

REVIEW PLAN

***Alamogordo Flood Control Project, Otero County, New Mexico
Implementation Documents (Phase 7 Plans and Specifications)***

***U.S. Army Corps of Engineers
Albuquerque District***

MSC Approval Date: 12 August 2013
Last Revision Date: None



**US Army Corps
of Engineers ®**

REVIEW PLAN

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan will focus only on the scope and level of peer review for the phase 7 implementation documents of the Alamogordo Flood Control Project, Otero County, New Mexico. Phase 7 will cover the upstream detention facility and the remaining McKinley Channel. Design for phase 7 began in January 2013 with District Quality Control planned for January 2014 and Agency Technical Review planned for April 2014.

The Alamogordo Flood Control Project Feasibility was completed in October 1998. The Preconstruction Engineering and Design and Construction have been separated into several phased smaller segments so that the City of Alamogordo could spread their financial commitment over several years. Phase 1 of the South Diversion Channel design was completed in September 2000 and construction was completed in June 2002. Phase 2 of the South Diversion Channel design was completed in January 2003 and construction was completed in July 2004. Phase 3 of the South Diversion Channel design was completed in June 2004 and construction was completed in January 2007. Phase 4 of the South Diversion Channel design was completed in March 2007 and construction was completed in March 2011. Phase 5 which covered the first part of the McKinley Channel design was completed in August 2011 and construction was completed in May 2013. Phase 6 which covered the major bridge crossings of the McKinley Channel design was completed in August 2012 and construction is projected to be completed in October 2013.

b. References

- 1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 31 Jan 2010
- 2) EC 1105-2-412, Assuring Quality of Planning Models, 13 Mar 2011
- 3) Engineering Regulation (ER) 1105-2-101, Risk Analysis for Flood Damage Reduction Studies, 3 January 2006
- 4) Engineering Manual (EM) 1110-2-1619, Risk-Based Analysis for Flood Damage Reduction Studies, 1 August 1996
- 5) ER 1110-1-12, Quality Management, 30 Sep 2006
- 6) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- 7) CECW-CP Memo for Distribution, "Peer Review Process", 30 Mar 2007
- 8) QMS 02500-SPD, Preparation and Approval of Review Plans
- 9) QMS 02500.1-SPD, Supplemental Review Plan Checklist
- 10) Project Management Plan

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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for flood risk management projects will be the Risk Management Center (RMC), unless if the RMC and the major subordinate command (MSC) agree that a Safety Assurance Review (SAR) does not need to be conducted, then the MSC will assume RMO responsibilities. The RMO for the peer review effort described in this Review Plan for the Phase 7 plans and specifications is the Risk Management Center (RMC).

The RMO will coordinate to ensure the appropriate expertise is included on the review teams to assess the adequacy of the implementation documents.

3. STUDY INFORMATION

a. Decision Document. This Review Plan will focus only on the design of phase 7 of the Alamogordo Flood Control Project (project). Any future phases will be addressed in a separate Review Plan to be developed at a future date.

The project for flood risk management for Alamogordo, Otero County, New Mexico was authorized by Section 101 of the Flood Control Act of 1962 (Public Law 87-874), 87th Congress, H.R. 13273, dated October 23, 1962, substantially in accordance with the plan, and subject to the conditions, described in the Report of the Chief of Engineers recommendations contained in House Document, Number 473, 87th Congress, 2nd Session, dated 12 July 1962. The project design was completed in March 1964 and construction funds appropriated in 1966. The city of Alamogordo was unable to implement bonding to support the local share of the project so the project was placed in an inactive status until 1979 when it was reclassified to deferred status at the urging of the city. The project was activated in 1986 and preconstruction planning initiated. A Reaffirmation Document was completed in August 1986, followed by Supplement No. 1 to General Design Memorandum No. 2 in June 1987. These two reports documented changes in the authorized project necessitated by the development in the city. In May 1989 the city requested lower degrees of protection be analyzed in an effort to reduce the project costs. The June 1991 Post Authorization Change Report investigated a 1 percent-chance exceedence diversion channel and found it to be feasible. In January 1992 the city requested the project to be reevaluated to determine the advisability of segmenting the project into 2 or more separable elements to allow the city to spread its funding requirements over a longer period of time. The August 1992 Interim Letter Report served as the decision document to proceed with a General Reevaluation Report.

The Corps completed the Final General Reevaluation Report/Environmental Assessment (GRR/EA) for the Alamogordo local flood protection project in October 1998. The Finding of No Significant Impact (FONSI) for the GRR/EA was signed on October 13, 1998.

The original authorization for the Alamogordo project was modified by the Energy and Water Appropriations Act of 2004 (Public Law 108-137, Section 105) which authorized the construction of a North detention basin. The North detention basin is a separable element and will be evaluated in a future phase that will be addressed in a separate Review Plan to be developed at a future date contingent on completion of other work and future funding.

b. Study/Project Description. The authorized plan for the Alamogordo project covers approximately 39 square miles, and includes the city of Alamogordo; the adjacent watersheds of Dry, Beeman, and Marble Canyons; and several smaller arroyos on the west slopes of the Sacramento Mountains. The primary flood threats to Alamogordo result from flows in Dry and Beeman Canyons, which originate north of town, and from Marble Canyon, which flows east to west through the center of Alamogordo under existing conditions. The General Reevaluation Report/Environmental Assessment (GRR/EA) recommended construction of three concrete-lined flood control channels to convey the 1 percent-chance flow through Alamogordo to Red Arroyo and Dillard Draw: the North Diversion Channel, the South Diversion Channel, and the McKinley Channel. The North Diversion Channel is no longer part of the project, instead a North detention basin is to be analyzed. The South/McKinley Diversion Channel was economically justified with a benefit to cost ratio of 2.0 to 1. The McKinley Channel was incrementally justified as a component of the South Diversion Channel.

The South/McKinley Channel comprises two segments. The South Diversion Channel includes a 23,000-foot long concrete-lined channel, two sediment basins, in-line detention basin, an energy dissipating structure, and an earthen containment berm. The McKinley Channel merges with the South Diversion Channel and includes an 18,000-foot long concrete-lined channel and a sediment basin.

The authorized project, when the entire system is completed, will provide protection to about 85 percent of the structures in the one percent chance floodplain.

A Project Cooperation Agreement (PCA) was executed on 9 July 1999. Construction in separate phases was developed to accommodate the City of Alamogordo funding.

Phase 1, BCOES was completed 22 September 2000, was awarded on 27 December 2000 and was considered substantially complete on 18 June 2002 and included the following features:

- Construction of approximately 5,955 feet of concrete lined channel along South Diversion Channel.
- Construction of approximately 1,390 feet of concrete lined channel along McKinley Channel.
- Six 10'x8' concrete box culverts
- Construction of approximately 4,579 feet of 7 foot high earthen levee, and 1,300 feet of 5 foot high earthen levee.

Phase 2, BCOES was completed 29 January 2003, was awarded on 18 April 2003 and was considered substantially complete on 8 July 2004 and included the following features:

- Construction of approximately 2,795 feet of concrete lined channel along South Diversion Channel.
- Construction of approximately 540 feet of concrete lined inlet channel.
- Two 10'x6' concrete box culverts

Phase 3, BCOES was completed 10 May 2004, was awarded on 30 September 2004 and was considered substantially complete on 18 January 2007 and included the following features:

- Construction of approximately 2,000 feet of concrete lined channel along South Diversion Channel.
- Construction of Washington sediment basin.

Phase 4, BCOES was completed 5 March, 2007, was awarded on 31 May 2007 and was considered substantially complete on 10 March 2011 and included the following features:

- Construction of approximately 7,600 feet of concrete lined channel along South Diversion Channel.
- Construction of approximately 850 feet of wire wrapped riprap for Marble Canyon inlet at start of South Diversion Channel.
- Construction of concrete spillway and emergency spillway
- Construction of approximately 950 feet of concrete lined inlet channel.
- Construction of approximately 500 feet of concrete lined inter-connecting channel under Union Pacific Railroad.

Phase 5, BCOES was completed 23 August 2011, was awarded on 30 September 2011 and was considered substantially complete in May 2013 and included the following features:

- Construction of approximately 1,000 feet of concrete lined channel along McKinley Channel.
- Construction of approximately 500 feet of concrete lined channel under Union Pacific Railroad.
- Three 10'x9' concrete box culverts

Phase 6, BCOES was completed 24 August 2012, was awarded on 29 September 2012 and is anticipated will be substantially complete in October 2013 and included the following features:

- Construction of three 10'x10' concrete box culverts at Florida Ave.
- Construction of three 10'x9' concrete box culverts at Cuba Ave.
- Construction of two 10'x6' concrete box culverts at Madison Ave.
- Construction of approximately 900 feet of concrete lined channel along McKinley Channel.

Phase 7 design includes the remaining concrete lined channels on McKinley Channel and a sediment detention pond at the east end of McKinley Channel. Phase 7 will be designed and constructed by the Corps and is a continuation of the Alamogordo flood risk management

Project. The construction of the remaining McKinley Channel to be designed under phase 7 is planned to be completed in two phases to accommodate the sponsor's availability to provide the required non-federal cost share funding.

A project map delineating features that have been constructed to date and phase 7 features are shown on Figure 2.

c. Factors Affecting the Scope and Level of Review.

Challenges include:

- Changed Corps policy and procedures for performing reviews on implementation documents since the project was started including:
 - Peer Review Guidance is relatively new in EC-1165-2-214,
- Properly incorporating a project history in construction spanning over one decade and many personnel changes;

The remaining features of the project are considered to have low overall risk because:

- The McKinley Channel was designed in the feasibility phase to a 60% level. Funding simply has required that the project be split up into phases;
- The Corps has completed design and construction on projects of this nature in the past, successfully;
- The majority of the project constructed during the Corps phase 1 through phase 6, provide safe conveyance of flood-water beyond the City of Alamogordo.
- Health and human safety factors are moderate;
 - With completion of the Corps phase 1 to phase 6, flooding is reduced and implementation of phase 7 will allow greater system capacity and further reduce flood damage in the City of Alamogordo.
 - Slope of the flood flow channels (0.03 to 0.009) are minimal and result in low flow velocities.
 - Design incorporates improvements to existing earthen lined conveyance channels and does not significantly alter their characteristics.

The U.S. Army Corps Of Engineers Albuquerque District (SPA) Chief of Engineering and Construction recommended that the phase 7 implementation documents not require a type II IEPR. The determination to conduct a Type II IEPR (Safety Assurance Review) will be made once the design for the sediment detention pond is more fully developed and prior to the initiation of any additional construction.

- Phase 7 is not expected to be contentious;
 - Proposed improvements are within the footprint of the existing earthen lined McKinley channel;
 - Remaining crossings on McKinley channel will not be replaced, only work will be to their approaches and headwalls;

- Residents of the City of Alamogordo have shown support for the project in the past and their support is again expected.
- Is not expected to have adverse impacts on scarce or unique cultural, historic, or tribal resources;
 - Cultural surveys have not identified cultural resources in the proposed footprint of the existing drains but will need to be rechecked.
 - Tribal coordination on the previous phase was completed and did not identify any tribal concerns.
 - Proposed features will be constructed in previously disturbed locations within existing rights-of-way.
- Is not expected to have adverse impacts on any fish or wildlife species or their habitat whether or not they are listed as endangered or threatened under the Endangered Species Act of 1973;
 - Threatened or endangered species, or critical habitat do not occur in the project area.
- Is not likely to contain influential scientific information, nor is it likely to be a highly influential scientific assessment;
 - Standard methods to achieve flood risk management will be applied to formulate plans and specifications.
- Does not involve the rehabilitation or replacement of existing hydropower turbines, lock structures, or flood control gates;
- Is not expected to be based on novel methods, does not present complex challenges for interpretation, does not contain precedent-setting methods or models, and will not present conclusion that are likely to change prevailing practices
 - Standard methods to achieve flood risk management will be applied to formulate plans and specifications.
- Has minimal life safety risk.
 - U.S. Army Corps Of Engineers Albuquerque District (SPA) has experience using flood risk management methods on Corps projects within the City of Alamogordo, Otero County, New Mexico;
 - Width of floodplain, low gradient of existing channels results in low flow velocities.

The U.S. Army Corps Of Engineers Albuquerque District (SPA) Chief of Engineering and Construction concurs with the factors and the level of review and a signed assessment is provided as Attachment 3.

The Alamogordo Flood Control project has had interest from the non-Federal Sponsor, the City of Alamogordo and they have been active participants throughout the project. The City of Alamogordo has issued right of use permits for construction within their right of way for phase 1 to phase 6 work within the existing channels and detention basins.

Figure 1 – Location Map

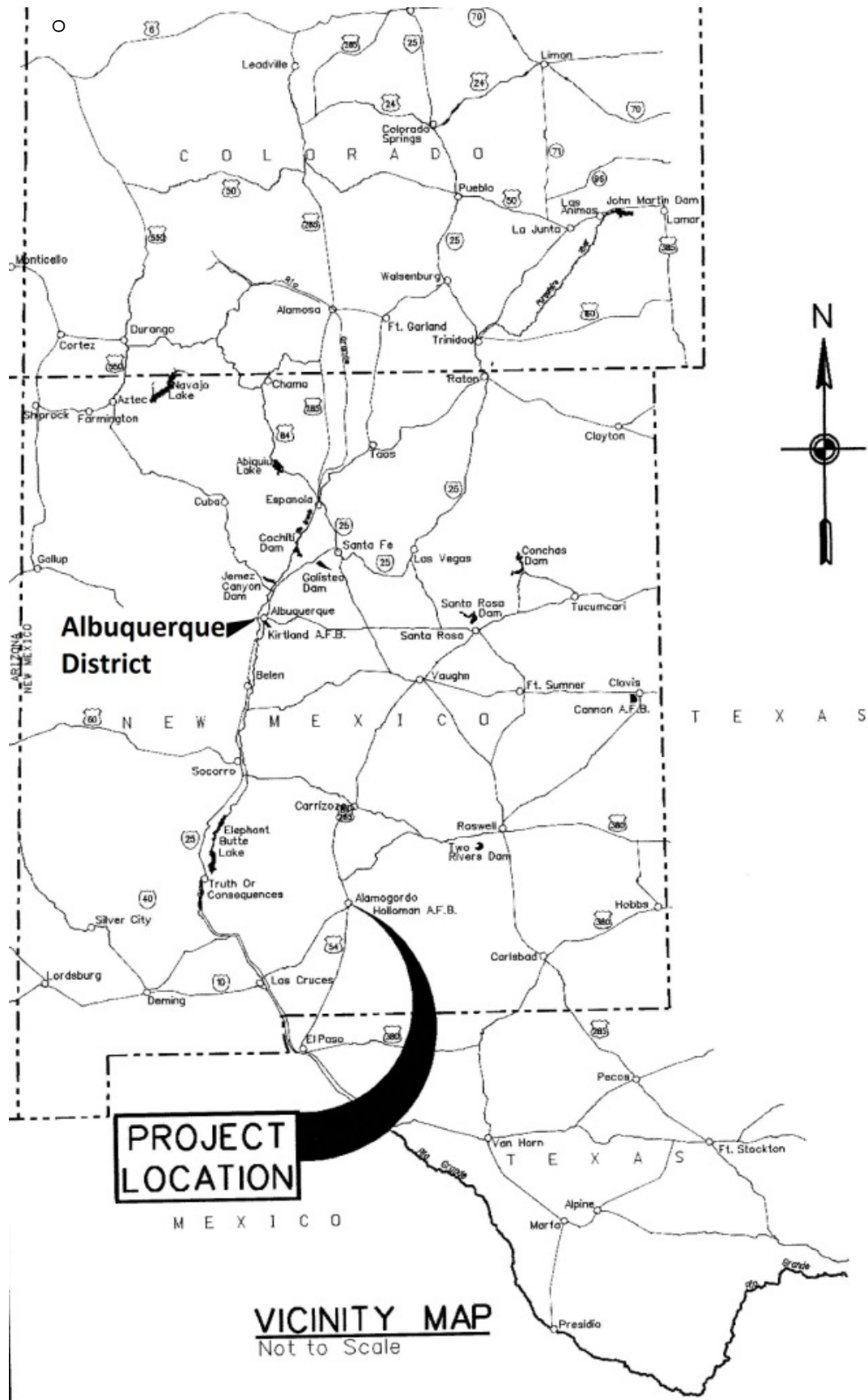
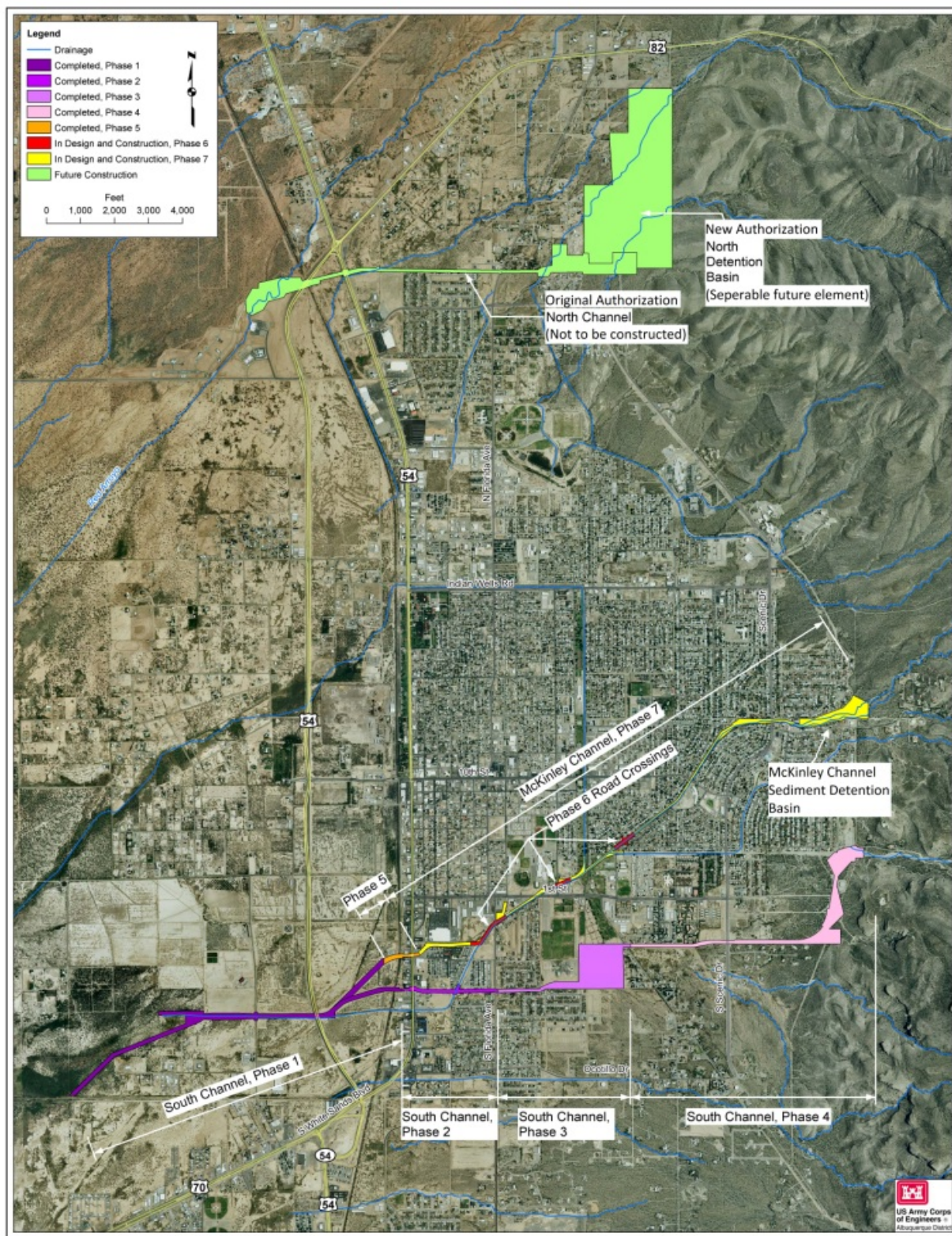


Figure 2. Phases of Work



As a result, the level of review will include DQC and ATR for phase 7 and will focus on:

- Review of the methods for analysis and design;
- Compliance with sponsor, program, NEPA and ESA requirements;
- Completeness of design and support documents; and
- Spot checks for interdisciplinary coordination.

d. In-Kind Contributions. LERRDs have been identified and are planned to be provided by the non-Federal sponsor for phase 7 as in-kind services. The in-kind activity by the non-Federal sponsors include:

- Utility relocation;
- Right of Way aquitisation;
- Easement
- Attendance at meetings;
- Review of implementation documents prior to advertisement for construction;
- Assistance during public involvement as needed.

e. Total Project Cost. The original Total Project Cost identified in the 1999 Project Cost Share Agreement was \$55,200,000. A current revision escalating to 2013 values is \$90,800,000, with the South Diversion/McKinley Channel portion being \$70,400,000. To date \$54,559,000 has been expended in the design and construction of Phases 1 to 6, and the start of design for Phase 7.

4. DISTRICT QUALITY CONTROL (DQC)

The integrated Feasibility Report and Environmental Assessment for the projects was completed and approved in 1998 and underwent the required review processes that were required. 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 Major Subordinate Command (MSC). DQC review for the phase 1 through phase 6 implementation documents was completed and applied to the final implementation documents.

a. Documentation of DQC for phase 7. Reviewers shall review the implementation documents for phase 7 to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments, to include local sponsor review comments, responses and backchecks will be documented by a memorandum for record.

Reviewers shall pay particular attention to one's discipline but may also comment on other aspects as appropriate. Reviewers that do not have any significant comments pertaining to their assigned discipline shall provide a comment stating this.

Review comments shall contain these principal elements:

- A clear statement of the concern;
- The basis for the concern, such as law, policy, or guidance;
- Significance for the concern; and
- Specific actions needed to resolve the comment.

DQC comments will be submitted to the ATR Team as information for their review of phase 7 implementation documents.

b. Products to Undergo DQC. Products to undergo DQC include the phase 7 plans and specifications, as well as the Design Documentation Report. At the completion of construction and prior to transferring to the local sponsor, a DQC of the O&M manual will be done by the Albuquerque District.

c. Required DQC Expertise. This section identifies the required expertise needed to conduct DQC consistent with the District/MSO Quality Management plans.

DQC Team Members/Disciplines	Expertise Required
Environmental Resources	The reviewer should have a solid background in the habitat types to be found in the arid southwestern United States, and understand the factors that influence the reestablishment of native species of plants and animals.
Cultural Resources	The reviewer should have extensive Corps' experience regarding cultural resources on public and tribal lands. They need to be familiar with Department of Defense as well as USACE policies and procedures as they pertain to Corps studies and projects. http://www.usace.army.mil/CECW/Pages/cultural.aspx
Hydrology	The reviewer should have extensive knowledge of hydrology of the Southwest Valley or similar.
Hydraulic Engineering	The reviewer should have extensive knowledge of HEC-RAS modeling including the use of GIS (ARC-INFO) inputs to the model. The reviewer should also have a solid understanding of the geomorphology of alluvial rivers.
Geotechnical Engineering	The reviewer should carry a Professional Engineer's license and have recent experience in the Corps' design requirements for levee work. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; and designing earthworks and structure foundations.

Civil Engineering	The reviewer should have recent experience in the design and of plans and specifications for levees and river bridges, to include tie in to natural features.
Cost Engineering	The reviewer should have extensive Corps' experience in the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, and planning and scheduling.

5. AGENCY TECHNICAL REVIEW (ATR)

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the implementation documents are technically correct and comply with published USACE guidance, and that the documents explain the analyses and results in a reasonably clear manner. 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 will be comprised of senior USACE personnel. The ATR team lead will be from outside the home MSC.

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 address the technical content of the implementation documents. Comments to grammar, style or spelling should not added to Dr Checks but may be submitted to ATRT Leader via electronic mail using tracked Changes feature in the Word document.

The four key parts of a quality review comment included:

- The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
- The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- 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
- 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 asses whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the Project Delivery Team (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.

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.

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 Statement of Technical Review should be completed, based on work reviewed to date.

a. Products to Undergo ATR. Products to undergo ATR include the phase 7 plans and specifications, as well as the Design Documentation Report.

b. Required ATR Team Expertise for Review of Implementation Documents.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	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 lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Geotechnical Engineering	The reviewer should carry a Professional Engineer's license and have recent experience in the Corps' design requirements for levee work. This person should also have

	experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; and designing earthworks and structure foundations.
Civil Engineering	The reviewer should have recent experience in the design and of plans and specifications for levees and river bridges, to include tie in to natural features.
Hydraulic Engineering	The reviewer should have extensive knowledge of HEC-RAS modeling including the use of GIS (ARC-INFO) inputs to the model. The reviewer should also have a solid understanding of the geomorphology of alluvial rivers.
Cost Engineering	The reviewer should have extensive Corps' experience in the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, and planning and scheduling.

c. Documentation of ATR ProjNet DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process.

6. BIDDABILITY, CONSTRUCTIBILITY, OPERABILITY, ENVIRONMENTAL, AND SUSTAINABILITY (BCOES)

(BCOES) reviews are conducted prior to contract solicitation and award. The BCOES review is intended to ensure efficient construction that is environmentally sound, to ensure existing site conditions have been considered in the design, to minimize cost and time growth, to avoid unnecessary changes and claims, as well as to ensure safe efficient operations by the user. This review focuses on the ease with which the contract documents can be understood, bid, administered, and executed and how well the completed facilities can be operated and maintained.

Products to Undergo BCOES. Products to undergo BCOES include the phase 7 plans and specifications.

7. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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.

- **Type I IEPR.** Type I IEPR reviews 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 decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents 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 IEPR, or Safety Assurance Review (SAR), 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, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare. For decision documents 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

Decision on IEPR. The Feasibility Report and Environmental assessment was approved in 1998 and no IEPR Type 1 is required. Base on the criteria in EC 1165-2-214 and the information provided in Section 3.c. “Factors Affecting the Scope and Level of Review”, the determination to conduct a Type II IEPR (Safety Assurance Review) will be made once the design for the sediment detention pond is more fully developed and prior to the initiation of any additional construction.

Products to Undergo Type I IEPR ‘Not-Applicable’

Required Type I IEPR Panel Expertise. ‘Not-Applicable’

Documentation of Type I IEPR. ‘Not-Applicable’

8. POLICY AND LEGAL COMPLIANCE REVIEW

‘Not Applicable’

9. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

‘Not-Applicable’

10. MODEL CERTIFICATION AND APPROVAL

Engineering Models. The following engineering models have been used and are anticipated to be used in the future development of the phase 7 implementation documents:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.0 (River Analysis System)	HEC-RAS provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the existing - and with-project conditions along the existing irrigation drains and new constructed channels and increased size of crossing structures.	
Geostudio, SLOPE/W Slope Stability Program	The Corps of Engineers stability analysis as presented in EM-1110-2-1902, Engineering and Design, Stability of Earth and Rockfill Dams and programmed for computer analysis using the Geostudio, SLOPE/W Slope Stability Program, was used for the channel stability analysis.	

11. REVIEW SCHEDULES AND COSTS

DQC schedule and Cost

DQC, and local sponsor reviews will be initiated at the 65% design completion stage. It is anticipated that the 65% design will be available for review in January 2014. Incorporation of comments from the 65% review will be complete by March 2014. The cost for the DQC review is estimated at \$25,000 to include document review, PDT respond to comments, and DQC backcheck.

The following documents will be provided for the DQC review:

- Plans and Specifications
- Design Documentation Report

ATR Schedule and Cost.

ATR will be initiated at the 95% phase 7 design completion stage. It is anticipated that the 95% design will be available for review in April 2014. The cost for the ATR is estimated at \$25,000 to include document review, PDT response to comments, and ATR backcheck .

BCOES Schedule and Cost.

BCOES will be initiated at the Final phase 7 design completion stage. It is anticipated that the Final design will be available for review in June 2014. The cost for the BCOES is estimated at \$15,000 to include document review, PDT response to comments, and BCOES backcheck .

Type I IEPR Schedule and Cost.

'Not-Applicable'

Type II IEPR Schedule and Cost.

To be determined once the design for the sediment detention pond is more fully developed and prior to the initiation of any additional construction

12. PUBLIC PARTICIPATION

Completed as part of the Feasibility Report/Environmental Assessment in 1998. No additional public reviews are anticipated. At the request of the sponsor, City Council presentations and other community presentations may be scheduled prior to the start of construction.

13. REVIEW PLAN APPROVAL AND UPDATES

The South Pacific Division Commander is responsible for approving this Review Plan. 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 decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home 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 Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be 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, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

14. REVIEW PLAN POINTS OF CONTACT

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

- SPA Chief of Design (505-342-3417)
- PCX Regional Manager, (916-557-7436)
- District Support Team Lead, (415-503-6558)

ATTACHMENT 1: TEAM ROSTERS

PDT - Albuquerque

Name	Discipline	Phone
	Project Management	505-343-6262
	Environmental	505-342-3358
	Cost Engineering	505-342-3411
	Structural Engineering	505-342-3157
	Environmental Engineering	505-342-3363
	Geotechnical	505-342-3319
	Cultural Resources	505-342-3671
	Civil Engineering	505-342-3406
	Hydrology, Hydraulics	505-342-3336
	Real Estate	505-342-3256

Non Federal Sponsors

Name	Discipline	Phone
	City of Alamogordo Project Manager	575-439-4230

DQC (TBD)

Name	Discipline	Phone
	Environmental Resources	
	Cultural Resources	
	Hydrology, Hydraulic Engineering	
	Geotechnical Engineering	
	Civil Engineering	
	Cost Engineering	

ATR (TBD)

	ATR Lead	
	Geotechnical Engineering	
	Civil Engineering	
	Hydrology, Hydraulic Engineering	
	Cost Engineering	

BCOES (TBD)

Name	Discipline	Phone
	Construction Management	

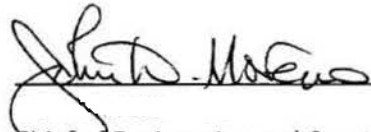
ATTACHMENT 2: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 3: CHIEF OF ENGINEERING AND CONSTRUCTION ASSESSMENT

SPA, CHIEF OF ENGINEERING AND CONSTRUCTION DIVISION IEPR TYPE II ASSESSMENT

I have assessed the conditions to verify if there is a significant threat to human life and I concur with the PDT's life safety risk assessment presented in Section 3.c., Factors Affecting the Scope and Level of Review, of the Review Plan, Alamogordo Flood Control Project, Otero County, New Mexico. I concur that there are no existing and potential hazards that pose a significant threat to human life and certify that IEPR type II, Safety Assurance Review, is not required.

 6/21/13

Date
Chief of Engineering and Construction
Albuquerque District