

# **REVIEW PLAN**

***Middle Rio Grande Restoration (Phase 2 Plans and Specifications)***

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

MSC Approval Date: February 21, 2014



**US Army Corps  
of Engineers®**

## REVIEW PLAN

### ***Middle Rio Grande Restoration, Bernalillo & Sandoval Counties, New Mexico Implementation Documents (Phase 2 Plans and Specifications)***

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## 1. PURPOSE AND REQUIREMENTS

This Review Plan defines the scope and level of peer review for the phase 2 implementation documents of the *Middle Rio Grande Restoration, New Mexico project*. *The Decision Document was approved May 13, 2011. Phase 1 construction began in December 2011 and is scheduled for completion in May 2014. Phase 2 design will begin in March 2014 with District Quality Control and Agency Technical Review planned for May 2014.*

### a. 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. ER 1110-1-12, Quality Management, 30 Sep 2006
4. ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
5. CECW-CP Memo for Distribution, "Peer Review Process", 30 Mar 2007
6. QMS 02500-SPD, Preparation and Approval of Review Plans
7. QMS 02500.1-SPD, Supplemental Review Plan Checklist
8. ER 11-1-321, Army Programs Value Engineering, 1 Jan 2011
9. Project Management Plan

1.

**b. 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. Because this review plan covers only the implementation documents for this ecosystem restoration project, the RMO for the peer review effort described in this Review Plan is the home MSC (South Pacific Division).

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.** The project for ecosystem restoration for the Middle Rio Grande Restoration, NM project (the Project) was authorized by : Section 3118 of the Water

Resources Development Act of 2007 as amended by Section 114 of the Omnibus Appropriations Act of 2009, (P. L. 111-8).

The Corps completed the Final Feasibility Report and Environmental Assessment (FFR&EA) for the Project in 2011. The Finding of No Significant Impact (FONSI) for the 2004 FFR&EA was signed March 2011.

**b. Study/Project Description.**

The authorized plan includes:

- Restoration of approximately 916 acres of bosque riparian habitat, within 26 river miles at 18 locations;
- Restoring native vegetation and enhancing hydrologic function by:
  - Removing unnecessary jetty jacks and debris;
  - Removing select exotic vegetation and planting native vegetation;
  - Establishing shrub thickets and native canopy;
  - Excavating backwater channels, seasonal high-flow channels, wetland swales, wetlands, and floodplain terraces; and,
  - Redirecting and reconnecting storm water flows for beneficial use in bosque riparian areas.
- Creating and Improving passive recreational opportunities by:
  - Formalizing soft-surface and crusher fine trail system with benches, pedestrian bridges, boardwalk, educational kiosks and interpretive signs, overlooks, and wildlife blinds;
  - Formalizing parking areas at key locations to give the public access to the bosque and river; and,
  - Designating and developing canoe / kayak launch areas.

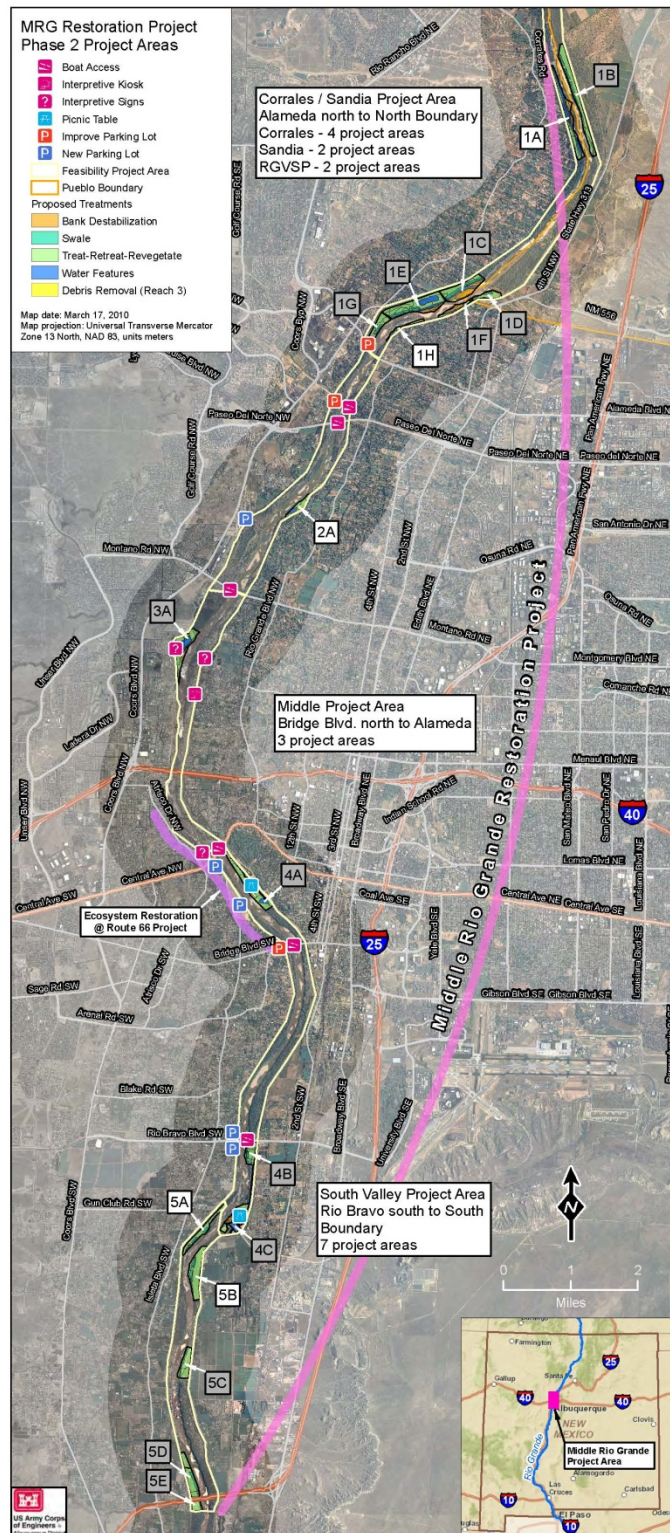
A project map delineating the project area is shown in Figure 1.

The first major USACE construction contract, phase 1, was awarded in September 2011 and is scheduled for completion in May 2014. Phase 1 (\$18,984,000) included 12 of the 18 project areas and consisted of all of the features mentioned above.

Phase 2 work (\$6,016,000) includes the remaining 6 project areas, with the same ecosystem restoration project features implemented in phase 1, and a subset of the recreation features (trails, signs, pedestrian bridges). Phase 2 is the Corps final phase of work for project completions. The total project cost of \$25,000,000.

A project map delineating features that have been constructed to date and phase 2 features are also shown on Figure 1.

Figure 1. Phase 1 and 2 project areas. Phase 2 include: 1A, 1D, 1F, 1H, 2A, & 1C



**c. Factors Affecting the Scope and Level of Review.**

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

- Phase 2 project areas are at a 95% level of design. Funding simply has required that the project be split up into phases;
- The Corps has successfully completed design and construction on projects of this exact nature in the past, including phase 1 (substantially complete in October 2013), Ecosystem revitalization @ Route 66 (completed in 2010), Albuquerque Bio Park (completed in 2007), etc.
- Health and human safety factors are extremely low or nonexistent.

The phase 2 implementation documents will not require a type II IEPR as health and life safety risks are minimal, project performance risks are minimal, and:

- The project design does not require redundancy, resiliency, and robustness as defined in EC 1165-2-214 appendix E.
- Does not involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices
- Has minimal life safety risk:
  - Project features do not increase flood risk through design function or in the event of catastrophic failure;
  - SPA has experience using ecosystem restoration methods on Corps projects within the Middle Rio Grande Restoration, NM, New Mexico.
  - Width of floodplain, low gradient of Valley results in low flow velocities;
  - Traffic control will be required for construction of the crossing structures; and
  - Ample egress available in throughout the project area.
- The project has no unique construction sequencing or a reduced or overlapping design construction schedule. Phase 2 will not include any new construction methods or construct any different types of features than were constructed under phase 1.
  - The consequences of non-performance would be failure to achieve certain habitat benefits above the existing baseline conditions. This risk, however, is extremely low as all of the methods and procedures were implemented in phase 1 and in other Corps and agency projects throughout the Middle Rio Grande with measurable and successful results. None of the methods are controversial or untried.

The Middle Rio Grande Restoration, NM project has had interest and support from the non-Federal Sponsors, the Middle Rio Grande Conservancy District and the Sandia Pueblo, and they have been active participants throughout the project. Interagency interest is also significant as the Bureau of Reclamation (BOR), City of Albuquerque (COA) and Interstate Stream Commission

(ISC) are stakeholders and active participants on the project. The required use permits have been obtained from the BOR, MRGCD, COA, and Sandia Pueblo.

As a result, the level of review will be DQC, ATR, and Bidability, Constructability, Operability, and Environmental (BCOE) review for phase 2 and will focus on:

- Phase 1 after action review (AAR) to incorporate lessons learned/best practices into phase 2;
- 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.** No products or analyses are planned to be provided by non-Federal sponsors for phase 2 as in-kind services. The in-kind activity by the non-Federal sponsors include:

- Attendance at meetings;
- Review of implementation documents prior to advertisement for construction; and
- Assistance during public involvement as needed.

#### **4. DISTRICT QUALITY CONTROL (DQC)**

The integrated Feasibility Report and Environmental Assessment for the projects was completed and approved in 2011 and underwent the required review processes. 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. DQC certification for the phase 1 implementation documents was completed in July 2011 and was documented in DrChecks software, and the COCI as signed, July 1, 2011.

The DQC shall consist of three parts: 1. Project delivery team (PDT) review, 2. Independent technical team (ITR) review, and 3. Biddability, constructability, operability, and environmental (BCOE) review.

**a. Documentation of DQC for phase 2.** Reviewers shall review the implementation documents for phase 2 to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments, responses and backchecks will be documented in DrChecks software.

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.

**b. Products to Undergo DQC.** Products to undergo DQC include the phase 2 plans and specifications, as well as the Design Documentation Report.

**c. Required DQC Expertise.** DQC review will be conducted by senior members in their respective disciplines. The required expertise needed to conduct DQC will be consistent with the District/MSO Quality Management plans and appropriate to the level of complexity and risk as described in section 3. c:

<b>DQC Team Members/Disciplines</b>	<b>Expertise Required</b>
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. The DQC of P&S will focus on compliance with cultural requirements developed during Feasibility.
Construction	Construction reviewers will have knowledge of implementation of channel excavation and restoration plantings.
Hydraulic Engineering	The reviewer should have a solid understanding of the geomorphology of alluvial rivers.
Civil Engineering	The reviewer should have recent experience in the design and of plans and specifications for various ecosystem restoration features implemented in phase 1.
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 assesses whether the implementation documents are technically correct and comply with published USACE guidance.

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.

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 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, 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 2 plans and specifications, as well as the Design Documentation Report.
- b. **Required ATR Team Expertise.** ATR review will be conducted by senior members in their respective disciplines. The required expertise needed to conduct ATR will be consistent and appropriate to the level of complexity and risk as described in section 3. c:
- c. **Documentation of ATR.**  
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.

ATR 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.
Construction	Construction reviewers will have knowledge of implementation of channel excavation and restoration plantings.
Hydraulic Engineering	The reviewer should have a solid understanding of the geomorphology of alluvial rivers. The reviewer should be familiar with knowledge of hydrology of the Middle Rio Grande or similar.
Civil Engineering	The reviewer should have recent experience in the types of design and of plans and specifications for various ecosystem restoration features implemented in phase 1.

## **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.

- a. **Products to Undergo BCOES.** Products to undergo BCOES include the phase II plans and specifications.

## **7.VALUE ENGINEERING**

For Construction programs or projects with potential total cost equal to or exceeding \$10 Million, Value Engineering study(ies) (VE) shall be performed in both planning (feasibility) and design phases of project development per ER 11-1-321 section 2. a.. At least one VE shall be performed during the feasibility phase of the project. During design or construction phase a VE study shall be performed on all authorized projects, project phases, or project features no later than at the 35% completion of the design (usually early in the Design Report or equivalent activity) and shall be in addition to any feasibility phase VE study noted above. In accordance with federal law (WRDA86), each water resources project with total cost in excess of \$10 million requires a review of the cost effectiveness of the project design to insure the project is designed in the most cost effective way for the life of the project.

Construction programs or projects with Total Authorized Cost equal to or exceeding \$1 million but less than \$10 million require a VE study to be conducted no later than 35% design completion; additionally, earlier VE studies should also be considered.

Products of the VE study performed during the feasibility phase should be reviewed and validated during design efforts. Results of the VE study performed for the Plans and Specifications will be reported through the BCOES according to the process described in ER 11-1-321.

- d. Products to Undergo VE.** Products to undergo DQC include the phase 2 plans and specifications at approximately the 35% level of completion.

## **8. 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

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 March 2010 and no IEPR type 1 was required. Based on the criteria in EC 1165-2-214 and the information provided in Section 3.c. “Factors Affecting the Scope and Level of Review”, Type 2 IEPR will not be conducted on the implementation documents and the estimated total project cost is \$25 million and is not in excess of \$45 million. A statement from the Albuquerque District Chief of Engineering and Construction Division accompanies this document, stating his concurrence with the decision that Type 2 IEPR is not applicable.

**Products to Undergo Type II IEPR** ‘Not-Applicable’

**Required Type II IEPR Panel Expertise.** ‘Not-Applicable’

**Documentation of Type II IEPR.** ‘Not-Applicable’

## **9. POLICY AND LEGAL COMPLIANCE REVIEW**

Not Applicable for Plans and Specifications

## **10. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

Not Applicable for Plans and Specifications

## **11. MODEL CERTIFICATION AND APPROVAL**

Not Applicable for Plans and Specifications

## **12. REVIEW SCHEDULES AND COSTS**

### **DQC schedule and Cost**

DQC, local sponsor, and stakeholder reviews was initiated at the 65% design completion stage. It is anticipated that the 100% design will be available for review in May 2014. Incorporation of comments from the 100% review will allow reaching the full completion by June 2014. The cost for the DQC review is estimated at \$30,000 to include document review, PDT responses 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 II 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 \$15,000 to include document review, PDT response to comments, and ATR backcheck .

#### **BCOE Schedule and Cost.**

BCOES will be initiated at the Final phase II 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 \$10,000 to include document review, PDT response to comments, and BCOES backcheck .

#### **VE Schedule and Cost.**

BCOES will be initiated at the Final phase II design completion stage. It is anticipated that the 35% design will be available for review in March 2014. The cost for the BCOES is estimated at \$10,000 to include document review, PDT response to comments, and BCOES backcheck .

### **13. PUBLIC PARTICIPATION**

Completed as part of the Feasibility Report/Environmental Assessment in 2004. No additional public reviews are anticipated.

### **14. 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, 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 home MSC.

### **15. REVIEW PLAN POINTS OF CONTACT**

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

- Alicia Austin Johnson, Project Manager (505-342-3635)
- Ben Alanis, Design Chief (505-342-3417)
- Paul Devitt, District Support Team Lead, (415-503-6556)

## ATTACHMENT 1: TEAM ROSTERS

### PDT – Albuquerque District

Name	Discipline	Phone
	Project Management	505-342-3362
	Costruction Management	505-346-7227
	Environmental	505-342-3375
	Cost Engineering	505-342-3411
	Structural Engineering	505-342-3332
	Environmental Engineering	505-342-3138
	Geotechnical	505-342-3317
	Cultural Resources	505-342-3352
	Civil Engineering	505-342-3406
	Hydrology, Hydraulics	505-342-3336

### DQC PDT – Albuquerque District

Name	Discipline	Phone
TBD	Costruction	
TBD	Environmental	505-342-3375
TBD	Cost Engineering	505-342-3411
TBD	Structural Engineering	505-342-3332
TBD	Environmental Engineering	505-342-3138
TBD	Geotechnical	505-342-3317
TBD	Cultural Resources	505-342-3352
TBD	Civil Engineering	505-342-3406
TBD	Hydrology, Hydraulics	505-342-3336

### Non Federal Sponsors

Name	Discipline	Phone
	Environmental Director Sandia Pueblo	505-771-5080
	Bernalillo County Project Engineer	505-247-0235

### Stakeholders

Name	Discipline	Phone
	Bureau of Reclamation	505-462-3606

**ATTACHMENT 2: REVIEW PLAN REVISIONS**

Revision Date	Description of Change	Page / Paragraph Number

**ATTACHMENT 3. SPA, CHIEF OF ENGINEERING AND CONSTRUCTION DIVISION, IEPR TYPE II  
AND ATR ASSESSMENT**

SPA, CHIEF OF ENGINEERING AND CONSTRUCTION DIVISION

INDEPENDENT EXTERNAL PEER REVIEW (IEPR) TYPE II ASSESSMENT AND AGENCY TECHNIAL REVIEW  
(ATR) ASSESSMENT

I have assessed the conditions in the Review Plan for the Middle Rio Grande Restoration, New Mexico project to verify if there is a significant threat to human life or threat to project performance. I concur with the project delivery team's life safety and project performance risk presented in section 3.c, Factors Affecting the Scope and Level of Review, of the Review Plan. I concur there are no existing and potential hazards or risks that pose a significant threat to human life and project performance. I certify that an IEPR Type II Safety Assurance Review and an ATR are not required. Project features consist mainly of off-channel excavation and vegetation plantings. There is a minimal structural component, a pre-fabricated pedestrian bridge, same as in phase 1. The district will perform a District Quality Control (DQC) review, involving an internal technical review and a bidability, constructability, operability, and environmental (BCOE) review. The district will document this process using a Certificate of Comment Incorporation and Certificate of Compliance.

1/31/2014  
Date

Chief of Engineering and Construction  
Albuquerque District