DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

REPLY TO
ATTENTION OF

CENWD-PDD

13 December 2012

MEMORANDUM FOR Commander, Kansas City District (CENWK-PM)

SUBJECT: Review Plan (RP) Approval for the St. Joseph Flood Damage Reduction Study

1. Reference EC 1165-2-209, Civil Works Review Policy, 31 January 2012.

2. The enclosed RP for the St. Joseph Flood Damage Reduction Study has been prepared in accordance with the reference guidance.

3. The RP has been revised to address NWD review comments. All comments have been back-checked and closed out.

4. I hereby approve this RP, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this RP or its execution will require review by CENWD-PDD and approval by this office.

5. The RP should be posted to the internet and available for public comment.

6. Please contact Jeremy Weber, at 503-808-3858, if you have further questions regarding this matter.

Encl

ANTHONY C. FUNKHOUSER, P.E.
COL, EN
Commanding

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US Army Corps
of Engineers
Kansas City District

PROJECT REVIEW PLAN

Missouri River Levee System
Units R471-460 and L-455
FLOOD RISK MANAGEMENT PROJECT

PRE-CONSTRUCTION ENGINEERING
AND DESIGN PHASE

NOVEMBER 2010

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PROJECT REVIEW PLAN

MRLS UNITS R471-460 AND L-455
FLOOD RISK MANAGEMENT PROJECT
PRE-CONSTRUCTION ENGINEERING
AND DESIGN PHASE

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PROJECT REVIEW PLAN

MRLS UNITS R471-460 AND L-455
FLOOD RISK MANAGEMENT PROJECT
PRE-CONSTRUCTION ENGINEERING
AND DESIGN PHASE

1.0 PURPOSE OF THE REVIEW PLAN

This Project Review Plan (PRP) has been prepared in accordance with EC 1165-2-209 "Civil Works Review Policy". The PRP is included by reference as a part of the Project Management Plan (PMP) under the QC/QA element and the Standard Operating Procedures for Planning Centers of Expertise. This PRP provides guidance to the Project Delivery Team (PDT) on the specific review levels, responsibilities, and process requirements for execution of review on the MRLS Units R471-460 and L-455 Flood Risk Management project.

2.0 GENERAL INFORMATION

Executive Summary -- Study Purpose and Background
The U.S. Army Corps of Engineers (USACE), Kansas City District, along with local project sponsors, conducted a feasibility study of the existing flood risk management project for the St. Joseph, Missouri metropolitan area, including Elwood, Kansas. The existing project consists of two units of the larger Missouri River Levee System, units R471-460 and L-455. The study was authorized under Section 216 of the 1970 Flood Control Act (review of completed civil works). The feasibility study recommends a plan for increasing the reliability of the two units that was determined to be technically effective, complete, economically feasible, and environmentally acceptable.

The Feasibility Study recommends improving the reliability of the existing flood risk management units through raises in levee height and corresponding modification of the levee underseepage control features.

Project Authority
The original Missouri River Levee System Project was authorized by the Flood Control Act of 1944.

The Final Feasibility Report detailing the Recommended Plan was approved by Northwestern Division in March 2007 under delegated authority from Headquarters-USACE. The study recommendations were approved for implementation under the Correction of Design Deficiency provisions of ER 1165-2-119 "Modification to Completed Projects".

PED Objectives
The Kansas City District is undertaking PED activities with the following objectives:

1. Develop adequate design data and parameters necessary for implementation of the Recommended Plan. A Design Documentation Report will be prepared.

2. Prepare plans and specifications for bidding and construction.

3. Prepare Project Partnership Agreements (PPA) for execution between the Corps and the local sponsors for the construction phase.

4. Assist the Local Sponsors in the acquisition of needed Lands, Easements, Rights-of-Way, and Relocations.

Summary Study Scope and Execution Parameters
The existing project contains two official levee units located along the Missouri River within the immediate metropolitan area and vicinity of St. Joseph, Missouri and Elwood, Kansas. The proposed work will increase the performance reliability of the units within the system. Proposed construction activities will be confined to the areas of the existing project.

Local Sponsorship and Funding
The three owner-operators of the existing levee units are listed below. These non-Federal organizations own and maintain the systems with the Corps providing regular inspections and technical review of significant modifications to the system. PED funding sources are 75% Federal Civil Works Appropriation & 25% local cost share funding.

R471-460	Elwood-Gladden Drainage District St. Joseph Airport Levee District
L-455	South St. Joseph Drainage Dsitrct

Description of Existing Overall Project and Problem
The metropolitan area of St Joseph, Missouri, is protected by a federal levee system constructed in the mid-1960s. This system consists of two separate units. Unit R471-460 is located on the right bank of the Missouri River and protects the cities of Elwood and Wathena, Kansas, as well as the Rosecrans Memorial Airport and Missouri Air National Guard facilities. Unit L-455 is located on the left bank of the Missouri River and protects portions of the City of St. Joseph. Both units also protect significant agricultural property and unincorporated areas.

During the Missouri River Flood of 1993, the right bank unit failed flooding homes, businesses, and infrastructure. The left bank unit passed the flood but was near to overtopping. As a result, there was a concern that the levees may provide less than the design level of flood damage reduction.

Comparison of the existing conditions with the original design and construction determined that the current levee system was not properly designed to provide the authorized level of flood damage reduction. The recommended plan calls for raising a significant reach of unit R471-460 up to 3.37 feet above the existing elevation and raising a short reach of unit L-455 up to 0.94 feet above the existing elevation

The estimated cost of the Recommended Plan is $32.7 Million (October 2005 price level).

Project Challenges and Risks
The proposed construction components of the project are typical of geotechnical and structural reliability improvements to levee systems. The construction methods are not expected to pose any significant challenges or risks.

Some of the project locations are in close proximity to commercial businesses and/or active railroad tracks that may pose challenges for real estate access and construction operation. Proper coordination with the adjacent property owners and the railroad should alleviate these concerns.

Other than access and coordination concerns, and physical risks typical of construction sites, other project risks include the potential for schedule delay if high flows in the Missouri River should occur. Any aspect of the construction that may result in a temporary reduction of the levee to provide flood risk management must have a contingency plan in place to provide temporary emergency protection.

3.0 LEVELS OF REVIEW

District Quality Control (DQC)
District Quality Control will be conducted by the Kansas City District for all in-house prepared products. In accordance with MSC and district Quality Management Plans, internal reviews or design checks will constitute quality control for each deliverable product. It is the responsibility of each product development team member, their supervisors, and the project manager to ensure that every product receives an internal quality control review. It is the responsibility of the supervisor or section chief for each team member to ensure that a qualified District reviewer is selected and conducts a review of their product prior to delivery to the project manager, or prior to completion.

Agency Technical Review (ATR)
Agency Technical Review is an independent review, outside of Kansas City District, of the deliverables for the project and constitutes an independent review of the entire project. In accordance with EC 1165-2-209, the outside Agency Review Teams will be coordinated through the appropriate Risk Management Organization (RMO). The RMO for this effort will be the Risk Management Center (RMC), or their delegated representative. The designated RMO staff and the District Project Manager will work together to find team member staff outside the Kansas City District with the requisite experience and qualifications to review the project. Review comments will be documented, processed, and resolved through the Dr. Checks software package.

Type I Independent External Peer Review (IEPR)
Type I Independent External Peer Review (IEPR) applies only to decision documents and will not be conducted for the design phase of the R471-460 and L-455 project.

Type II IEPR - Safety Assurance Review (SAR)
In accordance with current and future guidance that may be developed, a Type II IEPR, also referred to as a Safety Assurance Review (SAR), will be conducted prior to initiation of physical construction and periodically thereafter until construction activities are completed. The SAR will review threat to human life, robustness of design, construction sequencing, design and construction schedules, and any other parameters required at the time of review. The SAR will be conducted by an independent (outside of the Corps of Engineers) panel. Establishment of the panel will be in accordance with applicable guidance at the time of project construction.

Architect-Engineer (A-E) or Consulting Contacts
Contracts used on this project will undergo a Quality Assurance Review of each deliverable product by assigned District PDT members. Additionally, any products developed by contract will also undergo ATR along with other products as outlined in the ATR paragraph above. All contractors are required to develop a Quality Management Plan to be submitted as the first deliverable for the contract. This will detail the firm's internal quality management and design check review processes, and is subject to prior approval by the Project Manager and PDT in accordance with the established Kansas City District Business Quality Procedures.

Sponsor In-Kind Work
It is not anticipated that significant technical products will be provided from the sponsor as in-kind contributions. However, should this change in the future, sponsor in-kind contributions will be peer reviewed in the District by the appropriate discipline team member using the DCQ procedures described above.

4.0 SELECTED REVIEW PROCESS(S)

The selected review processes for the MRLS R471-460 and L-455 project are District Quality Control, Agency Technical Review, and Safety Assurance Review. These review processes will be applied to the Design Documentation Report (DDR), the construction plans and specifications, and any other documentation produced during the PED phase that is required to implement the proposed project. It is not anticipated that A-E contracts will be utilized for development of technical products for this project. If this should change, contracts will be procured in accordance with the prior approval of the District Acquisition Strategy Board, as outlined in the approved District Business Quality Procedures.

ATR References

- ER 1165-2-209, dated 31 Jan 2010
- Kansas City District Business Quality Procedure (BQP) 5.5.04 (Quality Plans).
- Reviewers will be required to use the Dr Checks web-based system for comments. Refer to https://www.projnet.org/projnet/home/version1/index.cfm for additional Dr. Checks access information.

5.0 PRIMARY DISCIPLINES AND EXPERTISE NEEDED FOR THE ATR

Members of the ATR team will be identified by Kansas City District staff with assistance from the RMO as needed. The ATR team members will be from outside Kansas City District. The RMO will assist in identifying an ATR Team Leader from outside Northwestern Division.

Discipline-Specific Guidance & Requirements
Representation on the ATR team is required in the disciplines listed below. A statement of qualifications will be required for each team member prior to acceptance as an ATR Team member and for any subsequent changes thereto. Multiple requirements may be filled by one ATR team member, depending on individual qualifications.

Construction: Team member will have a thorough understanding of earth work and structural concrete construction techniques and equipment, especially as related to levees and floodwalls.

Structural: Team member will have a thorough understanding of levee, flood wall, and retaining wall design, and structures typically associated with levees (pump stations, gatewell structures, utility penetrations, stoplog & sandbag gaps, and other closure structures).

Geotechnical: Team member will have extensive experience in levee & floodwall design, post-construction evaluation, and rehabilitation, including risk & reliability analysis.

Hydrology & Hydraulics: Team member will have experience and expertise in the dynamics of large river systems and be familiar with interior drainage issues related to levee construction. The team member will have an understanding of computer modeling techniques that may be used for this project (HEC-HMS, HEC-RAS, and UNET).

Economics: Team member will have extensive experience in related projects, and have a thorough understanding of HEC-FDA.

Environmental/NEPA: Team member will be an expert in issues of environmental and NEPA compliance for similar projects.

Civil / Site / Utilities / Relocations: Team member will have experience in utility relocations and positive closure requirements for levee construction.

Cost Estimating: Team member will be familiar with cost estimating for similar projects using MCACES. Team member will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. Cost estimating efforts will be coordinated with the Cost Engineering Center at USACE-Walla Walla District.

Real Estate: Team Member will be familiar with real estate appraisal and acquisition processes.

Other disciplines involved in the project may include Plan Formulation, Hazardous / Toxic Waste, Cultural Resources, and Legal. The principles contained in this document also apply to these disciplines/functional areas. *(Exception: Legal review is not to be under the purview of the ATR Team Leader but is instead responsible to the Corps of Engineers Office of Counsel chain-of-command).*

ATR Team Leader

One member of the ATR Team will act as the team leader. Team leader designation will be finalized based on input from ATR Team members and the CENWK Project Manager, the PDT, and CENWK staff. The leader shall, in addition to discipline-specific requirements, be responsible for:

- Acting as a liaison between the Product Development Team and the ATR Team
- In conjunction with the PM, the ATR team leader will perform active coordination of the ATR process and study findings with the Corps Flood Risk Management Center of Expertise (FRM-CX) in San Francisco District, and ensure compliance with an adequate level of FRM-CX review.
- Distributing information for review and coordinating efforts of the ATR Team
- Ensuring that individual ATR Team members are operating in accordance with the guidelines established for ATR by ER 1110-1-105 (see enclosed exhibit for summary of the major ATR requirements described in this regulation).
- The ATR team is *not* geographically co-located. Therefore, it is of paramount importance that the ATR Team Leader be capable of organizing the total ATR efforts across District and Division boundaries.
- A substitute ATR Team Leader from the ATR team will be named by the ATR team leader for periods of extended (over 60 days) absence.

Agency Technical Review Team Members and Organization

Project Delivery Team members and disciplines are presented in Appendix A to this PRP. Members of the ATR team will be added to Appendix A when designated.

The ATR team members will be contacted on a regular basis by the corresponding PDT members so as to be kept aware of criteria selection and the broad approaches employed in this study thus ensuring a seamless review when products are submitted for ATR.

6.0 ATR SCHEDULE AND BUDGET

Preliminary ATR schedule and milestones are included in Appendix B of this PRP. Additional milestones will be developed by the PDT and ATR team after the ATR team has been established. Schedule milestones will be reviewed on a regular basis to accurately determine project progress.

Based on a preliminary estimate of the size of the ATR team and the expected hours required for project reviews and comment resolution, the ATR budget is estimated at approximately $80,000. This budget will be refined by the PDT and the ATR team based on the establishment of the final schedule and reviewed regularly for progress reporting.

7.0 PUBLIC COMMENT OPPORTUNITIES

Review of the project review plan will be available on the Kansas City District website, link as follows: http://www.nwk.usace.army.mil/projects/r471-l455, and at the request of interested parties. The review plan will be available through all public and agency scoping and other processes for the project. Inquiries regarding the review plan and the project should be directed to the Project Manager as listed in Appendix A.

8.0 AVAILABILITY OF PUBLIC COMMENTS TO REVIEW TEAM

Public input from public scoping meetings will be distributed to the ATR members when received to ensure that public comments are considered in the development of design and construction documentation.

APPENDIX A - PDT AND ATR TEAM MEMBERS

PROJECT: MRLS R471-460 & L-455, Flood Risk Management

PROJECT PHASE: Pre-Construction Engineering and Design

PDT Member Name	Extension[1]	Discipline	ATR Team Member Name	Extension[2]
Eric Lynn	3109	Project Manager/Plan Formulation	To Be Determined	TBD
Charlie Detrick	3605	Geotechnical Engineering		
Andrew Marske	3371	Civil Engineering		
Steve Jirousek	3681	Geology		
Ken Olson	2243	Structural Engineering		
LyTreese Hampton	3241	Structural Engineering		
Eric Shumate	3117	Hydrology/Hydraulics		
Richard Skinker	3134	Environmental/NEPA		
Pat Miramontez	3322	Cost Estimating		
Tim Meade	3138	Cultural Resources		
Allen Holland	3105	Economics		
Melissa Lewman	3042	Real Estate		
Jason Sheeley	3612	GIS/Mapping		

Notes:
1. Kansas City District telephone numbers are area code 816 and prefix 389.
2. Phone numbers of ATR team members to be determined.

APPENDIX B – PROJECT REVIEW SCHEDULE

PROJECT: MRLS R471-460 & L-455, Flood Risk Management

PROJECT PHASE: Pre-Construction Engineering and Design

Project Milestone	Scheduled Completion Date
Establishment of ATR Team	Early FY11
Review of Geotechnical criteria/guidance.	Early FY11
Geotechnical design calculations	Mid/Late FY11
Structural design calculations	Mid/Late FY11
Draft Design Documentation Report	Late FY11/Early FY12
Final Design Documentation Report	Early FY12
Draft Construction Plans and Specifications	Late FY12
Final Construction Plans and Specifications	Early FY13

Notes:

1. Additional milestones will be added as needed after establishment of the ATR team.
2. Scheduled Completion Dates will be refined by the PDT and ATR team as the project progresses.

PROJECT REVIEW PLAN
MRLS R471-460 AND L-455 FLOOD RISK MANAGEMENT PROJECT

APPENDIX C

STATEMENT OF AGENCY TECHNICAL REVIEW

DESIGN DOCUMENTATION REPORT AND PLANS AND SPECIFICATIONS FOR CONSTRUCTION

The Kansas City District has completed the Design Documentation Report and Plans and Specifications for construction for the MRLS R471-460 and L-455 Flood Risk Management Project. Notice is hereby given that an agency technical review compliant 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 result, including whether the product meets the customer's needs consistent with law and existing Corps' policy. The ATR was accomplished by an agency team composed of staff from multiple districts. All comments resulting from ATR have been resolved.

Agency Technical Review Team Leader	Date
Project Manager	Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

(*Describe the major technical concerns, possible impact, and resolution*)

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

_____ _____

Chief, Planning Division Date