



**DEPARTMENT OF THE ARMY**  
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION  
60 FORSYTH STREET SW, ROOM 10M15  
ATLANTA, GA 30303-8801

CESAD-RBT

20 May 2020

MEMORANDUM FOR Commander, Mobile District, P.O. Box 2288, Mobile, Alabama  
36628-0001

SUBJECT: Approval of the Review Plan for the Moundville Archaeological Park Emergency  
Streambank and Shoreline Protection Project, Moundville, Alabama

1. References:

- a. Memorandum, CESAM-EN, 12 May 2020, subject as above.
  - b. Engineering Circular (EC) 1165-2-217, Water Resources Policies and Authorities Review Policy for Civil Works, 20 February 2018.
2. The enclosed Review Plan (RP) for the Moundville Archaeological Park Streambank and Shoreline Protection Project submitted by the Mobile District via reference 1.a. noted above has been reviewed by South Atlantic Division (SAD). The RP is hereby approved in accordance with reference 1.b.
3. The South Atlantic Division Office shall be the Review Management Organization (RMO) for this project.
4. SAD concurs with the District's RP recommendation that outlines the requirements for District Quality Control (DQC), Agency Technical Review (ATR), and Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review and the conclusion that a Safety Assurance Review/Type II Independent External Peer Review is not required.
5. The District should take steps to post the approved RP to its website and provide a link to CESAD-RBT. Before posting to the website, the names of Corps/Army employees should be removed. Subsequent significant changes to this RP, such as scope or level of review changes, should they become necessary, will require new written approval from this office.
6. The SAD point of contact is Ms. Shannon L. Geoly, CESAD-RBT, (404) 562-5121.

Encl

**Diana M.  
Holland**  
Digitally signed by  
Diana M. Holland  
Date: 2020.05.20  
20:58:20 -04'00'  
DIANA M. HOLLAND  
Major General, USA  
Commanding

# **PROJECT REVIEW PLAN**

**For  
Design and Implementation Phase**

**Moundville Archaeological Park,  
Emergency Streambank and Shoreline  
Protection Project  
Moundville, Alabama**

**Mobile District  
May 2020**

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS, MOBILE DISTRICT. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.



**US Army Corps  
of Engineers®  
Mobile District**

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# **1. GENERAL**

## **a. Purpose**

This Review Plan (RP) for the Moundville Archaeological Park Shoreline and Streambank Protection Project, Moundville, Alabama, will help to ensure development of a quality engineered project by the U.S. Army Corps of Engineers (USACE) in accordance with EC 1165-2-217, "Review Policy for Civil Works." This RP establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products, lays out a value added process, and describes the scope of review for the current phase of work. The EC outlines five general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review, Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. This RP will be provided to the Project Delivery Team (PDT) and the DQC, ATR, and BCOES Teams. The technical review efforts addressed in this RP, DQC and ATR, are to augment and complement the policy review processes. The USACE Mobile District (SAM) Chief of Engineering has assessed that the life safety risk of this project is not significant; therefore, a Type II IEPR/Safety Assurance Review (SAR) will not be required, see Paragraph 8. Any levels of review not performed in accordance with EC 1165-2-217 will require documentation in the RP of the risk-informed decision not to undertake that level of review.

## **b. References**

- (1) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- (2) ER 1110-1-12, Engineering and Design Quality Management, 31 March 2011
- (3) EC 1165-2-217, Review Policy for Civil Works, 20 February 2018
- (4) ER 415-1-11, Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review, 1 January 2013

## **c. Review Plan Approval and Updates**

The USACE South Atlantic Division (SAD) Commander is responsible for approving this RP. The Commander's approval reflects vertical team input as to the appropriate scope and level of review. The RP is a living document and may change as the project progresses. The SAM is responsible for keeping the RP up to date. Minor changes to the RP since the last SAD Commander approval will be documented in Attachment A. Significant changes to the RP (such as changes to the scope and/or level of review) should be re-approved by the SAD Commander following the process used for initially approving the plan. The latest version of the RP, along with the Commander's approval memorandum, will be posted on the SAM's webpage. The latest RP will be provided to SAD.

#### **d. Review Management Organization**

SAD is designated as the Review Management Organization (RMO). The RMO, in cooperation with the vertical team, will approve the ATR team members. SAM will assist SAD with management of the ATR and development of the charge to reviewers.

## **2. PROJECT INFORMATION**

#### **a. Background**

The Moundville Archaeological Park is located in both Hale County and Tuscaloosa County, Alabama, in the City of Moundville, Alabama (Figure 1). It is located approximately 17 miles south of Tuscaloosa, Alabama. Moundville Archaeological Park has been listed as a National Historic Landmark since 1964 and listed on the National Register of Historic Places since 1966. Moundville Archaeological Park was occupied by Native Americans of Mississippian culture from around A.D. 1000 until A.D. 1450. At the time of Moundville's heaviest residential population, the community took the form of a 300 hundred-acre village built on a bluff overlooking the river and also served as a political and religious center. In addition to the political and religious significance of Moundville, the site is also the location of one of the largest and most prestigious necropolises in the Southeast. Modern Native American tribes revere this site not only for its significance as a monument to their ancestors, but also because it is the final resting place for many of those ancestors.

The University of Alabama, the owner and operator of Moundville Archaeological Park, by letters dated May 16, 2013 and January 27, 2014, requested streambank erosion assistance in the vicinity of McGowan's Bluff along the Black Warrior River. Due to severe streambank erosion, Native American remains and historical artifacts are currently being exposed and lost in the area of erosion. There is an imminent threat of losing significant artifacts, additional Native American remains, and damage to Mound D. The streambank erosion is progressive with bank losses near 50 feet over the past decade. Recent losses over a three-year period total about 25 feet at the top of bank. Previously, limited recovery efforts have identified the presence of Native American remains and historical artifacts subject to being exposed and lost in the area of erosion. The immediate area of concern is approximately 700 feet in length (Figure 2) along the Black Warrior River and lies within the Tuscaloosa County portion of the Park.

#### **b. Project Description**

This project is being constructed under the continuing authority of Section 14 of the Flood Control Act of 1946, as amended. The Moundville Bank Stabilization project will consist of the placement of riprap along an approximately 700 ft long segment of the Black Warrior River adjacent to the Moundville Archeological Park. All rock will be brought in by barge and placed from the river. Equipment access from the landside will be limited. The work will include removal of all vegetation and debris; placement of filter fabric; placement of stone toe in the river at the base of the embankment; placement of stone on the embankment; and planting of native plant species along the top of bank.



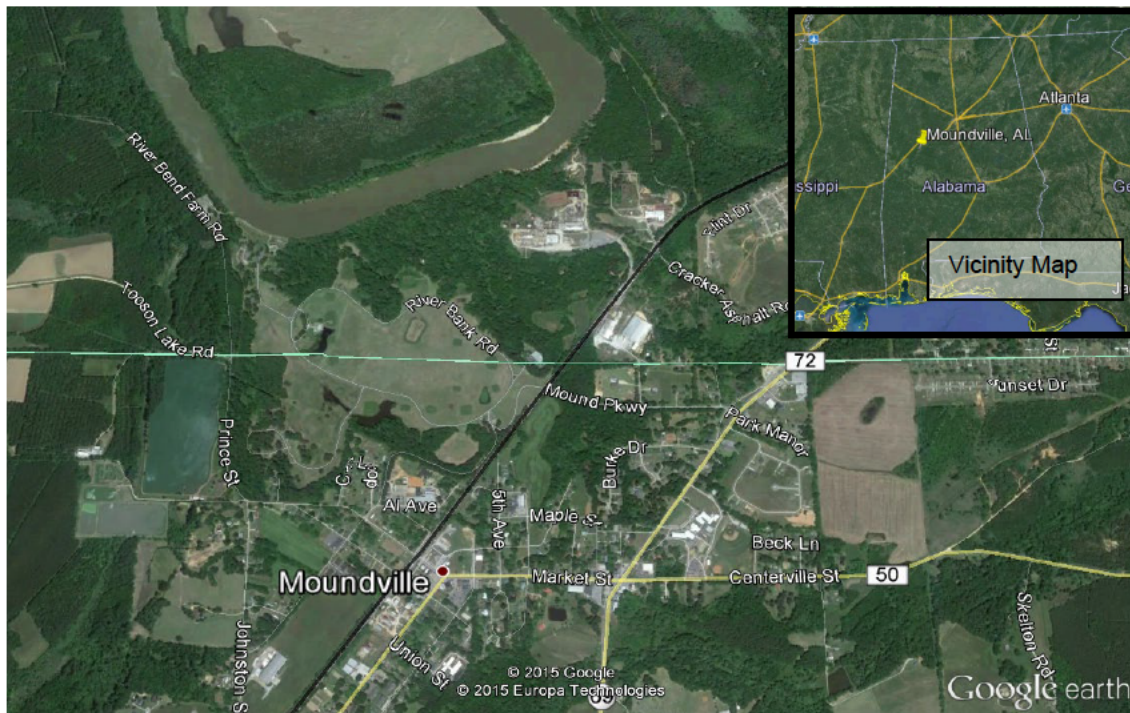


Figure 1. Location Map

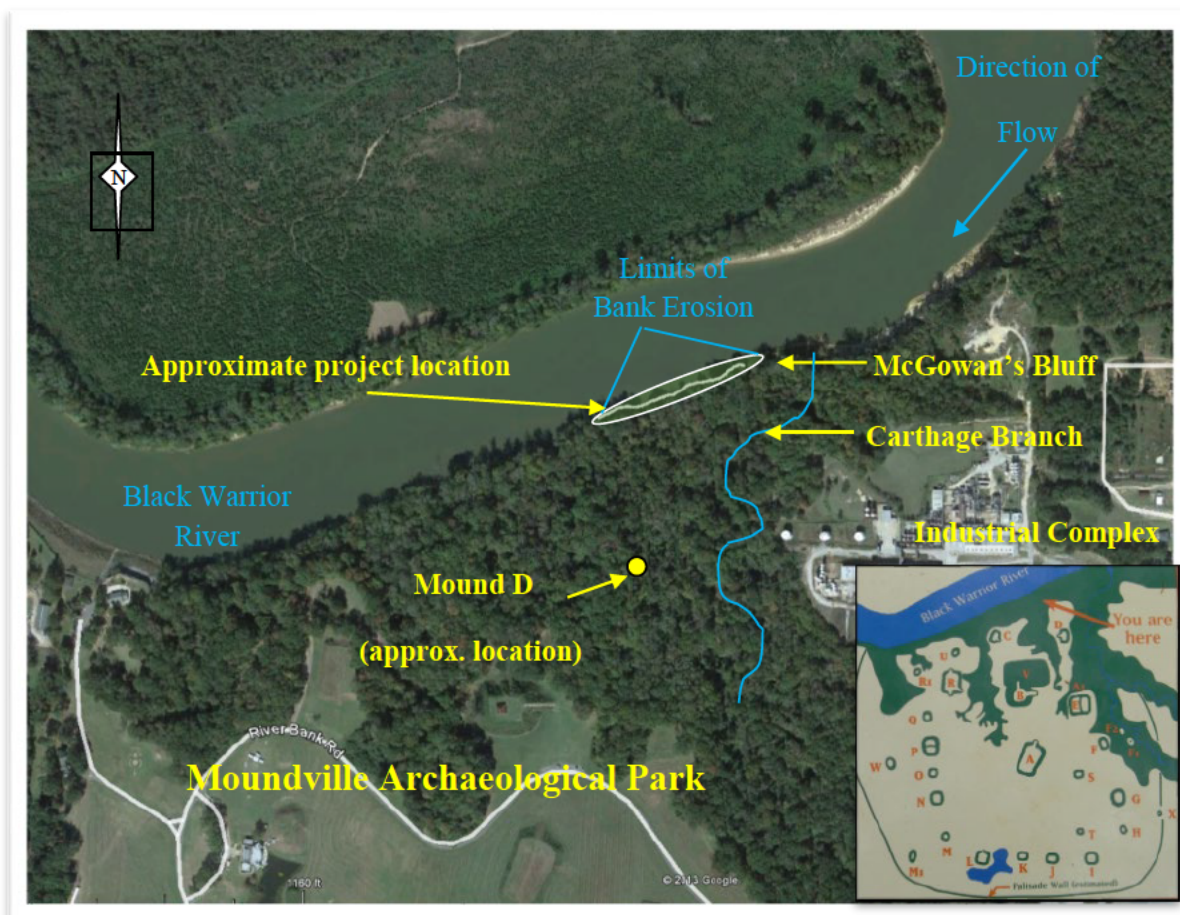


Figure 2. Area of Concern

### **3. PROJECT DELIVERY TEAM**

The Project Delivery Team (PDT) is comprised of those individuals involved directly in the development of the implementation documents. The individual contact information and disciplines of the SAM PDT are included in Attachment A of this document.

### **4. REVIEW PROCESS**

Products to be reviewed will include the final plans and specifications (P&S) and the design documentation report (DDR).

### **5. LEVELS OF REVIEW**

This RP describes the levels of review and the anticipated review process for the various documents to be produced. The levels of review included in this RP are District Quality Control/ Quality Assurance (DQC/QA), Agency Technical Review (ATR), and Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review. DrChecks review software will be used to document all comments, responses, and associated resolutions accomplished throughout the review process. Comments will be limited to those that are required to ensure adequacy of the product.

### **6. DISTRICT QUALITY CONTROL/QUALITY ASSURANCE (DQC/QA)**

All documents to be produced will undergo District Quality Control/Quality Assurance (DQC/QA). DQC/QA is the review of basic science and engineering work products focused on fulfilling project quality. Major Subordinate Command (MSC) and District quality management plans address the conduct and documentation of this fundamental level of review. DQC/QA will be managed by the SAM in accordance with ER 1110-1-12, Engineering & Design Quality Management, EC-1165-2-217, and the District Quality Management Plan. The DQC/QA will include quality checks and reviews, supervisory reviews, and PDT reviews required by ER 1110-1-12. Additionally, the PDT is responsible to assure the overall integrity of the documents produced. The DQC/QA review will be completed prior to submitting documents for ATR. At a minimum, the following disciplines should be represented on the DQC Team:

<b>DQC Team Disciplines</b>	<b>Expertise Required</b>
DQC Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as hydraulics, geotechnical or environmental resources, etc.).
Environmental Engineer/Protection Specialist	A senior environmental resources specialist with experience with environmental evaluation and compliance requirements. Can be assigned to the Cultural Resources Specialist if qualified.
Cultural Resources Specialist	A senior cultural resource specialist with experience with cultural resource survey methodology, area of potential effects, Section 106 of the National Historic Preservation Act, and state and Federal laws/executive orders pertaining to American Indian Tribes. Can be assigned to the Environmental Engineer/Protection Specialist if qualified
Hydraulic Engineer	A hydraulic engineer with experience in hydraulic design of erosion and slope protection projects and river training structures.
Geotechnical Engineer	A geotechnical engineer experienced with geologic and geotechnical analyses that are used to support the development of erosion protection projects.
Civil Engineer (Construction)	Team member experienced with administration of contracts for civil works project construction.

## 7. AGENCY TECHNICAL REVIEW

All documents produced as part of this effort will undergo ATR to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses and the design plans and specifications presented are technically correct and comply with published USACE guidance.

The ATR team will consist of individuals that represent the significant disciplines involved in the accomplishment of the work. ATR will be managed within the USACE and conducted by senior USACE personnel outside of SAM that are not involved in the day-to-day production of the project. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. The documents to be reviewed are the DDR and technical plans and specifications. The PDT will evaluate comments in DrChecks and revise materials as necessary. The ATR leader will be from outside the MSC and must complete a statement of technical review for all final products and final documents. By



signing the ATR certification, the District leadership certifies policy compliance of the document and that the DQC/QA activities were sufficient and documented. At a minimum, the following disciplines should be represented on the ATR team:

ATR Team Disciplines	Required Expertise
ATR Leader	Team member should have necessary expertise needed to lead ATRs, etc. The ATR lead may also have been a senior ATR reviewer on similar type projects within the past 5 years. ATR Team Leader can also serve as one of the review disciplines in addition to team leader duties.
Environmental Engineer/Protection Specialist	Team member should have a minimum of 5 years experience in environmental evaluation and compliance requirements. Can be assigned to the Cultural Resources Specialist if qualified.
Cultural Resources Specialist	Team member should have a minimum of 5 years with experience with cultural resource survey methodology, area of potential effects, Section 106 of the National Historic Preservation Act, and state and Federal laws/executive orders pertaining to American Indian Tribes.
Geotechnical Engineer	Team member should have a minimum of 5 years experience to include geotechnical evaluation of earthen or rock structures.
Hydraulic Engineer	Team member should have a minimum of 5 years experience in hydraulic design associated with erosion and slope protection projects and river training structures.

## 8. INDEPENDENT EXTERNAL PEER REVIEW

### a. General.

EC 1165-2-217 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Pre-construction, Engineering and Design Phases, respectively). The EC defines Section 2035 Safety Assurance Review (SAR) as a Type II Independent External Peer Review (IEPR). The EC requires Type II IEPR be conducted outside USACE.

### b. Type I Independent External Peer Review Determination.

A Type I IEPR is primarily associated with decision documents. A Type I IEPR is not applicable to the implementation documents covered by this RP.

**c. Type II Independent External Peer Review Determination.**

This project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-217). Therefore, a review under Section 2035 is not required. The factors in determining whether a review of design and construction activities of a project are necessary as stated under Section 2035, along with this RP's applicability statements, follow:

- (1) Failure of the project would pose a significant threat to human life.

*Failure of the project would not pose a threat to human life. Placement of the riprap material does not change the hydraulic condition of the channel or river.*

- (2) The project involves the use of innovative materials or techniques.

*This project will utilize methods and techniques used by the USACE on other similar projects. A similar placement of riprap 20 years ago at a nearby downstream location has functioned effectively.*

- (3) The project design lacks redundancy.

*There is no need for redundant design features for the riprap placement since no risks to life safety are involved.*

- (4) The project has unique construction sequencing or a reduced or overlapping design construction schedule.

*The project does not have or pose unique sequencing or a reduced or overlapping design. The construction methods and procedures have been used successfully by the USACE on other similar works.*

Based on the discussion above, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of the P&S and DDR. If the project scope is changed, this determination will be reevaluated.

**9. BIDDABILITY, CONSTRUCTABILITY, OPERABILITY, ENVIRONMENTAL, AND SUSTAINABILITY REVIEW**

The value of a BCOES review is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. BCOES review requirements must be emphasized throughout the planning and design processes for all programs and projects, including during planning and design. This will help to ensure that the government's contract requirements are clear, executable, and readily understandable by private sector

bidders or proposers. It will also help ensure that the construction may be done efficiently and in an environmentally sound manner, and that the construction activities and projects are sufficiently sustainable. Effective BCOES reviews of design and contract documents will reduce risks of cost and time growth, unnecessary changes and claims, as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete. A BCOES Review will be conducted for this project. The BCOES review will be conducted by the same team that conducts the DQC/QA. Requirements and further details are stipulated in ER 1110-1-12 and ER 415-1-11.

## **10. POLICY AND LEGAL COMPLIANCE**

All contract documents and supporting environmental documents shall be reviewed by the SAM Office of Counsel prior to final contract award. Once approved, SAM will post the approved RP on the SAM web site for viewing by the public.

## 11. REVIEW SCHEDULE AND COSTS

The cost for DQC/QA and ATR is estimated to be approximately \$10,000.00 and \$15,000.00, respectively. The documents to be reviewed and scheduled dates for review are as follows:

<b>Milestone</b>	<b>Date</b>
DQC Complete	15 May 2020
ATR Complete	12 June 2020
BCOES Complete	15 July 2020

## ATTACHMENT 1 – TEAM ROSTER

### Project Delivery Team Members

Discipline	Office/Agency
Project Manager	CESAM-PD-FP
Project Architect/Engineer (PAE)	CESAM-EN-HH
Environmental Engineer	CESAM-PD-EI
Cultural Resources	CESAM-PD-EI
Geotechnical Engineer	CESAM-EN-GG
Cost Engineer	CESAM-EN-E

### DQC/QA Team Members

Office	Discipline	Name	Phone Number
CESAM-EN-HH	DQC Lead, Hydrology/Hydraulic Engineer		
CESAM-PD-E	Environmental Engineer/Protection Specialist and Cultural Resources		
CESAM-EN-GG	Geotechnical		
CESAM-CD-SM	Civil Engineer		



### ATR Team Members

Office	Discipline	Name	Phone Number
TBD	ATR Lead, Hydraulic Engineer	TBD	TBD
TBD	Environmental Engineer/Protection Specialist	TBD	TBD
TBD	Cultural Resources	TBD	TBD
TBD	Geotechnical	TBD	TBD

## ATTACHMENT 2 - ACRONYMS AND ABBREVIATIONS

Term	Definition
ATR	Agency Technical Review
BCOES	Biddability, Constructability, Operability, Environmental, and Sustainability Review
DDR	Design Documentation Report
DQC	District Quality Control
DQC/QA	District Quality Control/Quality Assurance
EC	Engineer Circular
ER	Engineer Regulation
IEPR	Independent External Peer Review
MSC	Major Subordinate Command
P&S	Plans and Specifications
PDT	Project Delivery Team
QA	Quality Assurance
QC	Quality Control
RMO	Review Management Organization
RP	Review Plan
SAD	USACE South Atlantic Division
SAM	USACE Mobile District
SAR	Safety Assurance Review
USACE	U.S. Army Corps of Engineers
WRDA	Water Resources Development Act

## ATTACHMENT 3

### Completion of District Quality Control Review Moundville Archaeological Park, Moundville, Alabama

The District Quality Control Review (DQC) has been completed for the Plans and Specifications and the Design Documentation Report for the Moundville Archaeological Park Emergency Streambank and Shoreline Protection Project at Moundville, Alabama. The DQC was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. During the DQC, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions, methods, procedures, and material used in analyses, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. All comments resulting from the DQC have been resolved and the comments have been closed in DrChecks.

_____	_____ Date
_____	_____ Date
_____	_____ Date
_____	_____ Date

### CERTIFICATION OF DISTRICT QUALITY CONTROL REVIEW

As noted above, all concerns resulting from the DQC of the project have been fully resolved.

_____ Chief, Engineering Division CESAM-EN	_____ Date
_____ Chief, Planning and Environmental Division CESAM-PD	_____ Date

## ATTACHMENT 4

### Completion of Agency Technical Review Moundville Archaeological Park, Moundville, Alabama

The Agency Technical Review (ATR) has been completed for the Plans and Specifications and the Design Documentation Report for the Moundville Archaeological Park Emergency Streambank and Shoreline Protection Project at Moundville, Alabama. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions, methods, procedures, and material used in analyses, the appropriateness of data used, and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR Lead also reviewed the District Quality Control (DQC) signature page verifying that all DQC comments were resolved. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks.

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ATR Lead

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Date

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Project Manager

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Date

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Review Management Office Representative

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Date

### CERTIFICATION OF AGENCY TECHNICAL REVIEW

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

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Chief, Engineering Division  
CESAM-EN

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Date

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Chief, Planning and Environmental Division  
CESAM-PD

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Date