally loaded deep foundations will be close enough that their areas of resistance overlap (i.e., less than 5 times their width), we recommend that an appropriate p-multiplier be applied in the analyses to account for the overlap and reduction in lateral resistance. We recommend that the p-multiplier be estimated per Section 10.8.2.3 from AASHTO (2017).

8.5 Seismic Site Class

The seismic design procedures outlined in AASHTO indicate that structural design loads are to be based on site class definitions determined by the shear wave velocity, average SPT N-values, and/or average undrained shear strength for the upper 100 feet of the subsurface profile. Based

on the results of the exploration and the geology of the area, we recommend that Site Class D be used for design purposes at the site.

9.0 PLAN NOTES

9.1 General

Add the following plan notes at the appropriate locations in the plans.

- Sloping, shoring, sheeting, and/or dewatering methods may be required to complete excavations for improvements shown on the plans. The Contractor shall be responsible for the stability and safety of all excavations.

- Slope protection shall be utilized at the end bents. The slope protection shall meet the requirements of Sections 703 and 805 of the Standard Specifications for Road and Bridge Construction, current edition. Fabric-Geotextile Class 1 (Slope Protection) shall be placed between the embankment and the slope protection in accordance with Section 214 and 843 of the Standard Specifications for Road and Bridge Construction, current edition.

9.2 Steel H-pile Foundations

Add the following plan notes at the appropriate locations in the plans for Steel H-Pile Foundations:

- **PRACTICAL REFUSAL:** Drive point bearing piles to practical refusal. For this project, minimum blow count requirements are reached after total penetration becomes ½ inch or less for 10 consecutive blows, and practical refusal is obtained after the pile is struck an additional 10 blows with total penetration of ½ inch or less. Advance production piling to the driving resistance specified above and to depths determined by test pile(s) and available subsurface information. Immediately cease driving operations if the pile visibly yields or becomes damaged during driving. If hard driving is encountered because of dense strata or an obstruction, such as a boulder, before the pile is advanced to the depth anticipated, the Engineer will determine if more blows than the average driving resistance specified for practical refusal is required to further advance the pile. Drive additional production and test piles if directed by the Engineer.

- **HAMMER CRITERIA:** A diesel pile driving hammer with a rated energy between 22.0 kip-ft and 31.0 kip-ft will be required to drive HP 12x53 piles to practical refusal, achieve the factored load, and maintain allowable driving stresses at the end bents for the proposed bridge. The Contractor shall submit the proposed pile driving system to the Engineer for approval prior to the installation of the first pile. Approval of the pile driving system by the Engineer will be subject to satisfactory field performance of the pile driving procedures.

9.3 Drilled Shaft Foundations

Add the following plan notes at the appropriate locations in the plans for Drilled Shaft Foundations:

- Solid rock excavation will be required for the installation of the drilled shaft foundations.

- Drilled shafts shall be constructed in accordance with the Special Note for Drilled Shafts, current edition. Include all costs (materials, labor, and equipment) associated with the drilled shafts in the unit price bid for Drilled Shaft, Common or Solid Rock, as applicable. Materials shall include spiral and longitudinal reinforcement, reinforcement splices and mechanical couplers, concrete, and temporary or permanent casing as needed.

- Permanent casing is required from the top of shaft to the top of unweathered bedrock. Use an uncased rock socket that is 6 inches smaller than the inside of the permanent casing. Permanent Casing is incidental to the unit bid price for “Drilled Shaft - __-inch (Common)” or “Drilled Shaft - __-inch (Solid Rock)” as applicable.

- The Contractor shall be responsible for providing subsurface exploration drilling during construction to finalize the drilled shaft tip elevations. Additional drilling will be required at each drilled shaft location in accordance with the Special Note for Drilled Shafts, current edition. For estimating the amount of Rock Coring at this location, we recommend that the subsurface exploration extend a minimum depth of three (3) shaft diameters, but not less than 10 feet, below the bottom of the anticipated tip elevation of each drilled shaft. Note that the depth of the rock cores may need to be extended if poor quality rock or coal seams are encountered within two shaft diameters of the anticipated tip elevation.

- Elevations for the Bottom of Drilled Shaft - Common, Bottom of Casing, Top of Drilled Shaft - Solid Rock, and Bottom of Drilled Shaft will be determined by the Division of Structural Design, Geotechnical Branch, based on the results of the Rock Sounding and Rock Coring. Quantities for the Drilled Shafts shown on the title sheet are estimates, and the actual installed and paid quantity will be determined after the Rock Sounding and Rock Coring is complete in accordance with the Special Note for Drilled Shafts, current edition.

10.0 LIMITATIONS

This report has been prepared on behalf of, and for the exclusive use of, the client for specific application to the named project as described herein. If this report is provided to other parties, it should be provided in its entirety with all supplementary information. In addition, the client should make it clear that the information is provided for factual data only, and not as a warranty of subsurface conditions presented in this report.

Geotechnology has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The recommendations and conclusions contained in this report are professional opinions. The report is not a bidding document and should not be used for that purpose.

Our scope for this phase of the project did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Our scope did not include an

assessment of the effects of flooding and erosion of creeks or rivers adjacent to or on the project site.

The analyses, conclusions, and recommendations contained in this report are based on the data obtained from the subsurface exploration. The field exploration methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Consequently, subsurface conditions may vary gradually, abruptly, and/or nonlinearly between sample locations and/or intervals.

The conclusions and recommendations presented in this report should not be used without Geotechnology's review and assessment if the nature, design, or location of the facilities is changed, if there is a substantial lapse in time between the submittal of this report and the start of work at the site, or if there is a substantial interruption or delay during work at the site. If changes are contemplated or delays occur, Geotechnology must be allowed to review them to assess their impact on the findings, conclusions, and/or design recommendations given in this report. Geotechnology will not be responsible for any claims, damages, or liability associated with any other party's interpretations of the subsurface data or with reuse of the subsurface data or engineering analyses in this report.

REFERENCES

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APPENDIX

Project Location Map

Coordinate Data Submission Form

Bridge Layout Sheet

Unconfined Compressive Strength (QU) Test Forms

Unconsolidated Undrained Triaxial Compression (UUTX) Test Forms

Consolidated-Undrained Triaxial Compression (CUTX) Test Forms

Uniaxial Compressive Strength of Intact Rock Core (Rock Core QU) Test Forms

Geotechnical Symbols Sheet

Subsurface Data Sheet

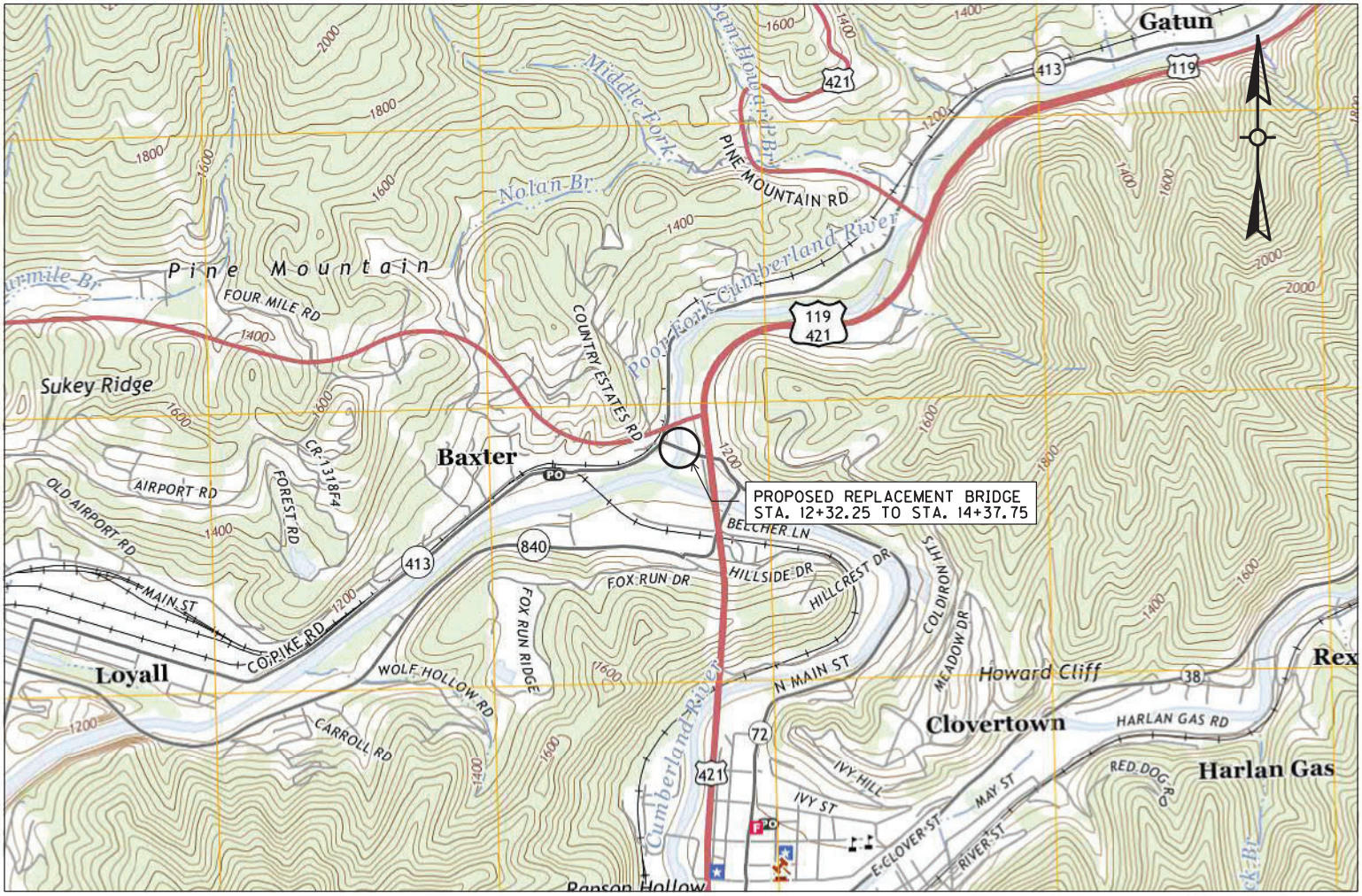
Embankment Stability Sheet

Idealized Subsurface Profiles

Drilled Shaft Axial Resistance Tables

GEOTECHNOLOGY
A UES Company

PROJECT LOCATION MAP



1" = 2000'

STRUCTURE GEOTECHNICAL REPORT

KY 72 BRIDGE OVER POOR FORK CUMBERLAND RIVER

HARLAN COUNTY, KENTUCKY

STA. 12+32.25 TO STA. 14+37.75

BRIDGE NO. 048B00138N

ITEM NO. 11–10196

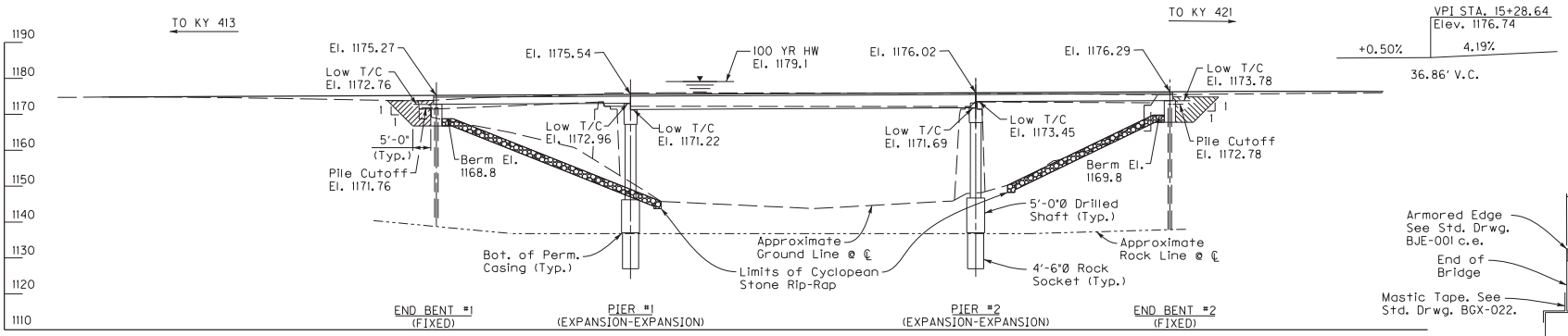
BASEMAP FROM USGS 7.5–MINUTE SERIES MAP OF HALAN QUADRANGLE (2022)

COORDINATE DATA SUBMISSION FORM
KYTC DIVISION OF STRUCTURAL DESIGN -- GEOTECHNICAL BRANCH

County: Harlan
Date: 3/23/2023
Road Number: KY 72 Bridge over Poor Fork Cumberland River
Survey Crew/ Consultant: Geotechnology, LLC
Contact Person: Michael Baird
Item #: 11-10196
Mars #:
Bridge #: 048B00138N
Elevation Datum: ☐ Assumed ☑ NAVD88

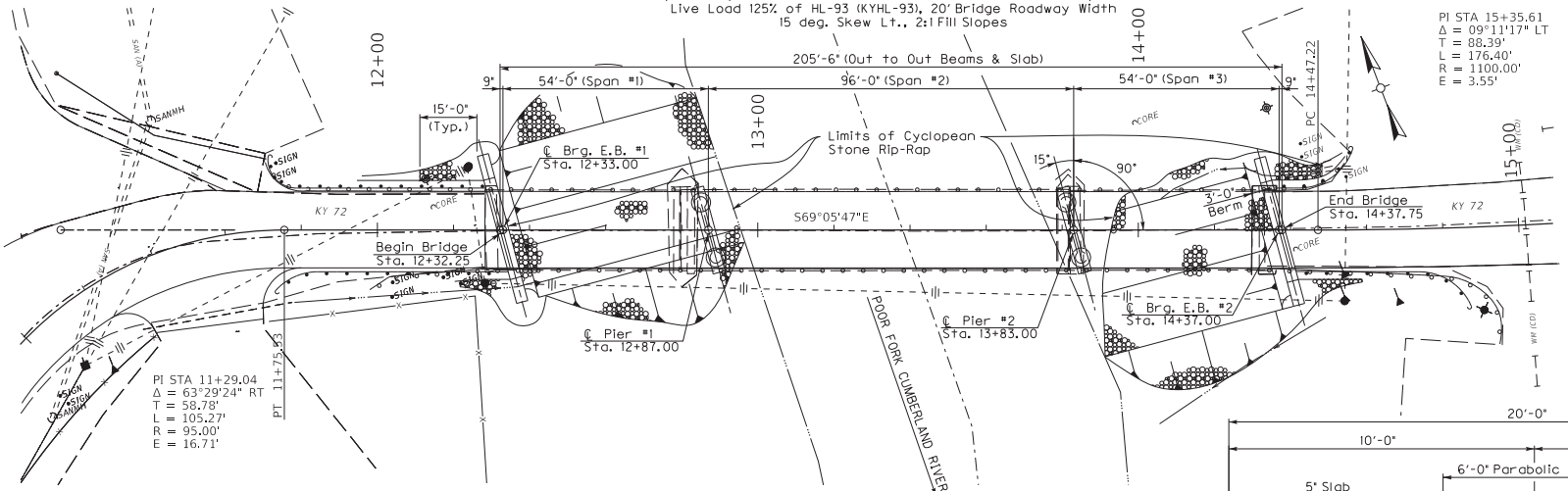
Notes:
The plan locations of the borings were surveyed by JMT. The boring surface elevations for Holes 1001 and 1004 were estimated from the centerline profile prepared for this bridge. The boring surface elevation for Hole 1003 was estimated based on field tape measurements relative to the top of the existing bridge deck nearest to the boring location.

HOLE NUMBER	LATITUDE (Decimal Degrees)	LONGITUDE (Decimal Degrees)	HOLE NUMBER	STATION	OFFSET	ELEVATION (ft)
1001	36.85989652	-83.32593508	1001	12+14.7	6.0' Lt.	1174.0
1003	36.85975995	-83.32532363	1003	13+99.1	28.2' Lt.	1162.8
1004	36.85963115	-83.32523315	1004	14+41.4	5.1' Rt.	1175.5



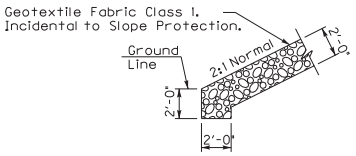
ELEVATION

54'-96'-54', 3 Span Box Beams, CB21 (Spans 1 & 3), CB42 (Span 2)
Spans Simple for Dead Load and Live Load (link slab at piers)
Live Load 125% of HL-93 (KYHL-93), 20' Bridge Roadway Width
15 deg. Skew Lt., 2:1 Fill Slopes

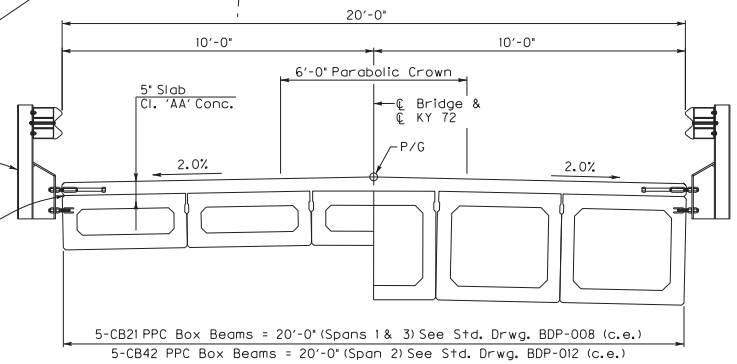


PLAN

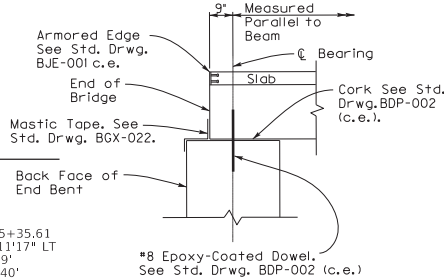
(Superstructure Not Shown)



TOE OF SLOPE DETAIL



TYPICAL SECTION



END OF BRIDGE DETAIL

COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS	REVISION	DATE	PREPARED BY	DATE: 6/20/2023	CHECKED BY	LAYOUT	ROUTE	ITEM NO. 11-10196	COUNTY OF HARLAN
				DESIGNED BY:		CROSSING POOR FORK CUMBERLAND RIVER	KY 72	SHEET NO. S2	DRAWING NUMBER 28791
				DETAILED BY: Greg Crank					

OpenRoads Designer v10.16.2.267 USER: lrobertson DATE PLOTTED: 7/31/2023 FILE NAME: 002_DN_S002_LAYOUT.DGN

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

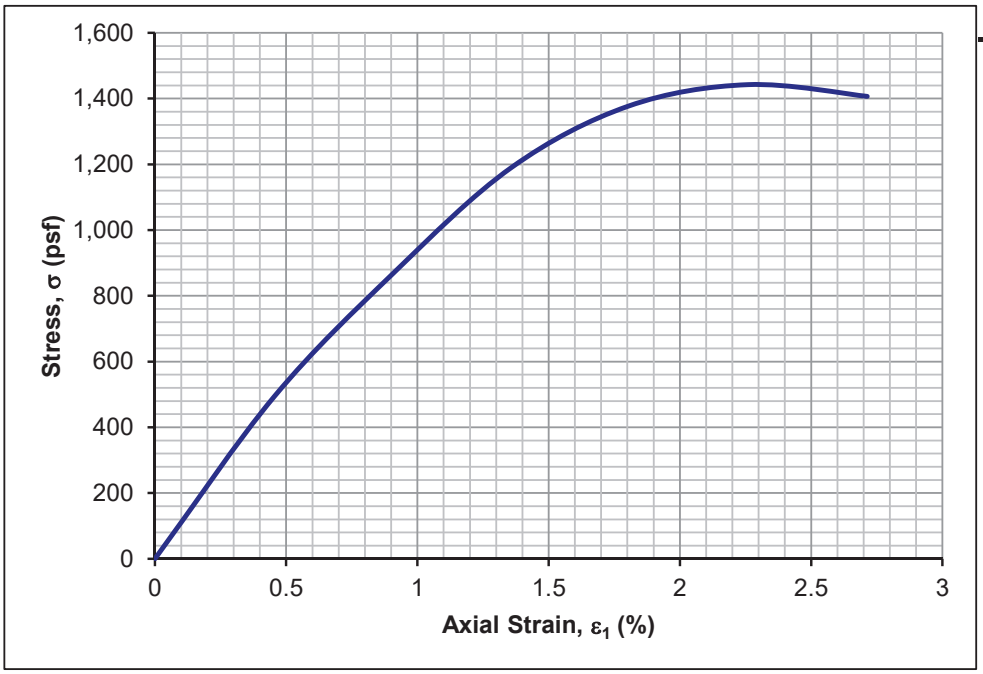
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/6/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1001
SAMPLE NO.: 2
DEPTH (ft.): 7.0-9.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Dark brown, CLAYEY SAND with GRAVEL (fill) (SC).

LIQUID LIMIT (%): 29
PLASTIC LIMIT (%): 21
PLASTICITY INDEX (%): 8
AASHTO: A-4 (1)
GRAVEL (%): 35
SAND (%): 22
SILT (%): 35
CLAY (%): 8
SPECIFIC GRAVITY OF SOLIDS: 2.70 (Per AASHTO T 100)
LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.82
HEIGHT (in.):	5.55
HEIGHT TO DIAMETER RATIO:	1.97
WET UNIT WEIGHT (pcf):	129.9
DRY UNIT WEIGHT (pcf):	113.5
VOID RATIO:	0.48
MOISTURE CONTENT (%)*:	14.5
DEGREE OF SATURATION (%):	81

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**2.3**
TIME TO FAILURE (min.):	**2.5**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**1,440**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**720**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

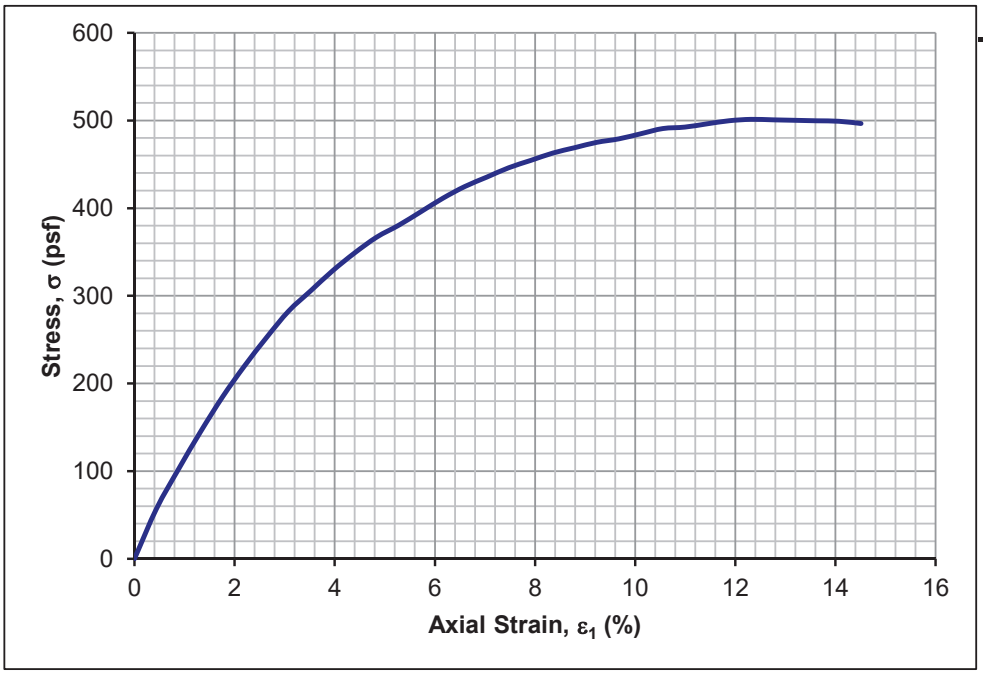
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/6/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003 SAMPLE NO.: 4A DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Very soft to soft, brown, SANDY SILTY CLAY (alluvium) (CL-ML).

LIQUID LIMIT (%): 27 PLASTIC LIMIT (%): 21 PLASTICITY INDEX (%): 6 AASHTO: A-4 (2)
GRAVEL (%): 0 SAND (%): 39 SILT (%): 43 CLAY (%): 17
SPECIFIC GRAVITY OF SOLIDS: 2.67 (Per AASHTO T 100) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.83
HEIGHT (in.):	5.69
HEIGHT TO DIAMETER RATIO:	2.01
WET UNIT WEIGHT (pcf):	129.7
DRY UNIT WEIGHT (pcf):	105.0
VOID RATIO:	0.59
MOISTURE CONTENT (%)*:	23.6
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**12.3**
TIME TO FAILURE (min.):	**13.1**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**501**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**251**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**485**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

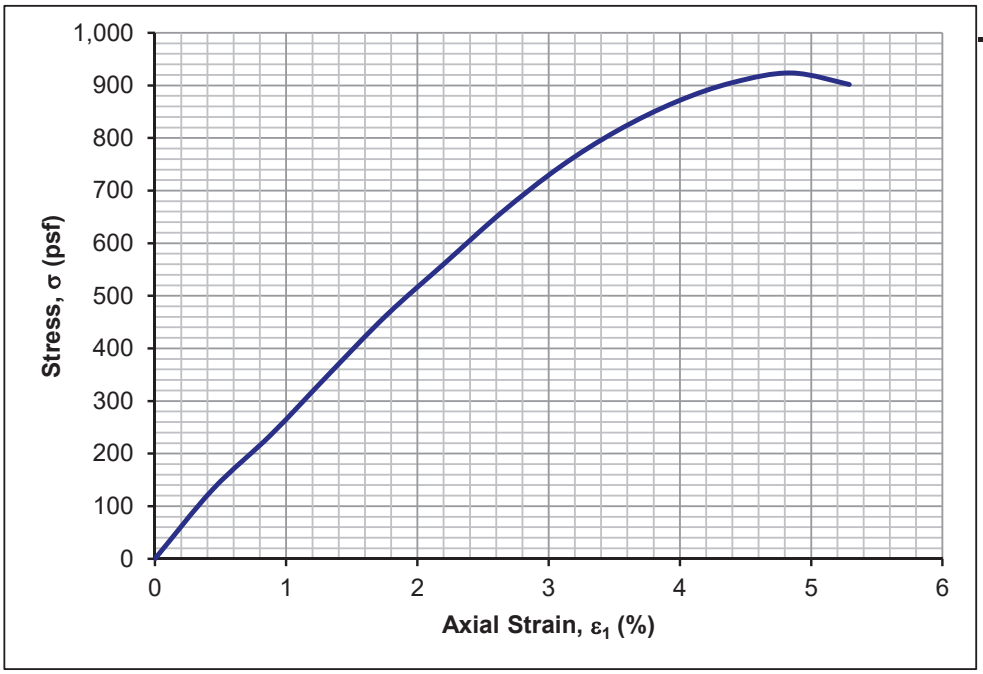
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/5/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1004
SAMPLE NO.: 2A
DEPTH (ft.): 7.0-9.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Soft, brown, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 40
PLASTIC LIMIT (%): 24
PLASTICITY INDEX (%): 16
AASHTO: A-6 (15)
GRAVEL (%): 2
SAND (%): 10
SILT (%): 58
CLAY (%): 31
SPECIFIC GRAVITY OF SOLIDS: 2.72 (Per AASHTO T 100)
LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.80
HEIGHT (in.):	5.67
HEIGHT TO DIAMETER RATIO:	2.02
WET UNIT WEIGHT (pcf):	123.0
DRY UNIT WEIGHT (pcf):	99.8
VOID RATIO:	0.70
MOISTURE CONTENT (%)*:	23.2
DEGREE OF SATURATION (%):	90

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**4.9**
TIME TO FAILURE (min.):	**5.2**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**924**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**462**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

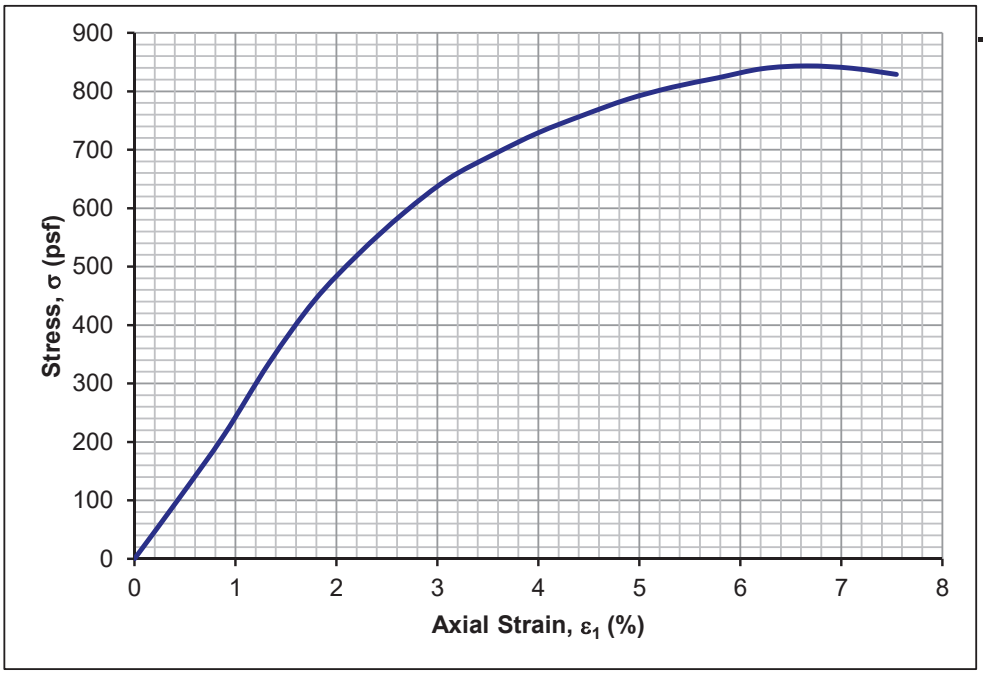
CLIENT : Johnson, Mirmiran, & Thompson — DATE: 6/5/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1004 — SAMPLE NO.: 3A — DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube — CONDITION: Undisturbed
SAMPLE DESCRIPTION: Soft, brown, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 42 — PLASTIC LIMIT (%): 25 — PLASTICITY INDEX (%): 17 — AASHTO: A-7-6 (18)
GRAVEL (%): 0 — SAND (%): 4 — SILT (%): 67 — CLAY (%): 29
SPECIFIC GRAVITY OF SOLIDS: 2.77 (Per AASHTO T 100) — LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.81
HEIGHT (in.):	5.64
HEIGHT TO DIAMETER RATIO:	2.01
WET UNIT WEIGHT (pcf):	120.8
DRY UNIT WEIGHT (pcf):	91.3
VOID RATIO:	0.89
MOISTURE CONTENT (%)*:	32.4
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**6.7**
TIME TO FAILURE (min.):	**7.1**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**843**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**422**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

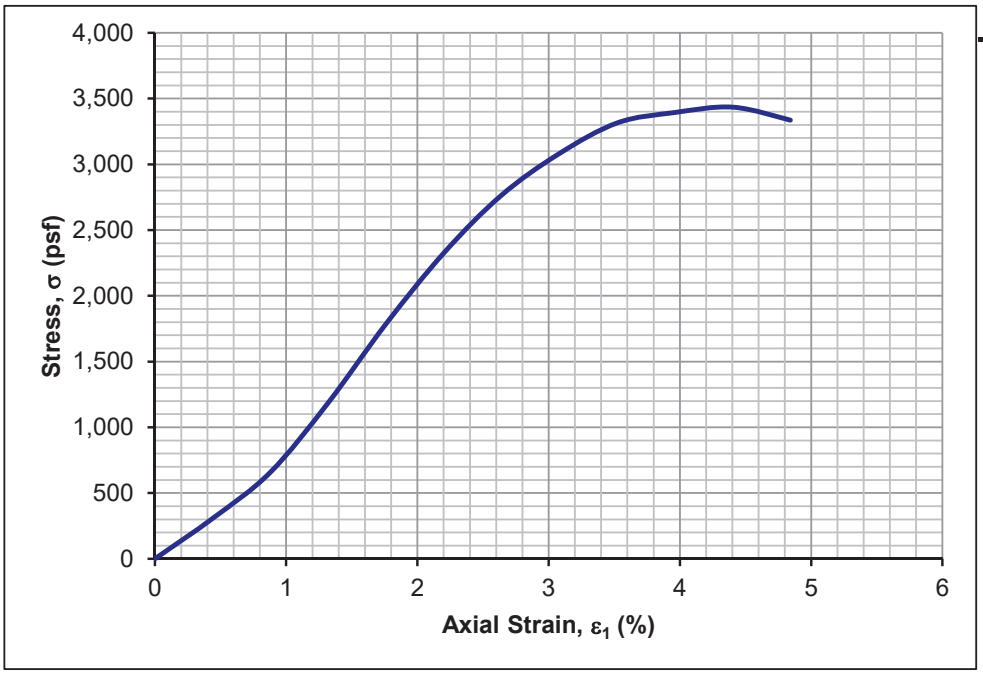
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/6/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1004
SAMPLE NO.: 4A
DEPTH (ft.): 17.0-19.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Stiff, brown, trace gray, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 34
PLASTIC LIMIT (%): 23
PLASTICITY INDEX (%): 11
AASHTO: A-6 (11)
GRAVEL (%): 0
SAND (%): 7
SILT (%): 72
CLAY (%): 21
SPECIFIC GRAVITY OF SOLIDS: 2.73 (Per AASHTO T 100)
LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.83
HEIGHT (in.):	5.69
HEIGHT TO DIAMETER RATIO:	2.01
WET UNIT WEIGHT (pcf):	129.7
DRY UNIT WEIGHT (pcf):	105.0
VOID RATIO:	0.62
MOISTURE CONTENT (%)*:	23.6
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**4.4**
TIME TO FAILURE (min.):	**4.7**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**3,430**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,715**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208 (KM 64-522)

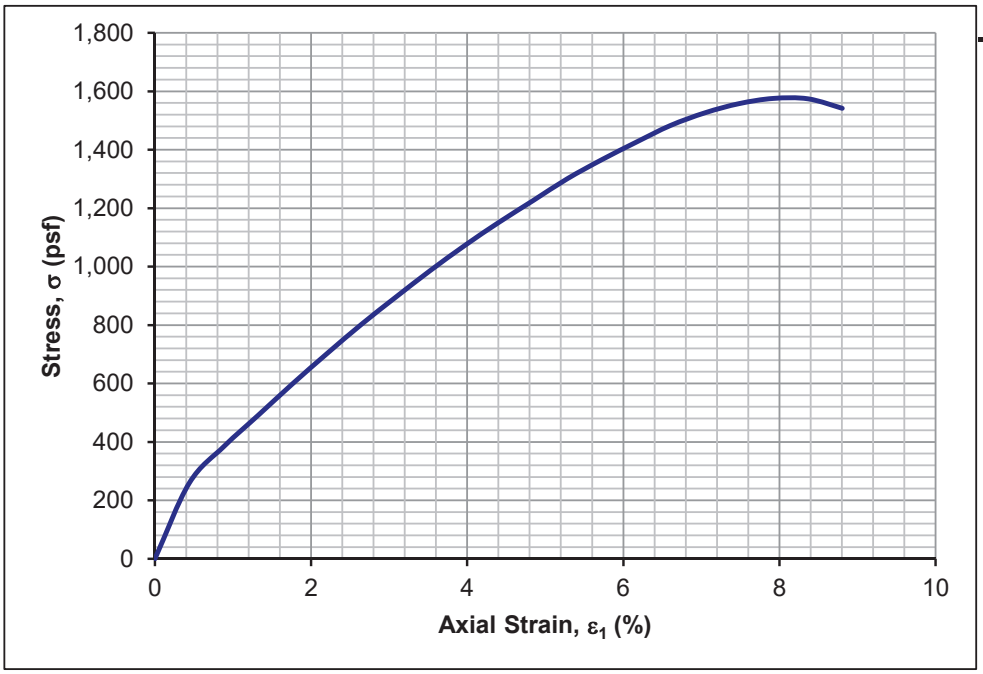
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/6/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1004
SAMPLE NO.: 5
DEPTH (ft.): 22.0-24.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Medium stiff, orange, brown, and gray, SILT (alluvium) (ML).

LIQUID LIMIT (%): 40
PLASTIC LIMIT (%): 27
PLASTICITY INDEX (%): 13
AASHTO: A-6 (13)
GRAVEL (%): 0
SAND (%): 13
SILT (%): 66
CLAY (%): 21
SPECIFIC GRAVITY OF SOLIDS: 2.70 (Per AASHTO T 100)
LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.83
HEIGHT (in.):	5.68
HEIGHT TO DIAMETER RATIO:	2.00
WET UNIT WEIGHT (pcf):	121.2
DRY UNIT WEIGHT (pcf):	92.2
VOID RATIO:	0.83
MOISTURE CONTENT (%)*:	31.5
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.1**
AXIAL STRAIN AT FAILURE (%):	**7.9**
TIME TO FAILURE (min.):	**8.5**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**1,580**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**790**
SENSITIVITY, S_t:	**-**
LIMITING COMPRESSIVE STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES

FRONT VIEW

SIDE VIEW

REMARKS :

*Moisture content determined after shear from entire sample.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS
AASHTO T 296 (KM 64-521)

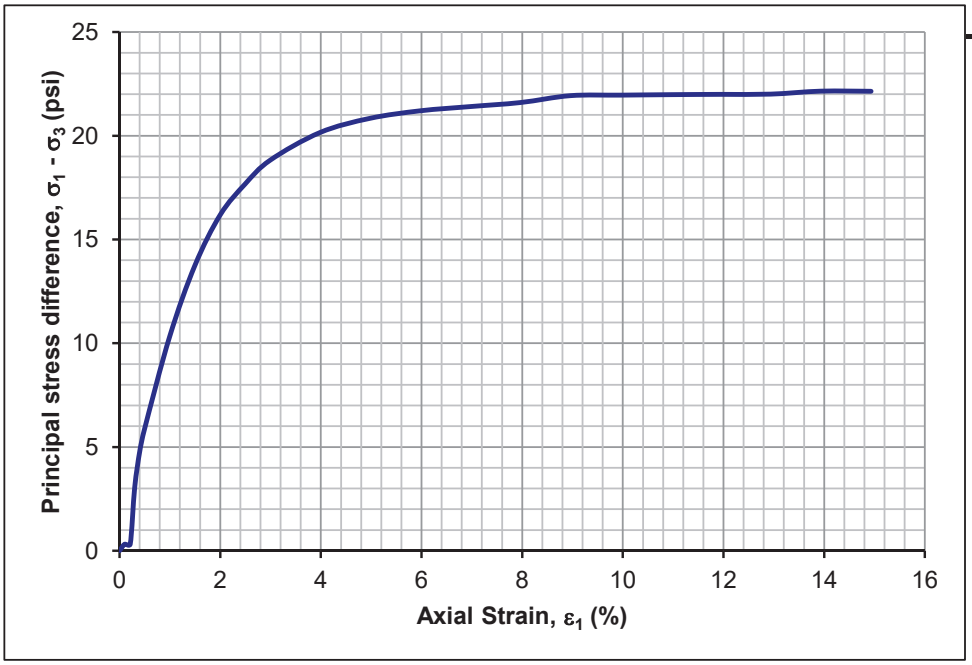
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/7/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1001
SAMPLE NO.: 3
DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Stiff, brown, SILTY SAND (alluvium) (SM).

LIQUID LIMIT (%): 22
PLASTIC LIMIT (%): 19
PLASTICITY INDEX (%): 3
AASHTO: A-4 (0)
GRAVEL (%): 0
SAND (%): 57
SILT (%): 31
CLAY (%): 11
SPECIFIC GRAVITY OF SOLIDS: 2.60 (Per AASHTO T 100)
LOAD CELL NO.: 1008

INITIAL SAMPLE DATA	
AVERAGE DIAMETER (in.):	2.81
HEIGHT (in.):	5.53
HEIGHT TO DIAMETER RATIO:	1.96
WET UNIT WEIGHT (pcf):	118.9
DRY UNIT WEIGHT (pcf):	99.4
VOID RATIO:	0.63
MOISTURE CONTENT (%)*:	19.5
DEGREE OF SATURATION (%):	80.5

FAILURE DATA***	
MOISTURE CONTENT AFTER FAILURE (%)**:	**23.4**
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.0**
AXIAL STRAIN AT FAILURE (%):	**13.9**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $\sigma_1 - \sigma_3$ (psi):	**22.1**
MINOR PRINCIPAL STRESS AT FAILURE, σ_3 (psi):	**11.0**
MAJOR PRINCIPAL STRESS AT FAILURE, σ_1 (psi):	**33.1**
UNDRAINED COMPRESSIVE STRENGTH, U_u (psf):	**3,190**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,595**
LIMITING UNDRAINED COMP. STRESS @ 10% STRAIN (psf):	**3,160**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

* Initial moisture content determined from sample cuttings.
** Final moisture content determined from entire sample.
*** Failure stress values have been corrected for membrane effects.

GEOTECHNOLOGY
A Universal Engineering Sciences Company

UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS
AASHTO T 296 (KM 64-521)

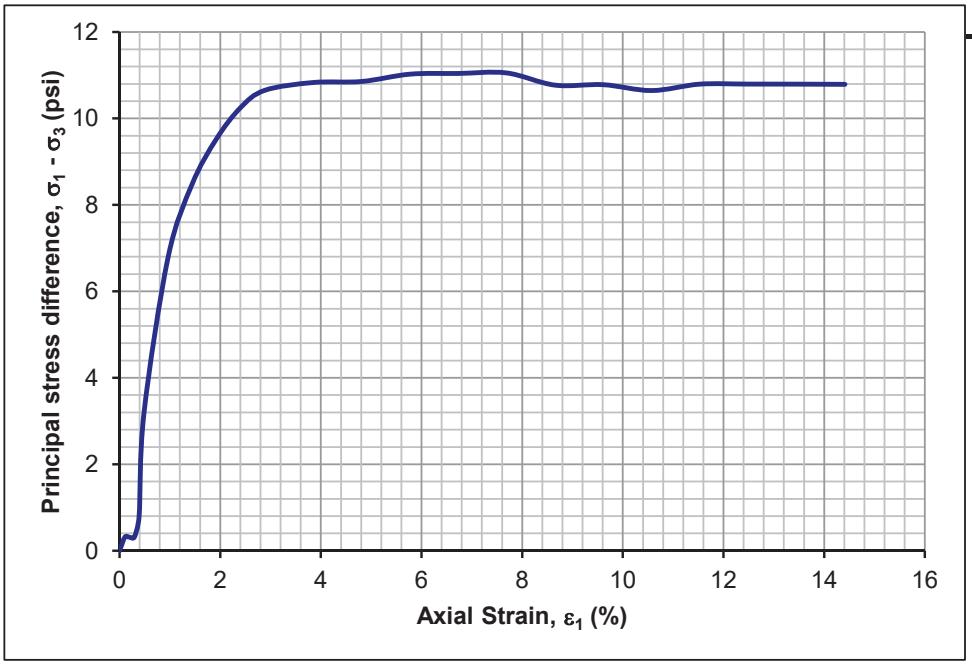
CLIENT : Johnson, Mirmiran, & Thompson
DATE: 6/7/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1001
SAMPLE NO.: 4
DEPTH (ft.): 17.0-19.0
SAMPLE OBTAINED BY: Shelby Tube
CONDITION: Undisturbed
SAMPLE DESCRIPTION: Medium stiff, brown, SILTY SAND (alluvium) (SM).

LIQUID LIMIT (%): 22
PLASTIC LIMIT (%): 19
PLASTICITY INDEX (%): 3
AASHTO: A-4 (0)
GRAVEL (%): 0
SAND (%): 57
SILT (%): 31
CLAY (%): 11
SPECIFIC GRAVITY OF SOLIDS: 2.60 (Per AASHTO T 100)
LOAD CELL NO.: 1008

INITIAL SAMPLE DATA	
AVERAGE DIAMETER (in.):	2.82
HEIGHT (in.):	5.73
HEIGHT TO DIAMETER RATIO:	2.03
WET UNIT WEIGHT (pcf):	115.0
DRY UNIT WEIGHT (pcf):	90.8
VOID RATIO:	0.79
MOISTURE CONTENT (%)*:	26.6
DEGREE OF SATURATION (%):	88.1

FAILURE DATA***	
MOISTURE CONTENT AFTER FAILURE (%)**:	**28.2**
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**1.0**
AXIAL STRAIN AT FAILURE (%):	**7.7**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $\sigma_1 - \sigma_3$ (psi):	**11.1**
MINOR PRINCIPAL STRESS AT FAILURE, σ_3 (psi):	**15.0**
MAJOR PRINCIPAL STRESS AT FAILURE, σ_1 (psi):	**26.1**
UNDRAINED COMPRESSIVE STRENGTH, U_u (psf):	**1,590**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**795**
LIMITING UNDRAINED COMP. STRESS @ 10% STRAIN (psf):	**N/A**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

* Initial moisture content determined from sample cuttings.
** Final moisture content determined from entire sample.
*** Failure stress values have been corrected for membrane effects.

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
DATE: 6/8/2023
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003 SAMPLE NO.: 3 DEPTH (ft.): 7.0-9.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Medium stiff to stiff, brown and dark brown, SANDY LEAN CLAY with GRAVEL (fill) (CL).

LIQUID LIMIT (%): 34 PLASTIC LIMIT (%): 22 PLASTICITY INDEX (%): 12 AASHTO: A-6 (4)
GRAVEL (%): 16 SAND (%): 32 SILT (%): 43 CLAY (%): 9
SPECIFIC GRAVITY OF SOLIDS: 2.65 (Per AASHTO T 100) LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

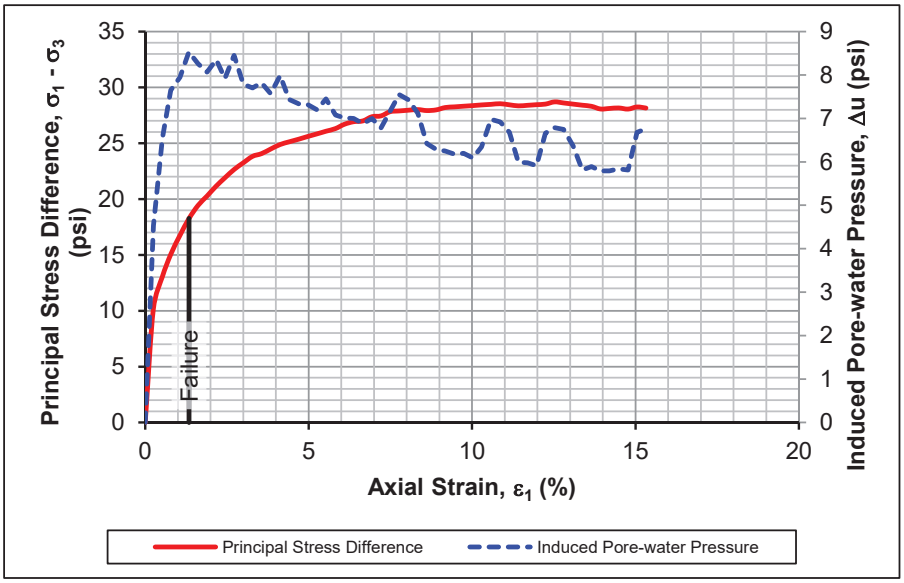
	INITIAL	AFTER
DIAMETER (in.):	2.83	2.75
HEIGHT (in.):	5.54	5.49
HEIGHT TO DIAMETER RATIO:	1.95	1.99
WET UNIT WEIGHT (pcf):	127.8	131.7
DRY UNIT WEIGHT (pcf):	102.8	110.0
VOID RATIO:	0.61	0.50
MOISTURE CONTENT (%)*:	24.3	19.8
DEGREE OF SATURATION (%):	100	100

SATURATION & CONSOLIDATION DATA

SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.95
TOTAL BACK PRESSURE (psi):	23.25
EFFECTIVE CONSOLIDATION PRESSURE (psi):	15
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	5.94
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.028**
AXIAL STRAIN AT FAILURE (%):	**1.3**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**18.3**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**5.9**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**24.2**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**8.5**



SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:	
COHESION, c' (psf):	**0**
FRICTION ANGLE, ϕ' (°):	**34.0**
R-ENVELOPE STRESS:	
COHESION, c_R (psf):	**550**
FRICTION ANGLE, ϕ_R (°):	**13.6**
TOTAL STRESS:	
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,315**

FAILURE SHAPES

FRONT VIEW

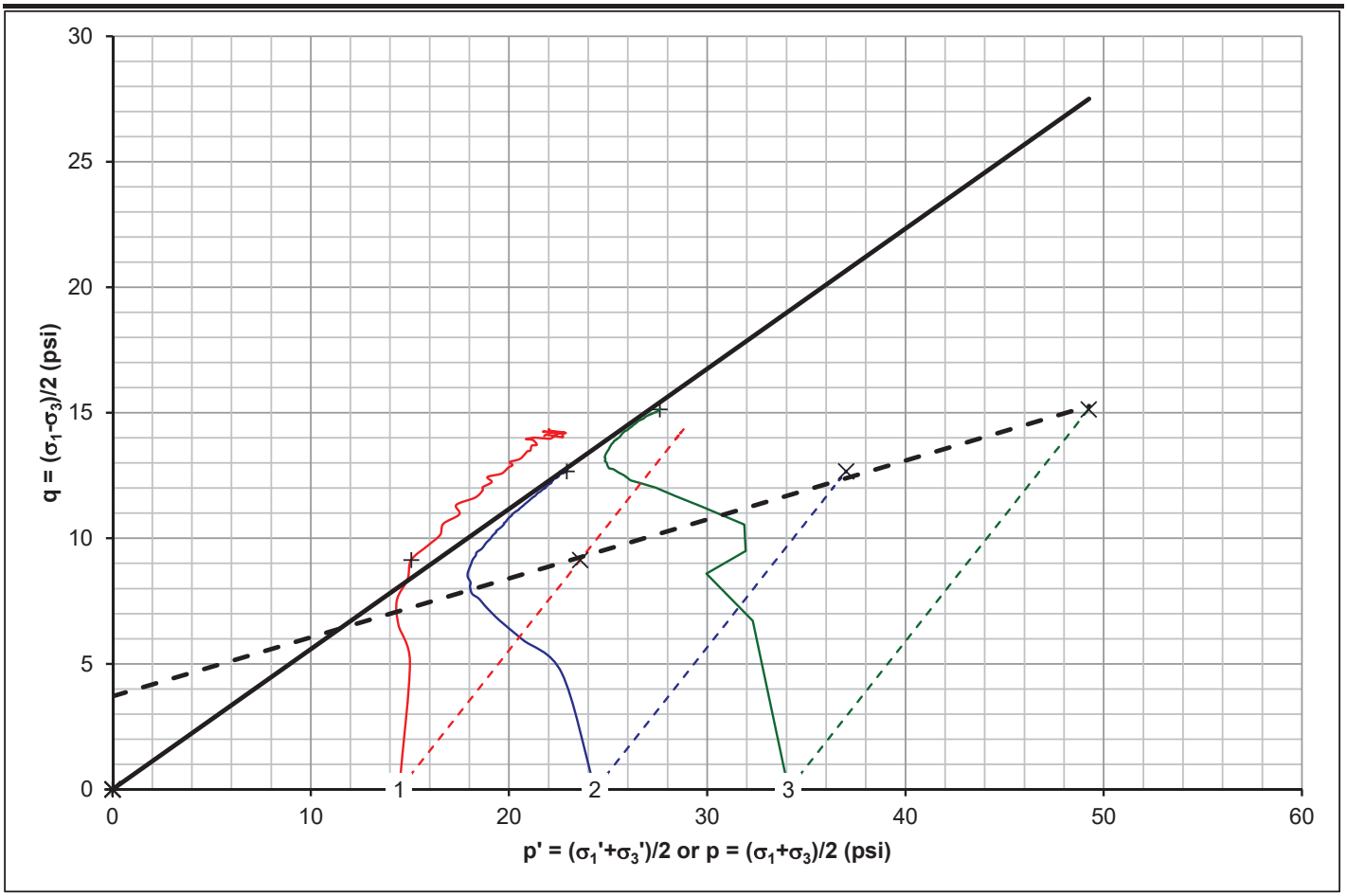
SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: Maximum induced pore-water pressure. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1003
SAMPLE NO.: 3
DEPTH (ft.): 7.0-9.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1003	3	7.0-9.0	15.06	23.59	9.13
2	1003	4B	12.0-14.0	22.91	37.00	12.66
3	1003	4C	12.0-14.0	27.61	49.24	15.14

REMARKS :

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

DATE: 6/9/2023

BORING NO.: 1003 SAMPLE NO.: 4B DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Medium stiff, brown, SANDY SILTY CLAY (alluvium) (CL-ML).

LIQUID LIMIT (%): 27 PLASTIC LIMIT (%): 21 PLASTICITY INDEX (%): 6 AASHTO: A-4 (2)
GRAVEL (%): 0 SAND (%): 39 SILT (%): 43 CLAY (%): 17
SPECIFIC GRAVITY OF SOLIDS: 2.67 (Per AASHTO T 100) LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

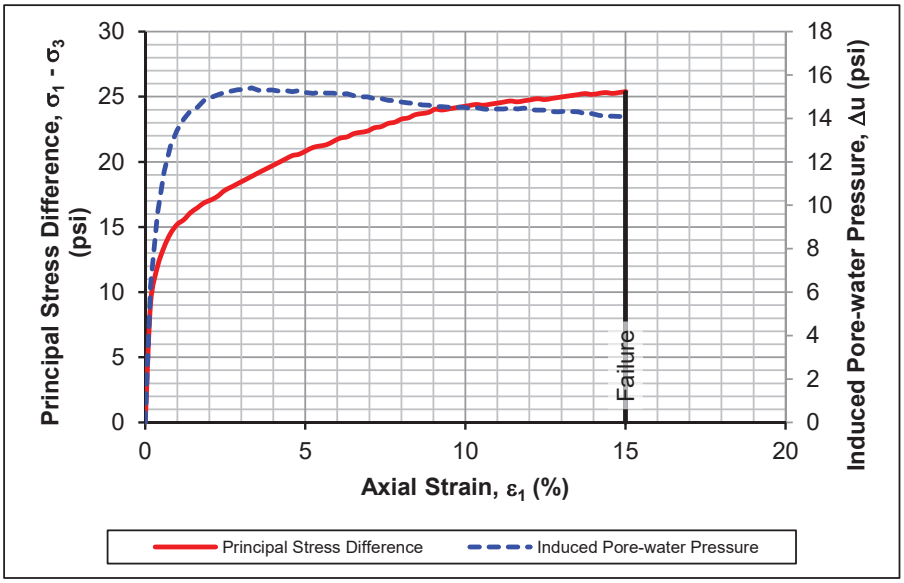
	INITIAL	AFTER
DIAMETER (in.):	2.81	2.79
HEIGHT (in.):	5.69	5.64
HEIGHT TO DIAMETER RATIO:	2.02	2.02
WET UNIT WEIGHT (pcf):	124.2	124.4
DRY UNIT WEIGHT (pcf):	96.7	99.2
VOID RATIO:	0.72	0.68
MOISTURE CONTENT (%)*:	28.4	25.4
DEGREE OF SATURATION (%):	100	100

SATURATION & CONSOLIDATION DATA

SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.96
TOTAL BACK PRESSURE (psi):	28.35
EFFECTIVE CONSOLIDATION PRESSURE (psi):	25
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	6.11
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.021**
AXIAL STRAIN AT FAILURE (%):	**15.0**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**25.3**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**10.3**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**35.6**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**14.1**



SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:	
COHESION, c' (psf):	**0**
FRICTION ANGLE, ϕ' (°):	**34.0**
R-ENVELOPE STRESS:	
COHESION, c_R (psf):	**550**
FRICTION ANGLE, ϕ_R (°):	**13.6**
TOTAL STRESS:	
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,825**

FAILURE SHAPES

FRONT VIEW

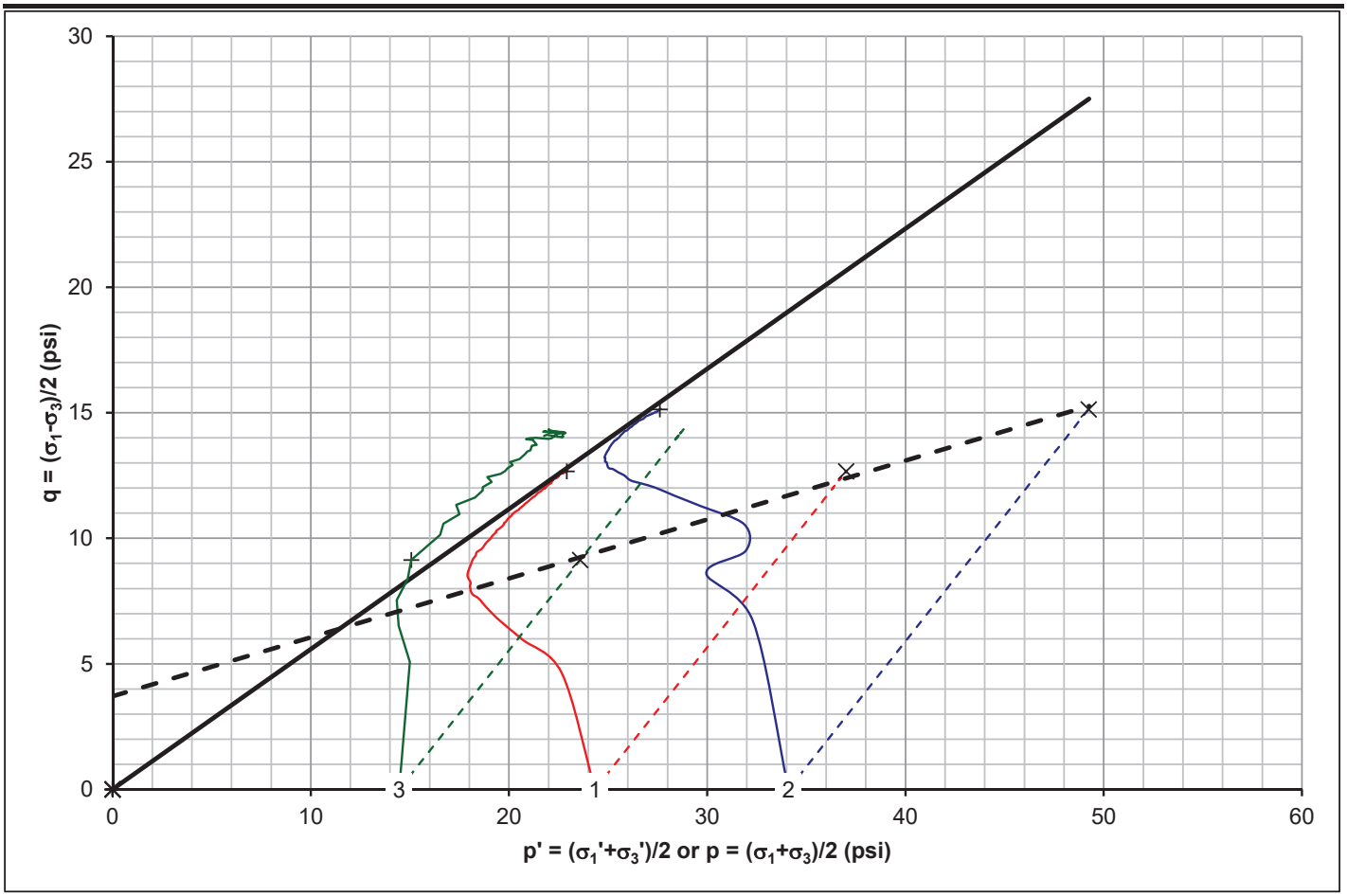
SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: 15% axial strain. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1003
SAMPLE NO.: 4B
DEPTH (ft.): 12.0-14.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1003	4B	12.0-14.0	22.91	37.00	12.66
2	1003	4C	12.0-14.0	27.61	49.24	15.14
3	1003	3	7.0-9.0	15.06	23.59	9.13

REMARKS :

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
DATE: 6/9/2023
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003 SAMPLE NO.: 4C DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Medium stiff, brown, SANDY SILTY CLAY (alluvium) (CL-ML).

LIQUID LIMIT (%): 27 PLASTIC LIMIT (%): 21 PLASTICITY INDEX (%): 6 AASHTO: A-4 (2)
GRAVEL (%): 0 SAND (%): 39 SILT (%): 43 CLAY (%): 17
SPECIFIC GRAVITY OF SOLIDS: 2.67 (Per AASHTO T 100) LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

	INITIAL	AFTER
DIAMETER (in.):	2.84	2.79
HEIGHT (in.):	5.75	5.68
HEIGHT TO DIAMETER RATIO:	2.02	2.03
WET UNIT WEIGHT (pcf):	121.1	124.8
DRY UNIT WEIGHT (pcf):	93.8	98.5
VOID RATIO:	0.78	0.69
MOISTURE CONTENT (%)*:	29.1	26.6
DEGREE OF SATURATION (%):	100	100

SATURATION & CONSOLIDATION DATA

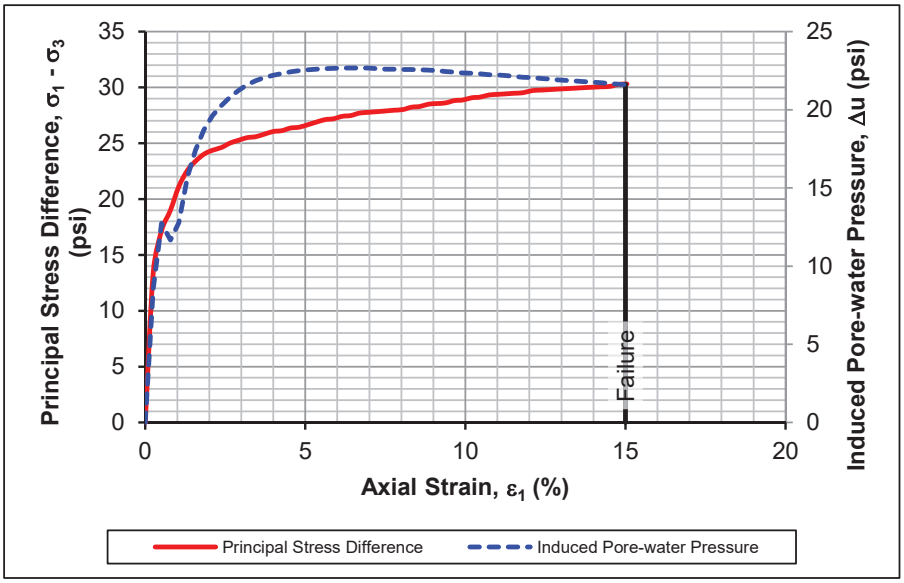
SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.96
TOTAL BACK PRESSURE (psi):	23.2
EFFECTIVE CONSOLIDATION PRESSURE (psi):	35
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	6.13
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.027**
AXIAL STRAIN AT FAILURE (%):	**15.0**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**30.3**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**12.5**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**42.7**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**21.6**

SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:	
COHESION, c' (psf):	**0**
FRICTION ANGLE, ϕ' (°):	**34.0**
R-ENVELOPE STRESS:	
COHESION, c_R (psf):	**550**
FRICTION ANGLE, ϕ_R (°):	**13.6**
TOTAL STRESS:	
UNDRAINED SHEAR STRENGTH, s_u (psf):	**2,180**



FAILURE SHAPES

FRONT VIEW

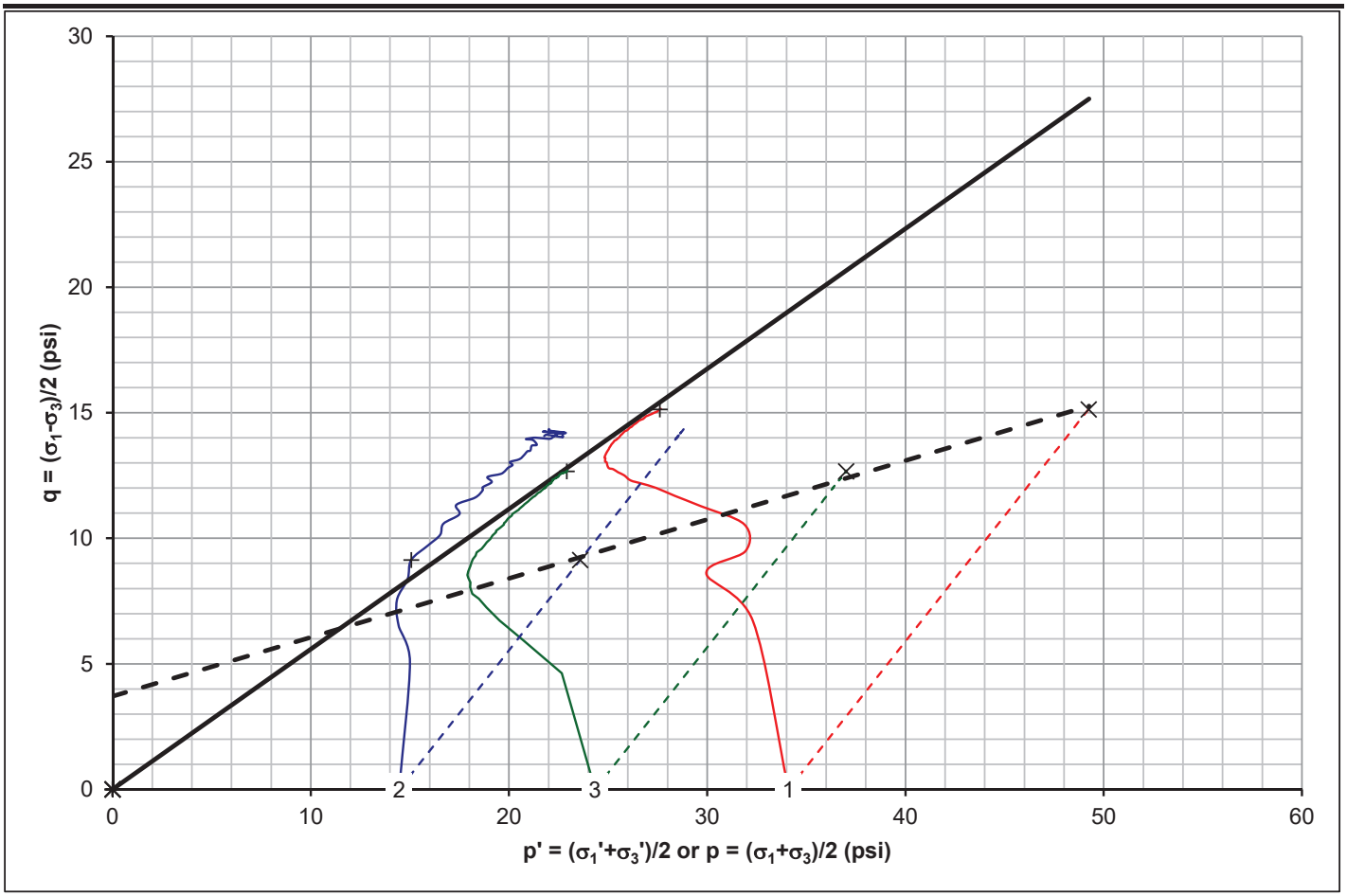
SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: 15% axial strain. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1003
SAMPLE NO.: 4C
DEPTH (ft.): 12.0-14.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1003	4C	12.0-14.0	27.61	49.24	15.14
2	1003	3	7.0-9.0	15.06	23.59	9.13
3	1003	4B	12.0-14.0	22.91	37.00	12.66

REMARKS :

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

DATE: 6/16/2023

BORING NO.: 1004 SAMPLE NO.: 2B DEPTH (ft.): 7.0-9.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Soft to medium stiff, brown, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 40 PLASTIC LIMIT (%): 24 PLASTICITY INDEX (%): 16 AASHTO: A-6 (15)
GRAVEL (%): 2 SAND (%): 10 SILT (%): 58 CLAY (%): 31
SPECIFIC GRAVITY OF SOLIDS: 2.72 (Per AASHTO T 100) LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

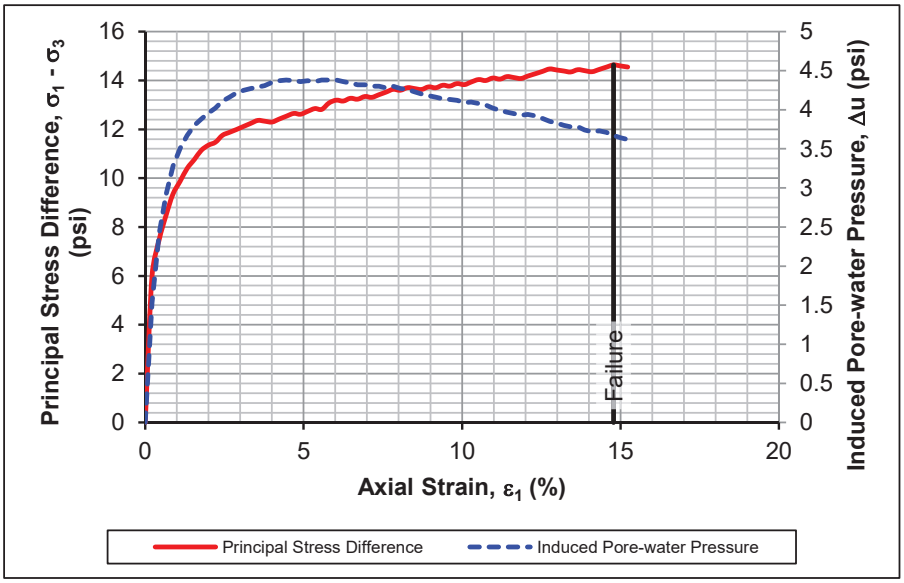
	INITIAL	AFTER
DIAMETER (in.):	2.83	2.82
HEIGHT (in.):	5.59	5.59
HEIGHT TO DIAMETER RATIO:	1.98	1.98
WET UNIT WEIGHT (pcf):	117.8	121.5
DRY UNIT WEIGHT (pcf):	93.6	93.7
VOID RATIO:	0.81	0.81
MOISTURE CONTENT (%)*:	25.8	29.6
DEGREE OF SATURATION (%):	86	99

SATURATION & CONSOLIDATION DATA

SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.95
TOTAL BACK PRESSURE (psi):	43.2
EFFECTIVE CONSOLIDATION PRESSURE (psi):	10
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	6.27
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.022**
AXIAL STRAIN AT FAILURE (%):	**14.8**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**14.6**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**5.7**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**20.3**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**3.7**



SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:	
COHESION, c' (psf):	**0**
FRICTION ANGLE, ϕ' (°):	**30.0**
R-ENVELOPE STRESS:	
COHESION, c_R (psf):	**385**
FRICTION ANGLE, ϕ_R (°):	**16.5**
TOTAL STRESS:	
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,055**

FAILURE SHAPES

FRONT VIEW

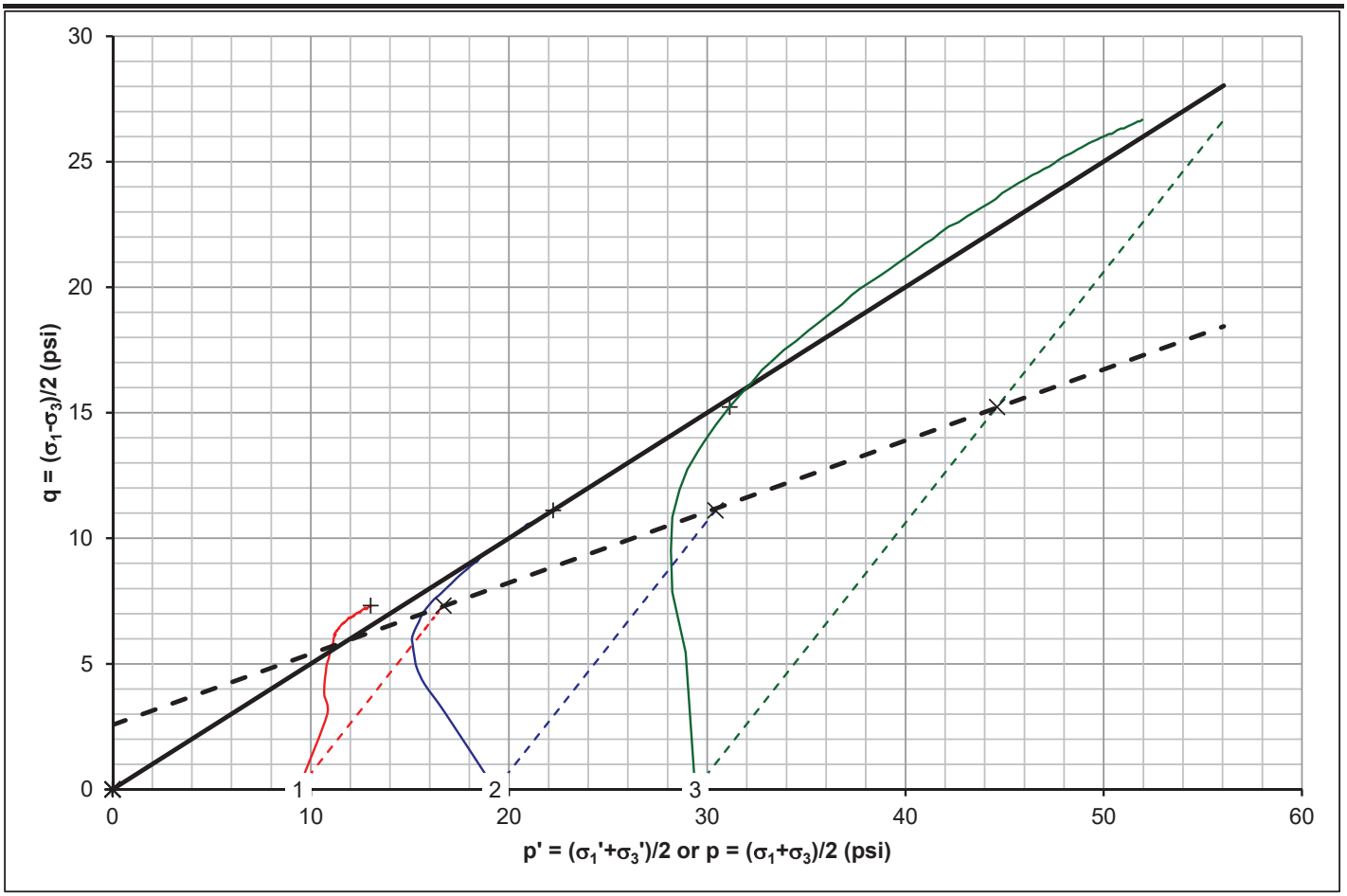
SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: Maximum principal stress difference. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1004
SAMPLE NO.: 2B
DEPTH (ft.): 7.0-9.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1004	2B	7.0-9.0	13.02	16.69	7.32
2	1004	3B	12.0-14.0	22.22	30.42	11.11
3	1004	4B	17.0-19.0	31.13	44.62	15.23

REMARKS :

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

DATE: 6/13/2023

BORING NO.: 1004 | SAMPLE NO.: 3B | DEPTH (ft.): 12.0-14.0
SAMPLE OBTAINED BY: Shelby Tube | CONDITION: Undisturbed
SAMPLE DESCRIPTION: Soft to medium stiff, brown, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 42 | PLASTIC LIMIT (%): 25 | PLASTICITY INDEX (%): 17 | AASHTO: A-7-6 (18)
GRAVEL (%): 0 | SAND (%): 4 | SILT (%): 67 | CLAY (%): 29
SPECIFIC GRAVITY OF SOLIDS: 2.77 (Per AASHTO T 100) | LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

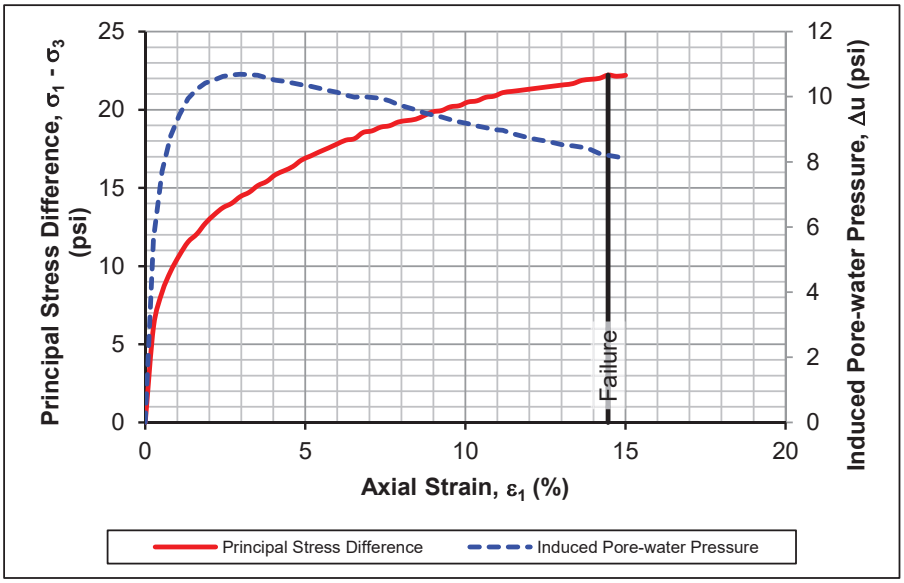
	INITIAL	AFTER
DIAMETER (in.):	2.83	2.78
HEIGHT (in.):	5.65	5.61
HEIGHT TO DIAMETER RATIO:	2.00	2.02
WET UNIT WEIGHT (pcf):	120.9	123.7
DRY UNIT WEIGHT (pcf):	92.2	96.0
VOID RATIO:	0.88	0.80
MOISTURE CONTENT (%)*:	31.2	28.9
DEGREE OF SATURATION (%):	99	100

SATURATION & CONSOLIDATION DATA

SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.96
TOTAL BACK PRESSURE (psi):	18.2
EFFECTIVE CONSOLIDATION PRESSURE (psi):	20
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	6.07
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.027**
AXIAL STRAIN AT FAILURE (%):	**14.5**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**22.2**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**11.1**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**33.3**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**8.2**



SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:
COHESION, c' (psf): **0**
FRICTION ANGLE, ϕ' (°): **30.0**
R-ENVELOPE STRESS:
COHESION, c_R (psf): **385**
FRICTION ANGLE, ϕ_R (°): **16.5**
TOTAL STRESS:
UNDRAINED SHEAR STRENGTH, s_u (psf): **1,600**

FAILURE SHAPES


FRONT VIEW

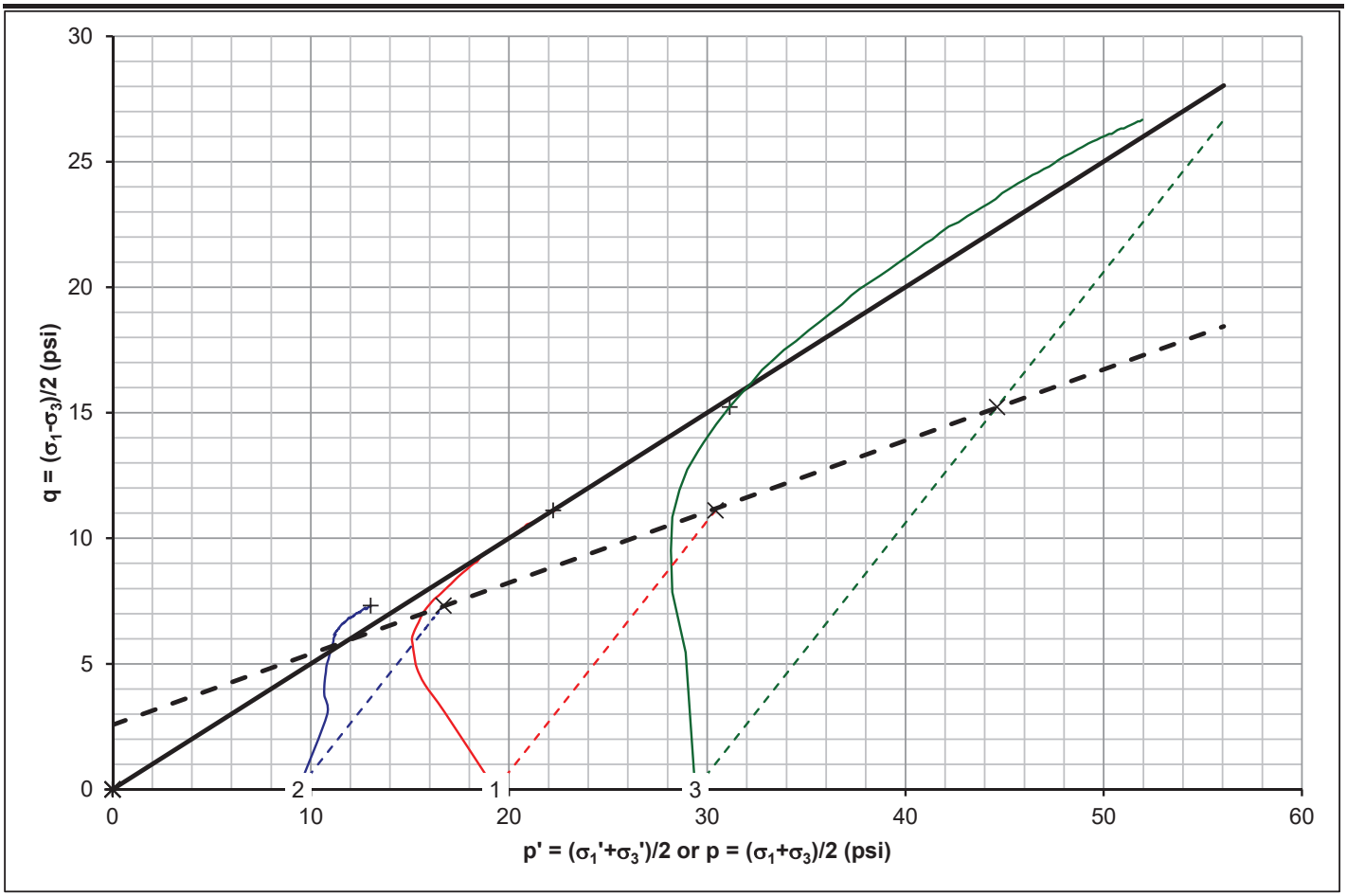

SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: Maximum principal stress difference. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1004
SAMPLE NO.: 3B
DEPTH (ft.): 12.0-14.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1004	3B	12.0-14.0	22.22	30.42	11.11
2	1004	2B	7.0-9.0	13.02	16.69	7.32
3	1004	4B	17.0-19.0	31.13	44.62	15.23

REMARKS :

GEOTECHNOLOGY
A UES Company

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

CLIENT : Johnson, Mirmiran, & Thompson
PROJECT NO.: J041928.12
DATE: 6/13/2023
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1004 SAMPLE NO.: 4B DEPTH (ft.): 17.0-19.0
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Stiff, brown, trace gray, LEAN CLAY (alluvium) (CL).

LIQUID LIMIT (%): 34 PLASTIC LIMIT (%): 23 PLASTICITY INDEX (%): 11 AASHTO: A-6 (11)
GRAVEL (%): 0 SAND (%): 13 SILT (%): 66 CLAY (%): 21
SPECIFIC GRAVITY OF SOLIDS: 2.73 (Per AASHTO T 100) LOAD CELL NO.: 1008

SAMPLE DATA (INITIAL/AFTER CONSOLIDATION)

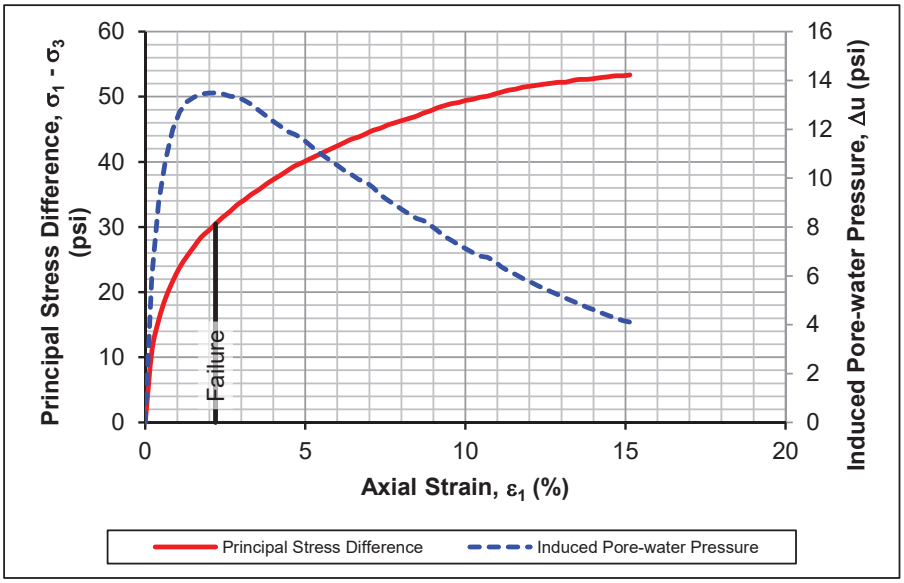
	INITIAL	AFTER
DIAMETER (in.):	2.82	2.78
HEIGHT (in.):	5.68	5.62
HEIGHT TO DIAMETER RATIO:	2.01	2.02
WET UNIT WEIGHT (pcf):	126.6	129.9
DRY UNIT WEIGHT (pcf):	100.2	103.8
VOID RATIO:	0.70	0.64
MOISTURE CONTENT (%)*:	26.3	25.1
DEGREE OF SATURATION (%):	100	100

SATURATION & CONSOLIDATION DATA

SATURATION METHOD:	Wet Method
PORE PRESSURE PARAMETER B:	0.97
TOTAL BACK PRESSURE (psi):	18.25
EFFECTIVE CONSOLIDATION PRESSURE (psi):	30
CROSS-SECTIONAL AREA AFTER CONSOLIDATION ($in.^2$)**:	6.09
TIME TO 50% PRIMARY CONSOLIDATION, t_{50} (min.):	N/A

FAILURE DATA***

AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.022**
AXIAL STRAIN AT FAILURE (%):	**2.2**
PRINCIPAL STRESS DIFFERENCE AT FAILURE, $(\sigma_1 - \sigma_3)_f$ (psi):	**30.5**
EFFECTIVE MINOR PRINCIPAL STRESS AT FAILURE, σ_{3f}' (psi):	**15.9**
EFFECTIVE MAJOR PRINCIPAL STRESS AT FAILURE, σ_{1f}' (psi):	**46.4**
INDUCED PORE-WATER PRESSURE AT FAILURE, Δu_f (psi):	**13.5**



SOIL STRENGTH PARAMETERS

EFFECTIVE STRESS:	
COHESION, c' (psf):	**0**
FRICTION ANGLE, ϕ' (°):	**30.0**
R-ENVELOPE STRESS:	
COHESION, c_R (psf):	**385**
FRICTION ANGLE, ϕ_R (°):	**16.5**
TOTAL STRESS:	
UNDRAINED SHEAR STRENGTH, s_u (psf):	**2,195**

FAILURE SHAPES

FRONT VIEW

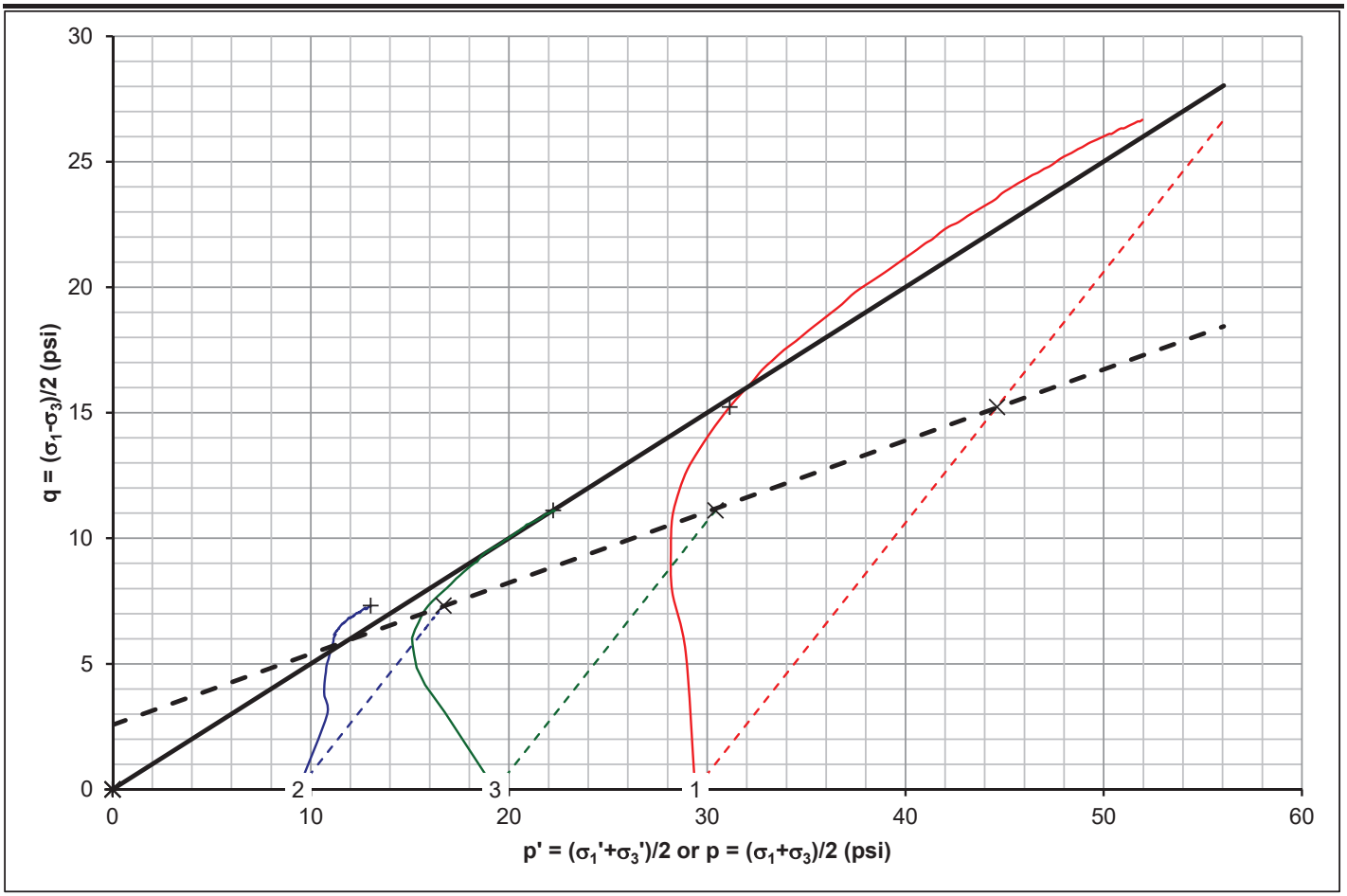
SIDE VIEW

* Initial moisture content determined from sample cuttings. Final moisture content determined from entire sample.
** Cross-sectional area after consolidation determined from Method A.
*** Failure Criterion: Maximum induced pore-water pressure. Failure stress values have been corrected for both filter strip and membrane effects.

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS
AASHTO T 297 (KM 64-502)

BORING NO.: 1004
SAMPLE NO.: 4B
DEPTH (ft.): 17.0-19.0

STRESS PATHS



Notes: sin(ϕ) = tan(α) and c = m/cos(ϕ), where tan(α) is the slope of the failure envelope defined by the p'-q curves and m is the y-intercept. Effective stress paths are solid lines, while total stress lines are dashed.

Stress Path Curve No.	Boring No.	Sample No.	Depth (ft.)	p' (psi)	p (psi)	q (psi)
1	1004	4B	17.0-19.0	31.13	44.62	15.23
2	1004	2B	7.0-9.0	13.02	16.69	7.32
3	1004	3B	12.0-14.0	22.22	30.42	11.11

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

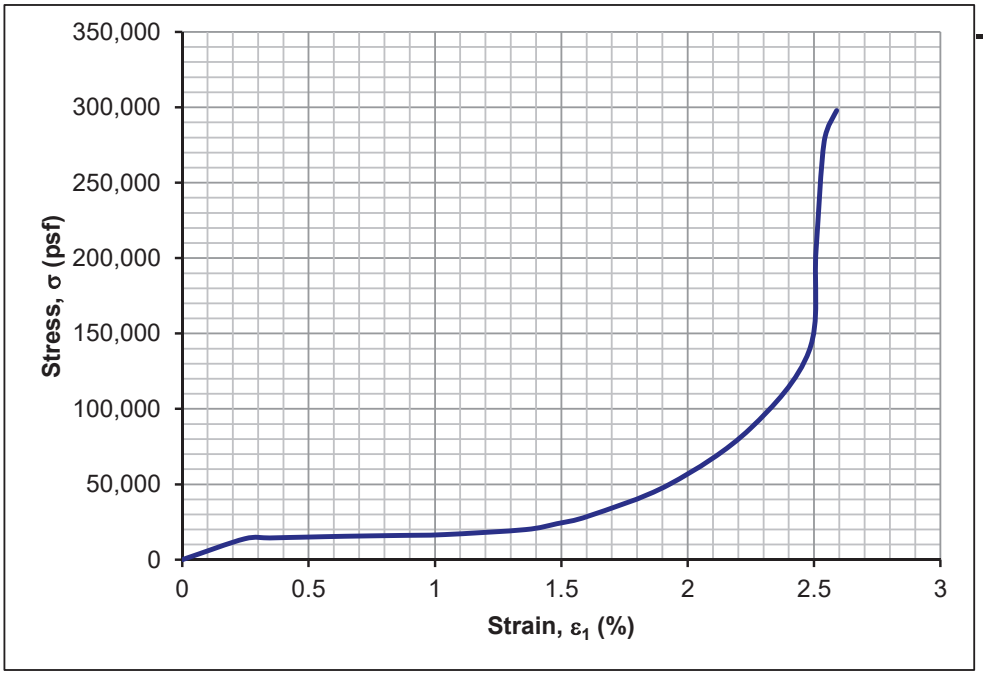
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson
DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1001
SAMPLE NO.: RC-2A
DEPTH (ft.): 34.7-35.2
SAMPLE DESCRIPTION: Gray SHALE (siltstone)
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

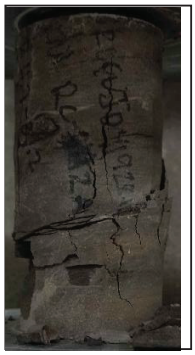
SAMPLE DATA	
DIAMETER (in.):	1.82
HEIGHT (in.):	4.05
HEIGHT TO DIAMETER RATIO:	2.2
WET UNIT WEIGHT (pcf):	155.5
DRY UNIT WEIGHT (pcf):	153.3
MOISTURE CONTENT (%):	1.4

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.5**
TIME TO FAILURE (min.):	**5.5**
AXIAL STRAIN AT FAILURE (%):	**2.6**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**298.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**2,070.0**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

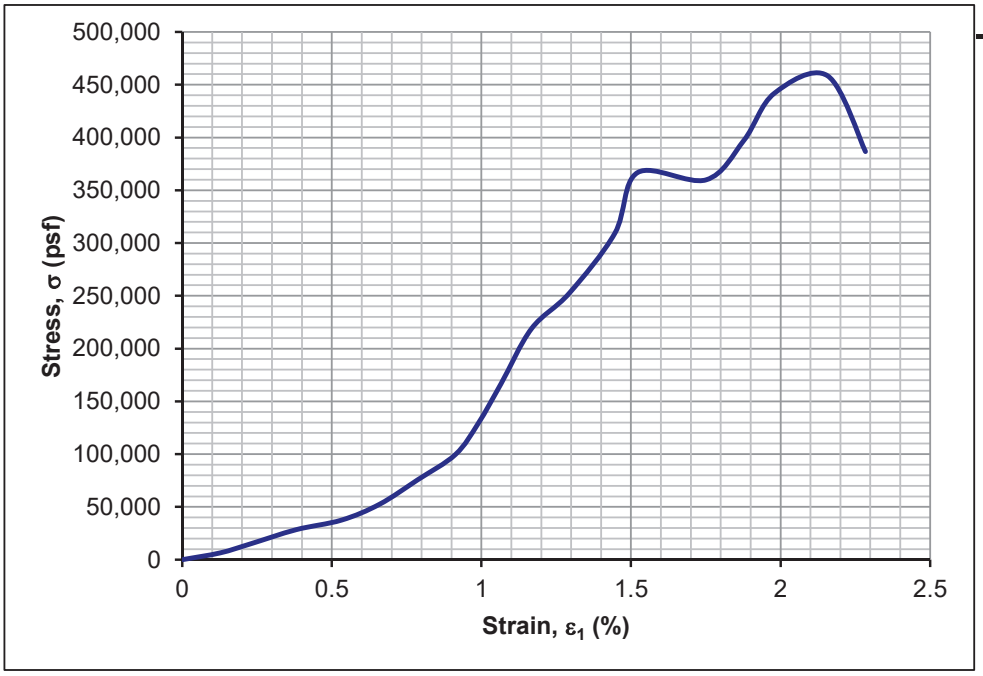
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson
DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

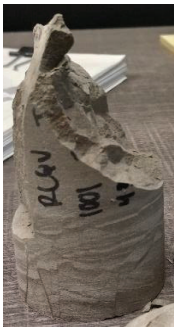
BORING NO.: 1001
SAMPLE NO.: RC-4A
DEPTH (ft.): 43.7-44.2
SAMPLE DESCRIPTION: Gray, argillaceous SANDSTONE
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

SAMPLE DATA	
DIAMETER (in.):	1.85
HEIGHT (in.):	3.94
HEIGHT TO DIAMETER RATIO:	2.1
WET UNIT WEIGHT (pcf):	159.6
DRY UNIT WEIGHT (pcf):	158.3
MOISTURE CONTENT (%):	0.8

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.5**
TIME TO FAILURE (min.):	**4.3**
AXIAL STRAIN AT FAILURE (%):	**2.2**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**459.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**3,180.0**



FAILURE SHAPES



FRONT VIEW

SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

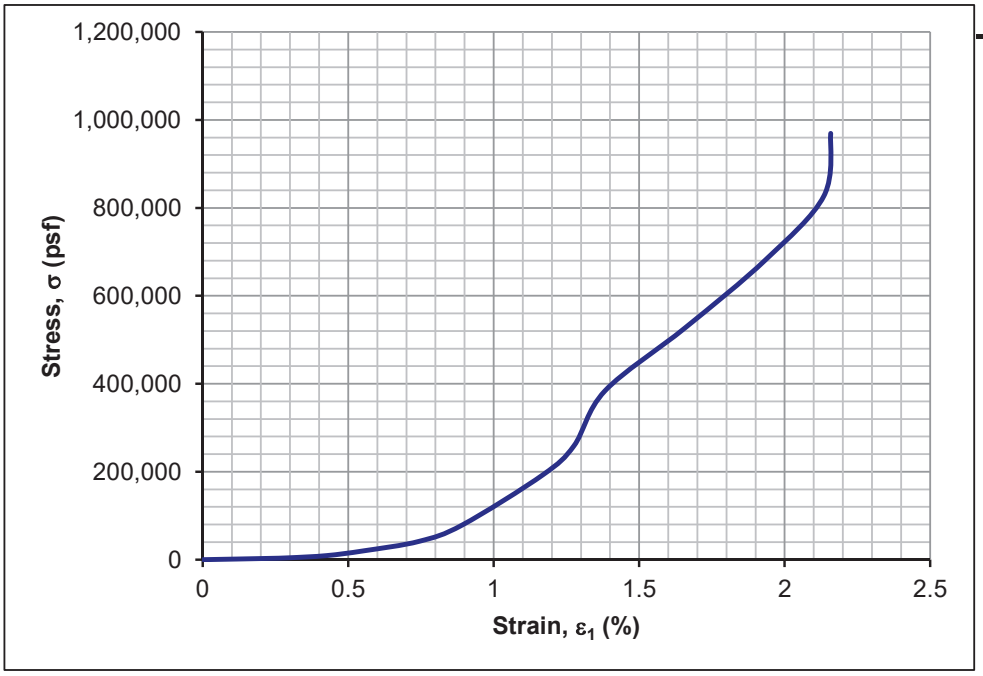
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1001 SAMPLE NO.: RC-6A DEPTH (ft.): 55.5-55.9
SAMPLE DESCRIPTION: Gray SHALE (siltstone)
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

SAMPLE DATA	
DIAMETER (in.):	1.84
HEIGHT (in.):	4.70
HEIGHT TO DIAMETER RATIO:	2.6
WET UNIT WEIGHT (pcf):	164.6
DRY UNIT WEIGHT (pcf):	162.7
MOISTURE CONTENT (%):	1.2

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.6**
TIME TO FAILURE (min.):	**3.5**
AXIAL STRAIN AT FAILURE (%):	**2.2**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**969.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**6,730.0**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

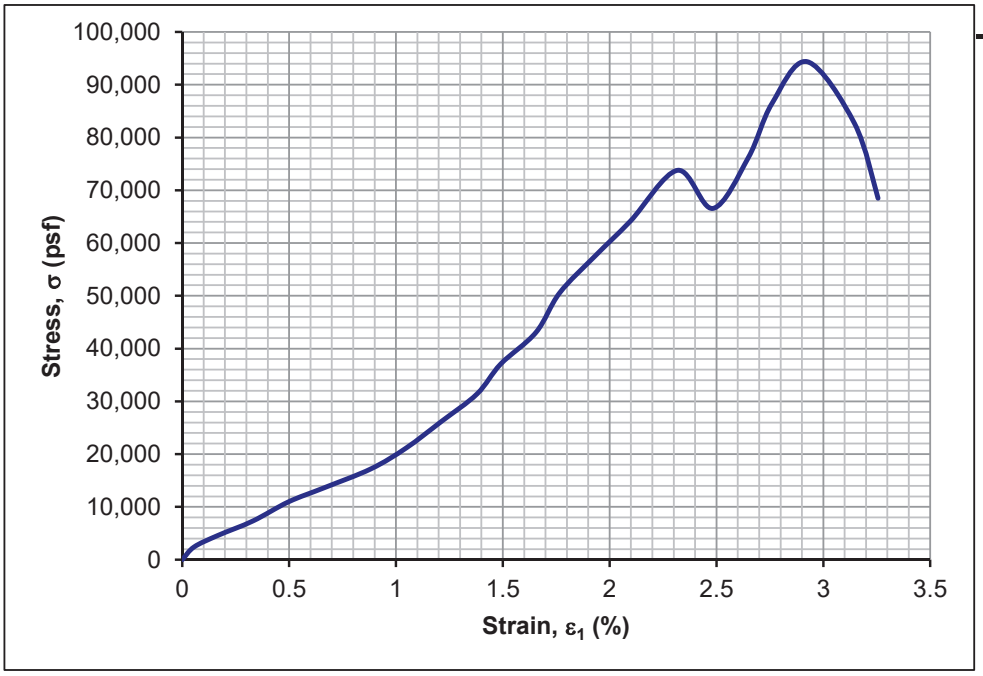
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

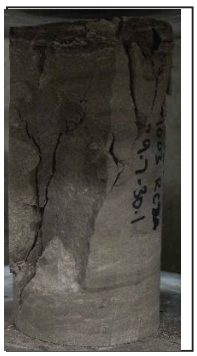
BORING NO.: 1003 SAMPLE NO.: RC-2A DEPTH (ft.): 29.7-30.1
SAMPLE DESCRIPTION: Light gray to gray SANDSTONE and SHALE (siltstone)
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

SAMPLE DATA	
DIAMETER (in.):	1.81
HEIGHT (in.):	3.90
HEIGHT TO DIAMETER RATIO:	2.2
WET UNIT WEIGHT (pcf):	160.9
DRY UNIT WEIGHT (pcf):	159.0
MOISTURE CONTENT (%):	1.2

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.6**
TIME TO FAILURE (min.):	**4.7**
AXIAL STRAIN AT FAILURE (%):	**2.9**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**94.4**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**655.0**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

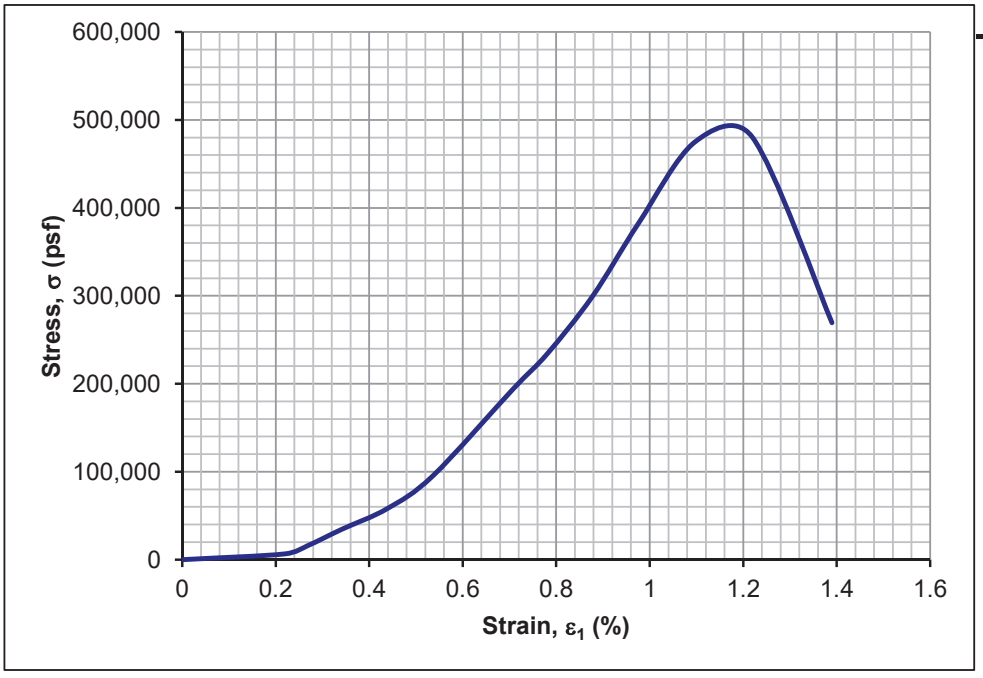
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson
DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003
SAMPLE NO.: RC-4A
DEPTH (ft.): 39.3-39.7
SAMPLE DESCRIPTION: Gray SHALE (siltstone)
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

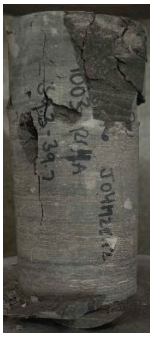
SAMPLE DATA	
DIAMETER (in.):	1.83
HEIGHT (in.):	4.10
HEIGHT TO DIAMETER RATIO:	2.2
WET UNIT WEIGHT (pcf):	162.8
DRY UNIT WEIGHT (pcf):	161.2
MOISTURE CONTENT (%):	1.0

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.4**
TIME TO FAILURE (min.):	**3.1**
AXIAL STRAIN AT FAILURE (%):	**1.2**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**481.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**3,340.0**



FAILURE SHAPES

FRONT VIEW



SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

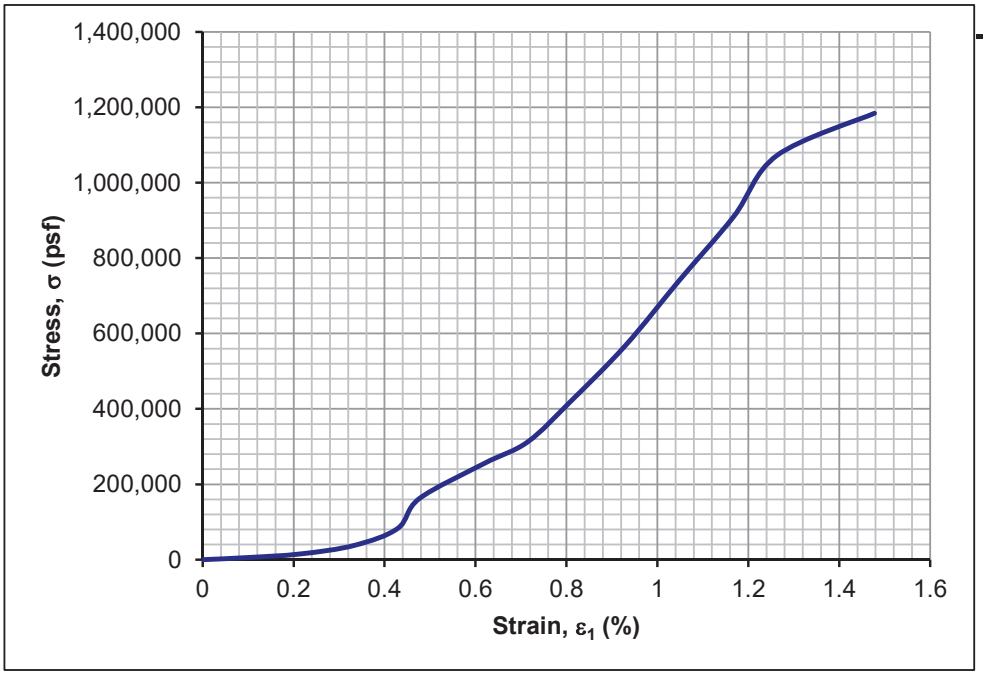
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson
DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003
SAMPLE NO.: RC-5A
DEPTH (ft.): 41.6-42.0
SAMPLE DESCRIPTION: Gray SHALE (siltstone)
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

SAMPLE DATA	
DIAMETER (in.):	1.84
HEIGHT (in.):	4.20
HEIGHT TO DIAMETER RATIO:	2.3
WET UNIT WEIGHT (pcf):	164.3
DRY UNIT WEIGHT (pcf):	162.8
MOISTURE CONTENT (%):	0.9

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.5**
TIME TO FAILURE (min.):	**3.2**
AXIAL STRAIN AT FAILURE (%):	**1.5**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**1,180.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**8,220.0**



FAILURE SHAPES


FRONT VIEW


SIDE VIEW

REMARKS :

GEOTECHNOLOGY
A Universal Engineering Sciences Company

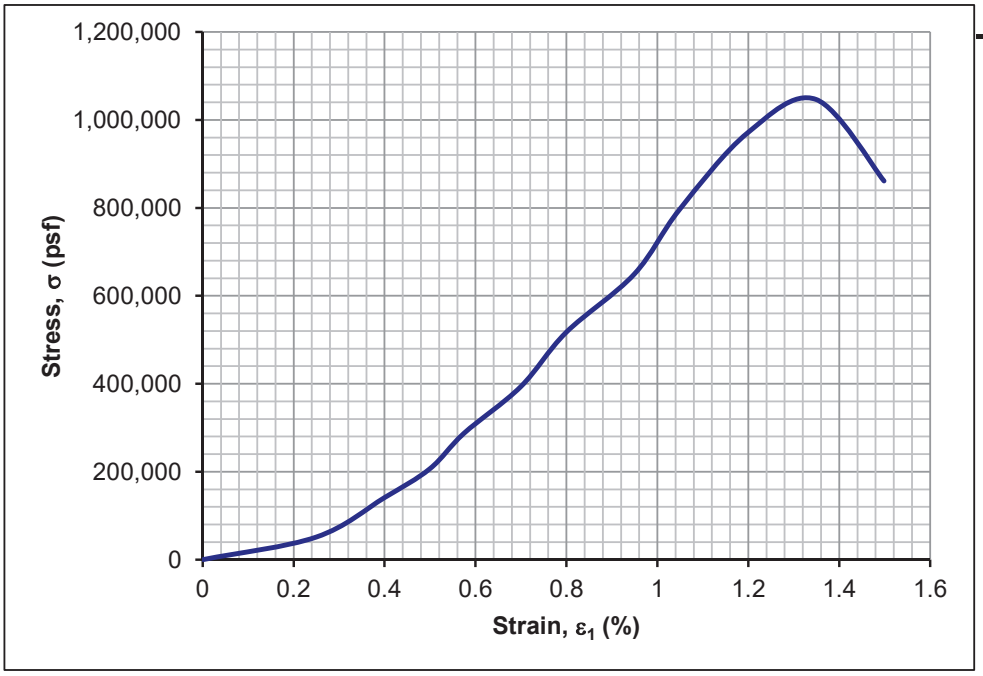
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C (KM 64-523)

CLIENT : Johnson, Mirmiran, & Thompson
DATE: 7/18/2023
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River - Bridge No. 048B00138N - Item No. 11-10196
LOCATION: Harlan County, Kentucky

BORING NO.: 1003
SAMPLE NO.: RC-6A
DEPTH (ft.): 50.9-51.3
SAMPLE DESCRIPTION: Dark gray SHALE
BEDROCK FORMATION: Hance Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F):
COMPRESSION APPARATUS.: 10-k Load Frame with Load Cell No. 1008

SAMPLE DATA	
DIAMETER (in.):	1.86
HEIGHT (in.):	4.00
HEIGHT TO DIAMETER RATIO:	2.2
WET UNIT WEIGHT (pcf):	162.6
DRY UNIT WEIGHT (pcf):	161.4
MOISTURE CONTENT (%):	0.8

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.5**
TIME TO FAILURE (min.):	**2.9**
AXIAL STRAIN AT FAILURE (%):	**1.3**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**1,050.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**7,270.0**



FAILURE SHAPES

FRONT VIEW

SIDE VIEW

REMARKS :

AASHTO CLASSIFICATION OF SOILS AND SOIL-AGGREGATE MIXTURES

General Classification	GRANULAR MATERIALS (35% or less passing 0.075 mm)							SILT-CLAY MATERIALS (More than 35% passing 0.075 mm)			
Group Classification	A-1		A-3	A-2				A-4	A-5	A-6	A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6
Sieve Analysis, Percent Passing											
2.00 mm (No. 10)	50 max	--	--	--	--	--	--	--	--	--	--
0.425 mm (No. 40)	30 max	50 max	51 min	--	--	--	--	--	--	--	--
0.075 mm (No. 200)	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of Fractions Passing 0.425 mm (No. 40)											
Liquid Limit	--		--	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Pasticity Index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min

AI	Activity Index
LI	Liquidity Index
S+C	Silt + Clay (% finer than No.200 Sieve)
○	Rockline Soundings
◒	Disturbed Sample Boring
◎	Undisturbed Sample Boring
⊙	Undisturbed Sample Boring & Rock Core
●	Rock Core
⏀	Slope Inclinometer Installation
	typical applications: ⏀ ◒ ◎ ⊙ ●
OW	Observation Well
▼ (Date)	Water Elevation

VS (psf)	Field Vane Shear Strength
▮	Thin-walled Tube Sample
<	Standard Penetration Test Sample
N	Penetration Resistance
Qu (psf)	Unconfined Compressive Strength
UU (psf)	Unconsolidated Undrained Triaxial Strength
w%	Moisture Content
KY RQD	Rock Quality Designation (Kentucky Method)
STD RQD	Rock Quality Designation (Standard Method)
SDI(JS)	Slake Durability Index (Jar Slake Test)
REC	Core Recovery
ϕ	Angle of Internal Friction (Total Stress)
ϕ'	Angle of Internal Friction (Effective Stress)
c (psf)	Cohesion (Total Stress)
c' (psf)	Cohesion (Effective Stress)
γ (pcf)	Total Unit Weight
RDZ	Rock Disintegration Zone
OB	Overburden Bench
IB	Intermediate Bench
R	Refusal
NR	Refusal Not Encountered
➡	Approximate Footing Elevation

UNIFIED SOIL CLASSIFICATIONS

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GM	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.
		SP	Poorly graded sands or gravelly sands, little or no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS (LL < 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, lean clays.
		CL-ML	Silty clay, silty clay with sand and/or gravel, sandy silty clay, sandy silty clay with gravel, gravelly silty clay with sand.
	SILTS AND CLAYS (LL ≥ 50)	MH	Inorganics silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays at high plasticity, fat clays.

UNIFIED SOIL CLASSIFICATIONS (CONT.)

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GP-GC	Poorly graded gravel with clay (or silty clay), Poorly graded gravel with clay and sand (or silty clay and sand).
		GP-GM	Poorly graded gravel with silt, Poorly graded gravel with silt and sand.
		GW-GC	Well-graded gravel with clay (or silty clay), Well-graded gravel with clay and sand (or silty clay and sand).
		GW-GM	Well-graded gravel with silt, Well-graded gravel with silt and sand.
		GC-GM	Silty clayey gravel, Silty clayey gravel with sand.
	SAND AND SANDY SOILS	SP-SC	Poorly graded sand with clay (or silty clay), Poorly graded sand with clay and gravel (or silty clay and gravel).
		SP-SM	Poorly graded sand with silt, Poorly graded sand with silt and gravel.
		SW-SC	Well-graded sand with clay (or silty clay), Well-graded sand with clay and gravel (or silty clay and gravel).
		SW-SM	Well-graded sand with silt, Well-graded sand with silt and gravel.
		SC-SM	Silty clayey sand, silty clayey sand with gravel.
UNCLASSIFIED MATERIAL		OH	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		OL	Inorganic clays of low to medium plasticity, gravelly clays, lean clays.

	LIMESTONE
	SANDSTONE
	DURABLE SHALE (SDI ≥ 95)
	NONDURABLE SHALE (SDI < 95)
	GRANULAR EMBANKMENT
	STRUCTURE GRANULAR BACKFILL
	TALUS, MINE WASTE, FILL MATERIAL, BOULDERS, & ETC.
	COAL
	DOLOMITE
	LIMESTONE (ARGILLACEOUS)
	SLOPE PROTECTION

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

REVISION	DATE

PREPARED BY GEOTECHNOLOGY

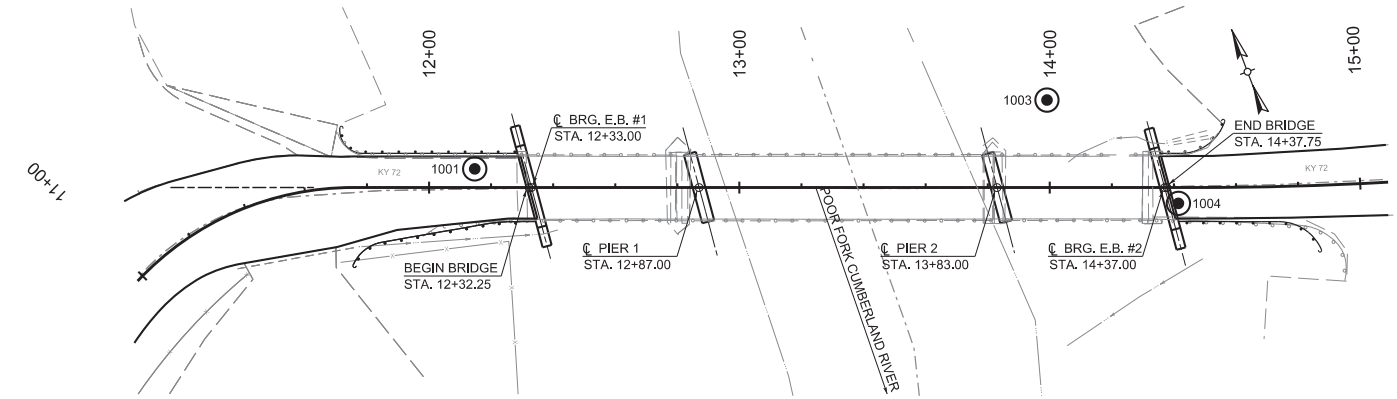
DATE: July 11, 2023	CHECKED BY
DESIGNED BY:	
DETAILED BY: M. Baird	W. Basich / R. Bach

GEOTECHNICAL SYMBOL SHEET

ROUTE	ITEM NO.	COUNTY OF
KY 72	11-10196	HARLAN
	SHEET NO. —	DRAWING NUMBER S-XXX-202X

SUBSURFACE DATA

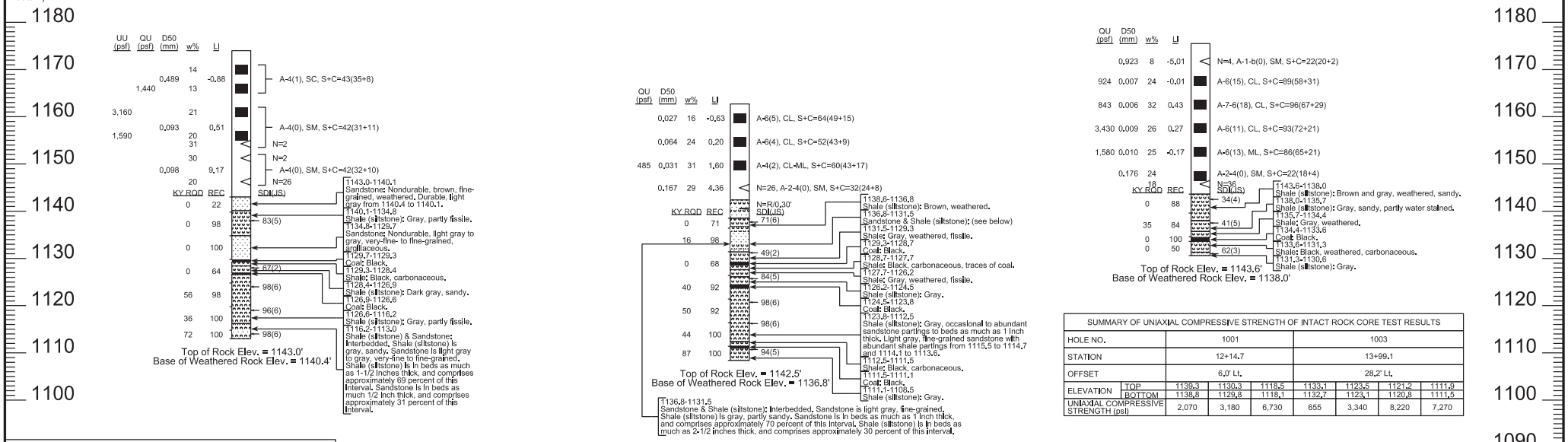
Plan Scale 1" = 20'



Profile Scale:
Vertical 1" = 10'
Horizontal N.T.S.

END BENT ONE	PIER ONE	PIER TWO	END BENT TWO
APPROXIMATE ROADWAY GRADE ELEV. = 1175.27'			APPROXIMATE ROADWAY GRADE ELEV. = 1176.29'
Hole No. 1001 Station 12+14.7 Offset 6.0' Lt. Elev. 1174.0'		Hole No. 1003 Station 13+99.1 Offset 28.2' Lt. Elev. 1162.8'	Hole No. 1004 Station 14+41.3 Offset 5.1' Rt. Elev. 1175.5'

(Sea level datum)



SUMMARY OF UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE TEST RESULTS								
HOLE NO.		1001			1003			
STATION		12+14.7			13+99.1			
OFFSET		6.0' Lt.			28.2' Lt.			
ELEVATION	TOP	1139.3	1130.3	1118.5	1133.1	1123.5	1121.2	1111.9
	BOTTOM	1138.8	1129.8	1118.1	1132.7	1123.1	1120.8	1111.5
UNIAXIAL COMPRESSIVE STRENGTH (psi)		2,070	3,180	6,730	655	3,340	8,220	7,270

Note: This sheet presents geotechnical data and recommendations. Refer to the roadway plans, profiles, cross sections, and structure plans for final alignments, grades, and details.

SHEET 1 of 1

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY GEOTECHNOLOGY

DATE: July 3, 2023	CHECKED BY
DESIGNED BY:	
DETAILED BY: M. Baird	W. Basich / R. Bach

SUBSURFACE DATA
CROSSING
POOR FORK CUMBERLAND RIVER

ROUTE	ITEM NO.	COUNTY OF
KY 72	11-10196	HARLAN
	SHEET NO.	DRAWING NUMBER
	---	S-XXX-202X

MicroStation v10.15.0.74 USER: mbaird DATE PLOTTED: July 27, 2023
FILE NAME: C:\USERS\MBAIRD\ONEDRIVE - UNIVERSAL ENGINEERING-TEAM UES\GENERAL - MIDWEST KYTC TEAM\KYTC\J041928,12-KYTC BPPD - 9048B00138N - KY 72 POOR F\DRAW\PLANS FOR SUBMITTAL\048B00138N_SUBSURFACE DATA_KY 72 BRIDGE.DGN

ASSUMED SOIL STRENGTH PARAMETERS							
SOIL	1	2	3	4	5	6	7
LONG TERM	γ = 130 pcf c' = 25 psf ϕ' = 32°	γ = 115 pcf c' = 0 psf ϕ' = 32°	γ = 110 pcf c' = 0 psf ϕ' = 30°	γ = 120 pcf c' = 0 psf ϕ' = 35°	γ = 140 pcf c' = 0 psf ϕ' = 40°	γ = 122 pcf c' = 25 psf ϕ' = 30°	γ = 125 pcf c' = 25 psf ϕ' = 32°
RAPID DRAWDOWN	γ = 130 pcf c' = 25 psf ϕ' = 32° c_R = N/A ϕ_R = N/A	γ = 115 pcf c' = 0 psf ϕ' = 32° c_R = N/A ϕ_R = N/A	γ = 110 pcf c' = 0 psf ϕ' = 30° c_R = N/A ϕ_R = N/A	γ = 120 pcf c' = 0 psf ϕ' = 35° c_R = N/A ϕ_R = N/A	γ = 140 pcf c' = 0 psf ϕ' = 40° c_R = N/A ϕ_R = N/A	γ = 122 pcf c' = 25 psf ϕ' = 30° c_R = 385 psf ϕ_R = 17°	γ = 125 pcf c' = 25 psf ϕ' = 32° c_R = 550 psf ϕ_R = 14°

See Structure Geotechnical Report for discussion of soil strength parameter selection.
*Subsurface conditions were interpolated / extrapolated from nearby borings.

SUMMARY OF TRIAXIAL TEST RESULTS TRIAXIAL SET A			
Hole Number	1003		
Station	13+99.1		
Offset	28.2' Lt.		
Depth	7.0'-9.0'	12.0'-14.0'	12.0'-14.0'
c'	0 psf	0 psf	0 psf
ϕ'	34°	34°	34°

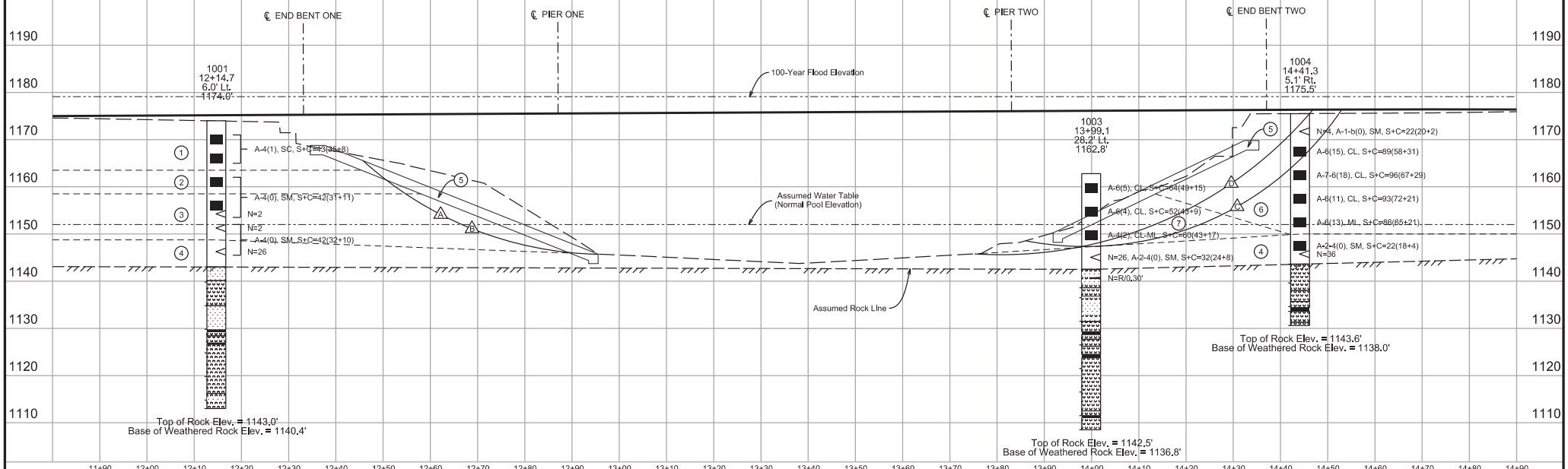
SUMMARY OF TRIAXIAL TEST RESULTS TRIAXIAL SET B			
Hole Number	1004		
Station	14+41.3		
Offset	5.1' Rt.		
Depth	7.0'-9.0'	12.0'-14.0'	17.0'-19.0'
c'	0 psf	0 psf	0 psf
ϕ'	30°	30°	30°

Note: This sheet presents geotechnical data and recommendations. Refer to the roadway plans, profiles, cross sections, and structure plans for final alignments, grades, and details. Refer to the Subsurface Data Sheet for boring log descriptions and laboratory test results.

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

FACTORS OF SAFETY		
RAPID DRAWDOWN	A	1.5
LONG TERM	B	1.5

FACTORS OF SAFETY		
RAPID DRAWDOWN	C	1.2
LONG TERM	D	1.4



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

REVISION	DATE

PREPARED BY GEOTECHNOLOGY

DATE: July 21, 2023	CHECKED BY
DESIGNED BY:	
DETAILED BY: M. Baird	W. Basich / R. Bach

EMBANKMENT STABILITY
SPILL-THROUGH SLOPES

ROUTE	ITEM NO.	COUNTY OF
KY 72	11-10196	HARLAN
	SHEET NO.	DRAWING NUMBER
	---	S-XXX-202X

GEOTECHNOLOGY
A UES Company

CLIENT: Johnson, Mirmiran & Thompson, Inc.
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River
PROJECT LOCATION: Harlan County, Kentucky
BRIDGE NO.: 048B00138N
ITEM NO.: 11-10196

IDEALIZED SUBSURFACE PROFILE PARAMETERS FOR LATERAL LOAD ANALYSES AT PIER ONE

El. (ft.)		
1142.8	Bedrock Surface	
	Weathered bedrock:	
1140.8	No lateral resistance provided for drilled shafts.	
	Weathered shale bedrock (weak rock model):	
	γ = 140 pcf	
	q_u = 400 psi	E_m = 20,000 psi
1138.9	RQD = 50%	k_{rm} = 0.0005
	Unweathered shale bedrock (weak rock model):	
	γ = 140 pcf	
	q_u = 800 psi	E_m = 40,000 psi
1042.8	RQD = 50%	k_{rm} = 0.0005

γ = Unit weight
q_u = Uniaxial compressive strength
E_m = Initial modulus of rock mass
RQD = Rock quality designation
k_{rm} = Bedrock strain factor

Notes:

- Laterally loaded deep foundations should be designed using the p-y approach using the above-provided parameters.
- Lateral resistance should be ignored for the soils due to the potential for scour.
- Lateral resistance should be ignored for the uppermost 2.0 feet of bedrock due to the potential for scour.
- Appropriate reduction factors (p-multipliers) should be included in the analyses that account for pile width/diameter and pile spacing.

GEOTECHNOLOGY
A UES Company

CLIENT: Johnson, Mirmiran & Thompson, Inc.
PROJECT NO.: J041928.12
PROJECT: KY 72 Bridge over Poor Fork Cumberland River
PROJECT LOCATION: Harlan County, Kentucky
BRIDGE NO.: 048B00138N
ITEM NO.: 11-10196

IDEALIZED SUBSURFACE PROFILE PARAMETERS FOR LATERAL LOAD ANALYSES AT PIER TWO

El. (ft.)		
1142.5	Bedrock Surface	
	Weathered bedrock:	
1140.5	No lateral resistance provided for drilled shafts.	
	Weathered shale bedrock (weak rock model):	
	γ = 140 pcf	
	q_u = 400 psi	E_m = 20,000 psi
1137.0	RQD = 50%	k_{rm} = 0.0005
	Unweathered shale bedrock (weak rock model):	
	γ = 140 pcf	
	q_u = 800 psi	E_m = 40,000 psi
1042.5	RQD = 50%	k_{rm} = 0.0005

γ = Unit weight
q_u = Uniaxial compressive strength
E_m = Initial modulus of rock mass
RQD = Rock quality designation
k_{rm} = Bedrock strain factor

Notes:

- Laterally loaded deep foundations should be designed using the p-y approach using the above-provided parameters.
- Lateral resistance should be ignored for the soils due to the potential for scour.
- Lateral resistance should be ignored for the uppermost 2.0 feet of bedrock due to the potential for scour.
- Appropriate reduction factors (p-multipliers) should be included in the analyses that account for pile width/diameter and pile spacing.

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

KY 72 Bridge over Poor Fork Cumberland River - Harlan County, Kentucky - 048B00138N - 11-10196

Drilled Shaft Foundation Elements at Piers 1 and 2

Rock Socket Diameter: 3.5 feet

Rock Socket Length[a,c] (ft.)	Nominal Unit Side Shear q_s (ksf)	Nominal Unit End Bearing q_p (ksf)	Nominal Side Resistance R_s (kips)	Nominal End Bearing Resistance R_p (kips)	Total Nominal Axial Resistance[b] R_n (kips)	Strength Limit State	
						Total Factored Axial Resistance[b] ϕR_n (kips)	Total Factored Uplift Resistance $\phi R_{n,u}$ (kips)
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	9.8	745.2	0.0	0.0	0.0	0.0	0.0
2	9.8	745.2	0.0	0.0	0.0	0.0	0.0
3	9.8	745.2	0.0	0.0	0.0	0.0	0.0
4	9.8	745.2	0.0	0.0	0.0	0.0	0.0
5	9.8	745.2	0.0	0.0	0.0	0.0	0.0
6	9.8	745.2	0.0	7,169.7	7,169.7	3,584.8	0.0
7	9.8	745.2	107.8	7,169.7	7,169.7	3,584.8	43.1
8	9.8	745.2	215.5	7,169.7	7,169.7	3,584.8	86.2
9	9.8	745.2	323.3	7,169.7	7,169.7	3,584.8	129.3
10	9.8	745.2	431.0	7,169.7	7,169.7	3,584.8	172.4
11	9.8	745.2	538.8	7,169.7	7,169.7	3,584.8	215.5
12	9.8	745.2	646.5	7,169.7	7,169.7	3,584.8	258.6
13	9.8	745.2	754.3	7,169.7	7,169.7	3,584.8	301.7
14	9.8	745.2	862.1	7,169.7	7,169.7	3,584.8	344.8
15	9.8	745.2	969.8	7,169.7	7,169.7	3,584.8	387.9
20	9.8	745.2	1,508.6	7,169.7	7,169.7	3,584.8	603.4
25	9.8	745.2	2,047.4	7,169.7	7,169.7	3,584.8	819.0
30	9.8	745.2	2,586.2	7,169.7	7,169.7	3,584.8	1,034.5
35	9.8	745.2	3,124.9	7,169.7	7,169.7	3,584.8	1,250.0
40	9.8	745.2	3,663.7	7,169.7	7,169.7	3,584.8	1,465.5
45	9.8	745.2	4,202.5	7,169.7	7,169.7	3,584.8	1,681.0
50	9.8	745.2	4,741.3	7,169.7	7,169.7	3,584.8	1,896.5

AASHTO Table 10.5.5.2.4-1	Side Resistance	End Bearing	Uplift
Strength Limit State Resistance Factor, ϕ	0.55	0.50	0.40
Extreme Limit State Resistance Factor, ϕ	1.00	1.00	0.80

Remarks:

[a]Neglect side resistance to at least 6 feet below the depth at which the casing is seated in the bedrock to account for the potential of mechanical degradation of the sidewalls below the casing. The casing shall be seated at the base of the weathered bedrock. The bedrock socket begins at the bottom of the casing. Axial resistance shall be neglected above the bedrock socket.

[b]The Total Nominal and Factored Axial Resistances are the greater of the end bearing resistance and the side resistance.

[c]The Structural Engineer shall determine the required rock socket length based upon the factored resistances presented in this table. The minimum required rock socket length shall be no less than 1.5 times the rock socket diameter.

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

KY 72 Bridge over Poor Fork Cumberland River - Harlan County, Kentucky - 048B00138N - 11-10196

Drilled Shaft Foundation Elements at Piers 1 and 2

Rock Socket Diameter: 4 feet

Rock Socket Length[a,c] (ft.)	Nominal Unit Side Shear q_s (ksf)	Nominal Unit End Bearing q_p (ksf)	Nominal Side Resistance R_s (kips)	Nominal End Bearing Resistance R_p (kips)	Total Nominal Axial Resistance[b] R_n (kips)	Strength Limit State	
						Total Factored Axial Resistance[b] ϕR_n (kips)	Total Factored Uplift Resistance $\phi R_{n,u}$ (kips)
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	9.8	745.2	0.0	0.0	0.0	0.0	0.0
2	9.8	745.2	0.0	0.0	0.0	0.0	0.0
3	9.8	745.2	0.0	0.0	0.0	0.0	0.0
4	9.8	745.2	0.0	0.0	0.0	0.0	0.0
5	9.8	745.2	0.0	0.0	0.0	0.0	0.0
6	9.8	745.2	0.0	9,364.5	9,364.5	4,682.2	0.0
7	9.8	745.2	123.2	9,364.5	9,364.5	4,682.2	49.3
8	9.8	745.2	246.3	9,364.5	9,364.5	4,682.2	98.5
9	9.8	745.2	369.5	9,364.5	9,364.5	4,682.2	147.8
10	9.8	745.2	492.6	9,364.5	9,364.5	4,682.2	197.0
11	9.8	745.2	615.8	9,364.5	9,364.5	4,682.2	246.3
12	9.8	745.2	738.9	9,364.5	9,364.5	4,682.2	295.6
13	9.8	745.2	862.1	9,364.5	9,364.5	4,682.2	344.8
14	9.8	745.2	985.2	9,364.5	9,364.5	4,682.2	394.1
15	9.8	745.2	1,108.4	9,364.5	9,364.5	4,682.2	443.3
20	9.8	745.2	1,724.1	9,364.5	9,364.5	4,682.2	689.6
25	9.8	745.2	2,339.9	9,364.5	9,364.5	4,682.2	935.9
30	9.8	745.2	2,955.6	9,364.5	9,364.5	4,682.2	1,182.2
35	9.8	745.2	3,571.4	9,364.5	9,364.5	4,682.2	1,428.5
40	9.8	745.2	4,187.1	9,364.5	9,364.5	4,682.2	1,674.8
45	9.8	745.2	4,802.9	9,364.5	9,364.5	4,682.2	1,921.1
50	9.8	745.2	5,418.6	9,364.5	9,364.5	4,682.2	2,167.4

AASHTO Table 10.5.5.2.4-1	Side Resistance	End Bearing	Uplift
Strength Limit State Resistance Factor, ϕ	0.55	0.50	0.40
Extreme Limit State Resistance Factor, ϕ	1.00	1.00	0.80

Remarks:

[a]Neglect side resistance to at least 6 feet below the depth at which the casing is seated in the bedrock to account for the potential of mechanical degradation of the sidewalls below the casing. The casing shall be seated at the base of the weathered bedrock. The bedrock socket begins at the bottom of the casing. Axial resistance shall be neglected above the bedrock socket.

[b]The Total Nominal and Factored Axial Resistances are the greater of the end bearing resistance and the side resistance.

[c]The Structural Engineer shall determine the required rock socket length based upon the factored resistances presented in this table. The minimum required rock socket length shall be no less than 1.5 times the rock socket diameter.

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

KY 72 Bridge over Poor Fork Cumberland River - Harlan County, Kentucky - 048B00138N - 11-10196

Drilled Shaft Foundation Elements at Piers 1 and 2

Rock Socket Diameter: 4.5 feet

Rock Socket Length[a,c] (ft.)	Nominal Unit Side Shear q_s (ksf)	Nominal Unit End Bearing q_p (ksf)	Nominal Side Resistance R_s (kips)	Nominal End Bearing Resistance R_p (kips)	Total Nominal Axial Resistance[b] R_n (kips)	Strength Limit State: Total Factored Axial Resistance[b] ϕR_n (kips)	Strength Limit State: Total Factored Uplift Resistance $\phi R_{n,u}$ (kips)
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	9.8	745.2	0.0	0.0	0.0	0.0	0.0
2	9.8	745.2	0.0	0.0	0.0	0.0	0.0
3	9.8	745.2	0.0	0.0	0.0	0.0	0.0
4	9.8	745.2	0.0	0.0	0.0	0.0	0.0
5	9.8	745.2	0.0	0.0	0.0	0.0	0.0
6	9.8	745.2	0.0	0.0	0.0	0.0	0.0
7	9.8	745.2	138.5	11,851.9	11,851.9	5,925.9	55.4
8	9.8	745.2	277.1	11,851.9	11,851.9	5,925.9	110.8
9	9.8	745.2	415.6	11,851.9	11,851.9	5,925.9	166.3
10	9.8	745.2	554.2	11,851.9	11,851.9	5,925.9	221.7
11	9.8	745.2	692.7	11,851.9	11,851.9	5,925.9	277.1
12	9.8	745.2	831.3	11,851.9	11,851.9	5,925.9	332.5
13	9.8	745.2	969.8	11,851.9	11,851.9	5,925.9	387.9
14	9.8	745.2	1,108.4	11,851.9	11,851.9	5,925.9	443.3
15	9.8	745.2	1,246.9	11,851.9	11,851.9	5,925.9	498.8
20	9.8	745.2	1,939.6	11,851.9	11,851.9	5,925.9	775.8
25	9.8	745.2	2,632.3	11,851.9	11,851.9	5,925.9	1,052.9
30	9.8	745.2	3,325.1	11,851.9	11,851.9	5,925.9	1,330.0
35	9.8	745.2	4,017.8	11,851.9	11,851.9	5,925.9	1,607.1
40	9.8	745.2	4,710.5	11,851.9	11,851.9	5,925.9	1,884.2
45	9.8	745.2	5,403.2	11,851.9	11,851.9	5,925.9	2,161.3
50	9.8	745.2	6,095.9	11,851.9	11,851.9	5,925.9	2,438.4

AASHTO Table 10.5.5.2.4-1	Side Resistance	End Bearing	Uplift
Strength Limit State Resistance Factor, ϕ	0.55	0.50	0.40
Extreme Limit State Resistance Factor, ϕ	1.00	1.00	0.80

Remarks:

[a]Neglect side resistance to at least 6 feet below the depth at which the casing is seated in the bedrock to account for the potential of mechanical degradation of the sidewalls below the casing. The casing shall be seated at the base of the weathered bedrock. The bedrock socket begins at the bottom of the casing. Axial resistance shall be neglected above the bedrock socket.

[b]The Total Nominal and Factored Axial Resistances are the greater of the end bearing resistance and the side resistance.

[c]The Structural Engineer shall determine the required rock socket length based upon the factored resistances presented in this table. The minimum required rock socket length shall be no less than 1.5 times the rock socket diameter.

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

KY 72 Bridge over Poor Fork Cumberland River - Harlan County, Kentucky - 048B00138N - 11-10196

Drilled Shaft Foundation Elements at Piers 1 and 2

Rock Socket Diameter: 5 feet

Rock Socket Length[a,c] (ft.)	Nominal Unit Side Shear q_s (ksf)	Nominal Unit End Bearing q_p (ksf)	Nominal Side Resistance R_s (kips)	Nominal End Bearing Resistance R_p (kips)	Total Nominal Axial Resistance[b] R_n (kips)	Strength Limit State	
						Total Factored Axial Resistance[b] ϕR_n (kips)	Total Factored Uplift Resistance $\phi R_{n,u}$ (kips)
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	9.8	745.2	0.0	0.0	0.0	0.0	0.0
2	9.8	745.2	0.0	0.0	0.0	0.0	0.0
3	9.8	745.2	0.0	0.0	0.0	0.0	0.0
4	9.8	745.2	0.0	0.0	0.0	0.0	0.0
5	9.8	745.2	0.0	0.0	0.0	0.0	0.0
6	9.8	745.2	0.0	0.0	0.0	0.0	0.0
7	9.8	745.2	153.9	0.0	153.9	84.7	61.6
8	9.8	745.2	307.9	14,632.0	14,632.0	7,316.0	123.2
9	9.8	745.2	461.8	14,632.0	14,632.0	7,316.0	184.7
10	9.8	745.2	615.8	14,632.0	14,632.0	7,316.0	246.3
11	9.8	745.2	769.7	14,632.0	14,632.0	7,316.0	307.9
12	9.8	745.2	923.6	14,632.0	14,632.0	7,316.0	369.5
13	9.8	745.2	1,077.6	14,632.0	14,632.0	7,316.0	431.0
14	9.8	745.2	1,231.5	14,632.0	14,632.0	7,316.0	492.6
15	9.8	745.2	1,385.4	14,632.0	14,632.0	7,316.0	554.2
20	9.8	745.2	2,155.1	14,632.0	14,632.0	7,316.0	862.1
25	9.8	745.2	2,924.8	14,632.0	14,632.0	7,316.0	1,169.9
30	9.8	745.2	3,694.5	14,632.0	14,632.0	7,316.0	1,477.8
35	9.8	745.2	4,464.2	14,632.0	14,632.0	7,316.0	1,785.7
40	9.8	745.2	5,233.9	14,632.0	14,632.0	7,316.0	2,093.6
45	9.8	745.2	6,003.6	14,632.0	14,632.0	7,316.0	2,401.4
50	9.8	745.2	6,773.3	14,632.0	14,632.0	7,316.0	2,709.3

AASHTO Table 10.5.5.2.4-1	Side Resistance	End Bearing	Uplift
Strength Limit State Resistance Factor, ϕ	0.55	0.50	0.40
Extreme Limit State Resistance Factor, ϕ	1.00	1.00	0.80

Remarks:

[a]Neglect side resistance to at least 6 feet below the depth at which the casing is seated in the bedrock to account for the potential of mechanical degradation of the sidewalls below the casing. The casing shall be seated at the base of the weathered bedrock. The bedrock socket begins at the bottom of the casing. Axial resistance shall be neglected above the bedrock socket.

[b]The Total Nominal and Factored Axial Resistances are the greater of the end bearing resistance and the side resistance.

[c]The Structural Engineer shall determine the required rock socket length based upon the factored resistances presented in this table. The minimum required rock socket length shall be no less than 1.5 times the rock socket diameter.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

STANDARD SPECIFICATIONS

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 2019* and *Standard Drawings, Edition of 2020.*

SUPPLEMENTAL SPECIFICATIONS

The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:
http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx

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SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
11) Provide a photocell control to provide automatic dimming.

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12) Allow an on-off flashing sequence at an adjustable rate.
13) Provide a sight to aim the message.
14) Provide a LED display color of approximately 590 nm amber.
15) Provide a controller that is password protected.
16) Provide a security device that prevents unauthorized individuals from accessing the controller.
17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/AHEAD/
/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

1I

the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

11C

SPECIAL NOTE FOR DRILLED SHAFTS

1.0 DESCRIPTION. Furnish all equipment, materials and labor necessary for constructing reinforced concrete drilled shafts in cylindrically excavated holes according to the details shown on the plans or as the Engineer directs. Construct the shaft to the lines and dimensions shown on the plans, or as the Engineer directs. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

2.0 MATERIALS.

2.1 Concrete. Use Class A Modified concrete unless otherwise shown on the plans. The slump at the time of placement shall be 6.5 to 9.5 inches, the coarse aggregate shall be size 67, 68, 78, 8 or 9M, and the water/cementitious material ratio shall not exceed 0.45. Include water reducing and retarding admixtures. Type F high range water reducers used in combination with retarding admixtures or Type G high range water reducers fully meeting trial batch requirements are permitted and Class F fly ash is permitted in conformance with Section 601. Design the mix such that the concrete slump exceeds 4 inches at 4 hours after batching. If the estimated concrete transport, plus time to complete placement, exceeds 4 hours, design the concrete to have a slump that exceeds 4 inches or more for the greater time after batching and demonstrate that the slump requirement can be achieved after the extended time period using a trial batch.

Perform trial batches prior to beginning drilled shaft construction in order to demonstrate the adequacy of the proposed concrete mix. Demonstrate that the mix to be used will meet the requirements for temperature, slump, air content, water/cementitious material ratio, and compressive strength. Use the ingredients, proportions and equipment (including batching, mixing, and delivery) to be used on the project. Make at least 2 independent consecutive trial batches of 3 cubic yards each using the same mix proportions and meeting all specification requirements for mix design approval. Submit a report containing these results for slump, air content, water/cement ratio, temperature, and compressive strength and mix proportions for each trial batch to the Engineer for review and approval. Failure to demonstrate the adequacy of the concrete mix, methods, or equipment to the Engineer is cause for the Engineer to require appropriate alterations in concrete mix, equipment, and/or method by the Contractor to eliminate unsatisfactory results. Perform additional trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment.

2.2 Steel Reinforcement. Provide Grade 60 deformed bars conforming to Section 811 of the Standard Specifications. Rail steel is permitted for straight bars only. Place according to Section 602 of the Standard Specifications, this Special Note, and the plans. Use non-corrosive centering devices and feet to maintain the specified reinforcement clearances.

2.3 Casings. Provide casing meeting the requirements of ASTM A 252 Grade 2 or better unless otherwise specified. Ensure casing is smooth, clean, watertight, true and straight, and of ample strength to withstand handling, installation, and extraction stresses and the pressure of both concrete and the surrounding earth materials. Ensure the outside diameter of casing is not less than the specified diameter of shaft.

Use only continuous casings. Cut off the casing at the prescribed elevation and trim to within tolerances prior to acceptance. Extend casing into bedrock a sufficient distance to stabilize the shaft excavation against collapse, excessive deformation, and/or flow of water if required and/or shown on the plans.

Install from the work platform continuous casing meeting the design thickness requirements, but not less than 3/8 inch, to the elevations shown on the plans. When drilled

shafts are located in open water areas, extend casings above the water elevation to the plan tip elevation to protect the shaft concrete from water action during concrete placement and curing. All casing is permanent unless temporary casing is specified in the contract drawings or documents. Permanent casing is incidental to the applicable drilled shaft unit bid price unless noted otherwise in the contract. Temporary casing may be required for drilled shafts not socketed into bedrock. If temporary surface casings are used, extend each casing up to the work platform. Remove all temporary surface casing prior to final acceptance unless otherwise permitted by the Central Office Construction Engineer.

Ensure casing splices have full penetration butt welds conforming to the current edition of AWS D1.1 with no exterior or interior splice plates and produce true and straight casing.

2.4 Slurry. When slurry is to be used for installation of the Drilled Shaft, submit a detailed plan for its use and disposal. The plan should include, but not be limited to the following:

1) Material properties
2) Mixing requirements and procedures
3) Testing requirements
4) Placement procedures
5) Disposal techniques

Obtain the Central Office Division of Construction's approval for the slurry use and disposal plan before installing drilled shafts.

2.5 Tremies. Provide tremies of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. Ensure the tremie diameter is least 6 times the maximum size coarse aggregate to be used in the concrete mix and no less than 10 inches. Provide adequate wall thickness to prevent crimping or sharp bends that restrict concrete placement. Support tremies used for depositing concrete in a dry drilled shaft excavation so that the free fall of the concrete does not cause the shaft excavation to cave or slough. Maintain a clean and smooth tremie surface to permit both flow of concrete and unimpeded withdrawal during concrete placement. Do not allow any aluminum parts to contact the concrete. Construct tremies used to deposit concrete for wet excavations so that they are watertight and will readily discharge concrete.

2.6 Concrete Pumps. Provide pump lines with a minimum diameter of 5 inches and watertight joints.

2.7 Drop Chutes. Do not use aluminum drop chutes.

3.0 CONSTRUCTION.

3.1 Preconstruction.

3.1.1 Prequalification. The Department will require prequalification by the Division of Construction Procurement before accepting a bid for the construction of Drilled Shafts.

3.1.2 Pre-Bid Inspection. Inspect both the project site and all subsurface information, including any soil or rock samples, prior to submitting a bid. Contact the Geotechnical Branch (502-564-2374) to schedule a viewing of the subsurface information. Failure to inspect the project site and view the

subsurface information will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

3.1.3 Drilled Shaft Installation Plan. Upon request, the Department will review a Drilled Shaft Installation Plan. Submit the plan no later than 45 calendar days prior to constructing drilled shafts. Items covered in this plan should include, but not be limited to the following:

1) Name and experience record of jobsite drilled shaft superintendent and foremen in charge of drilled shaft operations for each shift.
2) List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, de-sanding equipment, slurry pumps, core sampling equipment, tremies or concrete pumps, casings, etc.
3) Details of overall construction operation sequence and the sequence of shaft construction in the bents or groups.
4) Details of shaft excavation methods including methods to over-ream or roughen shaft walls, if necessary.
5) Details of slurry when the use of slurry is anticipated. Include methods to mix, circulate, and de-sand the proposed slurry. Provide details of proposed testing, test methods, sampling methods, and test equipment.
6) Details of proposed methods to clean shaft and inside of casing after initial excavation.
7) Details of reinforcement handling, lifting, and placement including support and method to center in shaft. Also include rebar cage support during concrete placement and temporary casing removal.
8) Details of concrete placement including procedures for concrete tremie or pump. Include initial placement, raising during placement, and overfilling of the shaft to expel contaminated concrete.
9) Required submittals including shop drawings and concrete design mixes.
10) Other information shown in the plans or requested by the Engineer.
11) Special considerations for wet construction.
12) Details of environmental control procedures to protect the environment from discharge of excavation spoil, slurry (natural and mineral), and concrete over-pour.

The Division of Construction will review the submitted procedure and provide comments and recommendations. The Contractor is responsible for satisfactory construction and ultimate performance of the Drilled Shaft.

3.2 General Construction. Construct drilled shafts as indicated in the plans or described in this Special Note by either the dry or wet method. When the plans describe a particular method of construction, use this method unless the Engineer permits otherwise. When the plans do not describe a particular method, propose a method on the basis of its suitability to the site conditions. Approval of this proposed method is contingent upon the satisfactory results of the technique shaft.

The construction of the first drilled shaft or technique shaft will be used to determine if the methods and equipment used by the contractor are sufficient to produce a completed shaft meeting the requirements of the plans and specifications. Ability to control dimensions and alignment of excavations within tolerances; to seal the casing into impervious materials; to prevent caving or deterioration of subsurface materials by the use of slurry or other means; to

properly clean the completed shaft excavation; to construct excavations in open water areas when required by the plans; to establish methods for belling or over-reaming when required by the plans; to determine the elevation of ground water; to satisfactorily handle, lift, place, and support the reinforcement cage; to satisfactorily place concrete meeting the specifications within the prescribed time frame; and to satisfactorily execute any other necessary construction operations will be evaluated during construction of the first shaft(s). Revise the methods and equipment as necessary at any time during the construction of the first shaft when unable to satisfactorily carry out any of the necessary operations described above or unable to control the dimensions and alignment of the shaft excavation within tolerances. Accurately locate technique so they may be used in the finished structure unless directed otherwise in the contract document or by the Engineer.

If at any time the Contractor fails to satisfactorily demonstrate, to the satisfaction of the Engineer, the adequacy of methods or equipment and alterations are required, additional technique shafts will be required at no additional cost to the Department and with no extension of contract time. Additional technique shafts shall be located as near as possible to the proposed production shafts but in a location as not to interfere with other construction activities. Once approval has been given to construct production shafts, no changes will be permitted in the methods or equipment used to construct the satisfactory shaft without written approval of the Engineer.

Do not make a claim against the Department for costs of construction delays, or any materials, labor, or equipment that may be necessary due to the Contractor's failure to furnish drilled shafts of a length sufficient to obtain the required bearing values, or for variations in length due to subsurface conditions that may be encountered. Soundings, boring logs, soil profiles, or other subsurface data included in the Contract documents are used by the Department for design and making preliminary estimates of quantities and should be used only at the risk of the Contractor for determining equipment, materials, or labor necessary for drilling shafts as required by the contract.

When necessary, set temporary removable surface casing. Use surface casing of sufficient length to prevent caving of the surface soils and to aid in maintaining shaft position and alignment. Pre-drilling with slurry and/or over-reaming to the outside diameter of the casing may be required to install the surface casing at some sites.

Provide equipment capable of constructing shafts to the deepest shaft depth shown in the plans plus 15 feet, 20 percent greater than the longest shaft (measured from the ground or water surface to the tip of the shaft), or 3 times the shaft diameter, whichever is greater. Blasting excavation methods are not permitted.

Use permanent casing unless otherwise noted in the Contract. Place casing as shown on the plans before beginning excavation. If full penetration cannot be attained, the Engineer may direct that excavation through the casing be accomplished and the casing advanced until reaching the plan tip elevation. In some cases, over-reaming to the outside diameter of the casing may be required before placing the casing. Cut off the casing at the prescribed elevation and leave the remainder of the casing in place. Do not use vibratory hammers for casing installation within 50 feet of shafts that have been completed less than 24 hours.

3.2.1 Dry Construction Method. Use the dry construction method only at sites where the ground water table and soil conditions (generally stiff to hard clays or rock above the water table) make it feasible to construct the shaft in a relatively dry excavation and where the sides and bottom of the shaft are stable and may be visually inspected by the Engineer prior to placing the concrete. The dry construction method consists of drilling the shaft excavation, removing accumulated seepage water and loose material from the excavation, and placing the shaft concrete in a relatively dry excavation.

3.2.2 Wet Construction Method. Use the wet construction method at all sites where it is impractical to excavate by the dry method. The wet construction method consists of drilling the shaft excavation below the water table, keeping the shaft filled with water (including natural slurry formed during the drilling process) or slurry as defined in part 2.4 of this Special Note, desanding and cleaning the slurry as required, final cleaning of the excavation by means of a bailing bucket, air lift, submersible pump or other approved devices and placing the shaft concrete (with a tremie or concrete pump beginning at the shaft bottom) which displaces the water or slurry as concrete is placed.

Where drilled shafts are located in open water areas, construct the shafts by the wet method using casings extending from above water elevation to the plan casing tip elevation to protect the shaft concrete from water action during placement and curing. Install the casing in a manner that will produce a positive seal at the bottom of the casing.

3.3 Slurry. When the Contractor elects to use slurry, adjust construction operations so that the slurry is in contact with the bottom 5 feet of the shaft for less than 4 hours unless the Engineer approves otherwise. If the 4-hour limit is exceeded, over-ream the bottom 5 feet of shaft.

3.4 Cleaning. Over-reaming, cleaning, or wire brushing the sidewalls of the shaft excavation and permanent casings may be necessary to remove the depth of softening or to remove excessive slurry cake buildup as indicated by sidewall samples or other test methods employed by the Engineer. Over-ream around the perimeter of the excavation a minimum depth of 1/2 inch and maximum depth of 3 inches.

3.5 Subsurface Exploration. Take subsurface exploration borings when shown on the plans or as the Engineer directs to determine the character of the material that the shaft extends through and the material directly below the shaft excavation. Complete subsurface exploration borings prior to beginning excavation for any drilled shaft in a group. Unless directed otherwise, extend subsurface exploration borings a minimum depth of 3 shaft diameters but not less than 10 feet below the bottom of the anticipated tip of drilled shaft excavation as shown on the plans. For subsurface exploration borings where soil sampling is required use thin-wall tube samples and perform standard penetration tests according to the Department’s current Geotechnical Manual. When shafts extend into bedrock, soil samples are not required unless otherwise specified. Perform rock core drilling according to the Department’s Geotechnical Manual. When the Engineer directs, perform additional subsurface exploration borings prior to drilled shaft construction. Measure soil samples and/or rock cores and visually identify and describe them on the subsurface log according to the Department’s current Geotechnical Manual. Subsurface exploration borings must be performed by contractors/consultants prequalified by the Department’s Division of Professional Services for Geotechnical Drilling Services at the time that field work begins.

The Engineer or geotechnical branch representative may be on-site during the subsurface exploration process to evaluate the soil and/or rock core samples. The Engineer or geotechnical branch representative will determine the need to extend the borings to depths greater than the depths previously specified. Handle, label, identify, and store soil and/or rock samples according to the Department's current Geotechnical Manual and deliver them with the subsurface logs to the geotechnical branch’s rock core lab in Frankfort within 24-hours of completing the borings, unless directed otherwise.

The Engineer will inspect the soil samples and/or cores and determine the final depth of required excavation (final drilled shaft tip elevation) based on evaluation of the material's suitability. The Engineer will establish the final tip elevations for shaft locations, other than

those for which subsurface exploration borings have been performed, based on the results of the subsurface exploration. Within 15 calendar days after completion of the subsurface exploration borings, the Engineer will notify the contractor of the final tip elevations for shaft locations.

3.6 Excavations. The plans indicate the expected depths, the top of shaft elevations, and the estimated bottom of shaft elevations between which the drilled shaft are to be constructed. Drilled shafts may be extended deeper when the Engineer determines that the material encountered while drilling the shaft excavation is unsuitable and/or is not the same as anticipated in the design of the drilled shaft. Drilled shafts may be shortened when the Engineer determines the material encountered is better than that anticipated.

Begin drilled shaft excavation the excavation, excavation inspection, reinforcement placement, and concrete placement can be completed as one continuous operation. Do not construct new shafts within 24 hours adjacent to recently completed shafts if the center-to-center spacing is less than 3 shaft diameters.

Dispose of excavated material removed from the shaft according to the Standard Specifications or the contract documents.

Do not allow workmen to enter the shaft excavation for any reason unless both a suitable casing has been installed and adequate safety equipment and procedures have been provided to the workmen entering the excavation. Recommended Procedures for the Entry of Drilled Shaft Foundation Excavations, prepared by ADSC: The International Association of Foundation Drilling provides guideline recommendations for down-hole entry of drilled excavations.

3.7 Obstructions. Remove subsurface obstructions at drilled shaft locations. Such obstructions may include man-made materials such as old concrete foundations or natural materials such as boulders. Blasting is not permitted.

3.8 Inspections of Excavations. Provide equipment for checking the dimensions and alignment of each shaft excavation. Determine the dimensions and alignment of the shaft excavation under the observation and direction of the Engineer. Provide equipment necessary to verify shaft cleanliness for the method of inspection selected by the Engineer.

Measure final shaft depths with a weighted tape or other approved methods after final cleaning. Ensure the base of each shaft has less than ½ inch of sediment at the time of concrete placement. For dry excavations, do not allow the depth of water to exceed 3 inches for tremie or pump methods of concrete placement. Verify shaft cleanliness to the Engineer using direct visual inspection or other method the Engineers determines acceptable. Video camera or underwater inspection procedures may be used if specified in the plans. Inspect the side surfaces of rock sockets to ensure they are rough and of such condition to ensure bond between the shaft concrete and the rock. Calipers, bent rods, or other devices may be used to inspect the diameter and roughness of rock sockets. When the Engineer directs, mechanically roughen surfaces found to be smooth.

3.9 Reinforcing Steel Cage Fabrication and Placement. Assemble the reinforcing steel cage, consisting of longitudinal bars, ties, spirals, cage stiffener bars, spacers, centering devices, and other necessary appurtenances and place as a prefabricated unit immediately after the shaft excavation is inspected and accepted, and just prior to concrete placement.

Tie the reinforcing steel with 100 percent double-wire ties and provide support so that it will remain within allowable tolerances for position. Locate splices as shown on the plans. Splice no more than 50 percent of the longitudinal reinforcing within 2-lap splice lengths of any location or within 3 feet of the splice location if approved mechanical connectors are used. All splices are to be in accordance with plan details. Use bands, temporary cross ties,

etc. as required to provide a reinforcement cage of sufficient rigidity to prevent racking, permanent deformations, etc. during installation.

Use concrete centering devices or other approved non-corrosive centering devices at sufficient intervals along the length of the reinforcement cage to ensure concentric spacing for the entire cage length. As a minimum, provide a set of non-corrosive centering devices at intervals not exceeding 5 feet throughout the length of the shaft. When the size of the longitudinal reinforcement exceeds one inch in diameter the minimum spacing may be increased to 10 feet. As a minimum, provide a set of centering devices within 2 feet of the top and 2 feet of the bottom of the shaft. In addition provide one set of centering devices 2 feet above and 2 feet below each change in shaft diameter. Provide feet (bottom supports) at the bottom of the shaft on vertical bars. As a minimum, provide non-corrosive centering devices at 60 degree intervals around the circumference of the shaft to maintain the required reinforcement clearances. Ensure the centering devices maintain the specified annular clearance between the outside of the reinforcing cage and the side of the excavated hole or casing.

Concrete centering devices and feet will be constructed of concrete equal in quality and durability to the concrete specified for the shaft. Use epoxy coated centering devices fabricated from reinforcing steel. Use feet (bottom supports) of adequate size and number to assure the rebar cage is the proper distance above the bottom as determined by part 3.11 3) of this Special Note. The feet are not intended to support the weight of the cage. In the event that the shaft has been excavated below the anticipated tip elevation, extend the reinforcing cage at the tip (low) end by lap splices, mechanical connectors, or welded splices conforming to the Standard Specifications. In this instance, splices need not be staggered and 100 percent of the reinforcing bars may be spliced at a given location. The bottom 12 inches of the shaft may not be reinforced when below plan tip elevation.

During concrete placement, support the reinforcing cage at or near the top of shaft such that the concrete feet are positioned approximately one inch above the bottom of shaft excavation. Not sooner than 24 hours after the completion of concrete placement, remove temporary supports. Provide the needed equipment, including extra cranes if necessary, to provide this cage support.

Prior to placing the reinforcement cage, demonstrate to the satisfaction of the Engineer that the fabrication and handling methods to be used will result in a reinforcing cage placed in the proper position, with the proper clearances, and without permanent bending, squashing, or racking of the reinforcement cage. During this demonstration bring the cage to an upright position, lower into a shaft excavation, and support as if for concrete placement.

Check the elevation of the top of the reinforcing cage before and after the concrete is placed. If the reinforcing cage is not maintained within the specified tolerances, correct to the satisfaction of the Engineer. Do not construct additional shafts until the contractor has modified his reinforcing cage support to obtain the required tolerances.

3.10 Concrete Placement. Place concrete according to the applicable portions of the Standard Specifications and with the requirements set forth herein. Do not apply the provisions of the Special Note 6U for Structural Mass Concrete.

Place concrete as soon as practical after reinforcing steel placement but no later than 4 hours after completion of the shaft excavation. Place concrete continuously from the bottom to above the top elevation of the shaft. For shafts that extend above ground or water surface, place concrete continuously after the shaft is full until good quality concrete is evident at the top of the shaft. Form any portion of the shaft above ground with a removable form or other approved method to the dimensions shown on the plans.

For shafts constructed in the wet with the top of the shaft below the water surface and below top of casing, place concrete to approximately one shaft diameter but no less than 2 feet above the top of shaft elevation. Remove contaminated concrete and deleterious material, as

determined by the Engineer, accumulated above the top of shaft elevation immediately after completing concrete placement. Deleterious material and contaminated concrete may be airlifted under a head of water or slurry provided that the head is maintained at or near the exterior water surface elevation. Carefully remove any concrete remaining above plan top of shaft after curing and excess casing removal.

Place concrete either by free fall, through a tremie, or concrete pump. Use the free fall placement method in dry holes only. The maximum height of free fall placement is 20 feet. Do not allow concrete placed by free fall to contact either the reinforcing cage or hole sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Place concrete in the shaft in one continuous operation. Maintain a minimum slump of 4 inches or more throughout the placement for 4 hours after batching. Adjust approved admixtures in the concrete mix for the conditions encountered on the job so that the concrete remains in a workable plastic state throughout the placement. Perform slump loss tests to demonstrate that the concrete will maintain a 4-inch or greater slump for a period of time equal to the estimated transport plus the 2-hour placement time, but not less than 4 hours.

When the Engineer determines the concrete placement methods and/or equipment during construction of any technique and/or production shafts to be inadequate, make appropriate alterations to eliminate unsatisfactory results.

Drilled shafts not meeting the concrete placement requirements of this Special Note or contract plans are unacceptable. Correct all unacceptable completed shafts to the satisfaction of the Engineer.

3.10.1 Tremie Placement. Tremies may be used for concrete placement in either wet or dry holes. Extend the tremie to the shaft base elevation before starting underwater placement. Valves, bottom plates, or plugs may be used only if concrete discharge can begin approximately 2 inches above the excavation bottom. Remove plugs from the excavation unless otherwise approved by the Engineer. Maintain tremie discharge at or near the bottom of excavation as long as practical during concrete placement. Immerse tremie discharge end as deep as practical in the concrete but not less than 10 feet.

If at any time during the concrete pour the tremie line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete surface, the entire drilled shaft is considered defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as directed by the Engineer, and repour the shaft.

3.10.2 Pumped Concrete. Concrete pumps and lines may be used for concrete placement in either wet or dry excavations. Do not begin concrete placement until the pump line discharge orifice is at the shaft base elevation.

For wet excavations, use a plug or similar device to separate the concrete from the fluid in the hole until pumping begins. Remove the plug unless otherwise approved by the engineer.

Ensure the discharge orifice remains at least 10 feet below the surface of the fluid concrete. When lifting the pump line during concrete placement, reduce the line pressure until the orifice has been repositioned at a higher level in the excavation.

If at any time during the concrete pour the pump line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete level, the Department will consider the shaft defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as the Engineer directs, and repour the shaft.

3.10.3 Drop Chutes. Drop chutes may be used to direct placement of free fall concrete in excavations where the maximum depth of water does not exceed one inch. Do not use the free fall method of placement in wet excavations. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. Reduce the height of free fall and/or reduce the rate of concrete flow into the excavation if the concrete placement causes the shaft excavation to cave or slough, or if the concrete strikes the reinforcing cage or sidewall. When the Engineer determines free fall placement cannot be accomplished satisfactorily, use either tremie or pumping to accomplish the pour.

3.11 Construction Tolerances. The following construction tolerances apply to drilled shafts unless otherwise stated in the contract document:

1) Construct drilled shaft within 3 inches of plan position in the horizontal plane at the top of the shaft.
2) Do not vary the vertical alignment of a shaft excavation from the plan alignment by more than 1/4 inch per foot of depth or 6 inches total.
3) Maintain the top of the reinforcing steel cage no more than 6 inches above and no more than 3 inches below plan position.
4) All casing diameters shown on the plans refer to O.D. (outside diameter) dimensions. The casing dimensions are subject to American Pipe Institute tolerances applicable to regular steel pipe. A casing larger in diameter than shown in the plans may be used, at no additional cost, with prior approval by the Department.
5) Maintain the top of shaft concrete within ± 3 inches from the plan top of shaft elevation, measured after excess shaft concrete has been removed.
6) Design excavation equipment and methods so that the completed shaft excavation will have a planar bottom. Maintain the cutting edges of excavation equipment normal to the vertical axis of the equipment within a tolerance of ± 3/8 inch per foot of diameter. The tip elevation of the shaft has a tolerance of ± 6 inches from final shaft tip elevation unless otherwise specified in the plans.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. Correct all unacceptable shaft excavations and completed shafts to the satisfaction of the Engineer. When a shaft excavation is completed with unacceptable tolerances, present corrective measures designed by a registered Professional Engineer for approval.

4.0 MEASUREMENT.

4.1 Drilled Shafts. The Department will not measure for payment any trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment; concrete required to fill an oversized casing or oversized excavation; obstruction removal; over-reaming or sidewall cleaning; inspection work or inspection equipment; materials or work necessary, including engineering analyses and redesign, to alter unacceptable work methods or to complete corrections for unacceptable work; and will consider them incidental to the Drilled Shaft. Unless noted otherwise in the contract documents, casing is incidental to the drilled shaft.

4.1.1 Drilled Shaft, Common. The Department will measure the length, in linear feet, of drilled shaft above the top of rock elevation shown on the plans. The

Department will consider this quantity Drilled Shaft, Common regardless of the character of material actually encountered.

4.1.2 Drilled Shafts, Solid Rock. The Department will measure the length, in linear feet, of drilled shaft below the top of rock elevation shown on plans. The Department will consider this quantity Drilled Shafts, Solid Rock regardless of the character of material actually encountered during excavation.

4.2 Technique Shaft. The Department will pay for technique shaft at the contract unit price per each as detailed on the plans or as directed by the Engineer. This will constitute full compensation for all costs incurred during installation as described herein for 'Drilled Shaft' or in the contract documents. No additional compensation beyond the number of technique shafts allowed for in the plans will be permitted for additional technique shafts required because of failure to demonstrate adequacy of methods.

4.3 Rock Coring and Rock Sounding. The Department will measure Rock Sounding and Rock Coring shown on the plans, as specified in part 3.5 of this Special Note, and as the Engineer directs, in linear feet to the nearest 0.1-foot. If soil samples are specified in the contract documents they will be incidental to the unit price bid for Rock Sounding. The Department will not measure or pay for subsurface exploration performed deeper than the elevations indicated on the plans and/or in this Special Note, unless directed by the Engineer, and will consider it incidental to these items of work. Additionally, the Department will consider all mobilization, equipment, labor, incidental items, and operations necessary to complete the boring operations incidental to these items of work.

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

Code	Pay Item	Pay Unit
-----	Drilled Shaft, Diameter*, Common	Linear Foot
-----	Drilled Shaft, Diameter*, Solid Rock	Linear Foot
-----	Technique Shaft	Each
20745ED	Rock Sounding	Linear Foot
20746ED	Rock Coring	Linear Foot

* *See Plan Sheets for sizes of shafts*.

The Department will consider payment as full compensation for all work required in this note.

June 15, 2012

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 – Revised October 23, 2023

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 thereunder. 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, sexual orientation, gender identity, 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, 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. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient 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 recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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 more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) 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 will be sent by the contracting officer by email to *DBAconformance@dol.gov*. 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.

(4) 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 will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must 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.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 29 CFR part 3; and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers 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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 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 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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 watchpersons 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. 29 CFR 5.5.

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 and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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” in paragraph 1 of Section VI 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: (based on longstanding interpretation)

(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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

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. 2 CFR 180.220 and 1200.220.

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. 2 CFR 180.320.

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. 2 CFR 180.325.

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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

* * * * *

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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should 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 Part 20, App. A.

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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
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 (forty and above); 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 forty (40) and over. 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, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, 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 forty (40) and over, 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: January 25, 2017

Standard Title VI/Non-Discrimination Assurances

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, **Federal Highway Administration**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **Federal Highway Administration** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **Federal Highway Administration**, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **Federal Highway Administration** may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the **Federal Highway Administration** may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Standard Title VI/Non-Discrimination Statutes and Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

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 (7) provides:
>
> No present or former public servant shall, within six (6) months 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, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of 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, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure 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, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.
>
> KRS 11A.040 (9) states:
>
> A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, 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, 1025 Capital Center Drive, Suite 104, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: May 23, 2022

General Decision Number: KY20240107 01/05/2024

Superseded General Decision Number: KY20230107

State: Kentucky

Construction Type: Highway

Counties: Adair, Barren, Bell, Breathitt, Casey, Clay, Clinton, Cumberland, Estill, Floyd, Garrard, Green, Harlan, Hart, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lincoln, Magoffin, Martin, McCreary, Menifee, Metcalfe, Monroe, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Russell, Taylor, Wayne, Whitley and Wolfe Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be

adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024

SUKY2015-047 10/20/2015

	Rates	Fringes
BOILERMAKER	$ 24.65	12.94
BRICKLAYER		
Bricklayer	$ 22.90	8.50
Stone Mason	$ 21.50	8.50
CARPENTER		
Carpenter	$ 24.90	14.50
Piledriver	$ 24.55	14.50
CEMENT MASON	$ 21.25	8.50
ELECTRICIAN		
Electrician	$ 29.36	10.55
Equipment Operator	$ 26.90	10.31
Groundsman	$ 17.79	8.51
Lineman	$ 30.09	10.94

When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers, structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

IRONWORKER	$ 27.56	20.57
LABORER		
Group 1	$ 21.80	12.36
Group 2	$ 22.05	12.36
Group 3	$ 22.10	12.36
Group 4	$ 22.70	12.36

GROUP 1: Aging and Curing of Concrete (Any Mode or Method), Asbestos Abatement Worker, Asphalt Plant Laborers, Asphalt Laborers, Batch Truck Dumpers, Carpenter Tenders, Cement Mason Tenders, Cleaning of Machines, Concrete Laborers, Demolition Laborers, Dredging Laborers, Drill Tender, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level D, Flagmen, Grade Checkers, All Hand Digging and Hand Back Filling, Highway Marker Placers, Landscaping Laborers, Mesh Handlers and Placers, Puddler, Railroad Laborers, Rip-rap and Grouters, Right of Way Laborers, Sign, Guard Rail and Fence Installers (All Types), Signalmen, Sound Barrier Installer, Storm and Sanitary Sewer Laborers, Swampers, Truck Spotters and Dumpers, Wrecking of Concrete Forms, General Cleanup

GROUP 2: Batter Board Men (Sanitary and Storm Sewer), Brickmason Tenders, Mortar Mixer Operator, Scaffold Builders, Burner and Welder, Bushammers, Chain Saw Operator, Concrete Saw Operators, Deckhand Scow Man, Dry Cement Handlers, Environmental Laborers - Nuclear, Radiation, Toxic and

Hazardous Waste - Level C, Forklift Operators for Masonry, Form Setters, Green Concrete Cutting, Hand Operated Grouter and Grinder Machine Operator, Jack Hammers, Lead Paint Abatement, Pavement Breakers, Paving Joint Machine, Pipe Layers - Laser Operators (Non-metallic), Plastic Pipe Fusion, Power Driven Georgia Buggy and Wheel Barrow, Power Post Hole Diggers, Precast Manhole Setters, Walk-behind Tampers, Walk-behind Trenchers, Sand Blasters, Concrete Chippers, Surface Grinders, Vibrator Operators, Wagon Drillers
GROUP 3: Air Track Driller (All Types), Asphalt Luteman and Rakers, Gunnite Nozzleman, Gunnite Operators and Mixers, Grout Pump Operator, Powderman and Blaster, Side Rail Setters, Rail Paved Ditches, Screw Operators, Tunnel Laborers (Free Air), Water Blasters
GROUP 4: Caisson Workers (Free Air), Cement Finishers, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level A and B, miners and Drillers (Free Air), Tunnel Blasters, and Tunnel Mockers (Free Air), Directional and Horizontal Boring, Air Track Drillers (All Types), Powder Man and Blasters, Troxler and Concrete Tester if Laborer is Utilized

PAINTER		
All Excluding Bridges	$ 19.92	9.57
Bridges	$ 23.92	10.07
PLUMBER	$ 22.52	7.80
POWER EQUIPMENT OPERATOR:		
Group 1	$ 29.95	14.40
Group 2	$ 29.95	14.40
Group 3	$ 27.26	14.40
Group 4	$ 26.96	14.40

GROUP 1: Auto Patrol, Batcher Plant, Bituminous Paver, Cable-Way, Clamshell, Concrete Mixer (21 cu ft or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Engineer, Elevator (regardless of ownership when used for hoisting any building material), Elevating Grader and all types of Loaders, Hoe-type Machine, Hoisting Engine, Locomotive, LeTourneau or Carry-all Scoop, Bulldozer, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Roller (Bituminous), Roller (Earth), Roller (Rock), Scarifier, Shovel, Tractor Shovel, Truck Crane, Well Point, Winch Truck, Push Dozer, Grout Pump, High Lift, Fork Lift (regardless of lift height), all types of Boom Cats, Multiple Operator, Core Drill, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Grade-All, Hoist, Hyster, Material Pump, Pumpcrete, Ross Carrier, Sheepfoot, Sideboom, Throttle-Valve Man, Rotary Drill, Power Generator, Mucking Machine, Rock Spreader attached to Equipment, Scoopmobile, KeCal Loader, Tower Cranes,(French, German and other types), Hydrocrane, Tugger, Backfiller Gurries, Self-propelled Compactor, Self-Contained Hydraulic Percussion Drill
GROUP 2: All Air Compressors (200 cu ft/min or greater), Bituminous Mixer, Concrete Mixer (21 cu. ft. or over), Welding Machine, Form Grader, Tractor (50 hp and over), Bull Float,

Finish Machine, Outboard Motor Boat, Brakeman, Mechanic Tender, Whirly Oiler, Tract-air, Road Widening Trencher, Articulating Trucks
GROUP 3: Greaser on Grease Facilities servicing Heavy Equipment
GROUP 4: Bituminous Distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Pump, Tamping Machine, Tractor (under 50 hp), Vibrator, Oiler, Air Compressor (under 200 cu ft per minute), Concrete Saw, Burlap and Curing Machine, Hydro Seeder, Power Form Handling Equipment, Deckhand Oiler, Hydraulic Post Driver

SHEET METAL WORKER	$ 20.40	7.80
TRUCK DRIVER		
Driver (3 Tons and Over), Driver (Truck Mounted Rotary Drill)	$ 23.74	14.50
Driver (3 Tons and Under), Tire Changer and Truck Mechanic Tender	$ 23.53	14.50
Driver (Semi-Trailer or Pole Trailer), Driver (Dump Truck, Tandem Axle), Driver of Distributor	$ 23.40	14.50
Driver on Mixer Trucks (All Types)	$ 23.45	14.50
Driver on Pavement Breakers	$ 23.55	14.50
Driver, Euclid and Other Heavy Earth Moving Equipment and Low Boy	$ 24.31	14.50
Driver, Winch Truck and A-Frame when used in Transporting Materials	$ 23.30	14.50
Greaser on Greasing Facilities	$ 24.40	14.50
Truck Mechanic	$ 23.50	14.50
Truck Tender and Warehouseman	$ 23.20	14.50

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other

health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

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) (iii)).

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 a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average

calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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 National Office because National Office has 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.

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 to an employee at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Director
Division of Construction Procurement
Frankfort, Kentucky 40622
502-564-3500

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
4.5%	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 Notification of Construction Contract Award Portal (NCAP) is OFCCP's preferred method for receiving construction contract award notifications. The NCAP can be found on OFCCP's website at https://www.dol.gov/agencies/ofccp/ncap. Users who prefer not to use the portal maintain the option to send their notifications via mail, email and facsimile to the OFCCP Regional office in which the work will be performed. 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 must include: Prime Contract Number (issued by the federal agency or applicant); Name of Awarding Federal Agency, Applicant or Contractor; Contracting Officer, Applicant Representative or Contractor Representative Submitting Notification with name, phone number, email address; Contractor Awarded Contract or Subcontract with name, address, phone number, email address, EIN, dollar amount of the contract, estimated start date of the contract, estimated completion date of the contract, geographical area in which the contract is to be performed (state, county's city (if applicable)).
The notification shall be mailed to:

Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8931
Main Number: 404-893-4545 Fax: 404-893-4546
Regional Director Contact: OFCCP-SE@dol.gov
Construction Award Email: OFCCP-SE-ConstructionAward@dol.gov

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Harlan County.

(Revised: 1/1/2023)

PART IV

INSURANCE

Refer to
Kentucky Standard Specifications for Road and Bridge Construction,
current edition

PART V

BID ITEMS

245366

PROPOSAL BID ITEMS

Report Date 9/25/24

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE	225.90	TON		$	
0020	00100		ASPHALT SEAL AGGREGATE	3.70	TON		$	
0030	00103		ASPHALT SEAL COAT	.40	TON		$	
0040	00190		LEVELING & WEDGING PG64-22	10.00	TON		$	
0050	00212		CL2 ASPH BASE 1.00D PG64-22	213.50	TON		$	
0060	00301		CL2 ASPH SURF 0.38D PG64-22	49.00	TON		$	
0070	02677		ASPHALT PAVE MILLING & TEXTURING	14.30	TON		$	
0080	24970EC		ASPHALT MATERIAL FOR TACK NON-TRACKING	.58	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0090	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	8.00	EACH		$	
0100	02200		ROADWAY EXCAVATION	140.00	CUYD		$	
0110	02351		GUARDRAIL-STEEL W BEAM-S FACE	115.00	LF		$	
0120	02355		GUARDRAIL-STEEL W BEAM-S FACE A	107.50	LF		$	
0130	02360		GUARDRAIL TERMINAL SECTION NO 1	4.00	EACH		$	
0140	02429		RIGHT-OF-WAY MONUMENT TYPE 1	6.00	EACH		$	
0150	02432		WITNESS POST	3.00	EACH		$	
0160	02545		CLEARING AND GRUBBING REQ. CLEARING AND GRUBBING	1.00	LS		$	
0170	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0180	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0190	02726		STAKING	1.00	LS		$	
0200	02731		REMOVE STRUCTURE	1.00	LS		$	
0210	20550ND		SAWCUT PAVEMENT	75.00	LF		$	
0220	21415ND		EROSION CONTROL	1.00	LS		$	

Section: 0003 - BRIDGE - 048B00138N

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0230	03299		ARMORED EDGE FOR CONCRETE	41.40	LF		$	
0240	08003		FOUNDATION PREPARATION	1.00	LS		$	
0250	08019		CYCLOPEAN STONE RIP RAP	771.30	TON		$	
0260	08033		TEST PILES	77.00	LF		$	
0270	08046		PILES-STEEL HP12X53	268.00	LF		$	
0280	08094		PILE POINTS-12 IN	10.00	EACH		$	
0290	08100		CONCRETE-CLASS A	138.80	CUYD		$	
0300	08104		CONCRETE-CLASS AA	78.60	CUYD		$	
0310	08150		STEEL REINFORCEMENT	10,454.00	LB		$	
0320	08151		STEEL REINFORCEMENT-EPOXY COATED	23,245.00	LB		$	
0330	08663		PRECAST PC BOX BEAM CB21-48	547.10	LF		$	
0340	08666		PRECAST PC BOX BEAM CB42-48	479.60	LF		$	

PROPOSAL BID ITEMS

245366

Report Date 9/25/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0350	20637ED		DRILLED SHAFT-ROCK 48 IN	40.00	LF		$	
0360	20745ED		ROCK SOUNDINGS	27.80	LF		$	
0370	20746ED		ROCK CORINGS	106.80	LF		$	
0380	22417EN		DRILLED SHAFT-54 IN-COMMON	34.00	LF		$	
0390	23378EC		CONCRETE SEALING	8,715.40	SQFT		$	
0400	23539EC		BRIDGE RAIL	411.00	LF		$	

Section: 0004 - DEMOBILIZATION & MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0410	02569		DEMOBILIZATION	1.00	LS		$	