



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
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CENWD-RBT

20 NOV 2015

MEMORANDUM FOR Commander, Kansas City District (CENWO-PM-AP /Kent Myers)

SUBJECT: Review Plan Approval for the Topeka, Kansas Flood Risk Management Project

1. References:

- a. Topeka, Kansas Flood Risk Management Project Review Plan
- b. EC 1165-2-214 Civil Works Review, 15 December 2012.

2. Reference 1.a. above has been prepared in accordance with reference 1.b. above.

3. The Review Plan (RP) has been coordinated with the Business Technical Division, Northwestern Division, U.S. Army Corps of Engineers and the Risk Management Center, which is the Review Management Organization for the plan. The RP includes District Quality Control and Agency Technical Review.

4. I hereby approve this RP, which is subject to change as circumstances require, consistent with the study development process and the Project Management Business Process. Subsequent revisions to this RP or its execution will require written approval from this office.

5. For further information, please contact Mr. Douglas Putman, P.E. at (503) 808-3883.

Encl

A handwritten signature in black ink that reads "Scott A. Spellmon".

SCOTT A. SPELLMON
BG, USA
Commanding



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
635 FEDERAL BUILDING
601 EAST 12TH STREET
KANSAS CITY MO 64106-2824

CENWK-PM-CJ

MEMORANDUM THRU

Northwestern Division Programs Directorate (CENWD-PDD/Jeremy Weber), 1125 SW Couch, Suite 500, Portland, OR 97209

FOR Commander, Northwestern Division, USACE

SUBJECT: Topeka Flood Damage Reduction Project, Topeka, Kansas, Kansas City District, Northwestern Division, Review Plan Submittal

1. Enclosed for Major Subordinate Command approval is the Topeka Flood Damage Reduction Project Review Plan. This is an updated version of the Review Plan and the designs are implementation documents. The review plan is prepared in accordance with EC 1165-2-214, *Civil Works Review Policy*.

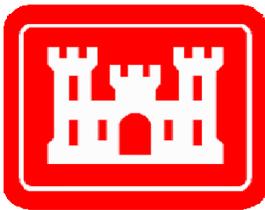
2. Contact Mr. Kent Myers, Project Manager, at (816) 389-3399 or email at kent.n.myers@usace.army.mil with questions or requests for additional information.

Encl


DAVID L. MATHEWS, P.E.
Chief, Engineering Division 9/4/15

**Review Plan
U.S. Army Corps of Engineers
Kansas City District
Northwestern Division**

**Topeka, Kansas
Flood Risk Management**



**US Army Corps
of Engineers®**

2 SEP 2015

Contents

1. Purpose and Requirements	1
a. Purpose	1
b. Guidance and Policy References	1
c. Requirements	1
2. Review Management Organization.....	2
3. Project Description and Information.....	2
4. District Quality Control (DQC)	3
5. Agency Technical Review (ATR)	4
6. Independent External Peer Review (IEPR)	8
7. Policy and Legal Compliance Review	11
8. Review Schedule and Costs	11
a. ATR Schedule and Cost.....	11
b. IEPR Schedule and Cost.....	12
9. Public Participation	12
10. Review Plan Approval and Updates.....	13
11. Models	13
ATTACHMENT 1 COMPLETION OF AGENCY TECHNICAL REVIEW.....	15
ATTACHMENT 2: TEAM ROSTERS.....	16
ATTACHMENT 3: REVIEW PLAN REVISIONS.....	20

1. Purpose and Requirements

a. Purpose

This Review Plan is intended to ensure a quality engineering project is developed by the Corps of Engineers and is an update to the review plan approved 13 December 2012. This Review Plan has been developed for the Topeka Flood Damage Reduction project. This Review Plan was prepared in accordance with EC 1165-2-214, "Civil Works Review Policy". The Review Plan shall lay out a value added process that assures the correctness of the information shown. It is imperative that the vertical teaming efforts are proactive and well coordinated to assure collaboration of the report findings, conclusions, and recommendations, and that there is consensus at all levels of the organization with the recommended path forward. This Review Plan describes the scope of review for the current phase of work, and is included in the Project Management Plan (P2 354372). All appropriate levels of review (DQC, ATR, IEPR, BCOES, and Policy and Legal Review) will be included in this Review Plan as appropriate, and any levels not included will require documentation in the Review Plan of the risk-informed decision not to undertake that level of review. The RP identifies the most important skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project. This Review Plan should be provided to PDT, DQC, ATR and IEPR Teams.

b. Guidance and Policy References

- ER 5-1-11, USACE Business Process
- EC 1165-2-214, Civil Works Review Policy, 15 December 2012
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 31 Mar 2014
- ER 1110-1-12, Quality Management, 31 Mar 2011

c. Requirements. This review plan 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/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

2. Review Management Organization

The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for this project. Contents of this review plan have been coordinated with the RMC and the Northwestern Division, the Major Subordinate Command (MSC). In-Progress Review (IPR) team meetings with the RMC, NWD, and HQ will be scheduled on an “as needed” basis to discuss programmatic, policy, and technical matters. This review plan will be updated for each new project phase.

3. Project Description and Information

Sponsor Peer Review of In-Kind Contributions - There will be no in-kind contributions for this effort. This project has four distinct levee areas – Oakland Unit, South Topeka Unit, the North Topeka Unit and the Waterworks Unit. The Waterworks Unit is anticipated to be combined with either the North or South Unit due to its limited size. Three contracts are anticipated, one for each of the three major units – Oakland, North and South. The scope of the Oakland, North Topeka and Waterworks Units is primarily for improved reliability. Designs for each unit will be completed and used to develop construction contracting packages. Each unit’s design will be separately subject to ATR and the South Topeka Unit will undergo an IEPR for implementation of the authorized project. There is no change to the top of the levees and floodwall or to the level of protection the units provide. The replacement of the floodwall represents a risk to human life. The following describes each unit in greater detail as presented in the feasibility study.

Oakland Unit. The design of the Oakland Unit has been completed and the ATR phase completed. The ATR reviewed an area of underseepage that will be controlled with a berm along the levee. The underseepage berm will impact the existing interior drainage system requiring modification. Structural modification of the East Oakland Pump Station will be implemented to address uplift failure concerns. The Shunganunga flood wall required further analysis for stability and was determined to meet criteria. The overall project is based on hydraulic modeling in the Feasibility Study with the potential for updates based on Atlas 14. Modeling was based on river gages so Atlas 14 had no impact. The ATR team required disciplines for civil, structural, and geotechnical design review.

North Topeka Unit: Two areas of low underseepage reliability will be improved by installation of an underseepage control berm and a series of relief wells, respectively. The largest stretch of underseepage is located immediately adjacent to a railroad yard with very limited space. Updated criteria will affect the analysis, potentially requiring additional relief wells. Conflicts with existing transcontinental fiber optic lines within the railroad right of way will impact configuration of the wells. An existing pump station that

is no longer required, and currently poses an uplift failure risk, will be removed and a demolition plan is required. The ATR team will require disciplines for civil, structural, and geotechnical design review with experience with relief well design.

Waterworks Unit: Landside stability berm will be installed to increase the reliability of an existing concrete floodwall protecting the primary water source for the City of Topeka and surrounding communities. The stability of the wall and extent of berm will be analyzed based on additional subsurface investigations and existing data from the original construction. The analysis of the wall performance will include data from past flood events. This design will be incorporated into either the North or South Unit design package. The ATR team will require disciplines for civil, structural, and geotechnical design review with experience with flood wall design.

South Topeka Unit. Levee underseepage concerns will be addressed by installation of a control berm to an existing levee. Structural strength and uplift concerns will be improved by modifications of the existing Kansas Avenue Pump Station and three manholes. The Feasibility Study recommended approximately 2,000 linear feet of existing concrete floodwall on timber-pile foundations to be removed and replaced with a new floodwall on concrete piles following the same alignment and to the same height as the existing floodwall. Further analysis will be completed evaluating the potential for modification versus replacement of the floodwall. The work in this unit will result in the potential removal of 7.5 acres of woodland habitat and appropriate mitigation measures are included in the Authorized Plan. The ATR team will require disciplines for civil, structural, and geotechnical design review with experience with underseepage berm and flood wall design. The team will also need experience in environmental impacts from construction and mitigation of those impacts. Due to the potential risk to human life, either by removing the temporarily protection of the existing floodwall during replacement or compromising wall integrity during modification, an IEPR is planned for the South Topeka Unit.

4. District Quality Control (DQC)

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) 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). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc.

Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Additionally, the PDT is responsible to ensure consistency and effective coordination across all project disciplines during project design and construction management. See Attachment 2 for PDT and DQC members and disciplines.

Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. DrChecks review software can be used to document DQC comments.

5. Agency Technical Review (ATR)

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess 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 decision makers. Management of ATR reviews is dependent upon the phase of work and the reviews are conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. It is necessary, when early in the design process, to determine and obtain an ATR agreement on key data such as hydraulic and geotechnical parameters. This agreement will be based on preliminary design efforts for inclusion in the 35% design. The goal is to have early involvement of ATR team, especially when key decisions are made.

The ATR Lead should be invited virtually to all PDT meetings, in order to understand the design efforts and to know when to engage other ATR members for key decisions. Consideration will be made by the PDT and offered to the ATR team to participate in a site visit at the initiation of their review for each individual levee unit. Value added Lessons Learned from the ATR team should be shared early on to have the best chance of being adopted by the PDT. Most of the ATR effort should be accomplished midway through the design effort; after completion of design the ATR effort will check that the effort agreed to at mid point was accomplished. This is consistent with the requirement that the ATR members shall not be involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may

be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC. See Attachment 2 for ATR members.

The draft charge questions for the ATR team are:

DrChecks review software will be used to document all ATR 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. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation in DrChecks includes the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution. Certification of ATR should be completed, based on work reviewed to date, for the final report. A draft certification is included in Attachment 1.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;

- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

Required ATR Team Expertise: ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team will be required to validate their technical qualifications for review through the Corps of Engineers Review Certification and Access Program (CERCAP) and will be chosen based on each individual's qualifications and experience with similar projects. The CERCAP requires potential reviewers to submit their resumes for evaluation and approval from a Community of Practice panel within the USACE, in this case, for engineering disciplines including coastal engineering, geotechnical engineering, and cost engineering. Specific disciplines for the team, based on the type of design needed, are anticipated to be Civil, Geotechnical, Hydraulic, and Structural.

ATR Team Members/Disciplines	Expertise Required
ATR Lead (All Phases)	The ATR team leader shall hold a professional license in structural, geotechnical, or civil engineering with a BS degree or higher in civil, geotechnical or structural engineering. The ATR leader shall have a minimum of 15 years of design experience and experience with multi-million dollar flood risk management projects. The team leader shall be a recognized leader with good communication skills to lead a diverse review team comprised of individuals located at various districts across the nation. The ATR lead should be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR leader may also serve as a reviewer for one of the specific disciplines below, if applicable.
Hydraulic Engineering (All Phases)	The reviewer for hydraulics shall be a registered professional engineer with a minimum of a BS degree or higher in engineering science. The reviewer shall have a minimum of 10 years experience in hydrologic

	<p>analysis and design of hydraulic structures as it relates to riverine flood risk management projects. Reviewer should have experience in the analysis and design involving interior drainage and riverine models using hydrology models HEC-HMS, stormwater model SWMM, and hydraulic models HEC-RAS. This member should also be knowledgeable in coincidence of frequency and the application of USACE risk and uncertainty analyses on flood risk management projects. Reviewer should be experienced with similar projects in an urban setting and should have participated in review of riverine flood risk management projects.</p>
<p>Geotechnical Engineering (All Phases)</p>	<p>The reviewer for geotechnical features shall be a registered professional engineer with a minimum BS degree or higher in civil or geotechnical engineering. Reviewer shall have a minimum of 10 years experience in subsurface investigations. Experience in floodwall and levee designs. Experience with seepage and slope stability evaluations, deep foundation design, erosion protection design, and construction. Experience in general earthwork construction. The reviewer must be familiar with USACE regulations and standards.</p>
<p>Civil Engineering (All Phases)</p>	<p>The reviewer for civil features shall be a registered professional engineer with a minimum BS degree or higher in civil or construction engineering. The reviewer shall have a minimum of 10 years experience in the design, layout, and construction of a large urban flood risk management projects to include knowledge regarding levees, interior drainage facilities, earthwork, concrete placement, railroad & roadway design, and relocation of underground utilities. The reviewer must be familiar with USACE regulations and standards.</p>
<p>Structural Engineering (All Phases)</p>	<p>The reviewer for structural features shall be a registered professional engineer with a BS degree or higher in civil or structural engineering. The reviewer shall have a minimum of 10 years experience in the</p>

	<p>design, layout, and construction of large flood risk management projects. Reviewer should be familiar with the design and construction/ modification of tall (15 feet high) flood walls, closure structures, interior drainage facilities, concrete placement, and relocation of underground utilities. The reviewer should have experience with USACE design regulations for Civil Works projects.</p>
<p>Construction (All Phases)</p>	<p>The reviewer for design constructability shall be a registered engineer with a BS degree or higher in engineering or construction management. The reviewer shall have a minimum of 15 years experience in the construction of large flood risk management projects. Reviewer should be familiar with the construction/ modification of levees, flood walls, closure structures, interior drainage facilities, relocation of underground utilities and safety requirements. The reviewer should have experience with USACE construction regulations for Civil Works projects.</p>

ATR Lead: The ATR team lead will be from outside the home MSC and is a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs. The lead has the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A sample Statement of Technical Review for the plans and specifications is included in Attachment 1.

6. Independent External Peer Review (IEPR)

IEPR may be required for decision documents and 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.

Decision on Type I IEPR. In accordance with EC 1165-2-209, a Type I IEPR, also known as a Decision Document or Product Review for studies. As a Congressionally Authorized project, the project has moved from study or formulation to implementation. A Type I IEPR is not required for execution of implementation products.

Decision on Type II IEPR. In accordance with EC 1165-2-214, a Type II IEPR, also known as a Safety Assurance Review, shall be completed on design and construction activities for any projects where potential hazards pose a significant threat to human life. EC 1165-2-214, Appendix E, Section 2. (a) through (c) list additional factors to be considered in determining whether a Safety Assurance Review is required. Those factors include the use of innovative materials or techniques; project designs requiring redundancy, resiliency or robustness; and projects with unique construction sequencing. Based on the above criteria, a Type II IEPR will be performed on the South Topeka Unit. No Type II IEPR will be performed on the Waterworks, Oakland, or North Topeka Units. The units are not interdependent in the protection/benefits they provide so an IEPR of the entire Topeka levee system would not have any benefit. Rationale for this decision is presented below.

Proposed South Topeka Unit improvements include the removal and replacement of approximately 2,000 linear feet of concrete floodwall. The 2012 Screening Level Risk Assessment (SLRA) completed using the Levee Screening Tool resulted in an assignment of **Moderate Risk** based largely on floodwall stability concerns in South Topeka and embankment underseepage concerns in Oakland (note that the South Topeka and Oakland Units are part of the same system; therefore a single SLRA was completed on both units). The SLRA indicated that the population at risk in the South Topeka – Oakland Leveed Area was approximately 12,000. Estimated life losses were 7 and 17 for the overtopping and breach prior to overtopping inundation scenarios, respectively. During construction, while portions of the floodwall have been removed, the leveed area may be subject to a much greater likelihood of inundation than for the present condition. The likelihood of toe loading from the SLRA was approximately 4%, much greater than the estimated overtopping likelihood of 0.5%. The risk during implementation of floodwall improvements may be greater than present conditions, and a Type II IEPR is appropriate to ensure that appropriate measures and controls are implemented during construction to minimize incremental risk associated with the improvements.

Proposed Oakland Unit improvements include the installation of underseepage berms and improvements to an existing pump station. As stated above, the 2012 SLRA resulted in an assignment of **Moderate Risk** based on South Topeka floodwall stability concerns and Oakland embankment underseepage concerns. The proposed Oakland Unit improvements will not result in any increased life safety risk during construction. The berm construction and pump station improvements will occur without leading to any temporary or permanent reduction in levee system reliability. None of the other factors referenced in EC 1165-2-214, Appendix E, Section 2 apply. Therefore, a Type II IEPR is unnecessary for the Oakland.

Proposed Waterworks Unit improvements include the installation of stability berms. A 2012 SLRA resulted in an assignment of **Low Risk** based on floodwall stability concerns. The SLRA indicated that the population at risk in the Waterworks Unit was minimal, less than 100, and limited to workers at the Topeka Water Treatment Plan. No residents live within the leveed area. Estimated losses of life are under one for both the prior to overtopping and overtopping scenarios. The proposed Waterworks Unit improvements will not result in any increased life safety risk during construction. The berm construction will occur without leading to any temporary or permanent reduction in levee system reliability. None of the other factors referenced in EC 1165-2-214, Appendix E, Section 2 apply. Therefore, a Type II IEPR is unnecessary for the Waterworks Unit.

Proposed North Topeka Unit improvements include the installation of underseepage berms and relief wells and removal of an unnecessary pump station. A SLRA has not been completed for the North Topeka Unit, although one is currently in progress. The SLRA indicated that the population at risk in the North Topeka Leveed Area was approximately 7,000. Estimated life losses were 7 and 16 for the overtopping and breach prior to overtopping inundation scenarios, respectively. The primary risk factors identified in the ongoing SLRA are levee embankment underseepage concerns that will be addressed by the proposed improvements. The life safety risk indicated by the ongoing SLRA is similar to the life safety risk determined for the South Topeka – Oakland Units Levee System. Therefore, an eventual assignment of **Moderate Risk** is expected for the North Topeka Unit. As with the Oakland Unit, the proposed improvements will not result in any increased life safety risk during construction. The berm and relief well construction and pump station removal will occur without leading to any temporary or permanent reduction in levee system reliability. None of the other factors referenced in EC 1165-2-214, Appendix E, Section 2 apply. Therefore, a Type II IEPR is unnecessary for the North Topeka Unit.

Type II IEPR Team Composition. The features of the South Unit are primarily comprised of an underseepage berm and a flood wall. The risk of the loss of human life is associated with the floodwall experiencing temporary removal of protection during replacement or compromised structural integrity during modification. The IEPR team should consist of professional licensed civil, geotechnical, and structural engineers and construction manager. Their experience should include design and construction of large flood walls specifically with the logistics and issues for replacement or modification of existing floodwalls. The charge to the team is for the review of the methods to improve the stability of the existing floodwall that reduce the risk of human life.

7. Policy and Legal Compliance Review

All implementation documents will be reviewed throughout the project for their compliance with 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.

8. Review Schedule and Costs

To the extent practical reviews should not extend the design schedule but should be embedded in the design process. Reviewers should be involved at key decision points and are encouraged to provide timely over the shoulder comments.

a. ATR Schedule and Cost. The preliminary review schedule is listed in the table below. The cost for the ATR is approximately \$20,000 for the Oakland Unit, \$25,000 for the South Topeka Unit and \$25,000 for the North Topeka Unit based on historical ATR efforts. Reference the monthly P2 schedule for updates to the schedule and cost of the ATR throughout the project. Provide an overall review schedule that shows timing and sequence of all reviews.

Oakland Unit

Project Phase / Submittal	Review Start	Review Complete
ATR has been completed and certified.		

South Unit

Project Phase / Submittal	Review Start	Review Complete
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DQC Review	Fall 2015 - Spring 2016	Summer 2016
ATR Review (Preliminary)	Fall 2015	Fall 2016
ATR Review (65%, 95%)	Spring 2016	Summer 2016
Report Revisions and Backcheck	Spring 2016	Summer 2016
Submit Report to QCC	Summer 2016	
QCC Review	Summer 2016	
Report Revisions	Summer 2016	
Submit Report to Levee Safety SOG	Summer 2016	
Levee Safety SOG Review	Summer 2016	
Report Revisions	Summer 2016	
IEPR	Summer 2016	Fall 2016

North Unit

Project Phase / Submittal	Review Start	Review Complete
DQC Review	Fall 2015 - Spring 2016	Summer 2016
ATR Review (Preliminary)	Fall 2015	Fall 2015
ATR Review (65%, 95%)	Spring 2016	Summer 2016
Report Revisions and Backcheck	Spring 2016	Summer 2016
Submit Report to QCC	NA	
QCC Review	NA	
Report Revisions	NA	
Submit Report to SOG	NA	
SOG Review	NA	
Report Revisions	NA	

b. IEPR Schedule and Cost. A Type II IEPR will be required for this project. Initial indications are that the estimated cost for the Type II IEPR is in the range of \$150,000 to \$200,000. This estimate will be refined when the Scope of Work for the IEPR Type II contract is completed. The IEPR Type II contractor will be involved with the project through the construction phase and into the OMRRR phase. More specific milestone dates will be added in the future during the construction phase, but can be assumed to occur near the mid-point of construction and near the end of construction. These dates are dependent on the execution of the Project Partnership Agreement and the availability of both Federal and non-Federal funding.

9. Public Participation

As required by EC 1165-2-214, the approved Review Plan will be posted on the District public website (<http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsandProjects/CivilWorksReviewPlans.aspx>). Information will be conveyed to the public through the use

of press releases and media interviews, as necessary, and through the use of posting information to the Kansas City District's website. There is no formal public review for the Topeka Review Plan. The public will have 30 days to provide comments on the documents; after all comments have been submitted, the comments will be provided to the technical reviewers and responses will be given to the public.

Public comments to the Review Plan may be made in writing or emailing the following contact:

U.S. Army Corps of Engineers, Kansas City District
c/o Kent Myers, CENWK-PM-CJ
Rm 556, Federal Building
601 East 12th Street
Kansas City, MO 64106
Email: kent.n.myers@usace.army.mil

10. Review Plan Approval and Updates

The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the Kansas City District, MSC, RMC and HQUSACE members) as to the appropriate scope and level of review for the study and endorsement by the RMC. Like the PMP, the Review Plan is a living document and may change as the study progresses. The District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval will be documented in an Attachment to this plan. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-endorsed by the RMC and re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the District's webpage <http://www.nwk.usace.army.mil/Missions/CivilWorks/CivilWorksProgramsandProjects/CivilWorksReviewPlans.aspx> and linked to the HQUSACE webpage. The latest Review Plan should also be provided to the RMO and home MSC.

11. Models

The use of certified or approved models for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. The selection and application of the model and the input and

output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required). The following engineering models are anticipated to be used:

Model	Status
HEC-RAS	
InRoads	
SLOPE/W	
CTWALL	
SEEP/W	

ATTACHMENT 1 COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the [DDR and P&S](#) for [Topeka, Kansas Flood Damage Reduction project](#). The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214. 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 DrCheckssm.

SIGNATURE

[Marc Masnor](#)
ATR Team Leader
[CESWF-PEC-PF](#)

Date

SIGNATURE

[Kent N Myers](#)
Project Manager Kansas City District
[CENWK-PM-CJ](#)

Date

SIGNATURE

Nathan Snorteland
CEIWR-RMC

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: [Describe the major technical concerns and their resolution](#). As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

[David L Mathews](#)
Chief, Engineering Division Kansas City District
[CENWK-ED](#)

Date

SIGNATURE

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Levee Safety Officer² Kansas City District
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ATTACHMENT 2: TEAM ROSTERS

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The team lead has coordinated with the RMO to assemble an acceptable team based on credentials and availability. The team was reviewed by KCD for acceptability.

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
1/28/2015	Updated to address Risk Assessment for IEPR decision on which Units required one.	Pg. 5 / Para. 6
1/28/2015	Updated entire plan to comply with new format.	
1/28/2015	Updated schedules for reviews by each Unit.	Pg 8-9