

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES
			1	4
2. AMENDMENT/MODIFICATION NO. 0007	3. EFFECTIVE DATE 01-Jul-2025	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)	
6. ISSUED BY U. S. ARMY ENGINEER DISTRICT, LOUISVILLE 600 DR. MARTIN LUTHER KING, JR. PLACE ROOM 821 LOUISVILLE KY 40202-2239	CODE W912QR	7. ADMINISTERED BY (If other than item 6) CIVIL/OPS/ENVIRONMENTAL BR ATTN: ADYSON MEDLEY 600 DR M L KING JR PL RM 821 LOUISVILLE KY 40202-2236		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. W912QR25R0016	
		X	9B. DATED (SEE ITEM 11) 20-Dec-2024	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) SEE SUMMARY OF CHANGES				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
			TEL:	EMAIL:
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)		

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE (SF 30)

The following have been added by full text:

AMENDMENT 0007 CHANGES

Solicitation W912QR25R0016 for Rough River Dam Modification is hereby amended with the following changes:

1. The following SPECIFICATION SECTIONS have been revised and replaced in their entirety:

00 08 00.00 06	SPECIAL PROVISIONS
00 31 19.23 06	WEATHER AND WATER STAGE DATA AND RESTRICTIONS
01 52 13.30 08	LABORATORY TESTING FACILITIES
03 70 00	MASS CONCRETE

2. The due date is hereby extended from 07 May 2025 at 10:00AM to 01 August 2025 at 10:00AM.

3. The solicitation is hereby amended to comply with the Recision of Class Deviation 2025-00002 dated 02 June 2025, the following have been re-added:

Factor Section 4.6 Volume I - Factor IV - Price, Fab F Project Labor Agreement
Table 5 - Project Labor Agreement (PLA) Assessment
Factor Section 8.6 Tab F - Project Labor Agreement
Clause 52.222-33
Clause 52.222-34

4. Wage Determination KY20250041 dated 6 June 2025 are hereby amended and incorporated.

SECTION 00 10 00 - SOLICITATION

The required response date/time has changed from 07-May-2025 10:00 AM to 01-Aug-2025 10:00 AM.

SECTION 00 70 00 - CONDITIONS OF THE CONTRACT

The following have been added by full text:

52.222-33 NOTICE OF REQUIREMENT FOR PROJECT LABOR AGREEMENT (JAN 2024)

(a) Definitions. As used in this provision, the following terms are defined in clause 52.222-34, Project Labor Agreement, of this solicitation "construction," "labor organization," "large-scale construction project," and "project labor agreement."

(b) Offerors shall--

(1) Negotiate or become a party to a project labor agreement with one or more labor organizations for the term of the resulting construction contract; and

(2) Require its subcontractors to become a party to the resulting project labor agreement.

(c) The project labor agreement reached pursuant to this provision shall--

- (1) Bind the Offeror and subcontractors engaged in construction on the construction project to comply with the project labor agreement;
 - (2) Allow the Offeror and all subcontractors to compete for contracts and subcontracts without regard to whether they are otherwise parties to collective bargaining agreements;
 - (3) Contain guarantees against strikes, lockouts, and similar job disruptions;
 - (4) Set forth effective, prompt, and mutually binding procedures for resolving labor disputes arising during the term of the project labor agreement;
 - (5) Provide other mechanisms for labor-management cooperation on matters of mutual interest and concern, including productivity, quality of work, safety, and health; and
 - (6) Fully conform to all statutes, regulations, Executive orders, and agency requirements.
- (d) Any project labor agreement reached pursuant to this provision does not change the terms of the resulting contract or provide for any price adjustment by the Government.
- (e) The Offeror shall submit to the Contracting Officer a copy of the project labor agreement with its offer.

(End of Provision)

52.222-34 PROJECT LABOR AGREEMENT (JAN 2024)

(a) Definitions. As used in this clause--

Construction means construction, reconstruction, rehabilitation, modernization, alteration, conversion, extension, repair, or improvement of buildings, structures, highways, or other real property.

Labor organization means a labor organization as defined in 29 U.S.C. 152(5) of which building and construction employees are members.

Large-scale construction project means a Federal construction project within the United States for which the total estimated cost of the construction contract(s) to the Federal Government is \$35 million or more.

Project labor agreement means a pre-hire collective bargaining agreement with one or more labor organizations that establishes the terms and conditions of employment for a specific construction project and is an agreement described in 29 U.S.C. 158(f).

(b) The Contractor shall maintain in a current status throughout the life of the contract the project labor agreement entered into prior to the award of the contract.

(c) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (c), in subcontracts with subcontractors engaged in construction on the construction project.

(End of Clause)

(End of Summary of Changes)

PROCEDURES FOR SUBMITTAL OF OFFERS AND PROPOSAL EVALUATION CRITERIA

1. Overview.

1.1 The intent of this solicitation is to select one contractor for the Rough River Cutoff Wall and Outlet Works contract. The Government will evaluate the proposals in accordance with the criteria described herein, and award a firm fixed price contract to the responsible offeror, whose proposal conforms with all the terms and conditions of the solicitation and whose proposal is determined to represent the overall best value to the Government, all factors considered.

1.2 The basis of award is the Best Value Trade off Process. The Contracting Officer will award a firm fixed price contract to the responsible offeror whom the Source Selection Authority determines conforms to the solicitation, is fair and reasonable and offers the best overall value to the Government, all factors considered. **All factors other than cost or price, when combined, are approximately equal to cost or price.** The Government reserves the right to accept other than the lowest priced offer or to reject all offers.

1.3 The target ceiling for contract award is **\$325 Million** based on the funds made available for this project. The Government cannot guarantee that additional funds will be available for award. Offerors are under no obligation to approach this ceiling.

2. Submittal of offers.

2.1 Offerors submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. However, in order to be effectively and equitably evaluated, the proposals must include information sufficiently detailed to clearly describe the offeror's past performance, technical approach and management capabilities necessary for successful completion of the project. Requirements stated in the Request for Proposal (RFP) are minimums. Proposals should follow in the order of sequence set forth in the RFP. Information provided out of sequence may not be evaluated and may result in the offeror's disqualification from award.

2.2 Any information, presented in a proposal that the Offeror wants safeguarded from disclosure to other parties must be identified and labeled in accordance with the requirements of Provision "FAR 52.215-1 Alt. I, Instructions to Offerors – Competitive Acquisition (Oct 1997)," subparagraph (e). The Government will endeavor to honor the restrictions against release requested by Offerors, to the extent permitted under United States law and regulations.

2.3 Offerors are required to submit a proposal consisting of the information identified in paragraphs 2.4. All proposal materials shall be submitted electronically with a table of contents that identifies each section and page number. Proposal sections should parallel the submission requirements identified herein. Each proposal has a limit of 200 pages, 8 ½" by 11" in size using a minimum font size of 12 and a minimum margin size of one-half inch on all sides. Format restrictions must be adhered to and will be strictly enforced. Information submitted which exceeds the specified limit will not be evaluated

2.4 Volume I shall be submitted electronically in accordance with the Proposal Submission Instructions in Section 00 21 00 and include the following information:

- Volume I – Factor I: Technical Approach
- Volume I – Factor II: Past Performance
- Volume I – Factor III: Small Business Participation Plan
- Volume I – Factor IV: Price

NOTE: Failure to place the required submission information under the appropriate section (factor or sub-factor) may result in a lower rating if the evaluators cannot readily find the appropriate

information. Any specified page limits will be strictly adhered to and enforced. Information submitted which exceeds the specified limit will not be evaluated.

3. Proposal Evaluation Process.

3.1. A Source Selection Evaluation Board (SSEB) comprised of representatives of the Corps of Engineers, User/Customer, and other required personnel will evaluate the proposals. Offerors are advised that the technical evaluation and rating of proposals will be conducted in strict confidence. Technical proposals will be reviewed and rated without knowledge of the price offered. The number and identities of offerors are not revealed to anyone who is not involved in the evaluation and award process or to other offerors. Proposals will be evaluated based on the factors described herein, and the basis of award is the Tradeoff Process.

3.2 The evaluation process essentially consists of four parts: proposal compliance review and responsibility determination, technical evaluation, price evaluation, and cost/technical trade-off analysis.

3.2.1 Proposal Compliance and Responsibility Review: Upon receipt of proposals the Government will conduct an initial screening to ascertain that each offeror has submitted all of the required information, including electronic media, in the quantities and format specified in the RFP. Followed by a review to determine that the offeror is financially capable of sustaining performance under the contract and is able to obtain the required level of performance and payment bonds from an acceptable surety.

3.2.2 Technical Evaluation: The SSEB will evaluate and rate the Volume I proposals against the RFP requirements. Factor I – Technical Approach will be rated using Table 1 below. Factor II – Past Performance will be rated using Tables 2 and 3 below. The rating will be based on overall confidence in performance, with the final confidence assessment rating based on the extent of recent, relevant past experience and the quality of the offeror's performance. Factor III – Small Business Participation Plan will be rated using Table 4 below.

3.2.3 Price Evaluation: The SSEB and Contracting Officer/SSA will evaluate price proposals independent of the technical evaluation. The SSEB will not have access to price information until completion of the technical evaluation.

3.2.4 Cost/Technical Trade-off Analysis: After all above evaluations are complete, the Contracting Officer/SSA will compare the relative advantages and disadvantages of technical proposals and compare prices. The Source Selection Authority (SSA) will then consider all factors to select the proposal offering the best value to the Government.

4. Proposal Information and Related Evaluation Factors.

4.1 Proposals will be evaluated in accordance with the factors below, listed in relative order of importance. All evaluation factors, other than cost or price, when combined are considered approximately equal to cost or price. Offerors are reminded to include their best technical and price terms in their initial offer and not to automatically assume that they will have an opportunity to participate in discussions or be asked to submit a revised offer. The Government may make award of a conforming proposal without discussions, if deemed to be within the best interest of the Government.

4.2 Volume I- Factor I – Technical Approach

- Critical Area A Cutoff Wall Design and Construction
- Means and Methods for Cutoff Wall Construction
- Means and Methods for Tunnel Construction
- Means and Methods for Remaining Outlet Works Construction

4.3 Volume I – Factor II – Past Performance

4.5 Volume I – Factor III – Small Business Participation Plan

4.6 Volume I – Factor IV - Price

Tab A	Standard Form 1442 and Price Breakout Schedule	Not Rated
Tab B	Joint Venture and Mentor – Protégé Agreements	Not Rated
Tab C	Evidence of Ability to Obtain Bonding and Proof of Financial Ability	Not Rated
Tab D	Pre-Award Information	Not Rated
Tab E	Subcontracting Plan	Not Rated
Tab F	Project Labor Agreement	Not Rated

4.7 Ratings: Evaluators will apply the adjectival rating for the definition that most closely matches the evaluation.

Table 1

Technical Assessment Ratings	
Adjectival Rating	Definition
Outstanding	Proposal demonstrates an exceptional approach and understanding of the requirements and contains multiple strengths and/or at least one significant strength, and risk of unsuccessful performance is low.
Good	Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength or significant strength, and risk of unsuccessful performance is low to moderate.
Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements, and risk of unsuccessful performance is no worse than moderate.
Marginal	Proposal has not demonstrated an adequate approach and understanding of the requirements, and/or risk of unsuccessful performance is high.
Unacceptable	Proposal does not meet requirements of the solicitation and, thus, contains one or more deficiencies and is unawardable, and/or risk of performance is unacceptably high.

Table 2

Past Performance Relevancy Ratings	
Rating	Definition
Very Relevant	Present/past performance effort involved essentially the same scope and magnitude of effort and complexities this solicitation requires.
Relevant	Present/past performance effort involved similar scope and magnitude of effort and complexities this solicitation requires.
Somewhat Relevant	Present/past performance effort involved some of the scope and magnitude of effort and complexities this solicitation requires.
Not Relevant	Present/past performance effort involved little or none of the scope and magnitude of effort and complexities this solicitation requires.

Table 3

Performance Confidence Assessments	
Rating	Definition
Substantial Confidence	Based on the offeror's recent/relevant performance record, the Government has a high expectation that the offeror will successfully perform the required effort.
Satisfactory Confidence	Based on the offeror's recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.
Neutral Confidence	No recent/relevant performance record is available or the offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned. The offeror may not be evaluated favorably or unfavorably on the factor of past performance.
Limited Confidence	Based on the offeror's recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.
No Confidence	Based on the offeror's recent/relevant performance record, the Government has no expectation that the offeror will be able to successfully perform the required effort.

Table 4

Small Business Assessment	
Rating	Definition
Outstanding	Proposal indicates an exceptional approach and understanding of the small business objectives.
Good	Proposal indicates a thorough approach and understanding of the small business objectives.
Acceptable	Proposal indicates an adequate approach and understanding of small business objectives.
Marginal	Proposal has not demonstrated an adequate approach and understanding of the small business objectives.
Unacceptable	Proposal does not meet small business objectives.

4.7 Definitions

1. Deficiency. is a material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level. See FAR 15.001.

2. Strength. is an aspect of an offeror's proposal with merit or will exceed specified performance or capability requirements to the advantage of the Government during contract performance.

3. Significant Strength. is an aspect of an Offeror's proposal with appreciable merit or will exceed specified performance or capability requirements to the considerable advantage of the Government during contract performance.

4. Weakness. means a flaw in the proposal that increases the risk of unsuccessful contract performance. See FAR 15.001.

5. Significant Weakness. in the proposal is a flaw that appreciably increases the risk of unsuccessful contract performance. See FAR 15.001.

6. Uncertainty. is any aspect of a non-cost/price factor proposal for which the intent of the offer is unclear (e.g., more than one way to interpret the offer or inconsistencies in the proposal indicating that there may have been an error, omission, or mistake).

7. Clarification. are limited exchanges between the Government and offerors that may occur when award without discussion is contemplated. See FAR 15.306(a)(1).

8. Adverse Past Performance. Past performance information that supports a less than satisfactory rating on any evaluation. Adverse past performance that must be addressed with Offerors includes unfavorable comments received from sources such as those received from respondents from past performance questionnaires or interviews that have not been finalized within a formal rating system. 5.0

5.0 Volume I – Factor I – Technical Approach

All factors other than cost or price, when combined, are approximately equal to cost or price.

The technical approach for will be rated based on the following:

- a) Evaluated on clarity, adequacy, and understanding of the overall project;
- b) Technical evaluation of requested information for each subfactor and conformance to plans and specifications; and
- c) Safety, cost, and efficiency for offeror design elements and proposed means and methods.

5.1 Submission Requirements:

5.1.1 - Critical Area A Cutoff Wall Design and Construction

The offeror's proposal shall contain a narrative and conceptual Cutoff Wall Design schematics including, as a minimum:

- a) Critical Area A Cutoff Wall: Submit a narrative, sequence of work, and plans with details for completion of the work at Critical Area A per the plans and specifications. Include the sequence for: abandoning the outlet works; slurry control grouting; means and methods for severing and removing the conduit; and the cutoff wall placement at Critical Area A. All drawings shall include: example dimensions and spacing for primary and secondary elements; example element classification; example grout hole designations, demolition, cutoff wall, and grouting equipment requirements; material requirements; and notes on project phasing to communicate the means

and methods necessary to install the cutoff wall at Critical Area A. The narrative shall include personnel, QC staffing, safety, anticipated extended operations, or other key elements proposed.

Evaluation Criteria for Critical Area A Cutoff Wall Design and Construction: The SSEB will evaluate the offeror's technical approach to construct the general cutoff wall, abandonment of the existing outlet works, advancement of the cutoff wall through the existing conduit at Critical Area A, the work platform, conducting drilling and grouting, downstream filter drain construction and retreat channel abandonment, and site restoration at the dam along with all other required features of the contract specific to the cutoff wall and site restoration, including the methods utilized to verify the completed elements meet criteria established in the plans and specifications. The technical approach must include methods to be utilized to verify the completed elements meet criteria established in the solicitation. This project is Design Bid Build, but there will be a very minimal amount of design elements as part of the Solicitation that the offeror will submit in compliance to the requirements outlined in the solicitation. The offeror shall be responsible for designing the work platform, trench slurry, and the method for installing the cutoff wall through the existing conduit in compliance with the performance criteria outlined within the solicitation. The offeror must also be responsible for evaluating the method of complying with specified contractual tolerances. Although these design elements will be required, they will account for less than 3% of the total contract value. Indicate any concurrent cutoff wall work to be completed prior to outlet works completion.

5.1.2 - Means and Methods for Cutoff Wall Construction

- a) General Cutoff Wall: Submit a narrative, sequence of work, and plans with details for completion of the general cutoff wall per the plans and specifications. Clearly identify the technical approach and means/methods to complete general cutoff wall including: the test section; primary and secondary panels; slurry control and operations; and the excavation and disposal required for the cutoff wall. All drawings shall include example dimensions for: elements; spacing equipment requirements; material requirements; and notes on project phasing to communicate the means and methods necessary to install the cutoff wall per the plans and specifications. The narrative shall include personnel, QC staffing, safety, anticipated extended operations, or other key elements proposed. The narrative shall also include a plan view and narrative showing the contractor work areas including, but not limited to, construction work platform dimensions, grout plants, concrete plants, de-sanding and slurry plants, slurry containment areas, sedimentation ponds, haul roads, emergency materials and emergency staging locations. The narrative shall also include the following information related to emergency management:
 - Cutoff Wall Slurry loss or excavation instability.
 - Excessive slurry loss as defined in the specifications (if used)
 - Discharge or blowout of grout, slurry or concrete
 - Excessive seepage or blowout of water from embankment
 - Inability to remove equipment from the excavation
- b) Work Platform: Submit conceptual narrative and plans for the work platform. The narrative and plans shall include: the proposed work platform dimensions and height; proposed means and methods for installation; and proposed materials to be utilized, to facilitate work platform construction per the requirements detailed in the plans and specifications. The narrative shall include how the proposed work platform system will incorporate protection of the existing instrumentation located at the dam. The work platform shall include typical cross sections in the valley and right abutment showing the relationship of the work platform to the parapet wall, cutoff wall, grout lines and existing instrumentation in accordance with the plans and specifications. The narrative shall include personnel, QC staffing, safety, anticipated extended operations, or other key elements proposed.
- c) Dam Restoration Activities: Submit a narrative of the dam restoration activities including work platform removal, retreat channel abandonment and filter construction, instrumentation

restoration and new installations, and road relocation. The narrative shall include personnel, QC staffing, safety, anticipated extended operations, or other key elements proposed.

Evaluation Criteria for Means and Methods for Cutoff Wall Construction: The SSEB will evaluate the offeror's technical approach to construct the general cutoff wall, abandonment of the existing outlet works, advancement of the cutoff wall through the existing conduit at Critical Area A, the work platform, conducting drilling and grouting, downstream filter drain construction and retreat channel abandonment, and site restoration at the dam along with all other required features of the contract specific to the cutoff wall and site restoration, including the methods utilized to verify the completed elements meet criteria established in the plans and specifications. The technical approach must include methods to be utilized to verify the completed elements meet criteria established in the solicitation. This project is Design Bid Build, but there will be a very minimal amount of design elements as part of the Solicitation that the offeror will submit in compliance to the requirements outlined in the solicitation. The offeror shall be responsible for designing the work platform, trench slurry, and the method for installing the cutoff wall through the existing conduit in compliance with the performance criteria outlined within the solicitation. The offeror must also be responsible for evaluating the method of complying with specified contractual tolerances. Although these design elements will be required, they will account for less than 3% of the total contract value. Indicate any concurrent cutoff wall work to be completed prior to outlet works completion.

5.1.3 Means and Methods for Tunnel Construction

The offeror's proposal shall contain a narrative and conceptual schematic for tunnel construction including, as a minimum:

- a) Tunnel and Portals: Submit a narrative with a plan view showing the sequence of tunneling work including portal construction per the plans and specifications. Proposed tunneling means and methods for the entire tunnel from beginning to completion including proposed initial support methods, life safety precautions and safety procedures, surveys, mucking, spoil and disposal, access, tunnel lining etc. Include at least one (1) typical cross section and profile for the upstream portal, mainline tunnel, and downstream portal. Include at least four (4) details for proposed initial support methods. Discuss the collection and removal of water within the tunnel. Include any shop drawings and narratives required to convey safety requirements such as lighting, ventilation, pedestrian zones and safety inspections. The full sequence of a typical round of tunneling should be detailed including excavation, safety inspections of unsupported rock, foundation mapping, installation of initial support, dewatering and control of water, general safety and environmental controls, mucking, and all other items necessary for completion of an excavated segment prior to beginning the next segment of excavation within the tunnel/portals. The means and methods identified must meet or exceed the requirements in the Solicitation including EM 385-1-1.

Evaluation Criteria for Means and Methods for Tunnel Construction: The SSEB will evaluate the offeror's technical approach to construct the tunnels and portals along with other required features for this feature of work, etc. This project is Design Bid Build, but there will be a very minimal amount of design elements as part of the Request for Proposal that the offeror will submit in compliance with the performance criteria outlined within the solicitation. The offeror shall design temporary support for the upstream portal and tunnel along with means and methods and any safety items required to safely construct the tunnel as required in the solicitation. Although design elements will be required, they will account for less than 1% of the total contract value.

5.1.4 Means and Methods for Remaining Outlet Works Construction

The offeror's proposal shall contain a narrative and conceptual schematic for outlet works construction to include mass excavation and disposal, control tower construction, stilling basin construction, the retreat channel and the approach channel including necessary site work such as cofferdam. Submit a narrative and at least two (2) elevations, two (2) cross sections, each including a maximum of 2 details each for the control tower and stilling basin features of work. Submit the following narratives and working sequences:

- a) Mass Excavation and Disposal (includes blasting): Submit mass excavation narrative and drawings to convey the anticipated mass excavation means and methods, sequencing of excavation and spoils, spoil processing and general disposal broken out by project feature including the Approach Channel Excavation, Control Tower Excavation, Stilling Basin Excavation, and Retreat Channel Excavation in accordance with the plans and specifications. Include expected production rates.
- b) Control Tower Construction: Include control tower construction sequencing for the control tower transition constructed in the upstream portal, installation of the service and emergency gates, bulkhead gates, and any mechanical/electrical systems to expedite installation of the control tower gates. Include a discussion of any long lead items and how they will be procured without delay to the project schedule.
- c) Stilling Basin Construction: Submit a narrative to include initial excavation to the tunnel invert elevation and final excavation to the design stilling basin excavation depth. Include construction sequencing and phasing required to complete the excavation and concrete placements.

Evaluation Criteria for Means and Methods for Remaining Outlet Works Construction: The SSEB will evaluate the offeror's technical approach to construct the new outlet works; specifically, the control tower, the stilling basin, and the approach and retreat channels, along with other required features as indicated in the Solicitation. This project is Design Bid Build, but there will be a very minimal amount of design elements as part of the solicitation that the offeror will submit in compliance with the performance criteria outlined within the solicitation including the general approach for mass excavation consisting of blasting, mechanical excavation, underwater excavation and spoils disposal as indicated in the Solicitation. Although design elements will be required, they will account for less than 1% of the total contract value.

6.0 Volume I – Factor II – Past Performance

The Prime Offeror/JV shall submit a combination of relative experience and past performance to demonstrate the required relevant experience necessary to successfully complete the project. Since it is unlikely that any single Prime contractor would possess all the experience necessary to successfully complete the project, the Prime Offeror/JV can augment previous experience with the experience of Key Specialty Subcontractors to meet the base qualifications required herein. This combination of experience shall be referred to as the Offeror's Construction Team.

6.1 Submission Requirements:

6.1.1 The Offeror shall provide descriptions for a portfolio of 5-7 projects that are complete or substantially complete (90% complete) by the proposed Offeror's Construction Team within the last twenty five (25) years of the solicitation closing date and that are similar to this project in size and scope. Each individual project must include, at a minimum, one key feature of work and as a whole the portfolio must encompass all key features. Projects combining two or more features of work will be considered more favorably/highly. Each of the major features listed below contain the size and scope requirements. Individual projects will be evaluated on a relevance scale, with an overall confidence rating being given based on the relevance of recent projects and how well offerors/subcontractors performed on those projects.

6.1.2 Each offeror's past performance will be reviewed to determine recency, relevancy, and confidence assessment. All previous project experience shall be based on using the same general means and methods proposed to complete the work at Rough River Dam. The offeror's proposal shall contain a portfolio of 5-7 projects that are complete or substantially complete projects of similar size, scope, and complexity for each major feature identified below:

Major Features:

- a) Cutoff Wall – To be considered **similar in scope** a project must be construction of a cutoff wall using the construction methods proposed in response to this solicitation. To be considered **similar in size** the project must have a concrete seepage barrier that is not less than 500-feet in length and installed at a minimum depth of 100 feet from the dam crest into bedrock.
- b) Dam Foundation Grouting (Slurry Control) - To be considered **similar in scope** a project must be dam foundation grouting on high hazard dams using the construction methods required in this solicitation. It must also have employed the use of an automated grouting control data collection system and ability to comply with USACE requirements for instrumented packers and procedures to isolate the dam embankment and prevent hydrofracture. To be considered **similar in size** the project must have over 10,000 LF of rock drilling/grouting.
- c) Tunnel/portal Construction - To be considered **similar in scope** a project must have used the methods required in this solicitation including mechanical excavation and excluding tunnel boring machines and blasting. To be considered **similar in size** the tunnel must be at least 200-feet in length and at least 10 feet in diameter.
- d) Mass Excavation Construction – To be considered **similar in scope** a project must have of been mass excavation in hard rock (includes surface, underwater blasting, floating plant operations) using the methods required in this solicitation. To be considered **similar in size** the excavation must have been a minimum of 50,000 cubic yards of excavation.
- e) Hydraulic Structures - To be considered **similar in scope** a project must have been for outlet works, dams, spillways or similar hydraulic structures for high velocity water conveyance.using the construction methods required in this solicitation. To be considered **similar in size** the project must have included a minimum of 20,000 cubic yards of mass concrete specific to hydraulic structures construction.

6.1.3 Projects considered similar to this project in scope are: See each Major Features identified in 6.1.2

6.1.4 Projects considered similar to this project in size are: See each Major Features identified in 6.1.2

6.1.5 At least 15% of the cost of the contract performance incurred for personnel must have been spent on the prime contractor's own employees to be considered similar.

6.1.6 Additional consideration may be given for:

- a) Projects involving experience with the US Army Corps of Engineers.
- b) Projects involving dam safety modifications with the US Army Corps of Engineers.

6.1.7 The following information shall be provided for each project:

- a) Project Title, Geographic Location, and Contract Number/Unique Identifier
- b) Current percentage of construction complete and the date it was or will be complete
 - a. For projects that are not yet complete, provide description of work remaining to be completed.
- c) Scope of the project, to include purpose/use of facility
- d) Size of the project
- e) Portion and percentage of work that was self-performed
- f) Any applicable additional consideration factors

g) Two references for all of the experience identified in paragraph 6.1. Reference information should include owner's name, point of contact, telephone number, and email address.

h) Any ratings, letters, awards, etc. which support past performance on these projects. A sample Past Performance Questionnaire is attached for your convenience. If used, the Past Performance Questionnaire must be submitted by the offeror with the proposal submission and **not** sent directly to the agency from the reference.

NOTE: For purposes of evaluating past performance, the Prime Contractor is defined as the contractor identified in Block 14 of the Standard Form 1442. If more than one contractor is listed in Block 14, then a signed joint venture must be submitted with the proposal and the joint venture shall be registered as such in the System for Award Management (SAM). However, each party of the Joint Venture must submit their own Unique Entity Number with the JV proposal. Each party in the Joint Venture may submit project examples. If the Offeror's Construction Team includes Key Specialty Subcontractors, the Key Specialty Subcontractors' past performance will be evaluated. Projects performed by other contractors than the offeror, such as teaming partners or subcontractors, will not be evaluated for past performance, unless those other contractors are part of the joint venture offeror as demonstrated by a signed joint venture agreement, or the key specialty subcontractor on the Offeror's construction team.

6.2. Evaluation Criteria:

6.2.1 The SSEB will first evaluate the relevancy of recent past performance identified in the proposal for Factor III. By using the criteria identified above, the SSEB will determine how relevant a past project is when compared to the scope, size, and magnitude of effort and complexities of the solicited project. Extensive relevant experience paired with above satisfactory ratings may provide the Government a higher level of confidence. A relevancy rating will then be assigned to each submitted project.

6.2.2 The SSEB will next review how well the offeror performed on those projects. The Government reserves the right to check any or all cited references to verify supplied information and to assess owner satisfaction. The Government also reserves the right to not contact the provided references. In addition to the information submitted by the offeror, the Government reserves the right to review any other sources of relevant information for evaluating past performance, including projects other than those submitted by the offeror. The Government will, at a minimum, review past performance information retrieved through the Contractor Performance Assessment Reporting System (CPARS), using all CAGE/Unique Entity Identifier numbers. Other sources may include, but are not limited to, past performance information retrieved from inquiries of owner representative(s), Federal Awardee Performance and Integrity System (FAPIS), Electronic Subcontract Reporting System (eSRS), and any other known sources not provided by the offeror.

6.2.3 The SSEB will review all past performance information collected and determine the quality of the offeror's performance, general trends, and usefulness of the information and incorporate this information into the performance confidence assessment. The SSEB will assign a final, overall Performance Confidence rating, using the ratings in the Performance Confidence Assessment table above, based on the SSEB's assessment of (1) the degree of the offeror's recent, relevant experience, and (2) how well the offeror performed that experience.

7.0 Volume I – Factor III: Small Business Participation Plan

7.1 Submission Requirements

ALL OFFERORS ARE REQUIRED TO SUBMIT A SMALL BUSINESS PARTICIPATION PLAN. The Small Business Participation Plan shall be based on the offeror's best effort and is required to address each of the following areas individually:

- The extent to which the small business programs listed in FAR 19 (small business, small-disadvantaged business, woman-owned small business, HubZone, service disabled veteran owned small business, etc.) are specifically identified in the Small Business Participation Plan;
- The extent of participation of such firms in terms of the value of the total acquisition in %'s for the base year and for each individual option year; the extent of commitment to use such firms (for example, enforceable commitments, i.e., teaming agreements signed, are to be considered more heavily than non-enforceable ones);
- The complexity and variety of the work small firms are to perform on this acquisition;
- The practicality of the Small Business Participation Plan, i.e., aggressive goals.

The Small Business Participation Plan shall be organized as follows:

(1) Prime Contractor type of business (check all that apply):

- Large
- Small (also check type of small business)
- Small Non-Disadvantaged Business
- Small Disadvantaged Business
- Woman-Owned Small Business
- HUBZone Small Business
- Veteran Owned Small Business
- Service Disabled, Veteran Owned Small Business

(2) Percentage of your participation as a prime contractor: _____ %

NOTE: Small Business primes' self-performance counts as Small Business Participation, and small business primes may achieve small business participation goals through their own performance/participation as a prime and/or through subcontracting to other small businesses.

(3) Percentage of total contract value of subcontracts planned for:

	% of Total Contract Value
Large	%
Total Small	%
Small Non-Disadvantaged	%
Small Disadvantaged	%
Small Woman Owned	%
Small HUB Zone	%
Small Veteran Owned	%
Small Service Disabled Veteran Owned	%

Each percentage above shall be accompanied by detailed supporting documentation regarding individual commitments.

NOTE: The sum of the percentages of Small Non-Disadvantaged and Small Disadvantaged should equal the entries for the Total Small; however, the sum of all of the percentages need not equal 100% since the prime is not included and individual subcontractors may be counted towards more than one category.

(4) List principal supplies/services (be specific) to be subcontracted to:

	Name of Company	Type of Service/Supply
Large		
Small Non-Disadvantaged		
Small Disadvantaged		
Small Woman Owned		
Small HUB Zone		
Small Veteran Owned		
Small Service Disabled Veteran Owned		

- (5) Prior Performance Information: Provide any information substantiating the offeror's track record of utilizing small business on past contracts.
- (6) For Large **and** Small Businesses provide descriptive information for all small business categories. Any information concerning long-term relationships with Small Business subcontractors, such as mentor-protégé relationships, should be provided.
- (7) Extent of Commitment: Provide documentation regarding enforceable commitments to utilize any small business category as defined in FAR Part 19 as subcontractors.
- (8) Small Business Subcontracting Plan: Each **Large Business Offeror** shall provide a Small Business Subcontracting Plan that contains all of the elements required by FAR Clause 52.219-9 Alt II. This Plan **shall** be submitted separately from the Small Business Participation information required above which applies to both Large and Small Businesses. The Subcontracting Plan is not a requirement for evaluation in source selection but rather a requirement for award to a Large Business. The approved Small Business Subcontracting Plan will be incorporated into any resultant contract(s).

7.2 Evaluation Criteria:

ALL OFFERORS ARE REQUIRED TO SUBMIT A SMALL BUSINESS PARTICIPATION PLAN.

The Small Business Participation Plan will be evaluated based on the offeror's best efforts, the level of small business commitment that is being demonstrated for the proposed acquisition, and the prior level of commitment to utilizing small businesses in performance of prior contracts. The Small Business Participation Plan must meet the minimum Total Small Business Participation goal of **20%** of the total contract value (through collective small business participation from any type of small business or sub-category small business).

Pursuant to DFARS PGI 215.304(c), the following elements will be considered in evaluating an offeror's Participation Plan:

- The extent to which such firms, as defined in FAR Part 19, are specifically identified in plans;
- The extent of commitment to use such firms (enforceable commitments will be weighted more heavily than non-enforceable ones);
- The complexity and variety of the work such firms are to perform;
- The realism of the plans;
- Past performance of offerors in complying with the requirements of the Subcontracting Plan Goals for such firms and monetary targets for participation;

- The extent of participation of such firms in terms of the proposed subcontracted value; and
- The extent to which the offeror provides detailed explanations/documentation supporting the proposed participation percentages, or lack thereof. The Department of Defense (DOD) has established small business goals to help ensure small business receives a fair proportion of DOD awards.

8.0 Volume I Factor IV - Price and Performance Information

8.1 Tab A - Standard Form 1442 and Proposal Price Breakout Schedule.

8.1.1 Submission Requirements:

The offeror shall complete and submit Standard Form 1442 and Price Breakout Schedule. The Price Breakout Schedule can be found in Section 00 10 00 of this solicitation.

8.1.2 Evaluation Criteria:

The price will be evaluated on the base proposal. The price will be reviewed by the SSEB and Contracting Officer/SSA for fair and reasonableness through the use of a price analysis. Price will also be checked for unbalancing of line items. Offerors are cautioned to distribute costs appropriately.

8.2 Tab B – Joint Venture and Mentor-Protégé Agreements

8.2.1 Submission Requirements:

Small business offerors (e.g., 8(a), HUBZone, SDVOSBC, etc) submitting a proposal as a Joint Venture or Mentor-Protégé Joint Venture shall submit evidence from the Offeror's SBA Servicing Agency that the Offeror has notified and discussed the proposed joint venture for this specific project with the appropriate SBA Representative or Business Opportunity Specialist. Joint Venture agreements and approved 8(a) Mentor-Protégé agreements must be submitted with the proposal.

8.2.2 Evaluation Criteria:

Joint Venture Agreements and Mentor-Protégé agreements must comply with the relevant regulations in Title 13 of the Code of Federal Regulations.

8.3 Tab C- Evidence of Ability to Obtain Bonding and Proof of Financial Ability

8.3.1 Submission Requirements:

A. Financial Capability. Submit Proof of Financial Ability (Most recent financial statement covering assets and liabilities). Include the name, address and telephone number of firm's banking institution.

B. Bonding Capability. Submit information showing offeror's ability to be bonded for this project. Include the name, address and telephone number of the firm's bonding company.

8.3.2 Evaluation Criteria:

This information will be used for the purpose of completing the Pre-Award Survey and will not be rated.

8.4 Tab D - Pre-Award Information

8.4.1 Submission Requirements:

A. The offeror shall submit one completed copy of Representations and Certification.

B. The offeror shall submit the following information:

- a) Number of years the firm has been in business
- b) Name, address and telephone numbers of two credit/trade references
- c) A list of present commitments, including the dollar value

8.4.2 Evaluation Criteria:

This information will be used for the purpose of completing the Pre-Award Survey and will not be rated.

8.5 Tab E - Subcontracting Plan

8.5.1 Submission Requirements:

Large business offerors shall submit a Subcontracting Plan in accordance with FAR Clauses 52.219-8 and 52.219-9 Alt II. To be acceptable, plans must adequately address the required statutory elements and provide sufficient information to enable the Contracting Officer to answer affirmatively questions 1 through 13 of Appendix DD, Part 3, AFARS 5119.705-4. The offeror may use the attached sample sub-contracting plan as a starting point. Percentage goals apply to the total amount being subcontracted.

8.5.2 Evaluation Criteria:

Submitted information will be evaluated for acceptability in accordance with AFARS 5119.705. To be acceptable, subcontracting plans must:

- (a) Adequately address the required statutory elements.
- (b) Provide sufficient information to enable the Contracting Officer to answer affirmatively questions 1 through 13 of Appendix DD, Part 3 (AFARS 5119.705-4), a copy of which is attached.
- (c) To be acceptable, subcontracting plans must meet all of the requirements outlined in Appendix DD, Part 3, AFARS 5119.705. If discussions with offerors are necessary, those areas where the plan is deficient will be reviewed with each offeror with the goal of correcting deficiencies.

NOTE: This does not affect Volume I proposal ratings nor will it make a proposal unacceptable.

8.6 Tab F – Project Labor Agreement

8.6.1 Submission Requirements:

ALL OFFERORS ARE REQUIRED TO SUBMIT AN EXECUTED PROJECT LABOR AGREEMENT. All offerors shall submit a Project Labor Agreement in accordance with FAR Solicitation Provision 52.222-33 and FAR Clause 52.222-34. To be acceptable, the agreements must adequately address the required statutory elements and provide sufficient information to enable the Contracting Officer to answer affirmatively the requirements laid out in FAR 22.504(b).

8.6.2 Project Labor Agreement Government Review:

Submitted information will be evaluated for acceptability in accordance with FAR 22.504. To be acceptable, Project Labor Agreements must:

- (1) Bind all contractors and subcontractors engaged in construction on the construction project to comply with the project labor agreement;
- (2) Allow all contractors and subcontractors to compete for contracts and subcontracts without regard to whether they are otherwise parties to collective bargaining agreements;
- (3) Contain guarantees against strikes, lockouts, and similar job disruptions;
- (4) Set forth effective, prompt, and mutually binding procedures for resolving labor disputes arising during the term of the project labor agreement; and
- (5) Provide other mechanisms for labor-management cooperation on matters of mutual interest and concern, including productivity, quality of work, safety, and health.

D. DISCUSSIONS

1. Negotiations that take place after the competitive range is established during a competitive acquisition. The contracting officer conducts discussions with each offeror within the competitive range, and they are tailored to each offeror's proposal.

"General Decision Number: KY20250041 06/06/2025

Superseded General Decision Number: KY20240041

State: Kentucky

Construction Type: Building

Counties: Ballard, Breckinridge, Caldwell, Carlisle, Crittenden, Fulton, Graves, Grayson, Hickman, Livingston, Lyon, Muhlenberg, Ohio, Todd and Union Counties in Kentucky.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

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).

<p>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:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 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 2025.
<p>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:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 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 2025.

|_____ |_____ |

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	01/03/2025
1	02/07/2025
2	02/28/2025
3	03/14/2025
4	04/11/2025
5	06/06/2025

* ASBE0051-001 03/01/2025

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 30.00	20.89

BOIL0040-001 01/01/2025

	Rates	Fringes
BOILERMAKER.....	\$ 43.85	28.44

BRKY0004-001 06/01/2024

	Rates	Fringes
BRICKLAYER.....	\$ 33.70	16.57

CARP0224-001 04/01/2024

	Rates	Fringes
CARPENTER (Acoustical Ceiling Installation Only).....	\$ 29.65	22.62

CARP0357-006 06/01/2024

	Rates	Fringes
CARPENTER (Drywall Hanging and Metal Stud Installation Only).....	\$ 30.16	20.87

CARP1076-002 04/01/2025		

	Rates	Fringes
MILLWRIGHT.....	\$ 34.92	26.47

ELEC0816-005 06/01/2024		

	Rates	Fringes
ELECTRICIAN.....	\$ 35.67	28%+8.60

* ENGI0181-084 06/01/2025		

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Oiler).....	\$ 34.99	19.60

* ENGI0181-087 06/01/2025		

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Crane).....	\$ 41.98	19.60

CRANES WITH BOOM 150 FEET & OVER, INCLUDING JIB, SHALL RECEIVE \$1.00 ABOVE THE WAGE RATE; 250 FEET AND OVER, INCLUDING JIB, SHALL RECEIVE \$1.50 ABOVE THE WAGE RATE. ALL CRANES WITH PILING LEADS WILL RECEIVE \$1.00 ABOVE THE WAGE, REGARDLESS OF BOOM LENGTH.		

* ENGI0181-088 06/01/2025		

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Forklift).....	\$ 41.98	19.60

IRON0782-014 08/01/2023		

	Rates	Fringes
--	-------	---------

IRONWORKER (Structural and Reinforcing).....\$ 34.01 24.83

LAB00189-007 06/01/2024

 Rates Fringes

LABORER (Pipelayer).....\$ 27.63 16.48

LAB01214-008 07/01/2024

 Rates Fringes

LABORER (Backfiller, Carpenter Tender, Form - Stripping).....\$ 25.22 17.14

LAB01214-009 07/01/2024

 Rates Fringes

LABORER (Grouting, Jack Hammer, Mason Tender - Cement/Concrete, Tamper - Hand Held, Vibrating Plate).....\$ 25.47 17.14

LAB01392-010 07/01/2024

 Rates Fringes

LABORER (Concrete Saw - Hand Held/Walk Behind).....\$ 27.25 16.64

PAIN1072-005 12/01/2024

 Rates Fringes

PAINTER (Spray Only).....\$ 34.29 23.95

PAIN1165-003 07/01/2024

Brekenridge, and Grayson counties

 Rates Fringes

GLAZIER.....\$ 29.32 16.16

PAIN1165-021 07/01/2024

Ballard, Caldwell, Carlisle, Crittenden, Fulton, Graves,

Hickman, Livingston, Lyon, Muhlenberg, Ohio counties

	Rates	Fringes
GLAZIER.....	\$ 32.86	19.44

PLUM0184-003 07/01/2024		
	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 41.01	20.28

SFKY0669-002 01/01/2025		
	Rates	Fringes
SPRINKLER FITTER.....	\$ 41.33	26.08

SHEE0110-005 12/01/2024		
	Rates	Fringes
SHEET METAL WORKER (Includes HVAC Duct Installation).....	\$ 39.69	25.16

* UAVG-KY-0009 01/01/2025		
	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 55.63	37.89

* UAVG-KY-0010 01/01/2025		
	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 36.21	26.42

* UAVG-KY-0011 01/01/2025		
	Rates	Fringes
LABORER: Grade Checker.....	\$ 25.64	17.06

* UAVG-KY-0012 01/01/2025		
	Rates	Fringes
LABORER: Power Tool Operator....	\$ 26.73	16.72

* UAVG-KY-0013 01/01/2025

	Rates	Fringes
OPERATOR: Bulldozer.....	\$ 40.05	19.10

* SUKY2015-022 06/02/2015

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.46	9.07
CARPENTER, Excludes Acoustical Ceiling Installation, Drywall Hanging, Form Work, and Metal Stud Installation.....	\$ 20.97	12.01
CEMENT MASON/CONCRETE FINISHER...	\$ 23.49	9.01
LABORER: Common or General.....	\$ 21.05	8.09
LABORER: Mason Tender - Brick...	\$ 18.73	10.60
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 27.30	10.73
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 24.64	13.00
OPERATOR: Grader/Blade.....	\$ 24.33	13.00
PAINTER (Brush and Roller).....	\$ 20.19	11.33
ROOFER.....	\$ 22.31	7.41
TILE FINISHER.....	\$ 17.67 **	7.45
TILE SETTER.....	\$ 25.77	6.10
TRUCK DRIVER: Dump Truck.....	\$ 17.07 **	6.25

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658

(\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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 classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the "SA" identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

=====

END OF GENERAL DECISION"

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

SECTION 00 80 00.00 06

SPECIAL PROVISIONS
04/21, CHG 1: 06/23

AMENDMENT 0007

PART 1 GENERAL

Attachments to this specification are as follows:

Construction Project Sign Details
 Project Submittal Register
 Outlet Works Operability Checklist

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C1153 (2015) Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-600-01 (2016; with Change 5, 2020) Fire Protection Engineering for Facilities

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations

U.S. ARMY (DA)

AR 530-1 Operation Security

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2024) Safety and Occupational Health (SOH) Requirements

EP 1110-1-8 (2021) Engineering and Design -- Construction Equipment Ownership and Operating Expense Schedule

ER 415-1-15 Construction Time Extensions for Weather

ERDC/ITL TR-12-1 (2015) A/E/C Graphics Standard, Release 2.0

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.59 Hazard Communication

SECTION 00 08 00.00 06 Page 1

AMENDMENT 0007

CERTIFIED FINAL

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

- a. The time stated in clause 52.211-10 "Commencement, Prosecution, and Completion of Work" in Section 00 70 00 for completion shall include installation of Government-furnished furniture, if required, as well as as-built drawings, O&M manuals, operational tests/reports/training/instructions, equipment lists.
- b. Requirements for Outlet Works Demonstration and Acceptance.
The Contractor is responsible to maintain access and security to the control tower and new construction facilities for the life of the Contract. The Contractor shall maintain ownership of all property and equipment provided during the life of the contract until property has been turned over to the Government. Prior to completion of the contract, the new outlet works will be put into service in order to allow decommissioning of the existing outlet works. The process of approval for the new outlet works requires a Government Pre-Operational Inspection, a 30 day demonstration period, and a Government Post-Operational Inspection. This process will be paid for under OUTLET WORKS APPROVAL, DEMONSTRATION, AND ACCEPTANCE with the Pre-Inspection designated as PI #1A and the Post-Inspection designated PI#1B. All incidental costs associated with the performance of work in this section are included in the contract price for items b-d below. The Government will make no additional separate payment for items included herein or by reference.

In order for the Contractor to request the Pre-Operational inspection the following criteria must be met:

1. The control tower, conduit, stilling basin, and retreat channel were constructed in accordance with the plans and specifications with no known defects or operational issues.
2. The Contractor must have independently verified that all mechanical and electrical systems are functioning as designed and that all required bulkheads, screens, and other operational equipment fit within the designated slots.
3. All interior building components and finishes necessary for successful operation of the outlet gates and by-pass systems shall be complete and tested by the Contractor prior to first operational discharge. Non-critical interior finishes may be completed after the control works are placed into service but before final contract completion and transfer of property to the Government.
4. All areas are to be cleaned as appropriate for access and operation.
5. All utilities and systems serving the building shall be fully operational.
6. The HVAC system(s) must be in operation, demonstrated, and fully balanced.
7. The elevator(s) shall be operable and certified for use by the approving agency and must be made available, at no additional cost, for use by the project staff.
8. The Contractor must notify the Government in writing at least 30 days in advance of intent to proceed with the Pre-Operational

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

Inspection. The request must include verification that the above criteria have been met. The actual inspection schedule and dates will be provided from the Contracting Officer.

b1. Government Pre-Operational Inspection.

The new outlet works shall be inspected and approved by the Contracting Officer, in writing, for initial operability acceptance. The Contractor shall anticipate 5 days of inspections lasting up to 8 hours each day to assist Government Dam Safety Inspectors to fully verify the system is operable and fit to be placed into service. These inspections must take priority over all other work activities ongoing around the project and the Contractor will manage the site and schedule to minimize disruptions. The Contractor shall provide support to include labor to operate machinery and equipment, labor and equipment to accompany the inspections, and the resources to quickly correct any deficiencies noted. The Contractor must support the inspections as follows:

1. The Government Dam Safety Inspectors will be divided into 5 teams (Structures, Mechanical, Electrical, Geotech/Geology, and Hydraulics). At least one representative from the Contractor shall accompany each team.

2. All mechanical, electrical, and structural equipment must be operated, tested, and documented by the Government Inspectors.

3. Hydraulic steel structures will be set and removed by the Contractor in sequence so each gate, screen, or bulkhead can be inspected by the Government Inspectors. The service and emergency gates, bypass valves, and maintenance and bypass bulkheads, and stilling basin stoplogs, must be operated and inspected. Acceptance criteria for these items are detailed herein.

4. Air monitoring equipment, lifts, ladders, scaffolds, boats etc. must be provided by the Contractor as required to inspect each area. Each Government Inspector will provide their own specialty hand tools and equipment.

5. An OUTLET WORKS OPERABILITY CHECKLIST must be completed and approved by the Government Inspectors verifying the structure is fit for operation. The inspection checklist is attached to this specification. Any deficiencies noted must be corrected and reinspected/approved by the Government Inspectors before the Contracting Officer will certify the post-inspection is acceptable.

6. Any noted concrete repairs that were required as part of Section 03 70 00 MASS CONCRETE, Section 03 30 00, CAST-IN-PLACE CONCRETE OUTLET WORKS, or Section 31 73 00 TUNNEL GROUTING must be fully inspected and evaluated prior to placing the outlet works into service. Cracked or spalled areas may require additional repairs by the Contractor before the outlet works is placed into service. The cost required concrete repairs is the responsibility of the Contractor.

7. Written acceptance for the Pre-Operational Inspection will be provided from the Contracting Officer.

8. The Contractor is responsible for facilitating and maintaining safe access to all required locations in accordance with EM 385-1-1

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

including air monitoring, fall protection, and confined space entry.

b2. 30-Day Operability Demonstration.

Once the structure is deemed operable by the Contracting Officer, the new outlet works shall be placed into service to demonstrate performance for a period of 30 days. The Contractor will maintain ownership of equipment (mechanical, electrical, and hydraulic) during this operational demonstration period. During this period, Louisville District Operations personnel shall be required to make gate operations to regulate the reservoir. The Contractor and Government Construction personnel shall accompany LRL Operations in the Control Tower for required gate operations to regulate the reservoir, or any other routine Dam Safety activity. Such requirements during the 30 day operability period shall be coordinated between LRL Operations, LRL Construction, and the Contractor through the Water Control Advisory Panel. The Contractor shall furnish all utilities, including lighting and electrical power, during this operability period at no additional cost to the Government. At the completion of the demonstration period the outlet works will be inspected per the requirements of Section b3. **UNDER NO INSTANCE SHALL THE CONTRACTOR OR CONSTRUCTION PERSONNEL MAKE ANY ADJUSTMENTS TO THE CONTROL TOWER FLOOD CONTROL SETTINGS DURING THIS PERIOD.**

b3. Government Post-Operational Inspection.

After the 30 day operability demonstration is complete, a Government Post-Operability Inspection shall be completed by the Government with the same labor, equipment, and time commitments from the Contractor as indicated for the Pre-Operational Inspection contained above. The Contractor must fully dewater the stilling basin, tunnel and install all three emergency bulkheads, bypass bulkheads in the tower to facilitate inspections. In addition to any operability deficiencies noted during the operations period, the post-inspection checklist must be filled out to verify no detrimental changes have occurred to the structures or equipment. Deficiencies noted shall be provided in writing from the Contracting Officer. Repairs to any damaged areas identified prior to and during the demonstration period shall be performed at no additional cost to the Government by the appropriate party as determined by the Contracting Officer.

Any repair/defect noted during the operability demonstration period for which subsequent repairs require the outlet works, or any portion of the outlet works, to receive a structural or mechanical repair requires an additional operability demonstration as defined by the Contracting Officer, reflective of the feature of work that was repaired. Additional operability demonstrations required due to defects/repairs occur at no additional cost to the Government.

Any previously completed concrete repairs which perform unsatisfactorily either via cracking, spalling, displacement or otherwise cause detrimental performance for the outlet works must be removed and replaced in accordance with Section 03 70 00 MASS CONCRETE or Section 03 30 00 CAST-IN-PLACE CONCRETE FOR OUTLET WORKS. An examination of why the previous repair failed will be conducted and additional repairs will be as directed by the Government. Additionally, the Contractor is responsible for any additional repairs, including from the original concrete placement, which develop during the operational period resulting from poor quality control in materials or workmanship which may not have been apparent prior to the operational

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

period. Any deficiencies noted must be corrected before the Contracting Officer will certify the post-inspection is acceptable.

b4. Outlet Works Acceptance.

Once the outlet works is deemed operable, the Contractor is still required to complete any punch list items related to the outlet works prior to the official transfer of real property from the Contractor to the Government. The Contractor and LRL Construction representatives will continue to accompany LRL Operations in the Control Tower for gate change operations until the property is officially transferred. Any noted damage, equipment malfunctions, or other deficiencies which occur during this period shall be corrected as soon as possible at the Contractor's expense. **Abandonment of the existing conduit shall not proceed until the new outlet works is fully accepted by the Government and all equipment is transferred into the Government's possession.**

c. Stilling Basin Dewatering and Maintenance System

The upstream stilling basin bulkhead and pump/pipe shall be installed to pump leakage and minimum flow required by Water Control Advisory Panel up to the gutter which discharges downstream of the deployable flood barrier. A rapid deployable flood barrier shall be provided by the contractor to allow dewatering of the stilling basin during construction. The barrier system shall meet the following requirements:

1. A new and fully functional modular system capable of installation at the existing and future stilling basins;
2. Composed of interconnected components forming a structural system which can be interlinked together to span the apron area;
3. Composed of durable steel frame and anchoring system composed of corrosion resistant components that do not have to be fastened, bolted, doweled, or otherwise connected to the apron below;
4. Span a minimum of 50 feet;
5. Have a minimum height of 4 ft;
6. Impact strength 190 ft-lb;
7. Include all connections for assembly, liner, and liner clips;
8. Temperature range: -40° F to 180° F.

The system shall be on site prior to initial operation of the new outlet works. Upon completion and operational acceptance of the control tower by the Government, the system shall become the property of the Government. The system shall be inspected by the Government and the contractor shall submit a certification that the system is capable of retaining water at the time of transfer. Any damaged sections shall be repaired or replaced by the Contractor so that a complete functional system is turned over to the Government. The use of Typar Geocells, Hesco Bastions, Super Sacks, or other temporary systems shall not be permitted.

To facilitate future stilling basin and tower stilling well access, maintenance and dewatering operations, removable material handling equipment and a fall protection system shall be provided by the contractor. This includes 1 removable material davit or jib used for lowering tools and equipment to the raised sill and 1 fall protection davit or jib mast system. The Material Crane shall meet the following requirements:

- i. Modular system that may be set up by 1 or 2 individuals. Pieces that are 100lbs +/- max.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

- ii. Include a removable flush mounting base and socket with protective cover, anchored with stainless cast-in-place anchors per specification 05 50 13 MISCELLANEOUS METAL FABRICATIONS or post-installed anchors per specification 05 05 20 POST-INSTALLED CONCRETE ANCHORS. Coordinate and install anchors during reinforcing and concrete placement. Provide anchor design calculations for government approval.
- iii. Stainless wire rope (1/4 inches diameter) with minimum length of 40 feet.
- iv. Min 82 inch horizontal reach from mast to hook with capacity of 1,100 lbs. Hook height from installed surface shall be 48 inches as measured with the boom in the horizontal position.
- v. AC motor with manual crank backup.
- vi. Rotational locking of the mast.
- vii. Components must be constructed of corrosion-resistant materials or protected with a resilient all-weather coating.

Fall protection and rescue crane shall meet the following requirements:

- viii. Modular system that may be set up by 1 or 2 individuals. Pieces that are 100lbs +/- max.
- ix. Provide a minimum offset of 48 inches from mast to hook.
- x. Be one piece construction with a minimum 70-inch boom height above mount surface.
- xi. Include 2 Rescue/Fall arrest devices with a maximum arresting force of 900 lbs each. Crane must be rescue-rated.
- xii. Include a removable flush mounting base and socket with protective cover, anchored with stainless cast-in-place anchors per specification 05 50 13 MISCELLANEOUS METAL FABRICATIONS or post-installed anchors per specification 05 05 20 POST-INSTALLED CONCRETE ANCHORS. Coordinate and install anchors during reinforcing and concrete placement. Provide anchor design calculations for government approval.

d. Hydraulic Steel Structure Acceptance Criteria

The service and emergency gates, bypass valves, and maintenance and bypass bulkheads, and stilling basin stoplogs, are subject to the following testing and performance criteria:

1. The gate fabricator must be notified of all gate performance testing with sufficient time to enable a representative of the fabricator to be present at the test site - if the fabricator so chooses and at the fabricator's expense - to ensure and confirm that the component is in acceptable condition and has been correctly installed.
2. With the reservoir at an elevation of at least 495', the service

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

gates must be fully closed and their performance observed under the full head of the reservoir. Each gate must be fully opened and closed three times and the leakage measured. Leakage must not exceed 4.0 gallons per minute in any test.

3. With the reservoir at an elevation of at least 495', the emergency gates must be fully closed and their performance observed under the full head of the reservoir. Each gate must be fully opened and closed three times and the leakage measured. Leakage must not exceed 4.0 gallons per minute in any test.

4. With the reservoir at an elevation of at least 495', fully close each set of bypass valves - first downstream, then upstream - and observe the performance of each under the full head of the reservoir. Each valve must be fully opened and closed three times and the leakage measured. Leakage must not exceed 0.75 gallons per minute from any one valve.

5. With the reservoir at an elevation of at least 495', set both maintenance bulkheads and observe the performance of each under the full head of the reservoir. Leakage must not exceed 5.0 gallons per minute.

6. With the reservoir at an elevation of at least 495', set both bypass/stilling well bulkheads and observe the performance of each under the full head of the reservoir. The trash screens must either be withdrawn from the intake opening or confirmation provided that the screens are free of debris. In this condition leakage must not exceed 2.5 gallons per minute.

7. Set the stilling basin stoplogs in the slots, and allow at least 10' of head to build up behind the stoplogs. Under this condition, the leakage around or through the stoplogs must not exceed 4.5 gallons per minute. The contractor may attempt different orders of stoplog placement to determine the optimum configuration. Once a configuration has been determined that meets the leakage requirement, the contractor must numerically mark the stoplogs in placement order, near the shop-applied identification marking and per specification 05 59 20 FABRICATION OF HYDRAULIC STEEL STRUCTURES. Note that the stoplogs cannot be lifted while under greater than 1 foot of head, and pumps or another method approved by the Contracting Officer will be required to release the pool prior to removal.

If the leakage for any component exceeds the allowable, and the component cannot be adjusted or repaired in situ so that it meets the performance requirements, the component must be removed and the seats and/or seals retooled or otherwise repaired so that the component can meet the leakage restrictions. Patching, welding, and other non-permanent methods of adjusting the sealing surface are prohibited. If repairs are performed, all relevant test cycles must be repeated and performance criteria met as specified above.

1.4 NOT USED

1.5 NOT USED

1.6 CONTRACT DRAWINGS AND SPECIFICATIONS

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

In addition to DFARS 252.236-7001 "Contract Drawings and Specifications" in Section 00 70 00 the following will apply:

- a. After Award and no later than Notice to Proceed, the Government will furnish the Contractor all technical contract documents in electronic media only via the Contractor's SFTP site. This file package will include a complete set of drawing files and technical specification files which have all amendments included. The drawing files will be transferred in PDF format, Microstation for site work (Open Roads Designer Version 2020 Release 3 or newer), Revit 2024 or newer for outlet works and vertical structures, Inventor 2024 or newer for hydraulic steel structures, Civil-3D 2024 or newer, GIS feature classes in geodatabases, and GIS raster datasets, along with technical specifications in PDF format. These PDF files are the contract documents that represent the construction requirements of the contract, and are being provided for the Contractor's use in printing paper copies of contract documents.
- b. In addition, native CAD files (this includes, but not limited to, all source files, models, custom fonts and line styles, plot files, and images used to create the contract drawings, specifications, and other contract drawings) are provided in accordance with the "AS-BUILT DOCUMENTS" paragraph for the Contractor's use in maintaining and preparing as-built plans. The use of unapproved CAD Programs is not permitted. Only native files are to be used for As-Built preparation and information.
- c. Native CAD and BIM files and software are to be used for As-Built preparation only. The PDF files are the contract documents that represent the construction requirements of the contract.
- d. SECTION 01 11 00 SUMMARY OF WORK contains the list of the plans and specifications to be provided.

1.7 AS-BUILT DOCUMENTS FOR DESIGN BID BUILD PROJECTS

1.7.1 General

This section covers the completion of final as-built drawings, as a requirement of the contract. The Contractor is responsible for maintaining paper copy working as-built drawings during the construction phase. These paper copy drawings will be used by the Contractor to prepare, maintain and submit the final as-built drawings. AS-BUILT DOCUMENTS shall also include applicable content provided on shop drawings, via submittal or RFI changes, and as described in Section 01 31 00 DATA MANAGEMENT, Section 31 32 23.00 06 SLURRY CONTROL DRILLING AND GROUTING, and Section 31 56 10.00 08 CUTOFF WALL CONSTRUCTION, and all other pertinent specification sections included in the Contract Documents. Personnel requirements for the construction and maintenance of drawings and digital CAD files are detailed in 01 31 00 DATA MANAGEMENT.

1.7.1.1 As-Built Drawings

An as-built drawing is a contract construction drawing revised to reflect the final as-built conditions of the project because of modifications, changes, corrections to the project design required during construction, submittals and extensions of design. The terms "drawings," "contract

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings that are revised to be used for the "RECORD DRAWING AS-BUILTS".

1.7.1.2 Government-Furnished Files

- a. The Contractor will be provided electronic files at the beginning of construction for use during the construction phase which are to be maintained during construction for the preparation of as-builts. The Contractor shall be responsible to print two full size paper copies. The Contractor shall enter changes and corrections on two sets of paper full size construction plans on a weekly basis in accordance with Paragraph "Maintenance of Working As-Built Drawings" in this section.
- b. The Contractor is required to prepare final as-built drawings utilizing the native files provided by the Government. If translation is required, the original design models (BIM or CAD) shall be updated to As-Built conditions and then appropriately translated. Updating translated drawings will not be accepted. The contractor shall update the CAD working as-built drawings, in accordance with paragraph "Maintenance of Working As-Built Drawings", on a monthly basis and submit them to the COR for independent Government review. Both paper and electronic documents shall be available at all times and shall be provided promptly to the Contracting Officer's Representatives when requested. The Contractor shall be responsible for backup of electronic files during construction and for controlling release of information in accordance with 01 31 00 DATA MANAGEMENT.

1.7.2 Withholding

Maintenance of working as-builts is considered part of the value of the structure being constructed and will not be paid for as a separate line item. All costs in conjunction with periodic as-built maintenance and final preparation shall be considered a subsidiary obligation of the Contractor.

1.7.2.1 Failure to Maintain

If the Contractor fails to maintain the working as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount up to 10% or which, in the Contracting Officer's judgment, represents the estimated cost of bringing the as-built documents up to date. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of working as-built documents. This includes conversion of submittals and other miscellaneous documents as determined by the COR.

1.7.2.2 As-Builts Prepared by Contractor

The Contractor is required to prepare and provide final as-built drawings. The Contractor shall include an activity in the cost-loaded schedule for the final As-Built drawing submittal in the amount defined in the following paragraph. See Section 01 32 01.00 06, PROJECT SCHEDULE, para "Basis for Payment and Cost Loading". Withholding for the final as-built drawing submittal shall be in the amount of \$100,000 for contracts awarded greater than \$10,000,000. Withholding shall be withheld until the final as-built drawing submittal has been approved and accepted by the Government.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

1.7.3 Maintenance of Working As-Built Drawings

The Contractor is required to conduct a full Pre-Construction Site Survey of the project area to validate the information provided via the Government. The Contractor is also required to complete a Post-Construction Site Survey of the project area to document the final conditions. The surveys shall be in the same datum and resolution as the information provided from the Government, and performed to the accuracy required in 01 32 23 SURVEY CONTROL, LiDAR, ORTHOIMAGERY and BATHYMETRY.

The Contractor shall revise two (2) sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These as-built marked drawings shall be kept current on a weekly basis and available on the jobsite at all times. Changes in the work from the contract or additional information which is uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Changes must be reflected on all sheets that the change affects. The working as-built marked drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor before submission of each monthly pay estimate. All features included in the plans and specifications and/or designed/modified by the Contractor shall be included in the as-built drawings. The working as-built drawings shall show the following information , but not be limited to, the following:

- a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.
- b. The location and dimensions of any changes.
- c. The correct alignments, grade elevations, typical cross section, earthwork, structures or utilities if any changes were made from contract plans.
- d. Additional as-built information that exceeds the detail shown on the Contract Drawings. These as-built conditions include those that reflect structural details, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations and layouts, equipment, sizes, mechanical and electrical room layouts and other extensions of design, that were not shown in the original contract documents because the exact details were not known until after the time of approved shop drawings. It is recognized that the shop drawing submittals (revised showing as-built conditions) will serve as the as-built record without actual incorporation into the contract drawings. The final as-built construction drawing shall reference the shop drawing file that includes the as-built information. In turn, the shop drawing shall reference the applicable construction as-built drawing. All such shop drawing submittals must include the paper copy and PDF of the drawings.
- e. The invert elevations and grades of any drainage structures or ditches

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

installed or affected as part of the project construction.

- f. Changes or modifications which result from the final inspection.
- g. Contour Map of Pre-developed Disposal Areas and Contour Map of the Final Disposal Areas and site grading with spot elevations as necessary for each borrow and disposal area. An initial survey and final survey is required prior to and upon completion of all work activities for both terrestrial and underwater excavation work. Underwater work will require bathymetric surveys. Initial and final surveys must be included with the As-Built Drawings and meet all requirements in accordance with Paragraph QUANTITY SURVEYS and 01 32 23 SURVEY CONTROL, LiDAR, ORTHOIMAGERY and BATHYMETRY.
- h. Where contract drawings present options, only the option selected for construction shall be shown on the final as-built drawings.
- i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarms, fire sprinklers, fire protection, fire detection and irrigation systems, the work platform, the cutoff wall, and/or other related systems in this project, shall be incorporated into the as-built drawings to include detailed information for all aspects of the systems including wiring, piping, and equipment drawings.
- j. Actual location of anchors, construction and control joints, etc., in concrete.
- k. Excavations detailing the actual excavated face with respect to both the neat line and payment line; including initial and permanent rock support for rock excavations, portal construction, and tunnel construction.
- l. Locations, depths, extents, diameters, etc. for drilled boreholes and grouting results.
- m. Unusual or uncharted obstructions that are encountered in the contract work area during construction.
- n. Location, extent, thickness, and size of stone protection and permanent rock fill placed as part of the project.
- o. Contract modification (change order price) shall include the Contractor's cost to change working and final as-built drawings to reflect modifications and compliance with the following procedures (See "Markings and Indicators"):
 - (1) Directions in the modification for posting descriptive changes shall be followed.
 - (2) A Revision Triangle shall be placed at the location of each deletion.
 - (3) For new details or sections which are added to a drawing, a Revision Triangle shall be placed by the detail or section title.
 - (4) For minor changes, a Revision Triangle shall be placed by the area changed on the drawing (each location).

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

- (5) For major changes to a drawing, a Revision Triangle shall be placed by the title of the affected plan, section, or detail at each location.
- (6) For changes to schedules or drawings, a Revision Triangle shall be placed either by the schedule heading or by the change in the schedule.

1.7.3.1 Digital CAD/BIM Files

Provide monthly to the SFTP site the most up to date version of all .dgn, .dwg, and associated data files comprising the 3-dimensional Bentley OpenRoads model and any Autodesk models to satisfy the CAD/BIM Working Digital 3D Model Monthly Updates submittal. All CAD and BIM models must include the primary project survey control and all features in the models be referenced to it. The CAD/BIM files must be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Utilize the same required templates as are required and used for redline and final as-built drawings as applicable. The Government reserves the right to reject any files it deems incompatible with the Government CAD/BIM system or are incomplete due to improper file construction or export. Errors in source files must not be propagated into final as-builts or digital CAD models.

Provide files in Bentley OpenRoads for site work (OpenRoads Designer Connect Edition version 2021 Release 2 or newer). For all features with polygonal geometry, create closed, correct 3D features. Prepare Bentley OpenRoads files for transmittal using the Packager (Archive), an attachment is provided in Volume 6 with the sample workflow for using this tool.

Provide files in Autodesk Revit for structural, mechanical, electrical, and architectural components, except Autodesk Inventor and Inventor-generated DWG files may be used for discrete components such as gates, valves, and other fabricated items. All Revit and Inventor models used to generate as-built sheets must also be provided. If Autodesk Navisworks is used, provide a federated Navisworks model as well as all referenced models. Prepare Revit products for transmittal with the eTransmit tool. Prefinal submission of 3D CAD and BIM files should be submitted under the working updates submittal.

Submit all Final CAD/BIM Digital 3D Model components as stated above within 14 days of pre-final as-built approval.

1.7.4 Preliminary (Working) As-Built Drawings

The Contractor shall submit updated As-Built drawings quarterly. The submission of the progress drawings shall be included with the monthly payment application. Thirty (30) calendar days before Substantial completion, the Contractor shall submit one (1) set of the original paper working as-built drawings to the Contracting Officer for review and approval. These working as-built marked drawings shall be neat, legible and accurate. The Government shall have 30 days to review the as-built drawings. The review by Government personnel will be expedited to the maximum extent possible. If upon review, the working as-built drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the working as-built marked drawings to the Contracting Officer within fourteen (14) calendar days. Upon approval, the working as-built

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

drawings will be returned to the Contractor for use in preparation of final as-built drawings.

1.7.5 Preparation of Final As-Built Drawings

The contract drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract drawings into agreement with approved working as-built drawings, adding such additional drawings as may be necessary.

These final as-built drawings are part of the permanent records of the project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

A set of digital CAD files shall be provided to the Government as a part of the Final As-Built submittal for a review to verify the correctness of the as-built markups and that all changes have been incorporated into the electronic files. Should errors be determined, the Contractor shall update the files and provide a corrected set of files within fourteen (14) calendar days of receipt of comments. An independent Government review, by the Louisville district As-Built Coordinator (CELRL-CDM-Q), will be made on the accepted files to determine compliance with the As-Built requirements of this section, National CAD Standards, and the AEC CAD Standards; and to verify graphic changes were done properly in preparing the electronic files. This review will require submission of electronic files, containing all the files needed to reproduce the contract drawings in accordance with paragraph "Digital CAD Files", a full size set of contract drawings in pdf format, all shop drawings in PDF format, a scanned set of the paper markups, and the paper markups. Upon receipt of any comments from this independent review, the contractor shall update the electronic files and provide a corrected set of files within 14 calendar days of receipt of the comments.

When BIM models are a part of the as-built process, the models shall be provided to the Government as a part of the Final As-Built submittal for a review to verify the correctness of the as-built markups and confirm that all changes have been incorporated into the models. Should errors be determined, the contractor shall update the files and provide a corrected set of files within 14 calendar days of receipt of comments. An independent Government review, by the Louisville district As-Built Coordinator (CELRL-CD-CM-Q), will be made on the accepted files to determine compliance to the As-Built requirements and to verify graphics changes were done properly. This review will require the electronic model files, all the files needed to reproduce the contract drawings, a full size set of contract drawings in pdf format and all the shop drawings in PDF format, and the paper markups. Upon receipt of any comments from this independent review, the contractor shall update the electronic model files and provide a corrected set of files within 14 calendar days of receipt of the comments.

In the event the Contractor performs additional work which changes the as-built conditions of the facility, after submission and approval of the working as-built drawings, the Contractor shall be responsible for the addition of these changes to the working as-built drawings and also to the final as-built documents.

1.7.6 Markings and Indicators

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Changes shall be annotated in accordance with ERDC/ITL TR-12-1 "A/E/C Graphics Standard_Release 2.0" at the following locations:

- a. Bottom of the revised detail.
- b. Right hand and bottom border aligned with the revised detail.
- c. The revision block of the title block.

Separate markings shall be made for each modification negotiated into the contract.

1.7.7 Construction Contract Specifications

Submit final PDF file record construction contract specifications, including revisions thereto, with submission of final as-built drawings.

1.7.8 Preparation of Other As-Built Documents

All other non-electronic documents which may include, for example, design analysis, catalog cuts, or certification documents that are not available in native electronic format shall be scanned and provided in an organized manner in Adobe PDF format.

1.7.9 Submittal of Final As-Built Documents

Within 30 calendar days of Government approval of approved working as-built drawings or a phase of work, Final As-Built documents shall be provided to the Contracting Officer in the formats described in paragraph "Electronic File Use". The final as-built document submittal shall also include the approved preliminary paper working as-built drawings.

1.7.10 Partial Occupancy

The outlet works portion of the construction project must be activated before overall project completion. As-built drawings for the outlet works, including utilities, shall be supplied at the time the outlet works is fully accepted by the Government and associated property is transferred. This same as-built information previously furnished must also be shown on the final set of as-built drawings at project completion.

1.7.11 Electronic File Use

Only personnel proficient in the preparation of CAD drawings shall be employed to modify the electronic contract drawings or prepare additional new electronic drawings. Additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. Three dimensional (3D) elements shall be placed in files in their proper locations when using 3D files with spatially correct elements.

The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CAD media files supplied by the Government. All work by the

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

Contractor shall be done on files in the format in which they are provided. Translation of files to a different format, for the purpose of As-Built production, and then retranslating back to the format originally provided, is not acceptable. The original electronic files provided by the Government will be provided in the format in which As-built work is to be performed - Bentley Systems OpenRoads Designer Connect Edition Version 2021 Release 2 or newer. Volume 2 drawings shall be in Revit. The Contractor shall be responsible for obtaining all software licenses, program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

- a. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 5 mm 3/16 inch high. All other contract drawings shall be marked in the bottom right-hand corner of each drawing either "AS-BUILT" drawing denoting no revisions on the sheet, or "REVISED AS-BUILT" denoting one or more revisions. As-Built drawings shall be dated with the Contract Completion Date in the revision block.

- b. After receipt by the Contractor of the approved working as-built drawings and the original contract drawings files the Contractor shall, within 30 calendar days, make the final as-built submittal. This submittal shall consist of 2 sets of completed final as-built drawings on separate media consisting of both CAD files (compatible with the Using Agency's system on electronic storage media identical to that supplied by the Government) and a full size set in PDF format and the return of the approved marked up working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any translations or adjustments necessary to accomplish this are the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CAD system. All paper drawings, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked drawings as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor. No separate payment will be made for as-built drawings required under this contract, and all costs in conjunction therewith, shall be considered a subsidiary obligation of the Contractor.

1.8 NOT USED

1.9 EQUIPMENT DATA, O&M, & REPAIR MANUALS WITH FIELD TRAINING REQUIREMENTS

Specification 01 78 23 OPERATION AND MAINTENANCE DATA is an extension of the SPECIAL PROVISIONS requirements documented herein and contains the applicable requirements for this section.

1.9.1 Real Property Equipment

Moved to Specification 01 78 23 OPERATION AND MAINTENANCE DATA in Paragraph REAL PROPERTY EQUIPMENT.

1.9.2 O&M and Repair Manuals

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

tier, either by himself or a subcontractor, the Contractor shall submit to the Contracting Officer a completed Standard Form SF1413 Statement and Acknowledgement (available at the GSA Forms Library, <https://www.gsa.gov/reference/forms#>). The form shall include the subcontractor's acknowledgement of the inclusion in his subcontract of the clauses in Section 00 70 00 of this contract entitled 52.222-4 "Contract Work Hours and Safety Standards - Overtime Compensation"; 52.222-8 "Payrolls and Basic Records"; 52.222-7 "Withholding of Funds"; 52.222-14 "Disputes Concerning Labor Standards"; 52.222-13 "Compliance with Construction Wage Rate Requirements and Related Regulations"; 52.222-6 "Construction Wage Rate Requirements" (formerly named "Davis-Bacon Act"); 52.222-9 "Apprentices and Trainees"; 52.222-10 "Compliance with Copeland Act Requirements"; 52.222-11 "Subcontracts (Labor Standards); 52.222-12 "Contract Termination - Debarment"; 52.222-15 "Certification of Eligibility". Nothing contained in this contract shall create any contractual relation between any subcontractor and the Government.

d. Veterans Employment Emphasis for U.S. Army Corps of Engineers Contracts

In addition to complying with the requirements outlined in Subpart 22.13, provision 52.222-38, clause 52.222-35, clause 52.222-37, DFARS Subpart 22.13 and United States Department of Labor regulations, U.S. Army Corps of Engineers (USACE) contractors and subcontractors at all tiers are encouraged to promote the training and employment of U.S. veterans while performing under a USACE contract. While no set-aside, evaluation preference, or incentive applies to the solicitation or performance under the resultant contract, USACE contractors are encouraged to seek out highly qualified veterans to perform services under this contract. The following resources are available to assist USACE contractors in their outreach efforts:

(1) U.S. Department of Labor Veterans' Employment and Training Service (VETS): <https://www.dol.gov/vets/>

(2) Federal veteran employment information:
<https://www.fedshirevets.gov/>

(3) Veterans Opportunity to Work (VOW) Program:
<https://benefits.va.gov/vow/>

(4) U.S. Army Warrior Transition Command Employment Index:
<http://wct.army.mil/modules/employers/index.html>

(5) Hiring Our Heroes:
<https://www.uschamberfoundation.org/hiring-our-heroes>

1.13 SUPERINTENDENCE OF SUBCONTRACTORS

a. The Contractor shall be required to furnish the following, in addition to the superintendence required by clause 52.236-6 - "Superintendence By The Contractor" in Section 00 70 00.

(1) If more than 50 percent and less than 70 percent of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

(2) If 70 percent or more of the value of the work is subcontracted, the Contractor shall be required to furnish two such superintendents to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

b. If the Contracting Officer, at any time after 50 percent of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirements for additional superintendence subject to the right of the Contracting Officer to reinstate such requirement if at any time during the progress of the remaining work he finds that satisfactory progress is not being made.

1.14 IDENTIFICATION OF EMPLOYEES.

a. The Contractor shall be responsible for furnishing an identification badge/card to each employee prior to the employees work on-site, and for requiring each employee engaged on the work to display identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of the employee.

b. The Contractor is required to provide a Local Agency Check for each individual that will be working on this contract.

1.15 NO ASBESTOS - CONTAINING MATERIAL (ACM) CERTIFICATION

1.15.1 Not Used

1.15.2 Construction Phase

Before final payment to the contractor, the contractor's project engineer/manager will sign and submit to the Government, on the contracting firm's letterhead, a dated copy of the following statement:

I hereby certify that to the best of my knowledge no asbestos-containing material (ACM) was used as a building material during this project. Furthermore, I understand that the building owner presumes that all materials marked "May Contain mineral fibers" are considered asbestos unless I either:

- (1) Submit a certification for each individual product installed and identified to contain mineral fibers that no asbestos-containing materials were installed.
- (2) Submit documentation to show that the products containing mineral fiber materials have been microscopically examined by an AIHA- or NVLAP-certified laboratory and the lab has determined that the material does not contain asbestos.

1.16 WARRANTY OF CONSTRUCTION

a. In addition to the requirements found in clause 52.246-21 "WARRANTY OF CONSTRUCTION" in Section 00 70 00 the following shall be included:

(1) In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment,

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(2) Provide names, addresses, and telephone numbers of all subcontractors, equipment suppliers, or manufacturers with specific designation of their area of responsibilities if they are to be contacted directly on warranty corrections.

(3) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(a) The Contractor's failure to conform to contract requirements; or

(b) Any defect of equipment, material, workmanship, or design furnished.

(4) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(5) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(6) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(7) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(a) Obtain all warranties that would be given in normal commercial practice;

(b) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(c) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(8) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

b. Warranty Management

(1) Warranty Management Plan

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause "Warranty of Construction" in clause 52.246-21 in Section 00 70 00. At least thirty (30) calendar days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

(a) Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

(b) Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

(c) A list for each warranted equipment, item, and feature of construction or system indicating:

1. Name of item.
2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers.
5. Names, addresses and telephone numbers of sources of spare parts.
6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
7. Cross-reference to warranty certificates as applicable.
8. Starting point and duration of warranty period.
9. Summary of maintenance procedures required to continue the warranty in force.
10. Cross-reference to specific pertinent Operation and Maintenance manuals.
11. Organization, names and phone numbers of persons to call for warranty service.
12. Typical response time and repair time expected for various warranted equipment.

(d) The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

(e) Procedure and status of tagging of all equipment covered by

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

extended warranties.

(f) Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

c. Performance Bond

(1) The Contractor's Performance Bond will remain effective throughout the construction warranty period and warranty extensions.

(2) In the event the Contractor or his designated representative(s) fails to commence and diligently pursue any work required, and in a manner pursuant to the requirements thereof, the Contracting Officer shall have a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, may make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

(3) In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

(4) Following oral or written notification of required warranty repair work, the Contractor will respond as dictated by para. 1.16e "Contractor's Response to Warranty Service Requirements". Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor as outlined in the paragraph 1.16c(2) and/or (3) "Performance Bond". (2) and/or (3) above.

d. Pre-Warranty Conference

Prior to contract completion and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this clause. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of his responsibilities in connection with other portions of this provision.

e. Contractor's Response to Warranty Service Requirements.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

Following oral or written notification by the Contracting Officer or an authorized representative of the installation designated in writing by the Contracting Officer, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframe specified, the Government will perform the work and back charge the construction warranty payment item established.

(1) First Priority Code 1 Perform on-site inspection to evaluate situation, determine course of action, initiate work within 24 hours and work continuously to completion or relief.

(2) Second Priority Code 2 Perform on-site inspection to evaluate situation, determine course of action, initiate work within 48 hours and work continuously to completion or relief.

(3) Third Priority Code 3 All other work to be initiated within (5) five work days and work continuously to completion or relief.

(4) The "Warranty Service Priority List" is as follows:

- Code 1 Doors
 - a. Overhead doors not operational.
- Code 1 Electrical
 - a. Power failure (entire area or any building operational after 1600 hours).
 - b. Traffic control devices.
 - c. Security lights
 - d. Smoke detectors and fire alarm systems
- Code 2 Electrical
 - a. Power failure (no power to a room or part of building).
 - b. Receptacle and lights.
- Code 3 Electrical
 - a. Street, parking area lights
- Code 1 Gas
 - a. Leaks and breaks.
 - b. No gas to family housing unit or cantonment area.
- Code 3 Interior
 - a. Floor damage
 - b. Paint chipping or peeling
- Code 1 Intrusion Detection Systems
 - High security areas.
- Code 2 Plumbing
 - a. Flush valves not operating properly
 - b. Fixture drain, supply line commode, or water pipe

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

(b) Sample tags shall be submitted for Government review and approval. These tags shall be filled out representative of how the Contractor will complete all other tags.

(c) Tags for Warrantied Equipment: The tag for this equipment shall be similar to the following. Exact format and size will be as approved.

EQUIPMENT WARRANTY CONTRACTOR FURNISHED EQUIPMENT	
MFG NAME	MODEL NO.
SERIAL NO.	
CONTRACT NO.	
CONTRACTOR NAME	
CONTRACTOR WARRANTY EXPIRES	
MFG WARRANTY (IES) EXPIRE	

EQUIPMENT WARRANTY GOVERNMENT FURNISHED EQUIPMENT	
MFG NAME	MODEL NO.
SERIAL NO.	
CONTRACT NO.	
CONTRACTOR NAME	
CONTRACTOR WARRANTY EXPIRES	
MFG WARRANTY (IES) EXPIRE	

(d) If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag. The Contractor warranty expires (warranty expiration date) and the final manufacturer's warranty expiration date will be determined as specified by clause 52.246-21 "WARRANTY OF CONSTRUCTION" in Section 00 70 00.

(2) Execution. The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment.

(3) Payment. The work outlined above is a subsidiary portion of the contract work, and has a value to the Government approximating 5% of the value of the Contractor furnished equipment. The Contractor will assign a value of that amount in the breakdown for progress payments mentioned in the clause 52.232-5 "Payments Under Fixed-Price

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

and shall be removed from the site upon completion of work under the contract.

d. Logos. Logos. The Corps of Engineers and Army Star Logo must be provided in the sizes and styles as specified by the graphic formats shown in the attachment at the end of this section

e. Painting. All legends shall be painted in the sizes and styles as specified by the graphic formats shown at the end of this section. The signs (including back and edges), posts and braces shall be given two coats of Benjamin Moore No. 120-60 poly-silicone enamel or approved equal before lettering. The 4' x 4' right section of the project sign shall be white with black lettering. The 2' x 4' left section shall be Communication Red (CR) with white lettering.

Paint colors shall be as follow:

- Black - Federal Standard 595a Color Number 27038
- White - Federal Standard 595a Color Number 27875
- Red - PANTONE 032

f. Erection. The signs shall be erected at the designated location(s). Signs shall be plumb and backfill of post holes shall be well tamped to properly support the signs in position throughout the life of the contract.

G. Payment. No separate payment will be made for furnishing and erecting the project signs as specified and costs thereof shall be considered a subsidiary obligation of the Contractor.

Amendment 0007*****

1.20 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the clause 52.249-10 "Default (Fixed-Price Construction)" in Section 00 70 00. In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

The nearest National Weather Service office closest to the site is located in Louisville, Kentucky. The NWS Forecast Office Louisville, KY can be accessed via the following link: <https://www.weather.gov/srh/nws/offices>. The Contractor shall make independent investigations and determinations as to weather conditions at the site.

The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor. Reference Specification Section 00 31 19.23 06, paragraph **ANTICIPATED HIGH WATER AND UNUSUAL SEVERE WEATHER**, for work stoppages directed by the Government in response to high water impacts other than Unusually Severe Weather.

The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5	5	6	6	6	5	5	4	4	5	5	6

Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated listed above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the clause 52.249-10 "Default (Fixed-Price Construction)" in Section 00 70 00.

*****Amendment 0007

1.21 INTERFERENCE WITH TRAFFIC AND PUBLIC AND PRIVATE PROPERTY

Refer also to Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS, Paragraphs TEMPORARY TRAFFIC CONTROL and AVAILABILITY AND USE OF UTILITY SERVICES.

a. The Contractor at all times shall dispose his plant and conduct the work in such manner as to cause as little interference as possible with private and public travel. Damage (other than that resulting from normal wear and tear) to roads, shall be repaired to as good a condition as they were prior to the beginning of work and to the satisfaction of the Contracting Officer.

b. The Contractor shall provide and maintain as may be required by the Kentucky Transportation Cabinet proper barricades, fences, danger signals and lights, provide a sufficient number of watchmen, and take such other precautions as may be necessary to protect life, property and structures, and shall be liable for and hold the Government free and harmless from all damages occasioned in any way by his act or negligence in accordance with clause 52.236-7 Permits and Responsibilities, in Section 00 70 00.

1.22 AIRSPACE/FAA FORM 7460-1

As described in Title 14 of the Code of Federal Regulations, part 77, when construction within 20,000 feet of an active runway or use equipment in construction which will penetrate a 100 to 1 slope from the nearest point of the runway, among other defined circumstances, notice to the Federal Aviation Administration (FAA) is required for all temporary construction

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

cranes and permanent structures. The Contractor is responsible for ensuring that FAA Form 7460-1 is completed and submitted to the FAA at least 45 calendar days prior to the start of any construction and approved prior to the start of the project by the Regional FAA Office. Form 7460-1 should be submitted as an On-Airport case. The FAA Form 7460-1 can be submitted to electronically at <https://oeaaa.faa.gov/oeaaa/external/userMgmt/permissionAction.jsp>. Copies of all FAA 7460-1 submittals and determination letters will be required to be coordinated with and submitted to the Contracting Officer. In addition to notification to the FAA, notification to the Kentucky Airport Zoning Commission is also required. Refer to General Note sheet OTW GI007 for additional information.

1.23 GOVERNMENT FIELD OFFICE FACILITIES AND SERVICES.

Refer also to Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS and Section 01 52 13.20 06 GOVERNMENT FACILITIES.

a. General. The Government field office facilities will be located as indicated and specified in the technical portions of these specifications or as directed by and coordinated with the Contracting Officer. Electrical, fuel, water and sewage disposal facilities shall be provided as specified in the technical portions of these specifications and shall be maintained by the Contractor for the duration of the contract. All electricity and fuel oil required for operation of the field office facilities shall be furnished by the Contractor for the duration of the contract. No separate payment will be made for maintaining the facilities and furnishing these utilities and all costs in connection therewith shall be included in other items authorized for payment. The buildings and facilities will not be left in place upon completion of the contract. The Contractor's trailer shall be removed from the site and all utilities removed. The site shall be re-graded to pre-construction conditions acceptable to the Contracting Officer. The entire site shall be seeded.

b. Utility Services. The Contractor shall arrange for and pay all costs for water, electricity, liquefied petroleum or fuel oil, and other utilities as necessary for the field office and continuing for the life of the project. The existing equipment shall be cleaned and then serviced a minimum of biweekly.

c. Payment. No separate payment will be made for any of these Contractor-furnished services described under this paragraph, and all costs therewith shall be included in other items authorized for payment.

1.24 COMPLIANCE WITH POST/BASE REGULATIONS

Contractor personnel shall park only in areas authorized by the Contracting Officer.

1.25 COST PRINCIPLES AND PROCEDURES FOR MODIFICATION

Cost principles and procedures for any modifications processed under this contract will follow all applicable contract clauses, laws, regulations, policies, and guidance. See, for example: FAR Part 31, FAR Part 15, FAR 52.215-21, DFARS 252.215-7002, DFARS 252.231-7000, and EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule (region dependent on project location), available at <https://publications.usace.army.mil>.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

1.26 ENGLISH-SPEAKING REPRESENTATIVE

At all times when any performance of the work at any site is being conducted by any employee of the Contractor or his subcontractors, the Contractor shall have a representative present at each site who has the capability of receiving instructions in the English language, fluently speaking the English language and explaining the work operations to persons performing the work, in the language that those performing the work are capable of understanding. The Contracting Officer shall have the right to determine whether the proposed representative has sufficient technical bilingual capabilities, and the Contractor shall immediately replace any individual not acceptable to the Contracting Officer.

1.27 SALES and USE TAX

Some states have tax exemptions for certain aspects of work when done for the federal government and the Contractor shall check with the state where the project is located for more information. If a sales tax exemption is applicable, the contractor is responsible for obtaining any required exemption certification.

1.28 CONTRACTOR SECURITY TRAINING/FACILITY ACCESS REQUIREMENTS

a. The security requirements described below apply to all contract personnel (including employees of the prime Contractor ("Contractor") and all subcontractor employees) supporting the performance requirements of this contract. The Contractor is responsible for compliance with these security requirements. Questions regarding security matters shall be addressed to the designated Government representative (e.g., Contracting Officer Representative (COR), Requiring Activity (RA) representative, or Contracting Officer (if a COR or other RA representative is not appointed)). Contract personnel are critical to the overall security and safety of US Army Corps of Engineers (USACE) installations, facilities and activities, and security awareness training contributes to those efforts. The Department of Defense (DoD) and Army security training requirements specified below, if applicable, are performance requirements; all applicable contract personnel shall complete initial training within 30 days of contract award or the date new contract personnel begin performance on the contract. Within five business days from the completion of training, the Contractor shall provide written documentation (e.g., email or memorandum) to the Government representative. The documentation shall include the names of contract personnel trained and which training they completed; the Contractor shall maintain training records as part of their contract files and be prepared to provide copies of training certificates to the Government representative. Contractor personnel and vehicles are subject to search when entering federal installations. Additionally, all contract personnel shall comply with Force Protection Condition (FPCON) measures, Random Antiterrorism Measures (commonly referred to as "RAMs"), and Health Protection Condition (HPCON) measures. The Contractor is responsible for meeting performance requirements during elevated FPCON and/or HPCON levels in accordance with applicable RA plans and procedures --this includes identifying mission essential and non-mission essential personnel. In addition to the changes otherwise authorized by the changes clause of this contract, should the FPCON or HPCON levels at any individual facility or installation change, the Government may implement security changes that affect contract personnel. The Contractor shall ensure all contract personnel are aware of their security responsibilities, including any site-specific requirements identified in local policies or procedures.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

b. All contract personnel shall receive initial and annual refresher training from the RA representative on the local suspicious activity reporting program. This locally developed training provides contract personnel with general information on suspicious behavior, and guidance on reporting suspicious activity to the project manager, security representative or law enforcement entity.

c. All contract personnel requiring physical access to a federal installation or facility shall comply with the access control procedures of that location. Contract personnel requiring unescorted access to meet contract performance requirements on a DoD installation in the US shall be vetted by the installation/facility Provost Marshal/Directorate of Emergency Services/Security Office using the National Crime Information Center-Interstate Identification Index (commonly referred to as "NCIC-III") and Terrorist Screening Database (commonly referred to as "TSDB"). Contract personnel shall comply with all personal identity verification requirements specified in installation/facility policies and procedures. Contract personnel who do not meet requirements for unescorted access to USACE facilities shall coordinate escorted access with the Government representative, as needed. Contract personnel who receive keys, access cards, or lock combinations that provide access to government-owned property shall comply with key and lock control procedures of the RA.

d. Per AR 530-1, Operations Security, all contractor employees and associated subcontractor employees must complete Level 1 OPSEC Training within thirty (30) calendar days of commencing work. Additionally, all contractor employees and associated subcontractor employees must complete annual OPSEC awareness training.

e. Contractors shall comply with the requirements set forth in FAR clause 52.222-54 Employment Eligibility Verification and FAR Subpart 22.18 in using the E-Verify Program at (<https://www.e-verify.gov/>) (website subject to change) to meet the contract employment eligibility requirements. Contractors are encouraged to cooperate with Federal and State agencies responsible for enforcing labor requirements to include eligibility for employment under United States immigration laws in accordance with FAR 22.102-1(i). An initial list of verified/eligible candidates shall be provided to the COR no later than three business days after the initial contract award. When contracts are with individuals, the individuals will be required to complete a Form I-9, Employment Eligibility Verification, and submit it to the Contracting Officer to become part of the official contract file.

1.28.1 Critical Infrastructure

All Contractor and subcontractor employees who require access to the existing control tower or conduit shall be accompanied by LRL USACE Personnel for the entire duration of the work. The access must be coordinated at least 7 calendar days in advance with the COR and the access must occur during established working hours.

1.28.2 Supplemental Security Requirements

All Contractors and subcontractor employee(s) working on this contract who require access to any Louisville District Lake Projects and Lock and Dam Projects shall receive authorization to be on site at these facilities based upon a favorable background investigation in accordance with "Homeland Security Presidential Directive 12: Policy for a Common

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

Identification Standard for Federal Employees and Contractors" (HSPD 12). The Louisville District Security Management Office shall submit contractor(s) personal information to complete the basic background investigation in order to make a recommendation to the Contracting Office of an employee's suitability for work on Government property. The Procuring Contracting Officer (PCO) has the right to deny any contractor or subcontractor employee from working on the contract based upon the results of the background investigation provided by the Louisville District Security Office. The Government, Contractor, and subcontractors shall not permit any employee(s) access to drawings, blueprints, records, photos, sites, or projects until the Louisville District Security Management Office has completed an Operations Security (OPSEC) review of such items and determined they can be released.

1.28.3 For All Louisville District Contracts

Contractors shall submit a complete investigation packet for each contractor and subcontractor employee to the Louisville District Security Management office within 10 working days after award of any contract, or prior to the individual being permitted access to Louisville District facilities.

The Contractor must also provide the following: (1) Name of the Contract Specialist with whom he/she is working, (2) Project Name, (3) Contract Number (4) Task Order Number when applicable, and (5) US Citizens Security Access Form each employee working on site must have a background investigation form submitted directly to the Louisville District Security Office.

The Contractor must provide a full legal name, complete SSN#, Date of Birth, Place of Birth (City and State) and Driver's license number if available. It is the Contractor's responsibility to ensure the above information is accurate and legible, otherwise delays may occur.

Contractors shall have background checks completed for their employees annually in the case of Contracts with an initial period of performance (POP) greater than 1 year and those Contracts with Options or Modifications Which Extend the POP beyond 1 year. For instance, if the employee was cleared in May of 2022, they shall be cleared again in May of 2023. It is the Contractor's responsibility to ensure that each employee's security is up to date. Failure to comply may lead to possible removal from the project/jobsite.

The Contractor must ensure if new employees are brought in to work on an existing Contract with the U.S. Army Corps of Engineers (USACE), they must process the employee through the Louisville District USACE Security Office for background purposes.

1.28.4 For Contractors Requiring DOD Common Access Card (CAC)

The documents listed below are required:
SF 85, Questionnaire for Non-Sensitive Positions (see <http://www.opm.gov/forms/> to print form). Fingerprints are captured electronically at the closest Army Recruiting Station to the contractor's home of record or at the USACE, Louisville District Security Office.

Contractor shall report any changes in personnel, or at any time conditions change at least 5 working days prior to individual(s) need to have access

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

to the site. The Contractor shall provide the same information as listed above for all new employees.

Following submission of paperwork, the Louisville District Security Office will conduct an initial criminal check based upon the information provided. If there are no issues, the Louisville District Security Office will make recommendations to the PCO or their Designated Representative. The Louisville District Security Office cannot give approval due to unfavorable report(s). The Louisville District Security Office shall coordinate with Office of Counsel and will jointly make recommendations to the PCO and/or the Designated Representative should a background investigation come back with derogatory information. The PCO will make the determination whether to allow the Contractor personnel to work on the site based on Security and Office of Counsel recommendations, and the PCO will advise the Contractor of the decision.

1.28.5 Foreign Nationals

The Contractor shall provide the package listed above, as well as additional materials noted below for all Foreign Nationals. The Contractor is to expect additional time in the approval process for all Foreign Nationals due to the level of review and elevation of the review to Headquarters staff to complete. All Foreign Nationals must comply with the following paragraph:

In accordance with Engineering Regulation 380-1-18, "Technology Transfer, Disclosure of Information and Contacts with Foreign Representatives" dated 1 August 1996, Section 4, all foreign nationals who work on Corps of Engineers' contracts shall be approved by the Headquarters US Army Corps of Engineers (HQ USACE) Foreign Disclosure Officer before beginning work on this contract; this regulation includes subcontractor employees. The Contractor shall submit to the Security Management Office, the names of all foreign nationals proposed for performance under this contract,

along with documentation to verify legal admittance into the United States. Such documentation shall include at least one of the following: a U.S. passport, Certificate of U.S. Citizenship (INS Form N-560 or N-561), Certificate of Naturalization (INS Form N- 550 or N-570), Alien Registration Card with photograph (INS Form I-151 or I-551), Employment Authorization Card (INS Form I-688A), etc.

In order to assure forms are properly completed, and to minimize time delays, the Contractor is encouraged to work closely with the Louisville District Security Office. The Government will return for correction incomplete forms, illegible forms, etc. which will delay the contractor / subcontractor from beginning work.

Security requirements are subject to change in accordance with HSPD-12, Office of Personnel Management, regulation, or policy changes, etc. The Government shall add any changes to security requirements by modification to the contract.

The Contractor shall contact the Louisville District Security Office by phone, letter, or email at the following numbers/addresses:

CELRL-SM

600 Martin Luther King Jr. Pl Louisville, KY 40202

P2#: 145870
 Falls of Rough, KY Rough River
 Dam Safety Mod Phase II

Primary Email: DLL-CELRL-Security-SM@usace.army.mil

Alternate (if no response in 72 hours):

James R. Milner, phone (502) 315-6916; James.R.Milner@usace.army.mil

Jason Almodovar, phone (502) 315-6754; Jason.Almodovar@usace.army.mil

1.29 INSURANCE--WORK ON A GOVERNMENT INSTALLATION

In addition to the requirements of clause 52.228-5 "Insurance - Work on a Government Installation" found in Section 00 70 00 the following shall be provided:

- a. Coverage complying with State laws governing insurance requirements, such as those requirements pertaining to Workman's Compensation and Occupational Disease Insurance. Employer's Liability Insurance shall be furnished in limits of not less than \$100,000.00 except in states with exclusive or monopolistic funds.
- b. Comprehensive Automobile Liability Insurance for both bodily injury and property damage, shall be furnished in limits of not less than \$200,000.00 per person, \$500,000.00 per accident for bodily injury, and \$20,000.00 per accident for property damage. When the Financial Responsibility or Compulsory Insurance Law of the State, requires higher limits, the policy shall provide for coverage of at least those higher limits.
- c. Within seven calendar days after the award of contract, the Contractor shall submit to the Contracting Officer Evidence of Insurance for all insurance coverages. Dates of coverage shall be entered into RMS and maintained thru the contract duration. If and when new insurance is obtained because of expiration or renewal, new certificates shall be submitted to the Contracting Officer within seven days of obtainment and the new coverage information and dates entered into RMS.

1.30 AVAILABILITY OF SAFETY AND OCCUPATIONAL HEALTH (SOH) REQUIREMENTS MANUAL (EM 385-1-1)

As covered by clause 52.236-13 "Accident Prevention" in Section 00 70 00, compliance with EM 385-1-1 is a requirement for this contract. Copies may be downloaded from the following website:

<https://www.publications.usace.army.mil/USACE-Publications/Engineer-Manuals/>

1.31 HAUL ROADS

Haul road embankments shall be designed by the Contractor in accordance with Contract Drawings and specifications 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS and 31 00 00.00 06 EARTHWORK. Whenever practical, one-way haul roads shall be used on this contract. Haul roads built and maintained for this work shall comply with the following:

- a. One-way haul roads for off-the road equipment; e.g., belly dumps, scrapers, and off-the-road trucks shall have a minimum usable width of 25 ft. One-way haul roads for over-the-road haulage equipment only (e.g., dump trucks, etc.) may be reduced to a usable width of 15 ft. When the Contracting Officer determines that it is impractical to obtain the required width for one-way haul roads (e.g., a road on top

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

of a levee), a usable width of not less than 10.5 ft. may be approved by the Contracting Officer, provided a positive means of traffic control is implemented. Such positive means shall be signs, signals, and/or signalman and an effective means of speed control.

- b. Two-way haul roads for off-the-road haulage equipment shall have a usable width of 60 ft. Two-way haul roads for over-the-road haulage equipment only may be reduced to a usable width of 30 ft.
- c. Haul roads shall be graded and otherwise maintained to keep the surface free from potholes, ruts, and similar conditions that could result in unsafe operation.
- d. Grades and curves shall allow a minimum sight distance of 200 ft. for one-way roads and 300 ft. for two-way roads. Sight distance is defined as the centerline distance an equipment operator (4.5 ft. above the road surface) can see an object 4.5 ft. above the road surface. When conditions make it impractical to obtain the required sight distance (e.g., ramps), a positive means of traffic control shall be implemented.
- e. Dust abatement shall permit observation of objects on the roadway at a minimum distance of 300 ft.
- f. Haul roads shall have the edges of the usable portion marked with posts at intervals of 50 ft. on curves and 200 ft. maximum elsewhere. Such markers shall extend 6 ft. above the road surface and, for nighttime haulage, be provided with reflectors in both directions.
- g. The Contractor shall determine techniques, methods, and procedures for dust remediation for all areas within the Construction Work Limits for Government approval, including the batch plant. The Contractor shall implement these remediations as site conditions warrant, or as requested by the COR.

1.32 RADIOACTIVE MATERIAL/EQUIPMENT

All equipment (e.g. nuclear density gauges) or items containing radioactive material brought onto the project site must be licensed by the Nuclear Regulatory Commission, and the state of Kentucky. Be aware that there may be several week review and processing periods that vary from location to location. Permitting for each site must be evaluated, with a copy of any obtained permit or license provided to the Contracting Officer. Information for Reciprocity and State of Kentucky requirements can be located at the following website: https://www.apnga.com/Reciprocity_Agreement.pdf

American Portable Nuclear Gauge Association

Radiation Health Branch
 Cabinet for Health and Family Services
 275 East Main Street
 Mail Stop HS-1C-A
 Frankfort, KY 40621-0001
 PH (502)564-3700 ext. 3695
 FX (502)564-7815

1.33 CONSTRUCTION HAZARD COMMUNICATION

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

The Contractor is required to comply with the requirements of the OSHA Hazard Communication Standard in alignment with the Globally Harmonized System (GHS) (29 CFR 1926.59). This standard is designed to inform workers of safe and appropriate methods of working with hazardous substances in the workplace. The standard has five requirements, and every hazardous or potentially hazardous substance used or stored in the work area is subject to all five. They are:

(1) Hazard Classification. Any company which produces or imports a chemical or compound must conduct a hazard classification of the substance to determine its potential health or physical hazard. The hazard evaluation consists of an investigation of all the available scientific evidence about the substance. The Contractor is required to assure that all producers (manufacturer/distributors) have performed these classifications and transmit the required information with any hazardous materials being used or stored on the project site. From the hazard classification, a substance may be classified as a health hazard or a physical hazard. These classifications are then further broken down into hazard categories according to the severity of the effect:

Health Hazards	Physical Hazards
Carcinogens	Combustible liquids
Irritants	Compressed gases
Sensitizers	Explosives
Corrosives	Flammables
Toxic substances	Organic peroxides
Highly toxic substances	Unstable substances
Substances harmful to specific organs or parts of the body	Water-reactive substances

(2) Warning Labels. If a chemical is hazardous or potentially hazardous, the producer or importer must affix a label to every container of that chemical before it leaves his facility. The Contractor must assure these labels are attached and legible. The label must identify the hazard symbol/pictograms, signal words, hazard statements, product name or identifier (identify hazardous ingredients, where appropriate), precautionary statements and pictograms, supplier identification, and supplemental information. If the hazardous substance is transferred to another container, that container must then be labeled, tagged, or marked with the name of the chemical and the appropriate hazard warning. Warning labels shall be replaced immediately if they are defaced or removed.

(3) Safety Data Sheets. The producer or importer must also supply a safety data sheet (SDS) that follows the 16 heading format as defined

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

by GHS. The Contractor must keep these available in the work area where the substance is used, so that the people using the substance can easily review important safety and health information, such as:

- (i) Emergency procedures for leaks, spills, fire and first aid.
- (ii) Precautions necessary for use, handling, and storage.
- (iii) Useful facts about the substance's physical or chemical properties.
- (iv) Regulatory information and any other pertinent information including information on preparation and revision of the SDS.

(4) Work Area Specific Training. Because of hazardous substance may react differently depending on how it is used or the environment of the work area, the Contractor must conduct work area specific training; special training which takes the Contractor's operations, environment, and work policies into consideration. Work area training presents:

The hazardous substances which are present in the work place and the hazards they pose.

Ways to protect against those hazards, such as protective equipment, emergency procedures, and safe handling.

Where the SDS's are kept, and an explanation of the labeling system.

Where the Contractor's written Hazard Communication Program is located.

(5) The Written Hazard Communication Program. In accordance with OSHA and the EM 385-1-1 requirements, the Contractor must prepare a written Hazard Communication Program. This document will be included in the Contractor's Accident Prevention Plan. This document states the hazardous or toxic agent inventory, how the Contractor plans to ensure that hazardous materials are appropriately labeled, how and where SDS's will be maintained, and how employees will be provided with specific information and training.

1.34 NOT USED

1.35 RED ZONE MEETING

Approximately 60 calendar days prior to anticipated project completion, the Contractor and the Government's project delivery team will conduct what is known as the Red Zone Meeting to discuss the close-out process, to schedule the events and review responsibilities for actions necessary to produce a timely physical, as well as fiscal, project close-out. The Red Zone meeting derives its name from the football term used to describe the team effort to move the ball the last 20 yards into the end zone. The close-out of a construction project sometimes can be equally as hard and most definitely requires the whole team's efforts.

1.36 PARTNERING

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve Project Delivery Team members from the Corps of Engineers, Program Sponsor, facility user representatives, the Contractor, primary subcontractors, and the designers. The partnership will draw upon the strength of each organization in an effort to achieve a project that is without any safety mishaps, conforms to the Contract, stays within budget and on schedule.

The Government encourages partnering to be initiated near the beginning of the Contract and endure through the life of the Contract. This partnership would be bilateral in membership and participation will be completely voluntary.

1.37 PROGRESS PHOTOGRAPHS

During the progress of the work the Contractor shall furnish to the Contracting Officer digitally produced progress photographs monthly to depict the progress of the work both on-site and off-site at fabrication facilities.

The photographs shall depict the progress of the work during construction and after final inspection by the Contracting Officer, of the conditions at the completion of the contract. The required photography shall be performed throughout each month. All digital photographs shall be uploaded to RMS within 48 hours of obtainment of photography.

Cutoff wall and Tailwater Area

A minimum of six views from different positions shall be taken as directed to show, inasmuch as possible, work accomplished during the previous month, and a minimum of six views shall be taken of the completed work. Additional views and positions may be required by the Contracting Officer to depict the work done. Photographs shall be taken from the same orientation (upstream to downstream) and detail construction progress as features are excavated.

Outlet Works Alignment

A minimum of six views from different positions shall be taken as directed to show, inasmuch as possible, work accomplished during the previous month, and a minimum of six views shall be taken of the completed work. Outlet works construction shall include progress photos for every foundation approval for every 50 feet of alignment accomplished by excavation in the dry. Additional views and positions may be required by the Contracting Officer to depict the work done. The outlet works alignment shall be photographed from the upstream abutment to the retreat channel at every cross section provided in the Contract Drawings. Photographs shall be taken from the same orientation (upstream to downstream) and detail construction progress as features are excavated.

Photo formatting, processing, and turnover requirements are detailed in Section 01 31 00 DATA MANAGEMENT paragraph "Photographs".

No separate payment will be made for these services and all costs in connection thereto shall be considered a subsidiary obligation of the Contractor.

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

No separate payment will be made for these services and all costs in connection thereto shall be considered a subsidiary obligation of the Contractor.

1.38 DAMAGE TO WORK

The responsibility for damage to any part of the work to be performed under this contract shall be as set forth in the clause 52.236-7 "Permits And Responsibilities" in Section 00 70 00. However, if the cofferdam(s) is constructed in accordance with plans and progress schedules approved by the Contracting Officer, but is overtopped by flood and such flood causes damage to the cofferdam(s) or if any part of the permanent work is damaged by flood or earthquake, which damage is not due to the failure of the Contractor to take reasonable precaution or to exercise sound engineering and construction practices in the conduct of the work, the Contractor will make the repairs ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit or lump sum prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such damaged work, an equitable adjustment pursuant to clause 52.243-4 "Changes" in Section 00 70 00 will be made as full compensation therefore. Damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer.

The cofferdam has controlled overtopping built into the design. Pre-mature breaching of the cofferdam by the Contractor is not permitted.

1.39 SIGNAL LIGHTS

The Contractor shall display signal lights and conduct his operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International-Inland (Comdtinst M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84-90 (Inland) as applicable.

1.40 LAKE OPERATION

Rough River Dam is a flood control reservoir. Lake operations are based on rainfall received within the basin and are not subject to manipulation to facilitate specific features of construction. Reservoir levels will vary. Specification 00 31 19.23 06 WEATHER AND WATER STAGE DATA/RESTRICTIONS discussions reservoir variations and critical reservoir elevations. Hydrographs are also provided in the Volume 1 Plans.

1.41 NOT USED

1.42 NOT USED

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

1.43 REGISTRATION OF DESIGNERS

The following section applies to features required in Specification 01 33 16.00 06 CONTRACTOR SUBMITTALS REQUIRING ENGINEERING AFTER AWARD.

In addition to the requirements found in clause 52.236-25 "Registration Of Designers" in Section 00 70 00 the following shall be required:

Each final design submittal drawing and certified final drawings ready for construction shall be signed and sealed by the registered professional (Designer of Record) responsible for the design indicated on the particular sealed sheet.

1.44 DESIGN CONFERENCES

The following section applies to features required in Specification 01 33 16.00 06 CONTRACTOR SUBMITTALS REQUIRING ENGINEERING AFTER AWARD.

a. Pre-Work: As part of the Pre-work meeting conducted after contract award, key representatives of the Government and the Contractor will review the design submission and review procedures specified herein, as appropriate, meet with Corps of Engineers Design Review personnel and key Using Agency points of contact and any other appropriate pre-design discussion items.

b. Design Review Conferences: Review conferences will be held on site for each design for each submittal. The Contractor shall bring the personnel that developed the design submittal to the review conference. The conferences will take place the week after the review is complete.

1.45 FINAL CLEANING

Clean the premises in accordance with clause 52.236-12 "Cleaning Up" in Section 00 70 00 and additional requirements state here. Remove stains, foreign substances, and temporary labels from surfaces. Clean equipment and fixtures to a sanitary condition. Remove debris from roofs, drainage systems, gutters, and downspouts. Sweep paved areas and rake clean landscaped areas. Remove waste, surplus materials, and rubbish from the site. Remove all temporary structures, barricades, project signs, fences and construction facilities. A list of completed clean-up items shall be submitted on the day of final inspection.

1.46 BASIS FOR SETTLEMENT OF PROPOSALS

See clause 31.105(d) (2) (i) for establishing the cost of construction equipment.

1.47 NOT USED

1.48 PROTECTION OF HISTORIC PROPERTIES

In coordination with the Kentucky State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP), the following structures within and around the Contractors work limits have been designated as historic structures:

- a. The Dam
- b. Dry Control Tower

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Grayson and Breckinridge Counties.

1.54 NOT USED

1.55 SEQUENCE OF WORK

Scheduling of work must be approved by Contracting Officer. Contract sequencing restrictions are identified in Section 01 11 00 SUMMARY OF WORK.

1.56 NOT USED

1.57 NOT USED

1.58 NOT USED

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION NOT USED

-- End of Section --

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

SECTION 00 31 19.23 06

WEATHER AND WATER STAGE DATA/RESTRICTIONS
5/24

AMENDMENT 0007

PART 1 GENERAL

1.1 SCOPE

This section contains weather and water stage data for construction at Rough River Lake Dam. Rough River Dam is intended for flood control therefore the pool and tailwater will fluctuate based on rainfall, inflows into the reservoir, reservoir levels, and downstream channel conditions. In spring of 2023 a pool restriction was implemented at the project. The "Normal Summer Pool" of 495 NGVD29 was lowered implementing a "Restricted Summer Pool" of 490 NGVD29. The Restricted Summer Pool will be the summer pool target elevation for work completed on the outlet works and cutoff wall. When the general term "Summer Pool" is used in this Contract, the Restricted Summer Pool of 490 NGVD29 is inferred. The Normal Summer Pool may be re-instated after acceptance of the outlet works AND cutoff wall. The winter pool targets a pool of 470 NGVD29 in the winter.

The Geotechnical Interpretive Report (GIR), available in Volume 6 of the technical package, includes both the target pools listed on the Seasonal Guide Curve for the months when the summer pool and winter pools are targeted. The GIR also includes the Stage Frequency Curves which provide a summary of the probability to exceed any given reservoir stage in a given year. Hydrographs for the reservoir and the tailwater are included in the Volume 1 Plans with additional electronic resources included herein. This information is provided to the Contractor for review and interpretation to understand how the reservoir levels vary and how best to sequence work at the project. Reference is made to Specification 01 11 00 SUMMARY OF WORK for an overview of the project.

1.1.1 Water Control Advisory Panel (W.C.A.P.) Coordination

A Water-Control Assessment Panel (W.C.A.P.) will be formed from the USACE Louisville District Personnel and representatives for the Contractor. The W.C.A.P. will include the Dam Safety Modification Lead Engineer, The Project Manager, The Dam Safety Program Manager (DSPM), Water Management Team Lead, Resident Engineer, the Lake Manager, Contractor's SSHO, and the Contractor's QC Manager. The W.C.A.P. will convene at regular intervals when the reservoir is approaching the 510 elevation to make assessments of the current ongoing work and the impacts that the projected weather forecast may have for the dam. During construction, the W.C.A.P. will make recommendations to the Contracting Officer whether to proceed with work, to complete elements that have already started, to abandon elements that have already been started, and to recommend additional emergency measures related to pool levels as required to maintain Dam Safety during construction activities. Dam Safety and the integrity of the dam shall remain the number one priority for the project during construction.

The Water-Control Assessment Panel (W.C.A.P.) will also convene and make recommendations regarding evacuation of the spillway that may be utilized by the Contractor as a haul route. The concrete spillway control sill shall be protected from damage during hauling operations. If the reservoir rises to a high pool scenario that will likely result in uncontrolled spillway

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

flow, the Contractor must remove any haul road material to below the concrete sill elevation (524), and any noticeable damage to the sill repaired by the Contractor within 36 hours.

Any work required to access the stilling basin and discharge conduit outlet works functioning as the primary means of flow conveyance must not disrupt normal releases more than 8 consecutive hours at any given time. This includes the time to dewater and the mobilization/demobilization of any equipment or personnel entering the structure. The Contractor is responsible for handling dewatering activities from sandbagging or cofferdams, gate leakage, or other sources as required to complete operations at normal or elevated pools. Following periods of shutdown or at the discretion of the Contracting Officer, the outlet works shall be cleared of any obstructions to allow controlled releases by USACE.

If a shutdown of releases from the project lasting more than 8 continuous hours is required at any time, USACE shall be notified in writing at least 7 days in advance and the contractor shall provide means for a continuous water bypass of at least 50 cfs. This may be accomplished through stilling basin dewatering, pumping of gate leakage, pumping from the reservoir, or any combination of these alternatives. The design and operation of the bypass system is the responsibility of the Contractor and shall be submitted to the Government for approval as part of the work plan. The new outlet works shall be fully functioning, been placed in service a minimum of 30 days, and re-inspected by the Government for approval prior to abandoning the existing conduit or initiating work in Critical Area A.

Any time the stilling basin or tailwater is dewatered for either outlet works structure, the Contractor shall be responsible for removing fish from the tailwater and stilling basin for relocation downstream of any required cofferdam for dewatering. When dewatering of a stilling basin occurs, the Contractor shall coordinate with the Kentucky Department of Fish & Wildlife a minimum of 14 calendar days in advance, for approval and supervision of fish removal. Dewatering will not be allowed to occur without prior approval from the KY Department of Fish and Wildlife and a representative from said agency present during relocation operations. This dewatering requirement shall not apply to the new stilling basin should it be submerged by high water prior to being connected to the new retreat channel. No separate payment will be made for removal and relocation of fish.

Amendment 0007*****

1.1.2 Anticipated High Water And Unusually Severe Weather

Unusually Severe Weather Days are evaluated in accordance with Specification 00 80 00.00 06, paragraph 1.20, TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. In order to qualify for an Unusually Severe Weather Day related to high water, the following criteria must be met in addition to the requirements of Specification 00 80 00.00 06:

Control Tower and Stilling Basin: The Contractor must be prepared to remove all personnel, equipment, and materials from the area within a period of 48 hours of **notification by the W.C.A.P.**

Cutoff Wall Construction on the Dam: Cutoff Wall excavation and grouting activities in the designated critical areas must cease when the reservoir reaches elevation **520**. See special requirements contained herein relative to the cutoff wall.

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

Spillway Haul Road: No sandbagging, barricades, or other means of maintaining spillway haul road access are permitted and operations on the spillway haul road must stop when the road is covered by water. Aggregate surfacing for the haul road within the spillway above the 524 elevation must be 3 inch sized aggregate or smaller.

Links to hydraulic, meteorological, and hydrographs are provided herein with additional hydrographs provided in the Volume 1 Plans.

*****Amendment 0007

1.2 WEATHER DATA

The climatological data listed below was obtained from the website <https://www.ncdc.noaa.gov/cdo-web/datatools/normals>. It is maintained by the US Department of Commerce, National Oceanic and Atmospheric Administration. This data pertains to station "Rough River Lake, KY US" for the period 1991-2020. Note that updated information from the NOAA discussing climate changes for the period 1991-2020 is available here: <https://www.ncei.noaa.gov/news/noaa-delivers-new-us-climate-normal>.

Month	Precip (in)	Average Min. Temp (F)	Average Temp (F)	Average Max. Temp (F)
January	3.60	24.4	34.0	43.6
February	3.85	26.3	37.4	48.6
March	4.46	33.6	45.9	58.2
April	5.30	42.9	56.4	70.0
May	6.00	52.9	65.7	78.5
June	4.78	61.6	74.1	86.6
July	4.20	65.4	77.8	90.2
August	3.24	63.3	76.5	89.8
September	3.48	56.1	69.9	83.6
October	4.06	44.4	58.1	71.9
November	3.84	34.3	46.5	58.6
December	4.66	27.9	37.8	47.7

Amendment 0007*****

1.3 WORK RESTRICTIONS ASSOCIATED WITH POOL LEVEL

Work shall be restricted based on pool level and calendar as described herein. The below criteria may be revised by the Contracting Officer, upon recommendation from the W.C.A.P., after completion of demonstration areas and test sections to more accurately reflect construction sequences,

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

scheduled time of completion, and the calendar year to occur:

a. Outlet Works Construction: Releases during this phase shall be controlled by the existing outlet works. The Contractor shall construct a cofferdam to Elevation 525 with a controlled overtopping zone 50 feet long at Elevation 524 along the left cofferdam abutment. At reservoir Elevation 510, the W.C.A.P. and Contractor Site Safety Health Officer (SSHO) shall convene to assess reservoir loading, seasonal uncertainty, cofferdam performance, spillway evacuation, and upcoming weather forecasts to determine if working conditions are safe to proceed. Above Elevation 515 the W.C.A.P. must meet at least bi-weekly, or as needed, to assess risks for any potential spillway flow event.

Additionally, blasting operations shall cease within 250 feet of the Control tower cofferdam when the reservoir exceeds Elevation 515. Exceptions may be granted from the Contracting Officer in writing for instances where no personnel, equipment, or permanent work are placed at risk from potential inundation of the excavation.

b. Underwater Excavation: See Specification Section 31 23 05.00 06 MASS EXCAVATION paragraphs for measurement and payment for underwater reservoir level limitations specific to underwater dredging/excavation and underwater blasting. Note that blasting within 25 feet of water shall only be conducted when the reservoir is below elevation 490. Gradual drawdown of the reservoir normally begins on 15 October and is scheduled for completion to an elevation of 470 on 1 December. The rate of drawdown is dependent on rainfall and inflow conditions. There are years in the historical record where heavy rainfall prevented the drawdown for the reservoir from reaching winter pool. On any given year requiring underwater blasting, the Contractor can request that the maximum drawdown rate be initiated on October 1st. The maximum amount the reservoir can be drawn down is 0.75 feet per day and is contingent upon rainfall and project inflows. Submit requests in writing to the Contracting Officer at least 120 days in advance. Submitting a request is no guarantee that such request will be approved by the Contracting Officer. In the event of heavy rains, the reservoir can rise very quickly. The Contractor is solely responsible for planning and sequencing the operation around reservoir fluctuations. Appropriate length spuds, evacuation plans, temporary mooring to allow for significant pool rise, and proper planning/sequences of work based on available weather forecasts are required.

c. Upstream Cofferdam Construction and Grout Curtain: The Stage 1 cofferdam allows for construction of the main cofferdam and required foundation treatment to occur in the dry. The Contractor may request an early drawdown beginning on September 1 on any given year but such request must be received in writing by the Contracting Officer at least 120 days in advance. Requests will be accepted or rejected by the Contracting Officer within 45 days of receiving the request.

d. Existing Conduit Abandonment: After the new outlet works has been in operation for 30 days, re-inspected, and formally approved by the Government, the W.C.A.P. shall convene to assess reservoir loading, seasonal uncertainty, and upcoming weather forecasts to determine when the existing conduit abandonment may proceed. The work shall be sequenced to occur during a time period where minimum releases from the new outlet works shall not result in reservoir levels above 515 or associated releases will not flood the Contractor's downstream operation at the stilling basin. Prior to approval of the new outlet

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

works, the Contractor may elect to sandbag the existing stilling basin end sill up to elevation 438 and remove any fish trapped in the existing stilling basin. Alternative methods for earth or steel cofferdams must be approved by the Contracting Officer at least 30 days in advance. After approval of the new outlet works, the Contractor must execute procedures to abandon the existing outlet works detailed on Contract Drawings CTW-CG-502 through CTW-CG-506. The Contractor shall be responsible for evacuating the conduit/stilling basin of all manpower, equipment, and materials in a timely manner in the event heavy rainfall occurs with the potential to overtop the downstream cofferdam. Additionally, the Contracting Officer may direct evacuation of all personnel, materials, and equipment from the conduit and stilling basin upon recommendation from the W.C.A.P.

e. Cut-off Wall Critical Area A from Station 22+40 to Station 22+70 - Work related to excavation at the conduit, demolition of the conduit, and severing the conduit shall not be initiated if there is high water or forecasts for high water at the reservoir. The reservoir must be drawn down to a minimum pool of 500 before work will be permitted to proceed by the Government. Historically, the months of July through December have proven to have less fluctuations compared to the months of January through June. To avoid risks of high water during construction, work associated with placement of the Special Panel/Secants shall occur in continuous shifts until completion. If necessary, the Contracting Officer may halt operations and direct emergency backfilling procedures upon recommendation from the W.C.A.P.

f. Cut-off wall construction in critical areas: The W.C.A.P. will advise the Contracting Officer as to whether to proceed with the current element(s) under construction or to abandon the element(s) by placing low strength concrete or by adding cement to the slurry with the intention of returning to the element and reworking the area.

g. Retreat Channel Construction: Rough River is a flood control reservoir with releases from the reservoir into the tailwater area governed by inflows into the reservoir, reservoir levels, and downstream channel conditions. The Government is not permitted to deviate from authorized operations. The outlet works alignment between Stations 25+30 and 30+70 must contend with fluctuating tailwater levels while allowing for continued operation of the flood control project. The area between approximate Stations 25+30 to 27+00 supports the existing stilling basin access road. This area must be excavated last and cannot be removed until alternative access roads to the existing stilling basin are provided for USACE Staff. The area between Stations 27+00 and 30+70 is located within the existing retreat channel that is required to remain functional for the existing outlet works to make releases. The area between Station 25+30 and 30+70 has special restrictions and requirements that must be followed as indicated in specification 31 23 05.00 06 MASS EXCAVATION. The Contractor must submit written notification to the Contracting Officer at least 45 days in advance for intent to complete the tailwater work for any given phase so that coordination with W.C.A.P. can be established. For worker safety, no work must be permitted if releases exceed 1,600 cfs.

The Contractor can access the Daily Lake Report at <https://www.lrl-wc.usace.army.mil/reports/lkreport.html>.

The area between Stations 27+00 and 30+70 is best completed during the summer months (July-September) which greatly reduces risks for high water but is no guarantee to the Contractor that favorable conditions

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

will exist during this period. Work stoppages related to high tailwater, or high releases do not constitute a delay by the Government. The work must be completed at any point before the control tower, tunnel, and stilling basin are fully functional. Therefore, multiple working seasons exist to perform the work during optimal weather conditions and off the critical path schedule.

*****Amendment 0007

1.4 HYDROLOGIC CONDITIONS

The reservoir elevation varies throughout the year. The yearly Rough River Lake Report from 1983 to 2024 is available at the following website: <https://www.lrl-wc.usace.army.mil/reports/yearly/Rough%20River%20Lake.html>. Typical, elevation 442 (or stage 42 per the USGS datum) at the end sill is only surpassed as the result of high releases from the reservoir, not from back flooding downstream. Information for the tailwater stage data from 1999 to 2024 is available at the following link: https://waterdata.usgs.gov/ky/nwis/uv/?site_no=03318010&PARAMeter_cd=00065,00060. Monthly tailwater hydrographs from 1983 to 2024 are contained in the Volume 1 Plans. Hydrographs detailing the relationship between the pool, tailwater, and rainfall are also included in the Volume 1 plans. A stage frequency curve for the reservoir and tailwater are available in the Geotechnical Interpretive Report.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

-- End of Section --

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

SECTION 01 52 13.30 08
LABORATORY TESTING FACILITIES
08/24

AMENDMENT 0007

PART 1 GENERAL

Amendment 0007*****

1.1 GENERAL REQUIREMENTS

A mobile **temporary** laboratory testing facility is required to be established by the Contractor for both the Contractor and the Government to perform Quality Control and Quality Assurance testing. The Contractor is required to provide two separate **temporary** laboratories and core storage space for each mobile working lab. Core storage space may be in the same facility provided there are designated areas with proper signage. The Quality Control (QC) **temporary** laboratory will be for the exclusive use of the Contractor to perform required testing. The Quality Assurance (QA) **temporary** laboratory will be for the exclusive use of the Government. The Contractor shall provide all labor, equipment, calibrations, materials, fees, and coordination required for the complete set up of two fully functional mobile laboratories, to include provisions for necessary field testing. The USACE is responsible for the costs associated with ERDC validation of the QA **temporary** laboratory. Corrections of deficiencies found in the lab by the ERDC team are the responsibility of the Contractor. The testing facility shall be completed, validated, approved and ready for operations at least 30 calendar days prior to the start of work requiring on-site testing. Approval of the lab is subject to ERDC validation and the Contracting Officer. To the greatest extent possible, validation of the Government QA lab will be coordinated by the Contractor in tandem with the efforts for the QC lab. The laboratory shall be in compliance with ASTM C1077/C1077M and validated in accordance with ER 1110-1-261 for the specific grout and concrete tests required in Sections 03 00 00 GENERAL CONCRETE REQUIREMENTS, 03 30 00 CAST-IN PLACE CONCRETE FOR OUTLET WORKS, 03 37 13 SHOTCRETE, 03 37 29 CONCRETE FOR CUTOFF WALL, 03 70 00 MASS CONCRETE, 31 00 00.00 06 EARTHWORK, 31 32 23.00 06 SLURRY CONTROL DRILLING AND GROUTING , 31 56 10.00 08 CUTOFF WALL CONSTRUCTION, 31 68 13 ROCK SLOPE REINFORCEMENT, 31 71 16.00 06 ROCK TUNNELING, 31 73 00 TUNNEL GROUTING, 32 11 10 AGGREGATE SUBBASE CONSTRUCTION, 32 11 16.16 KYTC CRUSHED STONE BASE CONSTRUCTION, 35 73 13 EMBANKMENT FOR EARTH AND ROCKFILL DAMS, and 35 42 37.00 06 RIP RAP STONE PROTECTION. Evidence of successful Laboratory Validation shall be submitted to the Contracting Officer for approval. The Contractor shall compile and maintain all laboratory manuals in accordance with ASTM C1077/C1077M (Section 9) and USACE validation procedures for the on site **temporary** laboratory. All documentation for the Government QA **temporary** laboratory will be provided in draft form for final editing and submission to the USACE validation office by the Government. The Contractor shall permit/accommodate Government access to the Contractor's facility to observe Quality Control testing as requested.

The Contractor shall furnish all laboratory equipment and field testing equipment required for the specified testing. All testing **temporary** laboratories must be validated by the USACE Material Testing Center (MTC) for the tests to be performed. Information on the USACE MTC with web-links to both a list of validated testing laboratories and for the laboratory inspection request for can be found at: <https://mtc.erdcdren.mil/>. All testing performed either at the mobile laboratory or at an independent,

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

contracted commercial, and/or off site laboratory must meet validation requirements for each of the specific test required. This is not a blanket approval for all testing, only specific testing. All laboratories and testing must be in compliance with ASTM C1077/C1077M and validated for the specific tests to be performed in accordance with ER 1110-1-261. All laboratories must be approved by the Contracting Officer. A breakdown of field and laboratory testing is shown in Table 1. The table includes specific test references and testing requirements include tests related to that test standard. Testing requirements include all tests and reports associated with the cited standards.

1.2 MEASUREMENT AND PAYMENT

1.2.1 Complete and Fully Functioning Mobile Laboratory

All incidental costs associated with the performance of work in this section are included in the contract price. The Contractor must provide all aspects for a complete, fully functioning mobile laboratory. All lab testing facilities and equipment are incidental to this item. The Government will make no additional separate payment for items included herein or by reference. Specific tests and testing frequencies are contained and paid for under the specifications and items that the tests apply to under the appropriate bid items pertinent to those activities. The location for the **temporary** laboratory is indicated on the Volume 1 Plans.

*****Amendment 0007

1.2.1 Unit of Measure

Lump Sum: JOB

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 135 (2022) Standard Method of Test for Wetting-and-Drying Test of Compacted Soil-Cement Mixtures

AASHTO T 136 (2022) Standard Method of Test for Freezing-and-Thawing Tests of Compacted Soil-Cement Mixtures

AASHTO T 180 (2022) Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop

AMERICAN PETROLEUM INSTITUTE (API)

API RP 13B-1 (2019; Errata 1: 2020; Errata 2: 2021; Errata 3: 2023) Recommended Practice for Field Testing Water-Based Drilling Fluids

ASTM INTERNATIONAL (ASTM)

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

ASTM C1064/C1064M	(2023) Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077/C1077M	(2024) Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1116/C1116M	(2023) Standard Specification for Fiber-Reinforced Concrete
ASTM C109/C109M	(2023) Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens)
ASTM C117/C117M	(2023) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C123/C123M	(2023) Standard Test Method for Lightweight Particles in Aggregate
ASTM C1240/C1240M	(2020) Standard Specification for Silica Fume Used in Cementitious Mixtures
ASTM C127/C127M	(2024) Standard Test Method for Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C128/C128M	(2022) Standard Test Method for Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C131/C131M	(2020) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C138/C138M	(2023) Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C142/C142M	(2017; R 2023) Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C143/C143M	(2020) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150/C150M	(2022) Standard Specification for Portland Cement

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

ASTM C1567/C1567M	(2023) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C1602/C1602M	(2022) Standard Specification for Mixing Water Used in Production of Hydraulic Cement Concrete
ASTM C1611/C1611M	(2021) Standard Test Method for Slump Flow of Self-Consolidating Concrete
ASTM C191/C191M	(2021) Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
ASTM C192/C192M	(2019) Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
ASTM C231/C231M	(2024) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C232/C232M	(2021) Standard Test Method for Bleeding of Concrete
ASTM C260/C260M	(2010a; R 2016) Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C266/C266M	(2021) Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gilmore Needles
ASTM C295/C295M	(2019) Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C25/C25M	(2019) Standard Test Method for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
ASTM C29/C29M	(2023) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C31/C31M	(2024) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33/C33M	(2023) Standard Specification for Concrete Aggregates
ASTM C39/C39M	(2023) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C40/C40M	(2020) Standard Test Method for Organic Impurities in Fine Aggregates for Concrete

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

ASTM C42/C42M	(2020) Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C50/C50M	(2013; R 2019) Sampling, Sample Preparation, Packaging, and Marking of Lime and Limestone Products
ASTM C78/C78M	(2022) Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
ASTM C403/C403M	(2023) Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
ASTM C494/C494M	(2019; E 2022) Standard Specification for Chemical Admixtures for Concrete
ASTM C511/C511M	(2021) Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
ASTM C535/C535M	(2016) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C566/C566M	(2019) Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM C617/C617M	(2023) Standard Practice for Capping Cylindrical Concrete Specimens
ASTM C618/C618M	(2023; E 2023) Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666/C666M	(2015) Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C70/C70M	(2020) Standard Test Method for Surface Moisture in Fine Aggregate
ASTM C87/C87M	(2023) Standard Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
ASTM C88/C88M	(2024) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C94/C94M	(2023) Standard Specification for Ready-Mixed Concrete

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

ASTM C685/C685M	(2017) Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C702/C702M	(2018) Standard Practice for Reducing Samples of Aggregate to Testing Size
ASTM C937/C937M	(2023) Grout Fluidifier for Preplaced-Aggregate Concrete
ASTM C938/C938M	(2019) Proportioning Grout Mixtures for Preplaced-Aggregate Concrete
ASTM C939/C939M	(2022) Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
ASTM C940	(2022) Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory
ASTM C977/C977M	(2018) Quicklime and Hydrated Lime for Soil Stabilization
ASTM C979/C979M	(2016) Standard Specification for Pigments for Integrally Colored Concrete
ASTM C989/C989M	(2024) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1141/C1141M	(2015) Standard Specification for Admixtures for Shotcrete
ASTM C1385/C1385M	(2010; R 2017) Standard Practice for Sampling Materials for Shotcrete
ASTM C1436/C1436M	(2013) Standard Specification for Materials for Shotcrete
ASTM C1140/C1140M	(2011; R 2019) Standard Practice for Preparing and Testing Specimens from Shotcrete Test Panels
ASTM C1260	(2023) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1583/C1583M	(2020) Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
ASTM C1604/C1604M	(2005; R 2019) Standard Test Method for Obtaining and Testing Drilled Cores of Shotcrete

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

ASTM C1609/C1609M	(2024) Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete (Using Beam with Third-Point Landing)
ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557/D1557M	(2012; R 2021) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³) (2700 kN-m/m ³)
ASTM D1632/D1632M	(2017; E 2020) Making and Curing Soil-Cement Compression and Flexure Test Specimens in the Laboratory
ASTM D2167/D2167M	(2015) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2216/D2216M	(2019) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2487/D2487M	(2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D2937/D2937M	(2017; E 2017; E 2018) Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM D1140/D1140M	(2011; R 2019) Standard Practice for Preparing and Testing Specimens from Shotcrete Test Panels
ASTM D3551/D3551M	(2017) Laboratory Preparation of Soil-Lime Mixtures Using a Mechanical Mixer
ASTM D3740/D3740M	(2023) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D4318/D4318M	(2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4380/D4380M	(2020) Standard Test Method for Determining Density of Bentonitic Slurries
ASTM D4381/D4381M	(2022) Standard Test Method for Sand Content by Volume of Bentonitic Slurries
ASTM D4253/D4253M	(2016; E 2019) Standard Test Methods for Maximum Index Density and Unit Weight of

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Soils Using a Vibratory Table

ASTM D4254/D4254M	(2016) Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
ASTM D4643/D4643M	(2017) Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4718/D4718M	(2015; R 2023) Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
ASTM D4791	(2019; R 2023) Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4802/D4802M	(2016) Standard Specification for Poly(Methyl Methacrylate) Acrylic Plastic Sheet
ASTM D4992/D4992M	(2022) Standard Practice for Evaluation of Rock to be Used for Erosion Control
ASTM D5084/D5084M	(2016) Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter
ASTM D5102/D5102M	(2024) Standard Test Method for Unconfined Compressive Strength of Compacted Soil-Lime Mixtures
ASTM D5312/D5312M	(2021) Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D5313/D5313M	(2021) Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions
ASTM D5519/D5519M	(2015) Particle Size Analysis of Natural and Man-Made Riprap Materials
ASTM D6473/D6473M	(2024) Standard Test Method For Specific Gravity And Absorption of Rock For Erosion Control
ASTM D6910/D6910M	(2019) Standard Test Method for Marsh Funnel Viscosity of Construction Slurries
ASTM D6938/D6938M	(2023) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

ASTM D6913/D6913M	(2017) Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
ASTM D7928/D7928M	(2017) Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis
ASTM D698/D698M	(2021) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))
ASTM D559/D559M	(2015) Wetting and Drying Compacted Soil-Cement Mixtures
ASTM D560/D560M	(2016) Freezing and Thawing Compacted Soil-Cement Mixtures

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 104	(1980) Method of Calculation of the Fineness Modulus of Aggregate
COE CRD-C 112	(1969) Method of Test for Surface Moisture in Aggregate by Water Displacement
COE CRD-C 114	(1997) Test Method for Soundness of Aggregates by Freezing and Thawing of Concrete Specimens
COE CRD-C 120	(1994) Test Method for Flat and Elongated Particles in Fine Aggregate
COE CRD-C 143	(1962) Specification for Meters for Automatic Indication of Moisture in Fine Aggregate
COE CRD-C 61	(1989) Test Method for Determining the Resistance of Freshly Mixed Concrete to Washing Out in Water
COE CRD-C 661	(2006) Specification for Antiwashout Admixtures for Concrete
EM 385-1-1	(2024) Safety and Occupational (SOH) Health Requirements

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

ER 1110-1-261

(1999) Engineering and Design - Quality Assurance of Laboratory Testing Procedures

1.4 LABORATORY CAPABILITIES

The laboratory shall meet testing requirements of the specifications, applicable standards, the Contractor's approved means and methods or any other applicable requirement for facilities required herein.

1.5 SUBMITTALS

Government approval/acceptance by the Resident Office (RO) is required for submittals with a "G" designation; submittals not having a "G" designation are for information only (FIO) or as otherwise designated. When used, a designation following the "G" designation identifies an additional office that will review the submittal for the Government. The following shall be submitted in accordance with LRL Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Mobile Testing Facility; G, DO

Laboratory Equipment; G, DO

Manufacturer's descriptive data shall be submitted for the testing facilities building and all office, laboratory and computer equipment.

Field Testing Equipment; G, DO

SD-02 Shop Drawings

Mobile Testing Facility Plan; G, DO

SD-07 Certificates

Laboratory Validation; G

Validations shall be submitted for the on-site laboratory and all off-site laboratories to be used during the course of work.

1.6 MOBILE TESTING FACILITY PLAN

The Contractor shall submit detail drawings showing the layout of the mobile testing facility including location of testing equipment, sample storage, core storage and core layout areas for the mobile lab and storage areas. All mechanical and electrical equipment, and the location of all utility connections for electric and water service must be included. The plan shall be coordinated with and submitted as part of the STAGING AND AREA USE PLAN required under Section 01 35 00.00 08 SPECIAL PROCEDURES.

PART 2 PRODUCTS

2.1 MOBILE TESTING FACILITY

General Requirements:

The laboratory testing facilities are temporary. Testing equipment, curing tanks, and environmental conditions must be controlled within the mobile lab and support areas. Adequate heating and air conditioning shall be provided to control and maintain the required temperature for testing

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

standards throughout the laboratory area. The Contractor must provide an aggregate surface parking area able to accommodate at least 10 vehicles at the mobile lab.

The following sections from SECTION 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS are applicable to the Laboratory Facility:

- a. The facility must comply with Paragraph BACKFLOW PREVENTERS.
- b. The facility must comply with Paragraph CYBERSECURITY DURING CONSTRUCTION.
- c. The facility must comply with Paragraph TEMPORARY WIRING.
- d. The facility must comply with Paragraph AVAILABILITY AND USE OF UTILITY SERVICES.
- e. The facility must comply with Paragraph TRAFFIC CONTROL.
- f. The facility must comply with Paragraph PLANT COMMUNICATIONS.
- g. The facility must comply with Paragraph DUMPSTERS.

Requirements for Laboratory Testing Areas:

The laboratory testing areas and mobile facilities must be large enough to accommodate laboratory testing equipment and testing preparation areas, sample storage, curing room/tanks, core storage and layout areas, sufficient counter/work bench space to accommodate up to six (6) QA/QC technicians working concurrently on separate tests. A minimum area of 400 square feet shall be provided for the testing equipment, testing preparation, and curing tanks/room for each respective QC and QA space. Dedicated QA lab space shall be secured with a locking door with restricted access. This area shall only be accessible to Government and QA personnel.

At minimum, the Contractor shall provide and install the following equipment for the Laboratory Office Areas:

Laboratory Storage Area:

The contractor must provide, at minimum, 2,500 sf for QC/QA rock core and concrete core storage in a temporary facility. Aggregate floors are acceptable provided the facility is graded to drain and the floor is maintained flat without rutting, potholes, or erosion rills. The storage space must have adequate room to fit a forklift to expedite unloading pallets. The pallets and contents shall be protected from damage at all times during storage, loading/unloading, and during transport. The Contractor shall be responsible for obtaining the use of a suitable forklift or pallet jack for transport and placement of the pallets at no cost to the Government. The area where core is stored shall be sized such that core boxes can be stacked on wooden pallets. At all times, core boxes shall be stacked such that all side labels are upright and visible from isles. Full pallets shall not be stacked over 2 pallets high with a maximum of 20 core boxes per pallet. A shared hand truck, or pallet jack, should be designated in the space for use by either QA/AC to transport, relocate, or assist in the laying out of core boxes. The Contractor shall store core sample boxes at the temporary facility for the duration of field work. Additional areas may be provided in the immediate area. The Contractor is responsible for keeping the storage facility organized and safe.

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

2.2 UTILITIES

Utility service installation shall be coordinated with the owning utility company as specified in Section 00 80 00.00 06 SPECIAL PROVISIONS. The Contractor shall be responsible for providing all utility services and water necessary for the operation of the testing facility. All cost for such provisions shall be borne by the Contractor as long as the facility is in use. The Contractor shall procure and pay for all necessary permits that are required in conjunction with proposed utilities.

PART 3 EXECUTION

3.1 LABORATORY TESTING FACILITY CAPABILITIES

All testing laboratories must be validated by the USACE Material Testing Center (MTC) for the tests to be performed. Information for the USACE laboratory inspection request for can be found at: <https://mtc.erd.c.dren.mil/>. The Contractor shall perform all required maintenance and repairs for both the QA and QC laboratory equipment including providing required calibrations from the time of delivery and installation until contract completion or final acceptance of the contract work, whichever is later. Maintenance, repairs, and calibrations shall be performed to maintain the equipment in good working order and in accordance with the manufacturer's recommendations or the appropriate testing standard (i.e. ASTM, AASHTO, etc.), whichever is the most stringent. The equipment will remain the property of the Contractor until contract completion. Upon contract completion or final acceptance of the contract work, whichever is later, all Contractor-furnished lab equipment will be returned to the Contractor. The official transfer will be documented on DD Form 1354 and signed by both the Contractor and the Contracting Officer's Representative.

3.2 LABORATORY TESTING REQUIREMENTS

TABLE 1 - LABORATORY TESTING REQUIREMENTS	
TESTING TO BE PERFORMED ON-SITE	TESTING TO BE PERFORMED ON- OR OFF-SITE
SECTION 03 00 00 GENERAL CONCRETE REQUIREMENTS	
TABLE 1 - LABORATORY TESTING REQUIREMENTS	
TESTING TO BE PERFORMED ON-SITE	TESTING TO BE PERFORMED ON- OR OFF-SITE

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

<p>PRODUCTION TESTING:</p> <p>ASTM C117/C117M, ASTM C136/C136M, ASTM C566/C566M, ASTM D4791, COE CRD-C 104, COE CRD-C 112, COE CRD-C 143</p>	<p>MATERIAL APPROVAL AND QC TESTING:</p> <p>ASTM C33/C33M, ASTM C40/C40M, ASTM C70/C70M, ASTM C87/C87M, ASTM C88/C88M, ASTM C117/C117M, ASTM C123/C123M, ASTM C127/C127M, ASTM C128/C128M, ASTM C131/C131M, ASTM C136/C136M, ASTM C142/C142M, ASTM C150/C150M, ASTM C260/C260M, ASTM C295/C295M, ASTM C494/C494M, ASTM C535/C535M, ASTM C566/C566M, ASTM C618/C618M, ASTM C666/C666M, ASTM C989/C989M, ASTM C1240/C1240M, ASTM C1260, ASTM C1567/C1567M, ASTM C1602/C1602M, ASTM D4791, COE CRD-C 104, COE CRD-C 114, COE CRD-C 61</p> <p>MIXTURE PROPORTIONING:</p> <p>ASTM C39/C39M, ASTM C138/C138M, ASTM C143/C143M, ASTM C231/C231M, ASTM C1064/C1064M, ASTM C666/C666M, ASTM C1567/C1567M</p> <p>Any other related testing</p>
<p>SECTION 03 30 00 CAST-IN-PLACE CONCRETE</p>	
<p>PRODUCTION TESTING:</p> <p>ASTM C39/C39M, ASTM C42/C42M, ASTM C231/C231M, ASTM C138/C138M, ASTM C143/C143M, ASTM C1064/C1064M</p>	<p>MATERIALS APPROVAL:</p> <p>See 03 00 00 General Concrete Requirements</p> <p>MIXTURE PROPORTIONING:</p> <p>See 03 00 00 General Concrete Requirements</p>
<p>SECTION 03 37 13 SHOTCRETE</p>	

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

TABLE 1 - LABORATORY TESTING REQUIREMENTS	
TESTING TO BE PERFORMED ON-SITE	TESTING TO BE PERFORMED ON- OR OFF-SITE
<p>PRODUCTION TESTING:</p> <p>ASTM C78/C78M, ASTM C231/C231M, ASTM C1064/C1064M, ASTM C1140/C1140M, ASTM C1385/C1385M, ASTM C1583/C1583M, ASTM C1604/C1604M, ASTM C1609/C1609M</p>	<p>MATERIALS APPROVAL AND QC TESTING:</p> <p>ASTM C33/C33M, ASTM C127/C127M, ASTM C128/C128M, ASTM C266/C266M, ASTM C494/C494M, ASTM C1141/C1141M, ASTM C1436/C1436M, ASTM C1567/C1567M</p> <p>MIXTURE PROPORTIONING:</p> <p>ASTM C94/C94M, ASTM C231/C231M, ASTM C685/C685M, ASTM C1116/C1116M</p>
SECTION 03 37 29 CONCRETE FOR CUTOFF WALL	
<p>PRODUCTION TESTING:</p> <p>ASTM C39/C39M, ASTM C117/C117M, ASTM C136/C136M, ASTM C138/C138M, ASTM C143/C143M, ASTM C231/C231M, ASTM C232/C232M, ASTM C403/C403M, ASTM C617/C617M, ASTM C1064/C1064M, ASTM C1611/C1611M COE CRD-C 61, COE CRD-C 104</p>	<p>MATERIAL APPROVAL AND QC TESTING:</p> <p>ASTM C33/C33M, ASTM C87/C87M, ASTM C88/C88M, ASTM C117/C117M, ASTM C123/C123M, ASTM C127/C127M, ASTM C128/C128M, ASTM C131/C131M, ASTM C136/C136M, ASTM C142/C142M, ASTM C150/C150M, ASTM C260/C260M, ASTM C295/C295M, ASTM C494/C494M, ASTM C618/C618M, ASTM C979/C979M, ASTM C989/C989M, ASTM C1240/C1240M, ASTM C1602/C1602M, ASTM D4791, COE CRD-C 104, COE CRD-C 61</p> <p>MIXTURE PROPORTIONING:</p> <p>ASTM C39/C39M, ASTM C138/C138M, ASTM C143/C143M, ASTM C231/C231M, ASTM C232/C232M, ASTM C403/C403M, ASTM C1064/C1064M, ASTM C1567/C1567M, ASTM C1611/C1611M COE CRD-C 661 Any other related testing</p>
SECTION 03 70 00 MASS CONCRETE	
<p>PRODUCTION TESTING:</p> <p>ASTM C39/C39M, ASTM C231/C231M, ASTM C143/C143M, ASTM C1064/C1064M</p>	<p>MATERIALS APPROVAL:</p> <p>See 03 00 00 General Concrete Requirements</p> <p>MIXTURE PROPORTIONING:</p> <p>See 03 00 00 General Concrete Requirements</p>

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

SECTION 31 00 00.00 06 EARTHWORK	
TABLE 1 - LABORATORY TESTING REQUIREMENTS	
TESTING TO BE PERFORMED ON-SITE	TESTING TO BE PERFORMED ON- OR OFF-SITE
PRODUCTION TESTING: ASTM D698/D698M, AASHTO T 180, ASTM D1556/D1556M, ASTM D1557/D1557M, ASTM D2216/D2216M, ASTM D6938/D6938M, ASTM C25/C25M, ASTM C50/C50M, ASTM D2487/D2487M, ASTM D3551/D3551M, ASTM D5102/D5102M, ASTM D4254/D4254M,	MATERIAL APPROVAL AND QC TESTING ASTM C88/C88M, ASTM C535/C535M, ASTM D7928/D7928M, ASTM D6913/D6913M, ASTM D698/D698M, ASTM C977/C977M, ASTM D4718/D4718M, ASTM D5519/D5519M, ASTM D6938/D6938M
SECTION 31 32 23.00 06 SLURRY CONTROL DRILLING AND GROUTING	
PRODUCTIONS TESTING: API RP 13B-1 ASTM C39/C39M, ASTM C109/C109M, ASTM C191/C191M, ASTM C938/C938M, ASTM C939/C939M, ASTM C940, ASTM D4380/D4380M, ASTM D6910/D6910M, COE CRD-C 61	MATERIAL APPROVAL AND QC TESTING: <BRK/><BRK/>ASTM C87/C87M, ASTM C117/C117M, ASTM C123/C123M, ASTM C128/C128M, ASTM C136/C136M, ASTM C142/C142M, ASTM C150/C150M, ASTM C494/C494M, ASTM C618/C618M, ASTM C937/C937M, ASTM C1240/C1240M, ASTM C1602/C1602M<BRK/>COE CRD-C 120, COE CRD-C 661 <BRK/><BRK/><BRK/>MIXTURE PROPORTIONING:<BRK/><BRK/> API RP 13B-1<BRK/>ASTM C39/C39M, ASTM C109/C109M, ASTM C191/C191M, ASTM C938/C938M, ASTM C939/C939M, ASTM C940, ASTM D4380/D4380M, ASTM D6910/D6910M<BRK/>COE CRD-C 61
SECTION 31 56 10.00 08 CUTOFF WALL CONSTRUCTION	
PRODUCTION TESTING: API RP 13B-1 ASTM C39/C39M, ASTM C109/C109M, ASTM C403/C403M, ASTM D4380/D4380M, ASTM D4381/D4381M	MATERIAL APPROVAL AND QC TESTING: ASTM C39/C39M, ASTM C109/C109M
SECTION 32 11 16.16 KYTC CRUSHED STONE BASE CONSTRUCTION	
PRODUCTION TESTING: ASTM D1556/D1556M, ASTM D2167/D2167M, ASTM D6938/D6938M	MATERIAL APPROVAL AND QC TESTING: ASTM C117/C117M, ASTM C136/C136M, ASTM D698/D698M, ASTM D6938/D6938M
SECTION 35 42 37.00 06 RIP RAP STONE PROTECTION	
TABLE 1 - LABORATORY TESTING REQUIREMENTS	

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

TESTING TO BE PERFORMED ON-SITE	TESTING TO BE PERFORMED ON- OR OFF-SITE
PRODUCTION TESTING: ASTM D5519/D5519M	MATERIAL APPROVAL AND QC TESTING: ASTM C295/C295M, ASTM D4791, ASTM D4992/D4992M, ASTM D5312/D5312M, ASTM D5313/D5313M, ASTM D5519/D5519M, ASTM D6473/D6473M

Amendment 0005*****

3.3 REQUIRED LABORATORY TESTING EQUIPMENT

At minimum, the required equipment to be provided for each lab shall meet the laboratory and specific lab test validation requirements as well as the applicable testing standard. Additional equipment meeting the capabilities detailed in Table 1 are also required:

EQUIPMENT DESCRIPTION	ASTM APPLICATION	QUANTITY
Electronic (Floor) Scale, 30"x30" w/ramp 500lb capacity	ASTM D75/D75M, ASTM C702/C702M	1
Three-Cell Permeability Test System	ASTM D5084/D5084M	1
Electronic Scale, 2100g, d=10mg	ASTM D4318/D4318M, ASTM D1140/D1140M, ASTM C70/C70M	1
Electronic Scale, 32000g, d=.1g	ASTM C136/C136M, ASTM C117/C117M, ASTM C566/C566M, ASTM C702/C702M ASTM D1140/D1140M, ASTM D1557/D1557M ASTM D1556/D1556M, ASTM C70/C70M, COE CRD-C 61	1
Drying Oven (Air Circulating)	ASTM C142/C142M ASTM C136/C136M, ASTM C117/C117M, ASTM C566/C566M, ASTM C702/C702M ASTM D1140/D1140M, ASTM D1557/D1557M, ASTM D1556/D1556M	1
Drying Oven (Convection)	ASTM D6913/D6913M, ASTM D7928/D7928M, ASTM C70/C70M, ASTM C136/C136M, ASTM D4318/D4318M	1
EQUIPMENT DESCRIPTION	ASTM APPLICATION	QUANTITY

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

Electronic (Floor) Scale, 30"x30" w/ramp 500lb capacity	ASTM D75/D75M, ASTM C702/C702M	1
Sample Splitter, Lg. Capacity, Floor Model	ASTM D4802/D4802M, ASTM C136/C136M	1
Material Catch Pan for Lg. Capacity Splitter	ASTM D4802/D4802M, ASTM C136/C136M	1
Sample Splitter, Table Model	ASTM D4802/D4802M, ASTM C136/C136M	1
Testing Sieve Shaker	ASTM C136/C136M	1
Dustpan Tray	ASTM C136/C136M	1
Testing Sieve Shaker, RoTap	ASTM C136/C136M	1
Compression Testing Machine - Upper Bearing Block Assy, 6"	ASTM C39/C39M	1
Cylinder Capping Alignment Device	ASTM C617/C617M	1
Cylinder Capping Plate	ASTM C617/C617M	1
Cut-Off Saw, masonry (Mason-Mite II)	ASTM C39/C39M	1
Grout Cube Mold Assy.	ASTM C109/C109M	2
Grout Cube Mold Assy. w/Cover Plate	ASTM C109/C109M	2
Cube Mold Cover Plate (Sulfur Mortar Cubes)	ASTM C617/C617M	1
Cube Mold Tamper	ASTM C109/C109M	1
Concrete Air Meter, Pressure Type B	ASTM C231/C231M	2
Curing Tank, 8ft length, 300gal	ASTM C511/C511M, ASTM C192/C192M	2
Heater for curing tank, 110V	ASTM C511/C511M, ASTM C192/C192M	2
Curing Tank Circulator Pump, 110V	ASTM C511/C511M, ASTM C192/C192M	2
Curing Tank Data Logger	ASTM C511/C511M, ASTM C192/C192M	1
Field Curing Chest, storage/Transport	ASTM C31/C31M	1
Unit Weight Container, 0.1 CF	ASTM C29/C29M, ASTM C138/C138M	1
Unit Weight Container, 0.5 CF	ASTM C29/C29M, ASTM C138/C138M	1
Unit Weight Container, 1.0	ASTM C29/C29M, ASTM C138/C138M	1
Liquid Limits Device	ASTM D4318/D4318M	1
Grooving Tool (Liquid Limits), Plastic,	ASTM D4318/D4318M	1

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

EQUIPMENT DESCRIPTION	ASTM APPLICATION	QUANTITY
Electronic (Floor) Scale, 30"x30" w/ramp 500lb capacity	ASTM D75/D75M, ASTM C702/C702M	1
Plastic Limits Glass Plate	ASTM D4318/D4318M	1
Comparator Rod	ASTM D4318/D4318M	1
Wet Sieve, 2" (18" dia.)	ASTM C231/C231M	2
Wet Sieve, 1-1/2" (18" dia.)	ASTM C143/C143M	2
Hand Sieve, 3" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 2" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 1-1/2" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 1" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 3/4" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 1/2" (8" dia.)	ASTM C136/C136M	2
Hand Sieve, 3/8" (8" dia.)	ASTM C136/C136M	2
Test Sieve, No. 4	ASTM C136/C136M	2
Test Sieve, No. 8	ASTM C136/C136M	2
Test Sieve, No. 10	ASTM C136/C136M	2
Test Sieve, No. 16	ASTM C136/C136M	2
Test Sieve, No. 20	ASTM C136/C136M	2
Test Sieve, No. 30	ASTM C136/C136M	2
Test Sieve, No. 40	ASTM C136/C136M	2
Test Sieve, No. 50	ASTM C136/C136M	2
Test Sieve, No. 60	ASTM C136/C136M	2
Test Sieve, No. 70	ASTM C136/C136M	2
Test Sieve, No. 80	ASTM C136/C136M	2
Test Sieve, No. 100	ASTM C136/C136M	2
Test Sieve, No. 200	ASTM C136/C136M	2
Test Sieve, No. 200 (Deep), reinforced screen	ASTM D1140/D1140M, ASTM C117/C117M	2
Test Sieve, Gilson, 3"	ASTM C136/C136M	2
Test Sieve, Gilson, 2"	ASTM C136/C136M	2
Test Sieve, Gilson, 1-1/2"	ASTM C136/C136M	2
Test Sieve, Gilson, 1"	ASTM C136/C136M	2
Test Sieve, Gilson, 3/4"	ASTM C136/C136M	2

P2#: 145870

Rough River

Falls of Rough, KY

Dam Safety Mod Phase II

EQUIPMENT DESCRIPTION	ASTM APPLICATION	QUANTITY
Electronic (Floor) Scale, 30"x30" w/ramp 500lb capacity	ASTM D75/D75M, ASTM C702/C702M	1
Test Sieve, Gilson, 1/2"	ASTM C136/C136M	2
Test Sieve, Gilson, 3/8"	ASTM C136/C136M	2
Test Sieve, Gilson, No. 4"	ASTM C136/C136M	2
Test Sieve, Gilson, No. 8"	ASTM C136/C136M	2
Proportional Caliper Device	ASTM D4791	2
Organic Impurities Test Bottle w/ Lid (set)	ASTM C40/C40M	1
Flow Table, motorized w/ counter	ASTM C87/C87M	1
Los Angeles Abrasion Machine	ASTM C535/C535M, ASTM C131/C131M,	1
Gilmore Needle Apparatus	ASTM C150/C150M	2
Freeze Thaw Cabinet	ASTM C666/C666M, COE CRD-C 114	1
2 Gang Prism Mold, 2 X 2 X 10 inches	ASTM C1260	2
Length Comparator	ASTM C1260	1
Water Bath	ASTM D6913/D6913M, ASTM D7928/D7928M, ASTM C1260, ASTM C1567/C1567M,	1
Washout Tube	COE CRD-C 61	1
Receiving Container	COE CRD-C 61	2
Concrete Vibrator -150 Hz minimum	ASTM C138/C138M	1
Slump Cone (steel) w/ base plate	ASTM C1611/C1611M, ASTM C143/C143M,	2
Penetrometer	ASTM C403/C403M	1
Compound Melting Pot	ASTM C617/C617M	1
Soil Density Mold Set, 4 inch	AASHTO T 180, ASTM D698/D698M, ASTM D1557/D1557M,	1
Soil Density Mold Set, 6 inch	AASHTO T 180, ASTM D698/D698M, ASTM D1557/D1557M,	1
Automatic Mechanical Compactor	AASHTO T 180, ASTM D698/D698M, ASTM D1557/D1557M,	1

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

EQUIPMENT DESCRIPTION	ASTM APPLICATION	QUANTITY
Electronic (Floor) Scale, 30"x30" w/ramp 500lb capacity	ASTM D75/D75M, ASTM C702/C702M	1
Sample Ejector	ASTM D1557/D1557M	1
Soil Dispersion Mixer	ASTM D6913/D6913M, ASTM D7928/D7928M	1
Stereoscopic Microscope	COE CRD-C 120	1
Standard Vicat Apparatus	ASTM C191/C191M	1
Grout Flow Cone Set	ASTM C939/C939M	1
Marsh Funnel	ASTM D6910/D6910M	2
Mud Balance	ASTM D4380/D4380M	1

*****Amendment 0005

3.4 REMOVAL OF LABORATORY TESTING EQUIPMENT

At the completion of the contract, the Contractor shall remove any laboratory testing equipment, storage areas, and mobile labs.

-- End of Section --

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

SECTION 03 70 00

MASS CONCRETE
11/21

AMENDMENT 0007

PART 1 GENERAL

Section 03 00 00 GENERAL CONCRETE REQUIREMENTS covers general concrete and materials requirements that are applicable to multiple concrete specifications within the Contract, including QA/QC, general concrete materials, and mixture requirements. The MASS CONCRETE specification section covers the requirements for any concrete placements meeting the requirements of a "mass concrete placement" as defined in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS, including but not limited too all Mix 1 (Mass Concrete) placed monolithically with Mix 2 (Facing for Control Tower) at the locations shown on the contract drawings. Mass Concrete items covered within this section include, but are not limited to surface/joint preparation, transportation, placement, finishing, protection, and curing requirements. Formwork installation, and reinforcing installation requirements for mass concrete placements follow the same requirements for structural concrete discussed in Section 03 30 00 CAST IN PLACE CONCRETE OUTLET WORKS. The Contractor shall be responsible for furnishing all labor, materials, and equipment for batching, mixing, transporting, placing, finishing, and quality control of mass concrete. Mass concrete shall be placed per the requirements specified herein and as shown on the Contract Drawings.

1.1 MEASUREMENT AND PAYMENT

No separate or direct payment will be made for the work under this Section, and such work will be considered as a subsidiary obligation of the Contractor per specification 03 00 00 GENERAL CONCRETE REQUIREMENTS. The Government will make no additional separate payment for items included herein or by reference.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 117	(2010; R 2015; Errata 2017) Specification for Tolerances for Concrete Construction and Materials and Commentary
ACI 214R	(2011) Guide to Evaluation of Strength Test Results of Concrete
ACI 305R	(2020) Guide to Hot Weather Concreting
ACI 306R	(2016) Guide to Cold Weather Concreting

ASTM INTERNATIONAL (ASTM)

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

ASTM C143/C143M	(2020) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C171	(2020) Standard Specification for Sheet Materials for Curing Concrete
ASTM C172/C172M	(2017) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231/C231M	(2024) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C31/C31M	(2024) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C39/C39M	(2023) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C684	(1999; R 2003) Making, Accelerated Curing, and Testing Concrete Compression Test Specimens
ASTM C881/C881M	(2020a) Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C928/C928M	(2020a) Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
ASTM C937	(2023) Standard Specification for Grout Fluidifier for Preplaced-Aggregate Concrete
ASTM C1059/C1059M	(2021) Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete
ASTM C1064/C1064M	(2023) Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	(2024) Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1107/C1107M	(2020) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C109/C109M	(2023) Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm (2 in.) Cube Specimens)

U.S. ARMY CORPS OF ENGINEERS (USACE)

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

COE CRD-C 94

(1995) Corps of Engineers Specification
for Surface Retarders

Amendment 0007*****

1.3 SUBMITTALS

Government approval/acceptance by the Resident Office (RO) is required for submittals with a "G" designation; submittals not having a "G" designation are for information only (FIO) or as otherwise designated. When used, a designation following the "G" designation identifies an additional office that will review the submittal for the Government. The following shall be submitted in accordance with LRL Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Mass Concrete Concreting Plan; G, DO

A plan shall be submitted to the Contracting Officer for review and approval at least 60 days prior to the start of the Test Section. See paragraph MASS CONCRETE CONCRETING PLAN.

Curing and Protection; G, DO

The curing media and methods to be used shall be submitted for review at least 30 calendar days before concrete placement begins for conformance with Paragraph CURING AND PROTECTION.

Cold-Weather Protection; G, DO

When concrete is to be placed under cold-weather conditions, a description of the materials and methods proposed for protection of the concrete meeting the requirements of Paragraph COLD-WEATHER PROTECTION shall be furnished at least 60 calendar days in advance of the anticipated need date for review.

Cold-Weather Placing Requirements; G, DO

When concrete is to be placed under cold-weather conditions, a description of the materials and methods proposed for protection of the concrete meeting the requirements of Paragraph COLD-WEATHER PLACING REQUIREMENTS shall be furnished at least 60 calendar days in advance of the anticipated need date for review.

Hot-Weather Placing Requirements; G, DO

When concrete is to be placed under hot-weather conditions, a description of the materials and methods proposed for protection of the concrete meeting the requirements of Paragraph HOT-WEATHER PLACING REQUIREMENTS shall be furnished at least 60 calendar days in advance of the anticipated need date for review.

*******Amendment 0007**

SD-02 Shop Drawings

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Concrete Lifts; G, DO

At least 60 calendar days prior to scheduling lifts for placement, the Contractor shall furnish to the Contracting Officer, detailed lift drawings for each placement in accordance with Paragraph CONCRETE LIFTS.

Material and Procedures for Repairs; G, DO

At least 7 calendar days prior to conducting a repair submit the lateral extent, depth, reinforcement, tie-in, and key dimensions for any concrete repair. Include a detailed repair procedure with technical material information shall be submitted for approval per the requirements in Paragraph SURFACE REPAIR.

Test Section Plan; G, DO

SD-03 Product Data

Transporting and Conveying Equipment; G, DO

The methods, descriptions, details, and data of the equipment proposed for transporting, handling, and depositing the concrete shall be submitted at least 60 calendar days before concrete placement begins for conformance review with the requirements set fourth in Paragraph TRANSPORTING AND PLACING. The data submitted shall include, but is not limited to, site drawings or sketches with locations of equipment and placement site.

Construction Joint Treatment; G, DO

The method and equipment proposed for joint cleanup and waste disposal, shall be submitted at least 30 calendar days before concrete placement begins for conformance review with the requirements set forth in Paragraph CONSTRUCTION JOINT AND LIFT JOINT TREATMENT.

Nonshrink Grout; G, DO

At least 60 calendar days prior to use, descriptive literature containing certified laboratory test results showing compliance with ASTM C1107/C1107M, a certificate from the manufacturer stating that the grout is suitable for the application or exposure for what is being considered, and a detailed plan showing equipment and procedures for use in mixing and placing the grout shall be submitted.

Bonding Agents; G, DO

Submit descriptive literature and certification in advance of their use.

SD-06 Test Reports

Concrete Placement Reports; G, DO

Within 7 calendar days after each concrete placement, a concrete placement report shall be submitted for review and approval. The submittal shall contain, but is not limited to, the pre-placement inspection report, placement inspection report, all concrete batch tickets, and the quality control concrete test report. The test report shall contain the test results and control charts of the fresh concrete properties identified in Paragraph CONCRETE.

Lab-Cured Concrete Compressive Strength Test Reports; G

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Lab-Cured concrete compressive strength test reports shall be submitted for each placement and shall be submitted on a monthly basis at a minimum. The submittal shall include the test results and control charts identified in Paragraph COMPRESSION TEST CYLINDERS.

Field-Cured Concrete Compressive Strength Test Reports; G
Field-Cured concrete compressive strength test reports shall be submitted for each applicable placement and shall be submitted on a monthly basis at a minimum. The submittal shall include the test results and control charts identified in Paragraph FIELD CURED COMPRESSION TEST CYLINDERS.

Curing Inspection Reports; G
The applicable curing inspection reports shall be submitted for each placement in accordance with Paragraph CURING.

Surface Repair Test Reports; G, DO
Surface repair compressive strength test reports shall be submitted for each sample and shall be submitted on a monthly basis at a minimum. The submittal shall include the test results identified in Paragraph SURFACE REPAIR INSPECTION.

SD-11 Closeout

Post Placement Inspection Report; G, DO

Placement inspection reports shall be submitted for each placement in accordance with Paragraph POST PLACEMENT INSPECTION.

1.4 LABORATORY TESTING FACILITIES

See Section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

1.5 GOVERNMENT SAMPLING AND TESTING

See Section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

Amendment 0007*****

1.6 MASS CONCRETE CONCRETING PLAN

The Contractor shall prepare a plan for review and approval by the Contracting Officer. The plan shall describe the work, equipment, and methods to be used for concrete batching, mixing, transportation, conveyance, placement, consolidation, finishing, protection and identification of the quality control personnel and superintendent to be present at mass concrete placements. The timing and sequence of the various steps from batching until protection shall also be described. The plan shall be sufficiently detailed to demonstrate that equipment and methods are appropriate for the specific type of concrete, and that the work conforms to project specifications. Once approved, the Contractor shall follow all procedures set forth in the plan. Any revisions to the plan shall be submitted to the Contracting Officer for approval. The sampling, transportation to validated lab, and testing shall be incidental to construction and at the contractor's expense.

*******Amendment 0007**

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

The plan shall include, but not be limited to, the following items:

- 1) Preparation of foundation and concrete surfaces adjacent to the concrete placement.
- 2) Concrete production, including the equipment and procedures for batching, controlling mixing and placement temperature, and moisture control of the material constituents, and mixing speed and duration. In addition, the plan shall include all limits and steps required to control thermal effects.
- 3) Transportation and conveyance of concrete from the mixer to the point of placement.
- 4) Methods and frequency of sampling and testing the concrete and concrete constituents.
- 5) Methods for placing concrete, including concrete placement equipment, procedures, sequence, and the method to prevent cold joints, consolidation, segregation, and poor quality concrete.
- 6) Methods for controlling the concrete placement temperature in hot and cold weather.
- 7) Methods for monitoring concrete placement progress.
- 8) Protection of fresh concrete and protection through the curing period.
- 9) A contingency plan for dealing with unanticipated events, such as unexpected interruption to concrete placement. This shall include a possible way to remove the fresh concrete from the excavation if required.
- 10) Plan for Material and Procedure for Repairs dealing with defects resulting from concrete placements as indicated in Paragraph SURFACE REPAIRS, including all subsections.

Amendment 0007*****

1.7 TEST SECTION - NOT USED

*******Amendment 0007**

1.8 DATA REQUIREMENTS

The Contractor and any Subcontractors performing work specified in this section must provide the data for all of the fields in the SQL database for the project pertaining to mass concrete as specified by the Section 01 31 00 DATA MANAGEMENT and the Volume 5 attachments, and must provide access to any website and cloud-based data as applicable. Any data requirements listed in 01 31 00 shall also apply to the data generated in the completion of the work or testing described in this section.

Ensure thorough review of the data specifications in this section, in 01 31 00 DATA MANAGEMENT, and the Volume 5 attachments, and ensure proper review and compliance by any Subcontractors.

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Mass Concrete shall be composed of cementitious materials, water, fine and coarse aggregates, and admixtures. The cementitious materials shall be a combination of portland cement, coal ash, Ground Granulated Blast Furnace Slag (GGBFS), and admixtures. Mixture proportioning can be found in section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

2.1.1 Design Requirements

As specified in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

2.2 CONCRETE MATERIALS

As specified in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

2.3 MISCELLANEOUS MATERIALS

2.3.1 Nonshrink Grout

Nonshrink grout shall conform to ASTM C1107/C1107M, and shall be a commercial formulation suitable for the application proposed. Nonshrink grout shall not have a post-set of expansion component in the hardened state. Submit descriptive literature of the grout proposed for use containing certified laboratory test results showing that it meets ASTM C1107/C1107M 60 days prior to its use together with a certificate from the manufacturer stating that the grout is suitable for the application or exposure for which it is being considered. In addition, a detailed plan for review, showing equipment and procedures for use in mixing and placing the grout.

2.3.2 Bonding Agents

Submit descriptive literature and certification in advance of their use. Bonding agents shall meet the following requirements:

2.3.2.1 Latex Bonding Agent

Latex agents for bonding fresh to hardened concrete shall conform to ASTM C1059/C1059M, Type II.

2.3.2.2 Epoxy Resin

Epoxy resins for use in repairs shall conform to ASTM C881/C881M, Type V, Grade I or II.

2.4 PLANT AND EQUIPMENT

Provide concrete production and transport equipment as specified in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS.

PART 3 EXECUTION

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

3.1.5.1 Joint Preparation

Concrete surfaces to which other concrete is to be bonded shall be prepared for receiving the next lift or adjacent concrete by cleaning by sandblasting, high-pressure water jet, or air-water cutting. Surface cutting by air-water jets will not be permitted for concrete surfaces congested with reinforcing steel or if they are relatively inaccessible. If, for any other reason, it is considered undesirable to disturb the surface of a lift before it has hardened, the use of sandblasting or high-pressure water jet after hardening will be required. Regardless of the method used, the resulting surface roughness shall have a aggregate amplitude of 1/4 inch Root Mean Squared (RMS), and shall be free from all laitance, oils, ice, debris, inferior concrete, loose material, standing or running water, and any other materials that may inhibit a concrete to concrete bond. Cleaning shall be performed such that sound mortar is exposed for concrete bond. The surface of the concrete shall not be treated before the concrete has hardened. Application of the joint treatment method shall be such that the edges of the larger particles of aggregate are not undercut. Where joint preparation occurs more than 2 days prior to placing the next lift or where the work in the area subsequent to the joint preparation causes dirt or debris to be deposited on the surface, the surface shall be cleaned as the last operation prior to placing the next lift. The surface of the construction joint shall be kept continuously wet for a minimum of 12 hours and then allowed to dry for 12 hours before placing concrete. The surface shall be damp with no free water on the surface at the time of placement.

3.1.5.2 Air-Water Cutting

Air-water cutting of a construction joint shall be performed at the proper time, generally between 4 and 12 hours after placement and only on horizontal construction joints. This period may be modified if a retarder is used to prolong the setting of the cement at surface of the concrete. The air pressure used in the jet shall be 620 to 760 kPa 90 to 110 psi, and the water pressure shall be just sufficient to bring the water into effective influence of the air pressure. When approved a surface retarder complying with the requirements of COE CRD-C 94 may be applied to the surface of the lift to prolong the period of time during which air-water cutting is effective. Prior to receiving approval, furnish samples of the material to be used and shall demonstrate the method to be used in its application. After cutting, the surface shall be washed and rinsed until the wash water is no longer cloudy. If air-water cutting does not produce acceptable results, the surface shall be prepared by high-pressure water jet or sandblasting.

3.1.5.3 High-Pressure Water Jet

A stream of water under a pressure of not less than 21 MPa 3,000 psi may be used for cleaning. Its use shall be delayed until the concrete is sufficiently hard so that only the surface skin or mortar is removed and there is no undercutting of coarse-aggregate particles. If the high-pressure water jet is incapable of a satisfactory cleaning, the surface shall be cleaned by sandblasting.

3.1.5.4 Wet Sandblasting

This method of joint preparation may be used when the concrete has reached sufficient strength to prevent undercutting of coarse aggregate particles.

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

at a rate which will prevent cold joints in any placement. Concrete shall be worked into the corners and angles of the forms and around all reinforcement and embedded items without permitting the material to segregate or develop hollow spots or voids. Concrete shall be deposited as close as possible to its final position in the forms, and in so depositing, there shall be no vertical drop greater than 1.5 m 5 feet. If a six foot lift is required, special equipment is required to prevent segregation and other detrimental affects from the free fall height of the concrete. Deposition of the concrete shall be so regulated that it will be effectively placed and consolidated in horizontal layers not exceeding 1.5 m 5 feet in thickness with a minimum of lateral movement. The amount of concrete deposited shall be such that it can be readily and thoroughly consolidated and shall not exceed 3 cubic meters 4 cubic yards in one pile. All concrete-placing equipment and methods shall be subject to approval. Concrete placement will not be permitted when, in the opinion of the Contracting Officer, weather conditions prevent proper placement and consolidation.

3.2.2.1 Time Interval Between Mixing and Placing

Concrete shall be delivered to the site of the work, and the placement shall be completed within 60 minutes after introduction of the cement to the mixing water or aggregates. When a truck mixer or agitator is used for transporting concrete, the concrete shall be placed within 30 minutes after mixing or agitating ceases.

3.2.2.2 Hot-Weather Placing Requirements

When the ambient temperature is equal to or greater than 80 degrees F, hot weather concrete placement and finishing procedures shall be implemented in accordance with ACI 305R, and as specified herein and the approved submittal. In the event of conflict between ACI 305R and this specification, this specification shall govern. The temperature of the concrete when deposited in the forms shall not exceed the minimum/maximum temperatures listed in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS Paragraph DESIGN REQUIREMENTS. An approved retarding admixture may be used in accordance with Section 03 00 00 GENERAL CONCRETE REQUIREMENTS to facilitate placing and finishing. Contractor shall monitor concrete temperature after placement using temperature sensors in accordance with Paragraph TEMPERATURE MONITORING and ensure the temperature of the concrete after placement does not exceed the maximum temperature limit of 150 degrees CF, or the maximum temperature difference limit (temperature difference between temperature sensors within a concrete placement) of 35 degrees C F. Additionally, the maximum temperature difference between any internal temperature sensor and the ambient air temperature sensor shall not exceed 35 degrees F. Precooling of concrete may be necessary so that the temperature of the concrete after placement does not exceed the maximum temperature limit or the maximum temperature difference limit. Precooling shall consist of covering aggregates to prevent direct sun exposure, cooling of concrete constituents, cooling of mixing water, liquid nitrogen mixing, and placing concrete in the cooler part of the day or night. Ice will not be permitted for use in place of batching water without written permission from the Contracting Officer. The Contractor shall immediately notify the Contracting Officer if it appears to the Contractor that the measured temperature may exceed or has exceeded either the maximum temperature limit or the temperature difference limit. Forms, reinforcement, and other embedded items shall not exceed 120 degrees F. Forms, reinforcement, and conveying and placing equipment shall be cooled if necessary to assist in maintaining specified concrete-placing

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

temperature. Control measures and back-up equipment shall be available on-site prior to and during hot weather placements. The temperature of the fresh concrete shall be measured in accordance with ASTM C1064/C1064M. Exposed concrete shall be protected from excessive drying (plastic shrinkage cracking) throughout placing and finishing. Submit a description of the materials and methods proposed for protection of the concrete 60 days in advance of anticipated need date for review, when concrete is to be placed under hot-weather conditions.

3.2.2.3 Cold-Weather Placing Requirements

When the ambient temperature has fallen to, or is expected to fall below 40 degrees F, and during the protection period as determined in accordance with Paragraph COLD-WEATHER PROTECTION, cold weather concrete placement and finishing procedures shall be implemented in accordance with ACI 306R (except Table 5.1) and as specified herein, and protected in accordance with Paragraph COLD-WEATHER PROTECTION. In the event of conflict between ACI 306R and this specification, this specification shall govern. The temperature of the concrete when deposited in the forms shall not be less than 5 degrees C 45 degrees F. The ambient temperature of the placement area and all surfaces to receive concrete shall be above 0 degrees C 32 degrees F. Materials entering the mixer shall be free from ice, snow, and frozen lumps. The heating of mixing water or aggregates necessary to keep the concrete temperature above 5 degrees C 45 degrees F shall be closely regulated so that the concrete temperature does not exceed 15 degrees C 60 degrees F. If heating systems resulting in carbon dioxide are used, concrete shall be protected from carbonation effects. The Contractor shall immediately notify the Contracting Officer if it appears to the Contractor that the measured temperature may exceed or has exceeded either the maximum temperature limit or the temperature difference limit. Submit a description of the materials and methods proposed for protection of the concrete 60 calendar days in advance of anticipated need date for review, when concrete is to be placed under cold-weather conditions.

3.2.2.4 Concrete Lifts

The depth of concrete placed in each lift will be as shown in the drawings. All concrete shall be deposited in approximately horizontal layers about 0.5 m 1-1/2 to 2 feet in thickness in stepped progression at such a rate that the formation of cold joints will be prevented. Maximum layer thickness for fresh concrete shall be 2 feet. Slabs shall be placed in one lift, unless 0.8 m 2 foot or more deep. Maximum lift thickness shall be 6 feet for the tower foundation as indicated on the plans. General lift height can typically vary from 4 to 6 feet with an average lift height anticipated of 5 feet. Where 2.3 m 5 and 6 foot lift depths are permitted, furnish approved cantilever forms that are jointed or hinged approximately mid-height to facilitate placement against surfaces sloping more than 10 degrees from vertical. At the beginning of the placing of a lift, the top half of a hinged or jointed form shall be retracted to such a position that it does not interfere with the operation of buckets placing concrete adjacent to the form. The number of layers shall be evenly sized based on the requirements above and the height of the lift to be placed. Horizontal layers shall be placed in a stepped progression of layers to achieve the lift height. Each layer shall consist of a continuous, uniform, minimum width of facing concrete that is at least two feet wide that is cast monolithically with the mass concrete in accordance with the approved means and methods established in paragraph TEST SECTION. Each new layer of concrete shall be placed on the oldest exposed layer. The maximum exposed bulkhead face of concrete between adjacent monoliths shall not exceed 12 m

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

All unformed surfaces that are not to be covered by additional concrete or backfill shall have a float finish, and/or additional finishing as specified in Section 03 30 00 CAST-IN-PLACE CONCRETE OUTLET WORKS. Finishes on all unformed surfaces shall be true to the elevation shown in the drawings. Surfaces to receive additional concrete or backfill shall be brought to the elevation shown on the drawings and left true and regular. Exterior surfaces shall be sloped for the drainage unless otherwise shown in the drawings or as directed. Joints shall be carefully made with a jointing or edging tool. The finished surfaces shall be protected from stains or abrasions. Grate tampers or jitterbugs shall not be used. The concrete shall be thoroughly consolidated before finishing operations commence or before leaving it for future concrete or backfill placement.

3.3.2 Formed Surfaces

Unless otherwise specified, formed surfaces shall be left with the finish imparted by the forms, except that defective surfaces shall be repaired as described in Paragraph SURFACE REPAIR. Uniform color of the concrete shall be maintained by use of only one mixture without changes in materials or proportions for any structure or portion of structure that is exposed to view or on which a special finish is required. The form panels used to produce the appropriate finish shall be in accordance with Section 03 30 00 CAST-IN-PLACE CONCRETE OUTLET WORKS.

3.4 SURFACE REPAIR

Surface repair requirements listed herein shall apply to all concrete meeting the requirements of a "mass concrete placement" as defined in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS, and all Mix #1 (Mass Concrete) placed monolithically with Mix #2 (Facing for Mass Concrete) unless otherwise specified. Surface repair requirements for Mix #2A (Facing Tunnel/Stilling Basin Concrete), Mix #3 (General Structural Concrete), and Mix #4 (Interior Structural Concrete) are included in Section 03 30 00 CAST-IN-PLACE CONCRETE OUTLET WORKS. All ridges, lips, and bulges on surfaces permanently exposed shall be removed. Repairs must be in accordance with Paragraph PLAN FOR MATERIAL AND PROCEDURE FOR REPAIRS. General concrete repair means and methods meeting the requirements contained herein must be submitted and approved in advance as part of the Concreting Plan. All concrete repairs must be completed within 72 hours of stripping forms. When this requirement cannot be met the repair depth must be increased to tie into the existing reinforcement. Selection for a specific approach to any partial depth repair must be approved by the Contracting Officer prior to implementation of a repair. All surface repair or concrete replacement shall be completed by the Contractor at no additional cost to the Government.

3.4.1 Lower Control Tower and Transition Area Concrete Repairs

Mix #2, Facing Concrete, must be used for all repairs in facing concrete. The facing concrete for concrete repairs must utilize a 1 inch nominal maximum aggregate size. Concrete repairs must meet the requirements established in Paragraph PLAN FOR MATERIAL AND PROCEDURE FOR REPAIRS. For Mix #1, which will only be exposed at horizontal joints, defects and surface repairs will be addressed through the procedures identified in paragraph JOINT PREPARATION. Surface defects for Mix 2 must be repaired as follows:

- 1) Diamond Grinding Repairs. If the surface tolerance exceeds the limits

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

indicated, the surface must be diamond ground to meet tolerance but not exceed more than 3/8 inch of material to be removed. Grinding must not be permitted if over 3/8 inch or more of concrete surface must be removed to prevent aggregates from raveling out during high velocity releases. If more than 3/8 inch of surface material requires grinding the out of tolerance concrete must be identified, measured, removed, and replaced at the Contractor's expense in accordance with Paragraph PARTIAL DEPTH REPAIRS, including the application of an approved surface hardener and concrete water sealer.

2) Honeycomb Repair Areas. Honeycomb areas smaller than 6 inches square in area and less than 3/8 inches deep may be repaired by roughening the face, removing loose/unstable material, and patching using facing concrete mortar in accordance with Paragraph MORTAR REPAIRS. Areas exceeding this area must be removed and replaced with abrasion resistant concrete per the requirements of Paragraph PARTIAL DEPTH REPAIRS.

3) Voids, bug holes, wall ties, cold joints, or spalls less than 1/2 inch in diameter shall be chipped and filled in accordance with paragraph MORTAR REPAIRS. Areas exceeding this area must be removed and replaced with abrasion resistant concrete per the requirements of Paragraph PARTIAL DEPTH REPAIRS. The Contractor must be required to advance 4 inch diameter cores at locations of cold joints, cracks, or voids to verify the depth and extent of the feature. Concrete removal limits must be adjusted by the Contractor and approved by the Contracting Officer based on results of coring and incorporated into the repair at no additional cost to the Government.

4) Holes left by removal of tie rods or left from contact grouting shall be reamed and filled with mortar if less than 1/2 inch in diameter per Paragraph MORTAR REPAIRS. Holes exceeding 1/2 inch must be reamed out to 1 inch for a depth of at least 3 inches and filled with dry pack mortar per Paragraph PARTIAL DEPTH REPAIRS.

5) Concrete monoliths will be broken into faces consisting of a floor, ceiling, and two walls. If the geometry is not rectangular the roof, walls, and floor will be defined based upon clock coordinates; The roof area is from 1-11 o'clock, the floor area from 5-7 o'clock, with walls from 1-5 and 7 to 11 o'clock. In the event that any face as defined herein is consumed by more than 20% total surface area filled with defects, than the entire monolith face must be removed and replaced in accordance with Paragraph FULL DEPTH REPAIRS.

3.4.2 Plan for Material and Procedures for Repairs

The Contractor must submit a general PLAN FOR MATERIAL AND PROCEDURE FOR REPAIRS with the Concreting Plan. General concrete repair means and methods meeting the requirements contained herein must be submitted and approved in advance and applied to subsequent repairs through approval from the Contracting Officer.

1) MORTAR REPAIRS

For mortar repairs, the constituent components of facing concrete at the appropriate percentages of the approved mix design and applied in dry-pack or grout consistency. Only enough water must be added to permit placing, which is usually a thick, creamy consistency if it is placed by hand. Dry-packed mortar must be remixed over a period of at least 30 minutes without addition of water until it obtains the stiffest consistency that

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

will permit placing. Mortar shall be thoroughly compacted into the prepared void by tamping, rodding, ramming, etc. and struck off to match adjacent concrete. General mortar produced that is not based on the constituent components of the facing concrete mix is not permitted.

2) PARTIAL DEPTH REPAIRS

Defective and unsound concrete areas larger than described in Paragraph LOWER CONTROL TOWER AND TRANSITION AREA CONCRETE REPAIRS must have dovetailed saw cuts in a rectangular pattern with lines parallel to the formwork. The concrete must be removed to expose sound parent concrete with a minimum depth of 3 inches, or until sound concrete is reached, and keyed in with saw cuts that have a 5-10 degree inward tilt. If reinforcement is exposed during removal, continue removing concrete until the reinforcement is fully exposed with 1 inch clear or the maximum aggregate size plus an additional 1/4 inch whichever is larger. The repair reinforcement for defects greater than 24 inches square shall include a 4"-D11 welded wire fabric anchored to the parent concrete with #4 bent dowels at 12" OC each way with a minimum embedment of 10 inches into sound concrete. Repair reinforcement for defects less than 24 inches square shall include a 4"-D11 welded wire fabric anchored to the parent concrete with a #4 bent dowel for each square foot of repair area with a minimum embedment of 10" into sound concrete. Clear cover for all repairs shall match that of the surrounding original work. Repair reinforcement shop drawings must be approved by the government.

Reinforcement must be protected during demolition. Maximum impact hammer sizes for demolition is 15 pounds using electric or compressed air hammers. Care must be taken to not damage concrete outside of the repair area and to not damage, gouge, or break existing reinforcement. Areas must be prepped prior to placement via low pressure water jetting to clean the repair area with water at least 24 hours prior to placement. The area must be maintained in a clean, saturated surface dry condition (no free water) for at least 2 hours prior to the repair. The area must be dry before placing bonding agents and/or reinforcement. The prepared area shall be brush-coated with an epoxy resin meeting the requirements of ASTM C881/C881M, Type V. Bonding agents shall conform to the requirements paragraph MISCELLANEOUS MATERIALS. The void shall be filled with replacement concrete in accordance with the following paragraph.

Replacement concrete must consist of abrasion resistant facing concrete proportioned as approved for the facing concrete mix. Concrete must be thoroughly compacted into the prepared void by internal vibration, tamping, rodding, ramming, etc. and shall be struck off and finished to match adjacent concrete. Reinforcement shall be required between the repair and the existing concrete. Forms shall be used to confine the concrete. Metal tools shall not be used to finish permanently exposed surfaces. The repaired areas shall be cured for 7 days. The temperature of the in situ concrete, adjacent air, and replacement materials must be within the contractual thresholds for hot and cold weather concrete placements for facing concrete. Other methods and materials for repair may be used only when approved in writing from the Contracting Officer. Repairs of the so called "plaster-type" will not be permitted. Expansive agents are not permitted.

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

3) FULL DEPTH REPAIRS

When cold joints or cracks persist fully through the facing concrete, or when more than 20% of any facing surface contains defects, full depth removal and replacement repairs are required. Full Depth repair requires all facing concrete to be removed back to the mass concrete for the failing face. Reinforcement must be protected during demolition. Reinforcement that is damaged or removed during the repair must be replaced in kind with appropriate splices and embedment length.

3.5 CURING AND PROTECTION

See SECTION 03 00 00 GENERAL CONCRETE REQUIREMENTS for curing material requirements. Submit the curing media and methods to be used for review 30 days before concrete placement begins.

3.5.1 Curing Time

This section covers curing time and temperature requirements during curing. All concrete specified herein shall be cured by one of the following methods or combination of methods for the period of 21 days, or as adjusted by the Contracting Officer based on the cementitious materials used in the concrete. Curing shall begin immediately after placing. Curing methods shall be employed to limit the cooling rate of concrete to not more than 5 degrees F per hour and not more than 30 degrees in a 24 hour period. The maximum temperature in concrete after placement shall not exceed 150 degrees F. The maximum temperature difference limit (temperature difference between sensors within a concrete placement) shall not exceed 35 degrees F. Additionally, the maximum temperature difference between any internal thermistor sensor and the ambient air temperature thermistor sensor shall not exceed 35 degrees F. When curing protection is discontinued, concrete shall be cooled gradually to ambient temperature conditions at a rate not exceeding 20 degrees F in 24 hours. Temperature sensors to monitor the curing process shall be cast within concrete placements in accordance with Paragraph TEMPERATURE MONITORING.

Surface temperature controls, such as external cooling or heating measures, may be necessary in order to maintain concrete temperatures within the specified curing ranges. The Contractor shall have all equipment needed for adequate curing and protection of the concrete on hand and ready to install before actual concrete placement begins. At least 30 calendar days before concrete placing begins, submit for approval the materials, equipment, methods, and procedures to be used. The submittal shall include, but is not limited to, product data sheets for curing materials and equipment, descriptions of the curing material installation, monitoring, and removal, description of quality control monitoring procedures and corrective action plans, and example curing inspection reports for each proposed method used.

3.5.2 Temperature Monitoring

Temperature sensors, conforming to the requirements of Section 03 00 00 GENERAL CONCRETE REQUIREMENTS, shall be installed as described herein for all concrete placements covered within this specification section. Temperature sensors shall be permanently cast within the concrete placement. At a minimum, place two temperature sensors at the center of the largest portion of placement and one temperature sensor at the center of each exterior surface at a depth of 2 inches from the

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

surface. The ambient air temperature immediately surrounding the outside of the insulated test specimen shall also be monitored and recorded. Redundant sensors shall be used at each location to assure that data is captured. Temperature logging shall begin 24 hours prior to the placement of concrete. During curing, Contractor shall record temperature data hourly for the first 4 days. After 4 days measurement frequency can be reduced to once every 4 hours. After 7 days measurement frequency can be reduced to once every 12 hours for the remaining duration.

The Contractor shall download and examine temperature data at least twice per working day even if the monitoring system is set to contact personnel if the temperature limit and/or the temperature difference limits are approached/exceeded. If limits are exceeded, additional protections must be employed immediately. This process must be maintained starting on the day of placement (just after the concrete is complete) and continue until thermal control is complete. Downloaded temperature data will be provided to the USACE upon request (typically not more than one time per working day), and final temperature records within 3 days after thermal control of the placement is complete. A quality control representative shall periodically record readings on a curing inspection report, in accordance with Paragraph CURING. If the proposed system contains wires, the wires shall be cut flush with the concrete and repaired in accordance with Paragraph SURFACE REPAIR. The Contractor shall include the proposed product data information for the proposed system with the Curing and Protection submittal required in Paragraph CURING AND PROTECTION.

3.5.3 Moist Curing

Concrete containing silica fume shall be moist cured. Horizontal and nearly horizontal surfaces shall be moist cured by ponding, by covering with a minimum uniform thickness of 50 mm 2 inches of continuously saturated sand, or by covering with saturated non-staining burlap or cotton mats. Ponding water shall not be more than 20 degrees F different than surface temperature of the concrete at the time the water and concrete come in contact. Burlap and cotton mats shall be rinsed to remove soluble substances before using. Other surfaces shall be moist cured when approved or directed. Concrete that is moist cured shall be maintained continuously, not periodically, wet for the duration of the entire curing period. Water for curing shall comply with the requirements of Section 03 00 00 GENERAL CONCRETE REQUIREMENTS. If the water, sand, mats, etc. cause staining or discoloration of permanently exposed concrete surfaces, the surfaces shall be cleaned by a method approved. The temperature of the water should be tepid, and not more than 20 degrees cooler than the surface of the concrete placement. When wood forms are left in place during curing, the forms shall be kept continuously wet except for sealed insulation curing in cold weather. Forms shall be carefully broken loose from the hardened concrete and curing water continuously introduced into the void under the following conditions;

- a. steel forms are left in place on vertical surfaces during curing of concrete
- b. when using high-strength concrete
- c. when concrete being cured has a water-cement ratio less than 0.40
- d. placements being cured have a minimum dimension greater than 600 mm² feet

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

Horizontal construction joints shall be allowed to dry sufficiently to remove free water immediately prior to placing the next lift.

3.5.4 Membrane Curing

Membrane curing or curing compound shall not be used for curing of mass concrete.

3.5.5 Sheet Curing

Sheets shall be used only on vertical or near vertical surfaces of mass concrete that cannot be effectively moist cured. Sheeting shall be provided to contain or cover surfaces being moist cured. The sheets shall comply with the requirements of Section 03 00 00 GENERAL CONCRETE REQUIREMENTS. All surfaces shall be thoroughly wetted. Sheet materials shall be placed over top of saturated burlap, or other matting but shall never be placed directly against the concrete. Covering shall be laid with light-colored side up. Covering shall be lapped not less than 100 mm 4 inches and taped to form a continuous cover with completely closed joints. The sheet shall be weighted to prevent displacement so that it remains in contact with the concrete during the specified length of curing. Coverings shall be folded down over exposed edges of slabs and secured by approved means. Sheets shall be immediately repaired or replaced if tears or holes appear during the curing period.

3.5.6 Sealed Insulation Curing

Between dates listed in Paragraph COLD-WEATHER PROTECTION where cold weather protection is provided entirely by insulation, all joints in the insulation shall be sealed to retard moisture loss and maintain a seal throughout the curing period. Insulation shall be placed a minimum of 6 feet past the placed concrete to cover adjacent existing concrete.

3.5.7 Protection

Immediately after placement, concrete shall be protected from premature drying, extremes in temperatures, rapid temperature change, and mechanical damage. No fire or excessive heat shall be permitted near or in direct contact with concrete at any time. No vibratory earth compaction equipment or pile-driving equipment shall be operated within 30 m 100 feet horizontally of concrete until after the concrete has achieved both a compressive strength of at least 1,000 psi, and an age of at least 3 days old. Blasting shall not be permitted within 30 m 100 feet horizontally of concrete less than 90 days old. Blasting plans shall be approved by the Contracting Officer. All galleries, conduits, and other openings through the concrete shall be kept closed or sealed during the entire construction period. The concrete shall be protected from the damaging effects of rain for a minimum of 12 hours and from flowing water for a minimum of 14 days. The surface of the concrete shall be protected from rain or snow during placing.

3.5.8 Cold-Weather Protection

For temperature requirements see paragraph COLD-WEATHER PLACING REQUIREMENTS. When cold weather concrete requirements apply, the concrete shall be covered with insulation for the period indicated below, or until completion of thermal control.

During the period from October 1 to April 30, all exposed concrete surfaces

P2#: 145870
 Falls of Rough, KY

Rough River
 Dam Safety Mod Phase II

shall be insulated for a minimum of 28 days after placement, regardless of ambient temperatures. Insulation shall have a minimum R-value of 4.0 hr.-sq.ft. - degrees F/Btu. Providing insulation with a greater R-value does not result in an equal reduction to the time cold weather protection is required. Any concrete that is less than 14 days old at the start of the insulation period shall be insulated until the concrete is a minimum of 28 days old. In addition, insulation shall be placed on any newly placed concrete when the ambient temperature is expected to be less than 32 degrees F. Insulation shall be installed as soon as the concrete has sufficiently set as not to be disturbed by the insulation. No insulation shall be removed when the actual air temperature is below the anticipated daily mean temperature, or when the difference between the concrete surface temperature and the air temperature is forecasted to be greater than 25 degrees F for a 24-hour period after insulation removal. All equipment and materials for insulating the concrete shall be at the work site well in advance of expected freezing temperatures. All joints in the insulation shall be sealed to prevent moisture loss during the curing period. Waterproof paper or polyethylene-coated burlap shall not be acceptable as insulation.

Submit a description of the materials and methods proposed for protection of the concrete, 60 calendar days in advance of anticipated need date for review, when concrete is to be placed under cold-weather conditions.

- a. Insulation shall be maintained in such a condition that the R value does not diminish during the period of protection. Edges and corners of the placement shall be protected with a double layer of the insulation specified above for a minimum distance of 2 feet in all directions.
- b. Forms shall be insulated in such a manner that the combined form-insulation system shall have a thermal resistance (R value) not less than that specified. The Contractor shall not temporarily remove forms and insulation on days where rain/sleet/snow is predicted, or cloudy, windy days. When forms and insulation are temporarily removed:
 1. Reinstall insulation as soon as possible; in some cases, this may be required within as little as 1 to 2 hours (or less); actual time is based on measured temperatures and the wind and air temperature at the time of removal. See note No.3.
 2. During removal and replacement operations, the temperature of the exposed surface concrete must be closely monitored using an infrared thermometer. Immediately prior to the removal and replacement operations in each local area, the temperature of the center sensor and the edge face in the placement shall be noted. Forms and insulation must be replaced prior to the time that the exposed surface cools to be more than 25 degrees F.

Formwork may also be removed during this time, provided the concrete exceeds 75 percent of the specified design strength based on field cured cylinders tested in accordance with Paragraph COMPRESSION TEST CYLINDERS, and curing and thermal control is maintained until completion as specified. Adjoining concrete placements shall not be placed before completion of thermal control.

- c. The first 6 feet of all steel protruding from insulated concrete shall be insulated with material having an R value as stated in the

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

concrete production. Additional tests shall be made when excessive variation in workability is reported. Tests shall be made in accordance with ASTM C231/C231M. The average of each set of two tests for each mixture shall be plotted on control charts on which the average percent and upper and lower limits are set in accordance with Section 03 00 00 GENERAL CONCRETE REQUIREMENTS. The range between two consecutive tests for each mixture shall be plotted on a control chart on which the upper control limit is 3.0 percent. Samples for air content shall normally be taken at the mixer, however the Contractor is responsible for delivering the concrete to the forms at the proper air content. Samples shall be taken at the placement site as often as required, depending on the Contractor's delivery method, to determine any air loss.

3.7.2.1.2 Air Content Corrective Action

Whenever points on the control chart approach the upper or lower control limits, an adjustment should be made in the amount of air-entraining admixture batched. If a single test result is outside the specification limit, immediate adjustment is mandatory. As soon as practical after each adjustment, another test shall be made to verify the correction of the adjustment. Whenever a point falls above the upper control for range, the dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility. Whenever two consecutive points either for average or range are outside the control limits, the Contracting Officer shall be notified.

3.7.2.1.3 Slump Testing

At least two slump tests shall be made in accordance with ASTM C143/C143M on each concrete mixture produced during each 8-hour period or less of concrete production each day. Additional tests shall be made when excessive variation in workability is reported. The result of each test for each mixture shall be plotted on a control chart on which the upper and lower limits are set as specified in Section 03 00 00 GENERAL CONCRETE REQUIREMENTS. The range shall be plotted on a control chart on which the upper control limit is 50 mm 2 inches. Samples for slump shall be taken at the mixer, however the Contractor is responsible for delivering the concrete to the placement site at the stipulated slump. If the Contractor's materials or transportation methods cause slump loss between the mixer and the placement, samples shall be taken at the placement site as often as required by the Contracting Officer.

3.7.2.1.4 Slump Corrective Action

Whenever points on the control chart approach the upper or lower control limits, an adjustment shall be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the total water content does not exceed that amount specified in the mixture proportions provided based on the free water available with the aggregates and that amount of water batched. If the adjustments to the batch weights of water and aggregates do not satisfactorily produce the required slump, the Contracting Officer may adjust the mixture proportions if the fine-aggregate moisture content is stable and within the required limits. When a single slump is outside the control limits, such adjustment is mandatory. As soon as practical after each adjustment, another test shall be made to verify the correctness of the adjustment. Whenever two consecutive individual slump tests, made during a period when there was no adjustment of batch weights, produce a point on the control chart for range above the upper control limits, the slump shall be considered to be out of

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

For tremie concrete placements, if recorded volumes and depths of concrete exceed the theoretical placement values by +/- 2 feet, the Contractor shall temporarily halt concrete placing operations and notify the Contracting Officer. The Government reserves the right to perform inspection of the area with noted deficiencies by means of drilling core samples for testing per ASTM C42/C42M or alternative means. The Contractor shall assist the Government in the drilling, testing, and inspection process.

3.7.2.4 Post Placement Inspection

Within 72 hours after form removal, a post placement inspection shall be performed by the Contractor Quality Control Representative. The inspection shall consist of, but is not limited to, the measuring and recording of concrete surface finishes utilizing the appropriate sized straightedge, recording the approximate location of measurements, identifying areas that require surface repairs, verifying surface repairs are satisfactorily completed, verifying concrete surfaces were properly finished, identification of the curing methods to be used, and ensuring proper curing methods are employed. All deficiencies noted shall be corrected in accordance with Paragraph SURFACE REPAIR. These inspections shall be reported in writing and submitted to the Government for review and approval. Additional inspection requirements are described in the forthcoming paragraphs.

At least 30 calendar days prior to concrete placement, the Contractor shall submit a detailed post placement inspection report for review and approval. The plan shall include descriptions and product data of the means, methods, and equipment to be used for the inspection items described herein as well as applicable drawings and example inspection reports to be used to meet these contract requirements.

3.7.2.4.1 Surface Finish Tolerance Inspection

Surface finish tolerances shall be measured and inspected as soon as practicable after each concrete placement. Tolerances shall conform to the requirements set forth within Section 03 30 00 CAST-IN-PLACE CONCRETE OUTLET WORKS. At a minimum, surface finish tolerances shall be measured as described herein. Measurements shall be performed every 5 feet in a grid formation using a calibrated aluminum straight edge for plane surfaces or a curved template for curved surfaces. The calibrated straight edge shall be re-calibrated, at a minimum, every 12 months, or whenever the straightness is reasonably questionable. The curved template shall be verified to conform to the appropriate dimensions prior to each use. The Contractor shall submit for review and approval, as a part of the post placement inspection plan, the proposed surface finish tolerance inspection plan. The submission shall include a description and product data of the means, methods, and equipment to be used for measuring tolerances, as well as a drawing identifying the anticipated measurement locations and an example inspection report to be used. Additionally, the contractor shall submit for review and approval completed surface finish tolerance inspections for each placement. The completed inspection reports shall be include in the post-placement inspection report for each placement.

3.7.2.4.2 Surface Repair Inspection

Surface repairs shall be performed in accordance with Paragraph SURFACE REPAIR. At least one randomly selected sample of grout shall be collected and tested during each 8 hour period in which surface repairs are

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

performed. Testing shall be performed in accordance with ASTM C109/C109M. The compressive strength of the sample shall meet or exceed 4,000 psi at 7 days.

The Contractor shall submit, as a part of the post-placement inspection report, a surface repair placement card for each placement identifying that all surface repairs were satisfactory completed. The surface repair placement card shall, at a minimum, include the following: identification of the placement, date of the surface repairs were completed, identification of general types and locations of surface defects, verification proper repair procedures were performed, quality control representative signature or initials, and quality assurance representative signature or initials.

Quality control surface repair test reports shall be submitted for each surface repair sample collected. The test reports shall be in accordance with ASTM C109/C109M and include, at a minimum, the date of sample collection, date of testing, identification of the applicable placement locations, testing age of the sample, and the test results. Examples of the noted reports herein shall be submitted as a part of the post placement inspection plan submittal, prior to concrete placement.

3.7.2.5 Vibrators

3.7.2.5.1 Vibrator Testing and Use

The frequency and amplitude of each vibrator shall be determined in accordance with COE CRD-C 521 prior to initial use and at least once a month when concrete is being placed. Additional tests shall be made as directed when a vibrator does not appear to be adequately consolidating the concrete. The frequency shall be determined while the vibrator is operating in concrete with the tachometer being held against the upper end of the vibrator head while almost submerged and just before the vibrator is withdrawn from the concrete. The amplitude shall be determined with the head vibrating in air. Two measurements shall be taken, one near the tip and another near the upper end of the vibrator head, and these results averaged. The make, model, type, and size of the vibrator and frequency and amplitude results shall be reported in writing.

3.7.2.5.2 Vibrator Corrective Action

Any vibrator not meeting the specified requirements shall be immediately removed from service and repaired or replaced.

3.7.2.6 Curing

All curing inspections shall consist of, at a minimum, the inspection of the curing method as described herein, and recording of the concrete temperature from each embedded temperature sensor at least once every four hours for the first 7 calendar days after placement and twice per day thereafter for a minimum duration of 30 calendar days or when curing is completed, whichever is longer. When inadequate temperature recordings are noted, immediate action shall be taken to correct the temperature deficiency. Curing inspections shall be recorded on an inspection report that contains the following information as a minimum:

- a.) Identification of Placement
- b.) Identification of the curing method
- c.) Date(s) and time(s) of inspection

P2#: 145870
Falls of Rough, KY

Rough River
Dam Safety Mod Phase II

3.7.3 Reports

All results of tests or inspections conducted shall be reported informally as they are completed and in writing daily in addition to the formal digital data requirements detailed in 01 31 00 DATA MANAGEMENT. A weekly report shall be prepared for the updating of control charts covering the entire period from the start of the construction season through the current week. During periods of cold weather protection, reports of pertinent temperatures shall be made daily. These requirements do not relieve the Contractor of the obligation to report certain failures immediately as required in preceding paragraphs. Such reports of failures and the action taken shall be confirmed in writing in the routine reports. The Contracting Officer has the right to examine all contractor quality control records.

-- End of Section --