DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OH 45202-3222

CELRD-PD-O

23 Sept 13

MEMORANDUM FOR Huntington District, U.S. Army Corps of Engineers (CELRH-EC/[redacted]), 502 Eighth Street, Huntington, WV 25701-2070

SUBJECT: Major Subordinate Command (MSC) Approval of the Review Plan (RP) for the Section 14 project for Kanawha River 35th Street Bridge to Greenbrier Street, Kanawha County, West Virginia Emergency Streambank Protection Project

1. References:

a. CELRH-EC, memorandum dated 26 July 2013, subject: Review Plan for Section 14 project for Kanawha River 35th Street Bridge to Greenbrier Street Emergency Streambank Protection Project (Encl 1).

b. Review Plan, Continuing Authorities Program, Section 14, Flood Control Act of 1946, as amended, Emergency Streambank and Shoreline Protection Projects, Decision Document and Design & Implementation, Kanawha River 35th Street Bridge to Greenbrier Street, Charleston, West Virginia, MSC Approval Date: 12 September 2011, Latest Revision Date: None (Encl 2).

2. The enclosed Review Plan (RP) for the Section 14 subject project on the Kanawha River was presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-214 "Civil Works Review" dated 15 December 2010. Huntington District updated the RP to include design and implementation activities.

3. Flood flow erosion and recession related piping of fill and alluvial soil failures have resulted in extensive stone and fill displacement and bank retreat along the Kanawha River. Within a critical reach of US Route 60, the bank erosion and resulting stone and fill displacement has resulted in failure features and failed soil erosion creating a steepened bank. The conditions are endangering the entire reach of the Kanawha River between the 35th Street Bridge and Greenbrier Street. A 5,400 foot reach on the Kanawha River's right descending bank requires stabilization to protect US Route 60 and adjacent recreational pathways. The project cost share sponsor is the City of Charleston.

4. The RP defines the scope and level of peer review for the activities to be performed for the subject project. The USACE LRD Review Management Organization (RMO) has reviewed the attached RP and concurs that it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-214.

5. I concur with the recommendations of the RMO and approve the enclosed RP for the Kanawha River project.

6. The District is requested to post the RP to its website. Prior to posting, the names of all individuals identified in the RP and the dollar values of all project costs should be removed.

7. If you have any questions please contact [redacted] or [redacted].

Encls

[redacted]
Brigadier General, US Army
Commanding

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF

CELRH-EC

26 July 2013

MEMORANDUM FOR Great Lakes & Ohio River Division, ATTN: CELRD-PDS-O (Ms. Rita Boccieri) 550 Main Street, Room 10032, Cincinnati, OH 45202-3222

SUBJECT: Review Plan for Section 14 Kanawha River 35th Street Bridge to Greenbrier Street Emergency Streambank Protection Project

1. The purpose of this memorandum is to request approval for the Review Plan for the Watauga Kanawha River 35th Street Bridge to Greenbrier Street Emergency Streambank Protection Project. This is a Section 14 project in the Continuing Authorities Program (CAP). The Decision Document for the project was approved 26 April 2013.

2. Pursuant to EC 1165-2-214, the Huntington District has prepared a Review Plan for the project that outlines the various levels of review and the manner in which these reviews will be completed. A Type II Independent External Peer Review (IEPR) is not recommended since this project is an aquatic restoration project that does not pose a significant threat to human life.

3. The Decision Document Review Plan was previously approved on 12 September 2011. The Huntington District has updated the Review Plan to include design and implementation activities.

4. The subject Review Plan is enclosed for your review and approval. This memorandum serves as the formal submittal. This Review Plan was provided electronically by email to Ms. Rita Boccieri on 25 July 2013.

4. Any questions regarding this submittal should be directed to [redacted] Project Manager, [redacted] or [redacted] Chief, Quality Management Branch, at [redacted]. After your approval, the Review Plan will be posted to the Huntington District public website along with the approval memorandum signed by the Commander.

[redacted]

Colonel, Corps of Engineers
Commanding

REVIEW PLAN

Continuing Authorities Program
Section 14, Flood Control Act of 1946, as amended
Emergency Streambank and Shoreline Protection Projects

DECISION DOCUMENT AND DESIGN & IMPLEMENTATION

Kanawha River 35th Street Bridge to Greenbrier Street, Charleston, West Virginia

Huntington District

MSC Approval Date: 12 September 2011
Last Revision Date: None

US Army Corps
of Engineers ®

REVIEW PLAN

DECISION DOCUMENT AND DESIGN & IMPLEMENTATION ACTIVITIES

Section 14, Flood Control Act of 1946, as amended
Emergency Streambank and Shoreline Protection

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan (RP) defines the scope and level of peer review for the Kanawha River 35th Street Bridge to Greenbrier Street, Charleston, West Virginia, Emergency Streambank Protection project Decision Document (DD) and design & implementation activities developed under Section 14 of the Flood Control Act of 1946, as amended.

Section 14 of the Flood Control Act 1946, as amended, authorizes the US Army Corps of Engineers (USACE) to study, design, and construct emergency streambank and shoreline works to protect public services including (but not limited to) streets, bridges, schools, water and sewer lines, National Register sites, and churches from damage or loss by flood-related erosion. Section 14, an authority within the Continuing Authorities Program (CAP), focuses on water resource-related projects of relatively smaller scope, cost, and complexity. Traditional USACE civil works projects are of wider scope and complexity and are specifically authorized by Congress. The CAP program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization. The Federal share of costs for any one Section 14 project may not exceed $1,500,000.

b. Applicability. This RP is based on the model National Programmatic Review Plan for Section 14 project decision documents (DDs), which is applicable to projects that do not require Independent External Peer Review (IEPR), as defined in ER 1165-2-214 Civil Works Review Policy. However, if the subject project meets any of the triggers for a Type I IEPR as described in the aforementioned Civil Works Review Policy guidance, or if the subject project has significant life safety issues, it will be subject to Type I and/or Type II IEPR, respectively, and the model National Programmatic Review Plan is not applicable. In either case, a study-specific RP must be prepared by the home district, coordinated with the Flood Risk Management Planning Center of Expertise (FRM-PCX), and approved by the home Major Subordinate Command (MSC), in accordance with EC 1165-2-214. Triggers for Type I IEPR will be discussed below.

Ultimately, applicability of the model National Programmatic Review Plan for a specific project is determined by the home MSC. If the MSC determines that the model plan is applicable for a specific study, the MSC Commander may approve the plan (including exclusion from IEPR) without additional coordination with the FRM-PCX or Headquarters, USACE. The initial decision as to the applicability of the model plan should be made no later than the Federal Interest Determination milestone (as defined in Appendix F of ER 1105-2-100, F-10.e.1) during the feasibility phase of the project. If a project specific RP is required, it must be approved prior to execution of the Feasibility Cost Sharing Agreement (FCSA) for the study.

This RP covers the DD and design & implementation products. The original RP has been revised to include the design & implementation phase. During the DD stage, the RP was coordinated with the Review Management Organization (RMO), the MSC, prior to approval of the final DD in accordance with EC 1165-2-214.

c. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
(2) EC 1105-2-412, Assuring Quality of Planning Models, 30 Dec 2009
(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
(4) ER 1105-2-100, Planning Guidance Notebook, 22 April 2000

(5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(6) Director of Civil Works' Policy Memorandum #1, Continuing Authority Program Planning Process Improvements, 19 Jan 2011
(7) ISO Process; Document ID 4833 Great Lakes and Ohio River Division, Preparation and Approval of Civil Works Review Plans, 22 Sep 2011

d. **Requirements.** This RP was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement, and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. Each of these is discussed later in this RP.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this RP. The RMO for implementation documents is typically either a MSC or the Risk Management Center (RMC). The RMO for the peer review effort described in this RP has been and will continue to be the Great Lakes and Ohio River Division (LRD). The RMO coordinated with the Cost Engineering Mandatory Center of Expertise (MCX) to ensure the appropriate expertise was included on the ATR team to assess the adequacy of cost estimates, construction schedules, and contingencies in the DD. The Cost Engineering MCX certified review of the DD on 16 November 2012.

The MSC coordinated and approved the original DD RP on 12 Sep 2012. The revised RP to include the design & implementation phase will be reapproved and re-posted on the Huntington District (CELRH) public website.

3. PROJECT INFORMATION

a. **Decision Document.** The EA/DPR serves as the DD for this project. The Kanawha River 35th Street Bridge to Greenbrier Street, Charleston, West Virginia EA/DPR was prepared in accordance with ER 1105-2-100, Appendix F. The approval level of the DD was the home MSC. An Environmental Assessment (EA) was prepared as part of the DD. The DD was approved on 26 April 2013.

b. **Project Description.** Flood flow erosion and recession-related piping of fill and alluvial soil failures have resulted in extensive stone and fill displacement and bank retreat along the Kanawha River. These conditions are endangering the entire reach of the Kanawha River between the 35th Street Bridge and Greenbrier Street. Within this critical reach of US Route 60, the bank erosion, and resulting stone and fill displacement, has resulted in failure features and failed soil erosion creating a steepened bank. Subsequent rapid bank retreat has caused bank failure. Additional related failures could result in increasing bank retreat, causing possible failure of US Route 60.

The project area is located on the right descending bank of the Kanawha River (between river miles 60 and 61), extending from the 35th Street Bridge downstream to Greenbrier Street. The area includes a middle bank pathway approximately 30 feet above the river, an upper bank pathway immediately adjacent to US Route 60 at the top of the bank, and US Route 60 along this reach.

An approximately 5,400-foot-reach on the Kanawha River's right descending bank requires stabilization

to protect US Route 60. A graded filter and graded stone slope protection will be constructed within the lower bank. Up and down river transitions will be required. The cost estimates to construct the project is approximately $2,122,000.

c. **Factors Affecting the Scope and Level of Review.** This project does not include any impoundments, floodwalls, or levees. From a life safety perspective, there is minimum risk. Placement of stone is not challenging, from a design perspective. The threat to human life is not significant.

d. **In-Kind Contributions.** Products and analyses provided by Non-Federal Sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind services anticipated as part of the cost share are limited to participation in Project Delivery Team (PDT) meetings.

4. DISTRICT QUALITY CONTROL (DQC)

All implementation documents shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). CELRH shall manage DQC. Documentation of DQC activities is required and shall be in accordance with the Quality Manual of the District and LRD as managed in Qualtrax.

DQC is completed in accordance with the LRD Regional Business Processes Manual (the Region's Quality Management Plan). The LRD Regional Business Processes Manual is an ISO 9001-certified Quality Management System. DQC includes Quality Production, Internal Quality Checks and Reviews, Design Checks, and PDT Reviews as described in procedure 08504 LRD-QC/QA Procedures for Civil Works.

a. **Documentation of DQC.** In accordance with 08504 LRD-QC/QA Procedures for Civil Works, all drawings, computations, quantity estimates, and analyses provided to DQC team members for review will be annotated to show the initials of the designer and the checker and the date of the action.

b. **Products to Undergo DQC.** Any Detailed Design Reports (DDRs) and Plans & Specifications (P&S) would undergo DQC in accordance with 08504 LRD-QC/QA Procedures for Civil Works. However, no DDR or P&S will be prepared for this project. A scope of work (SOW) will be prepared for an indefinite delivery/indefinite quantity (IDIQ) contractor to perform this work. Since this is routine work that IDIQ contractors have performed for CELRH numerous times and there are no life safety issues, the SOW will only undergo DQC. ATR of the SOW will not be necessary.

c. **Required DQC Expertise.** In accordance with 08504 LRD-QC / QA Procedures for Civil Works, anyone conducting design checks and reviews will be qualified to originate the design that they are checking. The disciplines involved in the DQC review will depend on the project feature being designed but will generally follow those presented in Table 2 of Attachment 1.

5. AGENCY TECHNICAL REVIEW (ATR)

Although ATR is mandatory for all implementation documents per EC 1165-2-214, due to the routine nature of this work ATR will not be performed for the SOW, as discussed above. The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. ATR assesses whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and for decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams are comprised of senior USACE personnel and may be supplemented by

outside experts as appropriate. The ATR team lead is from outside the home MSC.

a. **Products to Undergo ATR.** ATR was performed throughout the study phase in accordance with the District and MSC Quality Management Plans. Certification of ATR of the DD and cost estimate was provided on 4 Jan 13, prior to the District Commander signing the final DD.

The primary document to be prepared during design and implementation is a scope of work describing how the placement of stone and fabric is to be performed. The scope of work will not undergo ATR, as discussed above.

b. Required ATR Team Expertise. Several team members were required for ATR of the DD and cost estimate, and are shown on the ATR certification sheet. Since ATR is not required for any of the design and implementation phases of the project, no team members are required at this time.

c. **Documentation of ATR.** Certification of ATR of the DD was provided on 4 Jan 13 (Attachment 2). Since ATR is not required for the current phase of the project, no additional documentation of ATR is required at this time.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPRs are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire DD or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For DDs where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.

- Type II IEPR. Type II IEPRs, or Safety Assurance Reviews (SARs), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and periodically thereafter on a regular schedule until construction activities are completed. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare.

a. **Decision on IEPR**. Based on the information and analysis provided in paragraph 3(b) of this RP, the project covered under this plan is excluded from IEPR because it does not meet the mandatory IEPR triggers and does not warrant IEPR based on a risk-informed analysis. If any of the criteria outlined in paragraph 1.d.(3) are not met, the model National Programmatic Review Plan is not applicable

and a study specific RP must be prepared by the home district, coordinated with the FRM-PCX, and approved by the home MSC in accordance with EC 1165-2-214.

b. **Products to Undergo Type I IEPR.** Not applicable. IEPR of the EA/DPR was not required.

c. **Products to Undergo Type II IEPR SAR.** Not Applicable. A Type II IEPR is not recommended for this project.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All DDs have been reviewed throughout the study process for compliance with the law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in DDs.

The DD, completed in March 2013, authorized a Section 14 project that would include placement of stone and filter material.

8. COST ENGINEERING MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

The DD was coordinated with the Cost Engineering MCX, located in the Walla Walla District. The Cost Engineering MCX assisted in determining the expertise needed on the ATR team and in the development of the review charge(s). The MCX also provided the Cost Engineering MCX certification. The RMO was responsible for coordination with the Cost Engineering MCX.

The total project cost estimate was certified by the Cost Engineering MCX in November 2012.

The RMO coordinates with the Cost Engineering MCX to ensure the appropriate expertise was included on the ATR team to assess the adequacy of cost estimates, construction schedules, and contingencies.

9. REVIEW SCHEDULES AND COSTS

a. **ATR Schedule.** At this time there are no established schedules for ATR because no remaining ATR is required for any of the products addressed in this RP. The SOW will undergo DQC, due to the routine nature of the work to be accomplished.

b. **ATR Cost.** Since ATR is not required for the current phase of the project, no additional ATR costs have been calculated at this time.

10. PUBLIC PARTICIPATION

As part of the peer review, opportunities were provided for the public to comment on the study and DD that was reviewed. CELRH made the draft EA/DPR document available to the public for comment. Information obtained from the public was used to assist in plan formulation and to complete the draft environmental documents necessary to meet both Federal and State requirements. This included State and Federal agency reviews as well. There is no formal public review for the design and implementation phase. However, the cost share partner, the City of Charleston, will have opportunities to review construction as part of the PDT. The updated RP will be posted on the CELRH Internet for public review:

(http://www.lrh.usace.army.mil/approved_review_plans_rps).

11. REVIEW PLAN APPROVAL AND UPDATES

The MSC Commander is responsible for approving the RP. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the project. Like the PMP, the RP is a living document and may change as the study progresses. CELRH is responsible for keeping the RP up-to-date. Minor changes to the RP since the last MSC Commander approval will be documented in Attachment 3. Significant changes to the RP (such as changes to the scope and/or level of review) shall be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the RP, along with the Commanders' approval memorandum, will be posted on CELRH's webpage. The latest RP will also be provided to the RMO and MSC.

11. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this RP can be directed to the following points of contact:

- [redacted]

ATTACHMENT 1: TEAM ROSTERS

TABLE 1: Product Delivery Team Roster		
Functional Area	**Name**	**Office**
Lead Engineer/ Civil Design	[redacted]	CELRH
Environmental	[redacted]	CELRH
Real Estate	[redacted]	CELRH
Cultural Resources	[redacted]	CELRH
Geotechnical	[redacted]	CELRH
Geotechnical	[redacted]	CELRH
Legal	[redacted]	CELRH
Public Affairs	[redacted]	CELRH
Construction	[redacted]	CELRH

TABLE 2: District Quality Control Team		
Functional Area	**Name**	**Office**
DQC Lead / Civil Design	[redacted]	CELRH
Environmental	[redacted]	CELRH
Real Estate	[redacted]	CELRH
Cultural Resources	[redacted]	CELRH
Legal	[redacted]	CELRH
Public Affairs	[redacted]	CELRH
Geotechnical (Soils)	[redacted]	CELRH
Construction	[redacted]	CELRH

TABLE 3: Agency Technical Review Team		
NAME	**DISCIPLINE**	**OFFICE**
TBD	None required at this time	TBD

KANAWHA RIVER 35TH STREET BRIDGE TO GREENBRIER STREET, CHARLESTON, WEST VIRGINIA

STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Environmental Assessment and Planning Design Analysis for the Section 14 Emergency Stream Bank Protection Project Kanawha River 35th Street Bridge to Greenbrier Street, Charleston, West Virginia. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. 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, alternatives evaluated, 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 also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[SM].

[redacted]

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Significant concerns were not expressed.*

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

[redacted]

Chief, Planning Division
CELRH-PM-PD

WALLA WALLA COST ENGINEERING MANDATORY CENTER OF EXPERTISE

COST AGENCY TECHNICAL REVIEW

CERTIFICATION STATEMENT

For

Kanawha River 35th Street Bridge to Greenbrier Street,
Charleston, West Virginia – Section 14 (CAP)

The Kanawha River 35th Street Bridge to Greenbrier Street Section 14 project, as presented by Huntington District, has undergone a successful Cost Agency Technical Review (Cost ATR), performed by the Walla Walla District Cost Engineering Mandatory Center of Expertise (Cost MCX) team. The Cost ATR included study of the project scope, report, cost estimates, schedules, escalation, and risk-based contingencies. This certification signifies the products meet the quality standards as prescribed in ER 1110-2-1150 Engineering and Design for Civil Works Projects and ER 1110-2-1302 Civil Works Cost Engineering.

As of November 16, 2012, the Cost MCX certifies the estimated total project cost of:

FY 2013 Price Level: $2,122,000
Fully Funded Amount: $2,222,000 including Feasibility costs

It remains the responsibility of the District to correctly reflect these cost values within the Final Report and to implement effective project management controls and implementation procedures including risk management throughout the life of the project.

[redacted]

US Army Corps
of Engineers®

[redacted]
Chief, Cost Engineering
Walla Walla District

**** TOTAL PROJECT COST SUMMARY ****

PROJECT: Kanawha River 35th Street to Greenbrier Street, Charleston, WV, Section 14
LOCATION: Charleston, WV

DISTRICT: LRH Huntington
POC: CHIEF, COST ENGINEERING, Michael Ferguson

PREPARED: 10/1/2012

This Estimate reflects the scope and schedule in report: Draft EA and PDA, Section 14 Streambank Protection Project, Kanawha River 35th Street to Greenbrier Street, Charleston, WV

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
						Program Year (Budget EC): 2013								
						Effective Price Level Date: 1 OCT 12								
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST (SK)	CNTG (SK)	CNTG (%)	TOTAL (SK)	ESC (%)	COST (SK)	CNTG (SK)	TOTAL (SK)	Spent Thru: 1-Oct-12 (SK)		COST (SK)	CNTG (SK)	FULL (SK)
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
16	BANK STABILIZATION	$1,547	$278	18%	$1,825	1.9%	$1,575	$284	$1,859			$1,575	$284	$1,859
18	CULTURAL RESOURCE PRESERVATION	$6	$1	18%	$7	1.9%	$6	$1	$7			$6	$1	$7
	CONSTRUCTION ESTIMATE TOTALS:	$1,552	$279		$1,832	1.9%	$1,581	$285	$1,866			$1,581	$285	$1,866
01	LANDS AND DAMAGES		-			-								
22	FEASIBILITY STUDY (CAP studies)									$100				
30	PLANNING, ENGINEERING & DESIGN	$110	$13	12%	$123	1.4%	$112	$13	$125			$112	$13	$125
31	CONSTRUCTION MANAGEMENT	$116	$13	12%	$129	1.4%	$118	$14	$131			$118	$14	$131
	PROJECT COST TOTALS:	$1,778	$306	17%	$2,084		$1,810	$312	$2,122	$100		$1,810	$312	$2,222

[redacted]

CHIEF, COST ENGINEERING, Michael Ferguson

PROJECT MANAGER, David Frantz

CHIEF, REAL ESTATE, Steve Shideler

ESTIMATED FEDERAL COST:	65%	**$1,379**
ESTIMATED NON-FEDERAL COST:	35%	$743
FEDERAL FEASIBILITY CAP COSTS:	100%	**$100**
ESTIMATED TOTAL PROJECT COST:		**$2,222**

O&M OUTSIDE OF TOTAL PROJECT COST:

****** TOTAL PROJECT COST SUMMARY ******

****** CONTRACT COST SUMMARY ******

PROJECT Kanawha River 35th Street to Greenbrier Street, Charleston, WV, Section 14 DISTRICT LRH Huntington PREPARED 10/1/2012
LOCATION: Charleston, WV POC CHIEF, COST ENGINEERING, Michael Ferguson
This Estimate reflects the scope and schedule in report, Draft EA and PDA, Section 14 Streambank Protection Project, Kanawha River 35th Street to Greenbrier Street, Charleston, WV

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared / Effective Price Level			1-Oct-11 / 1-Oct-11	Program Year (Budget EC) / Effective Price Level Date			2013 / 1 OCT 12					
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
	CONTRACT 1													
16	BANK STABILIZATION	$1,547	$278	18%	$1,825	1.9%	$1,575	$284	$1,859	2013Q1		$1,575	$284	$1,859
18	CULTURAL RESOURCE PRESERVATION	$6	$1	18%	$7	1.9%	$6	$1	$7	2013Q1		$6	$1	$7
	CONSTRUCTION ESTIMATE TOTALS:	$1,552	$279	18%	$1,832		$1,581	$285	$1,866			$1,581	$285	$1,866
01	LANDS AND DAMAGES													
30	PLANNING, ENGINEERING & DESIGN													
1.0%	Project Management	$16	$2	12%	$18	1.4%	$16	$2	$18	2013Q1		$16	$2	$18
0.5%	Planning & Environmental Compliance	$8	$1	12%	$9	1.4%	$8	$1	$9	2013Q1		$8	$1	$9
2.0%	Engineering & Design	$31	$4	12%	$35	1.4%	$31	$4	$35	2013Q1		$31	$4	$35
	Engineering Tech Review ITR & VE													
0.5%	Contracting & Reprographics	$8	$1	12%	$9	1.4%	$8	$1	$9	2013Q1		$8	$1	$9
3.0%	Engineering During Construction	$47	$6	12%	$53	1.4%	$48	$6	$53	2013Q1		$48	$6	$53
	Planning During Construction													
	Project Operations													
31	CONSTRUCTION MANAGEMENT													
7.5%	Construction Management	$116	$13	12%	$129	1.4%	$118	$14	$131	2013Q1		$118	$14	$131
	Project Operation.													
	Project Management													
	CONTRACT COST TOTALS:	$1,778	$306		$2,084		$1,810	$312	$2,122			$1,810	$312	$2,122

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ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair,
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	RED	Regional Economic Development
GRR	General Reevaluation Report	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RP	Review Plan
ITR	Independent Technical Review	RTS	Regional Technical Specialist
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
NED	National Economic Development	WRDA	Water Resources Development Act