

**REVIEW PLAN**  
**SANTA MARIA VALLEY LEVEES – SOUTH LEVEE IMPROVEMENT,**  
**BRADLEY CANYON EXTENSION PROJECT**  
**SANTA BARBARA COUNTY, CALIFORNIA**

**LOS ANGELES DISTRICT**

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Prepared by:

U.S. Army Corps of Engineers  
Los Angeles District

March 2011



**US Army Corps  
of Engineers** ®  
Los Angeles District

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## **REVIEW PLAN**

### **SANTA MARIA VALLEY LEVEES – SOUTH LEVEE IMPROVEMENT BRADLEY CANYON EXTENSION PROJECT Santa Barbara County, California**

**March 11, 2011**

#### **I. INTRODUCTION.**

A. Purpose. This Review Plan (RP) defines the scope and level of quality management activities for the Santa Maria Valley Levees - South Levee Improvement, Bradley Canyon Extension project. The work products required to implement this project are the Addendum to the Supplemental Design Deficiency Report (SDDR), the Design Documentation Report, the Plans and Specifications (Plans & Specs), Construction Site Visit Reports, and the Operation and Maintenance (O&M) manual. These work products are described in detail in the following paragraphs.

#### B. References.

1. EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
2. ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
3. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
4. WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
5. Army Regulation 15-1, Committee Management, 27 November 1992 (Federal Advisory Committee Act Requirements)
6. National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003

C. Review Requirements. This RP was developed in accordance with EC 1165-2-209, which establishes the procedures for ensuring the quality and credibility of United States Army Corps of Engineers' (USACE/Corps) implementation documents and construction oversight through independent review. This RP describes the scope of review for the current work products. All levels of review were considered (District Quality Control (DQC), Agency Technical Review (ATR), Type I Independent External Peer Review (IEPR) and Type II IEPR Safety Assurance Review (SAR) and Policy and Legal Review) and only those pertinent to the work products being produced will be included in this RP. The RP identifies the most important skill sets needed in the reviews, the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project.

#### **II. PROJECT DESCRIPTION.**

A. Project Authority. The flood control improvements in the Santa Maria River Basin, California, as set forth in House Document 400, Eighty-third Congress, second session, was

approved 3 September 1954 by Act of Congress, Public Law 780, Eighty-third Congress, second session.

“Sec. 203. The following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: ...The project for flood protection on Santa Maria River and tributaries, California, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in House Document Numbered 400, Eighty-third Congress, at an estimated cost of \$10,182,000 for levees and channel improvements to be prosecuted under the direction of the Secretary of the Army and supervision of the Chief of Engineers....”

Based on the criteria in Engineer Regulation ER 1165-2-119 (*Modifications to Completed Projects*), the construction required for the corrective action that was recommended in the SDDR was authorized under the existing project authority from 1954. The Addendum to the SDDR will also be authorized under the existing project authorization.

B. Project Location. The current Santa Maria Valley Levees – South Levee Improvement Project is along the Santa Maria River within the City of Santa Maria, Santa Barbara County, California. More specifically, the South Levee Improvement Project is located along the Santa Maria River on the existing southern levee beginning at Blosser Road and continuing partially onto Bradley Canyon just upstream of the Bradley Canyon confluence.

The South Levee Improvement Project is divided into three reaches: Reach 1 (Blosser Road to U.S. Hwy 101 Bridge), Reach 2 (U.S. Hwy 101 Bridge to Suey Crossing Road Bridge) and Reach 3 (Suey Crossing Road Bridge to just upstream of the Bradley Canyon Confluence). The total length of the improvements is approximately 6.5 miles. Refer to Appendix A for a location map.

C. Project History. The original Santa Maria River Levee system was constructed in 1963 and consists of riprap revetment along a north bank levee, south bank levee, and the Bradley Canyon Levee. The levee along the south side of the river extends downstream for a distance of about 17 miles from Fugler’s Point to the California Highway 1 Bridge; the levee along the north side of the river extends for 5 miles; and the levee along Bradley Canyon extends for approximately 2.2 miles.

The original Santa Maria River Levee system contains a deficiency inherent in the original design which has caused problems from the completion of construction to the present day. Although the original design accommodated flood flows at the authorized level Standard Project Flood, it did not address the failure mode of directly impinging flows from the meandering low flow during moderate flood events. Over the last four decades, this deficiency in the original design has resulted in one complete breach and several near breaches of the levee system.

As documented in the 1974 Design Deficiency Report, approved by Headquarters (HQ) in 1976,

the entirety of the 22 miles of levees along the Santa Maria River was determined to have a design deficiency in the original design. In the early 1980s, based on this report, the Corps attempted to remedy the deficiency by designing and constructing an extensive system of groins and training fences located at points of probable impingement. However, these measures did not perform as expected and the problem remained.

Because of life safety concerns, the SDDR was developed and it recommended that a robust revetment be constructed along a 6.5 mile portion of the south levee where life safety is at highest risk. While the Los Angeles District (SPL) had decided to continue requesting funds to correct the design deficiency for the entire Santa Maria levee, SPL staff believed that fixing this 6.5 mile portion would remedy the life safety concerns for the City of Santa Maria. This report was approved in Oct 2009 and would serve as the decision document for the corrective construction project. The SDDR was accompanied by Environmental Assessment/Mitigated Negative Declaration (EA/MND) documents. The 2009 SDDR would have served as the basis for a Project Partnership Agreement (PPA) for cost-sharing the project, however, the 6.5 mile corrective construction project was granted a one-time cost-share waiver from ASA(CW).

Upon further analysis, it was determined that the SDDR did not fully describe the life safety threat and economic impacts to the City of Santa Maria resulting from a failure of the levee upstream of the Bradley Canyon confluence. The levee upstream of the confluence is similar in construction as the reaches addressed in the SDDR, and therefore, also contains the deficiency inherent in the original design. If the Santa Maria Levee upstream of Bradley Canyon were to fail, flood flows from the Santa Maria River could induce failure to the lower reach of the Bradley Canyon levee then flank the repairs on the Santa Maria levee and put the City of Santa Maria at risk of flooding. This secondary failure mode caused by the design deficiency in the Santa Maria levee was not addressed in the 2009 SDDR. The Addendum to the SDDR, which is listed as a work product in this RP, is, essentially, a correction to the 2009 SDDR. The Addendum to the SDDR incorporates the new analysis and subsequent corrective action.

Once the original 2009 SDDR is amended through the incorporation of the addendum, the amended SDDR will serve as the decision document for the additional corrective construction project. Because the one-time cost-share waiver from the ASA(CW) was limited to 6.5 miles, this amended SDDR will also serve as the basis for a PPA for cost-sharing the project with the local sponsor. In other words, the Addendum to the SDDR is not a decision document by itself; however, its incorporation into the original decision document will yield the document that can serve as the basis for the PPA.

#### D. Project Description.

1. Current Santa Maria Southern Levee Improvement Projects. SPL recommends that Reach 1, 2 and 3 undergo no additional reviews because of the following reasons:

The work products for Reach 1, 2 and 3 were completed prior to implementation of EC 1165-2-209. The work products underwent all the required reviews which include the full DQC/QA activities, full Independent Technical Reviews (ITR) and BCOE reviews. The list of the PDT and DQC teams is included in Appendix B. The ITR and Biddability,

Constructability, Operability and Environmental (BCOE) reviews serve to satisfy the technical review that would have taken place with an ATR.

Construction on Reach 1 and 2 is complete. Construction on Reach 3 is in the final stages of completion. Reach 1, 2 and 3 are currently in the final phases of Type II SAR. The Type II SAR was done without an approved RP because, at the time draft EC 1165-2-209 was published (1 Jul 2009), Reach 1, 2 and 3 were in construction. South Pacific Division (SPD) directed SPL to undergo Type II SAR to comply with the new review regulation based upon life and safety considerations. However, at this time RMC was not staffed or functional thus could not assist in establishing the Type II SAR. Therefore, SPL coordinated with SPD, whom coordinated with HQ USACE, to begin the process of setting up the Type II SAR.

The Army Research Office (ARO) had a contract with Battelle Memorial Institute (Battelle). SPL contracted with Battelle, through ARO, to manage the Type II IEPR. SPL sent Battelle a list that included the critical disciplines, and the expertise within each discipline, that are required to conduct the Type II SAR. The disciplines identified were: Geotechnical, Structural, Hydraulic, Materials and Civil. Battelle selected an expert in each discipline then sent the resumes to SPL to verify that no conflict of interest existed. After verifying that no conflict of interest existed, Battelle subcontracted with each independent expert to become part of the IEPR panel. Battelle's process when selecting experts adheres to the National Academy of Science Policy on Committee Composition and Balance and Conflicts of Interest.

The IEPR panel was given the Environmental Assessment report as a support document. In addition, the panel was given the 2009 SDDR and Plans & Specs for Reach 1, 2 and 3 for review. The Type II SAR is on-going and will extend through the end of construction. The IEPR SAR process fully adheres to EC1165-2-209.

2. General Project Description. The purpose of the draft Addendum to the SDDR is to document the changes since the approval of the SDDR. The draft Addendum to the SDDR provides analysis that shows that the additional failure location would allow flooding within the City of Santa Maria even after Reach 1, 2, and 3 are constructed.

Given the results of the new analysis and the need to address the deficiency, a vertical conference call between HQ USACE, SPD and SPL was held on 29 June 2010. SPL presented its case that would allow SPL to seek a repair alternative outside of repairing the 17,000ft of the Santa Maria levee. SPL recommended armoring 3,700ft of Bradley Canyon levee, fully aware that this levee itself is not deficient. As stated before, Bradley Canyon is part of the Santa Maria Levee system. HQ USACE and SPD agreed that if a least costly alternative was found then it should be documented in the Addendum to the SDDR.

The two primary options available to address the deficiency are: Option 1. Repair an additional 17,000ft of the Santa Maria levee, upstream of Bradley Canyon confluence, to prevent the levee from failing. Option 2. Do nothing to the Santa Maria levee, instead,



armor 3,700ft along the Bradley Canyon levee to prevent Bradley Canyon from being overwhelmed in the event that the Santa Maria levee, upstream of the confluence, fails and the flow from the Santa Maria River attacks the lower reach of Bradley Canyon. Additionally, a portion of the Bradley Canyon levee will need to be raised by a maximum of 1.8 ft to contain the SPF. The required height increase to the Bradley Canyon levee is due to the additional flows and the existing critical habitat vegetation at the confluence.

A Value Engineering (VE) study was the vehicle used to evaluate the alternatives and the basis of selection of the preferred alternative. The VE study team selected repairing Bradley Canyon as the preferred alternative because of the significant reduction in cost and environmental impact compared to the other feasible alternatives. The VE report was finalized September 14, 2010.

Therefore, to reduce the risk of flooding in the City of Santa Maria, the Addendum to the SDDR recommends extending the recommended corrective action beyond Reach 3 to include a portion of the Bradley Canyon levee.

Once the improvements along Reach 1, 2, 3 and Bradley Canyon Extension are completed, the City of Santa Maria will have the level of flood protection as intended in the original project authorization.

3. Preferred Alternative – Design Information. Experience with the levee projects on both the Santa Maria River and the San Jacinto River (located in Riverside County, California) indicate that scour depths in the range of 10 to 12 ft can be expected on wide rivers exhibiting a tendency for flows to meander and impinge upon a bank or levee at a sharp angle. Additionally, limited data from the Snake River (located in Pacific Northwest of the United States) indicates that the impingement scour depths for new revetment protecting the Santa Maria Levees should be set at 15ft below the adjacent river thalweg. This value of toe depth would provide adequate protection against impingement scour without incurring excessive construction costs.

It was determined that a hardened revetment is required to protect the levee bank against scouring. Several alternative materials were considered. The alternative materials included: soil cement, sheet pile, riprap, articulated concrete block, gabion mattresses, and jet grouting. After thorough analysis of the alternative materials, a compacted soil cement revetment was selected as an effective and most economical solution to protect against impinging flows. An exception to this design was the use of a section of sheet pile to avoid an environmentally sensitive area at the confluence of the Santa Maria River and Bradley Canyon. A comprehensive discussion of the alternative formulation process is included in the SDDR, August 2009.

The excavation required to place the soil cement revetment will begin at the toe of the existing levee and will extend down, at a 2H:1V slope, to the identified scour depth. The soil cement will be placed in 6-in thick by 8-ft wide layers along the face of the levee beginning at the scour depth elevation and built up until the top of the revetment matches the designed elevation.

To avoid an environmentally sensitive area around the confluence of the Santa Maria River and Bradley Canyon, a continuous section of sheet pile totaling 2,700ft will be installed along the top of the existing levee. 1,700 feet of sheet pile is at upstream end of Reach 3. 1,000 feet of sheet pile is at the downstream end of the proposed Bradley Canyon Extension. The design scour used for the sheet pile design assumes the scour would expose the sheet pile for a vertical height of 30 feet. To ensure that the sheet pile can withstand this cantilevered condition, the sheet pile will be driven approximately 65 feet deep.

4. Environmental. Since March 2010, SPL is coordinating with the U.S. Fish and Wildlife Service (USFWS) regarding the California red-legged frog (CRLF) because the project site supports individuals of CRLF. The CRLF will need to be re-located prior to the construction activities. SPL is in coordination with the USFWS to develop avoidance/minimization measures for relocation of the CRLF. There is no Mitigation proposed for the ESA. Under ESA, in order to relocate listed species, incidental take is needed. Under ESA, relocation would be an effect. Therefore, Section 7 Consultation would be required. The SPL will disclose evaluation, and coordination with the USFWS for the Section 7 Consultation.

Construction activities will be scheduled outside of the CRLF breeding season (December 1 through May 1) and outside of the rainy season (January through March). In addition, clear and grubbing activities will be scheduled outside of bird nesting season (February 15 through September 15).

The proposed project will result in 0.5 acres permanent loss of the Waters of the U.S. and will be compensated by creating and enhancing 0.5 acre of riparian vegetation onsite downstream of Bradley canyon confluence (33 CFR Part 332, 33 U.S.C. 401 et seq. ; 33 U.S.C. 1344; and Pub. L. 108–136 of no net-loss of aquatic resources under Clean Water Act).

5. Additional Information.

- SPL believes that a supplement to the approved EA is sufficient and does not require an environmental impact study.
- The Local Sponsor will not provide in-kind services.
- The project does not contain influential scientific information.
- The project will not have significant economic, environmental or social effects to the nation.
- The project is not controversial.
- The Local Sponsor is very responsive and has expressed that the completion of the project is a high priority.
- The project provides a significant life safety protection.

### **III. PROJECT WORK PRODUCTS.**

A. Description of Work Products. The work products for this project include the draft Addendum to the SDDR, Design Documentation Report, Plans & Specs, Construction Site Visits and an O&M manual. A brief description of each work product is provided below.

1. Addendum to the SDDR. The purpose of the draft Addendum to the SDDR is to provide the rationale for modifying the recommended corrective action described in the previously approved SDDR. The draft Addendum to the SDDR has three attachments. The H&H memo documents a hydraulic analysis that supports the need to extend the protection along Bradley Canyon. SEA/MND documents compliance with National Environmental Policy Act (NEPA) requirements. The VE study documents the process by which the preferred alternative was selected.

2. Design Documentation Report. The Design Documentation Report for Bradley Canyon Extension will serve as a summary of the design to be used by the PDT during the development of the Plans & Specs. It will contain a full record of design decisions, assumptions and methods, subsequent to the feasibility report

3. Plans and Specs. Bradley Canyon Extension will include sheet pile and soil cement. The soil cement will be designed by SPL staff and sheet pile will be contracted to an A-E firm.

4. Operation and Maintenance Manual. SPL will prepare the O&M manual after the construction of Reach 1, 2, 3 and Bradley Canyon Extension is completed.

B. Required Level of Review. The required level of review for each work product is identified below.

1. Addendum to the SDDR.

i. DQC/ATR. The draft Addendum to the SDDR will require DQC and ATR. Also accompanying this document for these reviews will be the necessary NEPA documents.

ii. Type I IEPR. Provided the EA progresses to a Finding of No Significant Impact, this section constitutes a request for an exclusion from conducting a Type I IEPR. A Type I IEPR is not required for the Addendum to the SDDR for the reasons listed below. However, if an Environmental Impact Statement is required, the RP will be revised to include a Type I IEPR.

a. The Addendum to the SDDR is not a decision document, but corrects the original decision document (2009 SDDR) in order that the original decision document can serve as the basis for the PPA.

b. The corrective action detailed in the Addendum to the SDDR requires only a small amount of work for a very short reach in comparison with the rest of the South Levee Improvement project. Also, there is a need to complete this

corrective work quickly so that the City of Santa Maria can realize the life safety benefits promised in the 2009 SDDR. Through vertical coordination, exclusion to Type I IEPR based on the following reasons:

(1) Environmental: Per EC 1165-2-209, the IEPR can be excluded if the project does not require an EIS and the DCW or the Chief determines that the project: is not controversial; has no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources; has no substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of avoidance and minimization measures; and has, before implementation of avoidance and minimization measures, no more than a negligible adverse impact on a species listed as endangered or threatened species under the Endangered Species Act or the critical habitat of such species designated under ESA. This supports exclusion to the Type I IEPR.

(2). Cost: The incremental cost of the project is under \$10M. ER 1165-2-119, Modifications to Completed Projects, states that design deficiency projects can be justified by cost, economic, or safety considerations. It states that the work should be justified incrementally by current economic considerations unless it is otherwise shown that the work is necessary for safety reasons. The Addendum to the SDDR will only update the original analysis to incorporate the new corrective action required. Because, as per the guidance, the project is fully justified upon based on economic reasons.

c. Because economic and environmental reviews are not required, the limited Type I IEPR would only include the same engineering disciplines as those that would be required for a Type II IEPR (SAR). Los Angeles District had already planned to conduct a full Type II IEPR (SAR) on all implementation documents associated with the Addendum to the SDDR; therefore, conducting this limited Type I IEPR would only duplicate effort, increase costs, and provide no added value to the review process. This supports an exclusion to the Type I IEPR for the Addendum to the SDDR.

2. Design Documentation Report. The Design Documentation Report is an implementation document. The Design Documentation Report will undergo DQC, ATR and Type II IEPR (SAR).

3. Plans and Specs. The Plans and Specs are implementation documents. The Plans & Specs for Bradley Canyon Extension will undergo DQC, ATR and Type II IEPR (SAR). The Type II IEPR (SAR) will continue through the end of construction.

4. Operation and Maintenance Manual. The O&M manual is an implementation document. It will require DQC, ATR and Type II IEPR (SAR).

C. Authorization & Reference Materials. Electronic versions of the documents, including the draft Addendum to the SDDR (with attachments), Design Documentation Report, Plans & Specs, O&M manual, and all relevant information available shall be posted in Adobe Acrobat PDF format for both the ATR Reviewers and the IEPR panel to review at the appropriate time.

#### **IV. SCOPE OF REVIEW.**

A. DQC. District Quality Control activities for the draft Addendum to the SDDR, Design Documentation Report, Plans & Specs, and O&M manual will consist of Quality Checks and Reviews supervisory reviews, Project Delivery Team (PDT) reviews including input from the Local Sponsor, and BCOE reviews, as required by the District's Quality Manual.

B. ATR. The ATR team will review the draft Addendum to the SDDR, Design Documentation Report, Plans & Specs, and O&M manual. A brief description of the points of emphasis for each document is below, followed by general review guidelines for the ATR team.

##### 1. Emphasis of Review for Work Products.

When reviewing the draft Addendum to the SDDR, the ATR team should verify that the data supporting the recommended action of armoring Bradley Canyon Extension is sound and acceptable from an environmental and engineering point of view.

When reviewing the SEA/MND report, the ATR team should review the Project Description & Purpose and need statement; verify consistency between the draft Addendum to the SDDR and the SEA/MND; verify that the Impact Analysis for each alternative was properly analyzed and avoidance and minimization measures were incorporated; impacts to the potential listed species are fully disclosed; Section 7 consultation under ESA is in progress or complete; compliance with the environmental regulation; 401CWA Certification status; 404 b1 analysis guidelines analyzed; and ensure that compliance with NEPA and applicable environmental laws are performed and appropriate permits are obtained.

When reviewing the Design Documentation Report, the ATR team should verify that it is sufficiently detailed for each technical specialty. In this way, the criteria which were used, the critical assumptions which were made, and the analytical methods which were used will be evident for the purpose of review and historical documentation. Verify that it contains summaries of important calculation results and selected example calculations for all critical elements of the design

When reviewing the Plans & Specs, the ATR team should verify that they are prepared in accordance with ER 1110-2-1200 and the Architect/Engineering/Construction CADD Standards and the Tri-Service Spatial Data Standards. Verify that the Plans & Specs contains all the necessary information required to bid and construct the plan detailed in the engineering appendix and documented in the Design Documentation Report. Review the design for biddability, constructability, operability and environmental aspects of the design.

When reviewing the O&M manual, the ATR team should verify that the requirements adequately maintain the conditions assumed during design and validated during construction and verify that the project monitoring will adequately reveal any deviations from the assumptions made for performance.

2. General Review Guidelines. ATR is undertaken to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-209 and SPD's QM ER 1110-1-12. In order to ensure incorporation of Corps national experience for Flood Risk Management Projects (as updated per post-Katrina investigations), and in addition to the DQC, an ATR will also be performed. Moreover, all provisions and checklists for SAR contained in EC 1165-2-209 will be incorporated into the charge to the ATR team.

The review shall focus on compliance with established policy, principles and procedures using clearly justified and valid assumptions. It includes the verification of assumptions, methods, procedures, and material used in analyses based on the level of complexity of the analysis. The ATR should verify the alternatives evaluated, appropriateness of data used, level of data obtained, functionality of the project and verify the reasonableness of the results including whether the project meets the customer's needs consistent with law and existing policy and engineering and scientific principles. The ATR should also determine if the proposed alternative is feasible, safe, functional, constructible, and environmentally sustainable within the Federal interest, and whether the concepts and project costs are valid. The final review will confirm whether all relevant engineering and scientific disciplines have been effectively integrated and that the content is sufficiently complete for the current phase of the project.

i. ATR Team Responsibilities.

a. Reviewers shall review project authorization material, design documents and NEPA documents to confirm that the work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the design documents shall be submitted into Document Review and Checking System (DrChecks).

b. 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.

c. Grammatical and editorial comments shall not be submitted into DrChecks. Comments should be submitted to the ATR manager via electronic mail using tracked changes feature in the Word document or as a hard copy mark-up. The ATR manager shall provide these comments to the Study Manager.

- d. Structure of review comments is described in the charge.
- e. The “Critical” comment flag in DrChecks shall not be used unless the comment is discussed with the ATR manager and/or the Technical Project Leader first.

ii. PDT Responsibilities.

- a. The PDT shall review comments provided by the ATR team in DrChecks and provide responses to each comment using “Concur”, “Non-Concur”, or “For Information Only”. *Concur* responses shall state what action was taken and provide revised text from the report, if applicable. *Non-Concur* responses shall state the basis for the disagreement or clarification of the concern and suggest actions to negotiate the closure of the comment.
- b. Team members shall contact the PDT and ATR managers to discuss any “Non-Concur” responses prior to submission.

C. Type II, SAR. The Design Documentation Report, Plans & Specs and O&M shall undergo a Type II IEPR, SAR during the Design and Construction phases, as necessary. A brief discussion on the charges is below; followed by general responsibilities for the Type II IEPR, SAR team.

1. Charges. Per EC 1165-2-209, the RMO will develop the charges for the review. The charges to the IEPR panels will complement the ATR process and not duplicate it. The charges will contain the instructions regarding the objective of the peer review and the specific advice sought. Reviewers shall be charged with reviewing scientific and technical matters, leaving policy determinations for USACE and the Army. The charge should specify the structure of the review comments to fully communicate the reviewer’s intent by including: the comment, why it is important, any potential consequences of failure to address, and suggestions on how to address the comment. It should include specific technical questions while also directing reviewers to offer a broad evaluation of the overall document. The charges should be determined in advance of the selection of the reviewers.

2. General Panel Responsibilities. SPL shall provide reviewers with sufficient information, including background information about the project, to enable the reviewers to understand the data, analytic procedures, and assumptions. Reviewers shall be informed of applicable access, objectivity, reproducibility and other quality standards under the federal laws governing information access and quality. Information distributed for review must include the following disclaimer: "This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It has not been formally disseminated by USACE. It does not represent and should not be construed to represent any agency determination or policy."

The panel of experts established for the review of this project shall:

- i. Conduct the review for the subject project in a timely manner in accordance with the study and RP schedule.
- ii. Follow the “Charge”, but when deemed appropriate by the team lead, request other products relevant to the project and the purpose of the review.
- iii. Receive from USACE any public written and oral comments provided on the project.
- iv. Provide timely written and oral comments throughout the development of the project, as requested.
- v. Assure the review avoids replicating an ATR and focuses on the questions in the “Charge”, but the panel can recommend additional questions for consideration. The IEPR panel may recommend to the RMO additional or alternate questions.
- vi. Offer any lessons learned to improve the review process.
- vii. Submit reports in accordance with the review plan milestones.
- viii. Record of Review. The review team will prepare a review report. All review panel comments shall be entered as team comments that represent the group and be non-attributable to individuals. The team lead is to seek consensus, but where there is a lack of consensus, note the non-concurrence and why. A suggested report outline is: an introduction, the composition of the review team, a summary of the review during design, a summary of the review during construction, any lessons learned in both the process and/or design and construction, and appendices for conflict of disclosure forms, for comments to include any appendices for supporting analyses and assessments of the adequacy and acceptability of the methods, models, and analyses used. All comments in the report will be finalized by the panel prior to their release to USACE for each review plan milestone.
- ix. During the Construction Phase, two 2-day site visits shall be scheduled for the panel to monitor the progress of construction and review critical construction operations, as described in the charge. The site visits should coincide with the 20% and 60% levels of construction. The site visits shall terminate with an exit briefing, which will be scheduled by the Project Manager and will be conducted at the Santa Maria Field Office. Each reviewer shall document each site visit with a Field Visit report. The Field Visit reports will include a checklist, photographs and text summarizing observations and information noted during each site visit. The Field Visit Reports shall be included in the Construction Final Report as an appendix.



D. Policy and Legal Compliance Reviews. The draft Addendum to the SDDR will be reviewed throughout the process for 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.

## **V. REVIEW TEAM.**

A. Review Management. The DQC review is managed within SPL. For this project, the RMO is the RMC, with FMR-PCX coordination, for all work products.

B. DQC. Reference is made to the Quality Management Plan that identifies the activities, roles and responsibilities for the DQC of this project.

C. ATR. The ATR team will be established per ER 1110-1-12 and EC 1165-2-209. The Corps will manage the ATR internally and it will be conducted by individuals and organizations that are separate and independent from those that accomplished the work, in accordance with policy. As stipulated in EC 1165-2-209, the RMO is responsible for assigning the ATR team members. ATR members will be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other districts; senior level experts from other districts; Center of Expertise staff; appointed SME or senior level experts from the responsible district; experts from other Corps commands; contractors; academic or other technical experts; or a combination of the above. The ATR Team Leader will be a Corps of Engineers employee outside SPD. The disciplines required for the ATR, and the appropriate technical expertise within those disciplines, is included in Appendix B.

D. Type II IEPR Panels and Members. An RMC contract will be utilized to acquire services to manage the IEPR. William Empson is the RMC POC. The review will be managed by an independent organization outside of the Corps. Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers. Type II IEPR is not exempted by statute from the Federal Advisory Committee Act (FACA). The disciplines required for the Type II IEPR SAR, and the expertise required within each disciplines, is included in Appendix B.

**VI. PUBLIC COMMENT.** To ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the Federal Government, SPL will provide an opportunity for public comment by posting the approved RP on its public website, [http://spl.usace.army.mil/review\\_plans](http://spl.usace.army.mil/review_plans), for 30 calendar days. This is not a formal comment period; however, if and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. If significant and relevant comments are made, the comments will be provided to the reviewers before they conduct their review.

## **VII. REVIEW SCHEDULE.**

A. General. Based on SPL’s commitment to executing the Santa Maria Valley Levees - South Levee Improvement, Bradley Canyon Extension project schedule for design and construction, milestones for the DQC, ATR and IEPR processes have been determined and are documented below. The project is projected for construction in FY13; therefore, the actual dates may have to be adjusted once the period draws closer.

B. ATR.

1. Schedule. The ATR process for the Bradley Canyon Extension project will follow the timeline shown below.

Review Plan Approved by RMO (SPD)	28 Mar 11
SPD designates ATR team and coordination begins	29 Mar 11 – 04 Apr 11
<b>Draft Addendum to the SDDR</b>	
Submit to ATR	04 Apr 11 – 22 Apr 11
Incorporate Comments and Re-submit	25 Apr 11 – 20 May 11
Comment Resolution Meeting, If Required	13 May 11
Complete Back Check	23 May 11 – 10 Jun 11
ATR Certification	13 Jun 11 – 08 Jul 11
<b>SEA/MND</b>	
Submit Preliminary to ATR	04 Apr 11 – 22 Apr 11
Incorporate Comments and Re-submit	25 Apr 11 – 20 May 11
Comment Resolution Meeting, If Required	13 May 11
Complete Back Check	23 May 11 – 10 Jun 11
ATR Certification	13 Jun 11 – 08 Jul 11
<b>Design Documentation Report</b>	
Prepare Draft	11 Jul 11 – 05 Aug 11
DQC Review	08 Aug 11 – 19 Aug 11
Incorporate Comments and Prepare draft Final DQC	22 Aug 11 – 02 Sep 11
Submit to ATR	24 Oct 11 – 18 Nov 11
Incorporate Comments and Re-submit	21 Nov 11 – 16 Dec 11
Comment Resolution Meeting, If Required	07 Dec 11
Complete Back Check	19 Dec 11 – 13 Jan 12
ATR Certification	16 Jan 12 – 27 Jan 12
Final DDR Approved	27 Jan 12
<b>Plans &amp; Specs</b>	
Prepare Draft	26 Apr 12 – 20 Jun 12
DQC Review	21 Jun 12 – 05 July 12
Incorporate Comments and Re-submit	06 Jul 12 – 20 Jul 12
Submit to ATR	24 Oct 11 – 18 Nov 11
Incorporate Comments and Re-submit	21 Nov 11 – 16 Dec 11
Comment Resolution Meeting, If Required	07 Dec 11
Complete Back Check	19 Dec 11 – 13 Jan 12
ATR Certification	16 Jan 12 – 27 Jan 12
BCOE Certification Complete	30 Jan 12 – 10 Feb 12
Final Plans & Specs Approved	10 Feb 12
Pre-Advertise	18 May 12 – 17 Jun 12

Advertise Construction Contract	18 Jun 12 – 18 Jul 12
Open Bids	19 Jul 12
Construction Contract Award	31 Jul 12

<b>O&amp;M Manual</b>	
Prepare Draft	24 Jul 13 – 21 Oct 13
Submit to ATR	22 Oct 13 – 19 Nov 13
Incorporate Comments and Re-submit	20 Nov 13 – 18 Dec 13
Comment Resolution Meeting, If Required	10 Dec 13
Complete Back Check	19 Dec 13 – 16 Jan 14
ATR Certification	17 Jan 14– 31 Jan 14
Final O&M manual Approved	31 Jan 14– 28 Feb 14

2. Funding. It is anticipated that the total cost for the ATR efforts described in this plan will be approximately \$75,000. SPL will provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided by way of a government order. The Project Manager will work with the ATR team leader to ensure that adequate funding is available and is commensurate with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The ATR team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the ATR team leader to any possible funding shortages.

C. Type II, IEPR.

1. Schedule. The Type II IEPR SAR process for the Bradley Canyon Extension will follow the timeline shown below.

<b>IEPR Procurement</b>	21 Mar 11
<b>Design Documentation Report</b>	
Prepare Draft	11 Jul 11 – 09 Sep 11
DQC Review	12 Sep 11 – 23 Sep 11
Incorporate Comments and Re-submit	26 Sep 11– 06 Oct 11
Complete Back Check	07 Oct 11 - 21 Oct 11
Submit to Type II SAR	24 Oct 11 – 18 Nov 11
Incorporate Comments and Re-submit	21 Nov 11– 16 Dec 11
Comment Resolution Meeting, If Required	08 Dec 11
Complete Back Check	19 Dec 11 – 13Jan 12
Type II SAR Certification	16 Jan 12 – 27 Jan 12
Final DDR Approved	27 Jan 12
<b>Plans &amp; Specs</b>	
Submittal of Final Plans & Specs Package	24 Oct 11
Submit to Type II SAR	24 Oct 11 – 18 Nov 11
Incorporate Comments and Re-submit	21 Nov 11 – 16 Dec 11
Comment Resolution Meeting, If Required	08 Dec 11
Complete Back Check	19 Dec 11 – 13 Jan 12

SPD Approval of SAR Responses	16 Jan 12 – 27 Jan 12
<b>Construction</b>	
Construction Contract Award	31 Jul 12
SAR Kick-off Meeting	21 Aug 12
SAR Site Visit 20% Construction	18 Sep 12
SAR Site Visit 60% Construction	30 Oct 12
Construction Completion	27 Jan 13
<b>O&amp;M Manual</b>	
Prepare Draft	24 Jul 13 – 21 Oct 13
Submit to Type II SAR	22 Oct 13 – 19 Nov 13
Incorporate Comments and Re-submit	20 Nov 13 – 18 Dec 13
Comment Resolution Meeting, If Required	12 Dec 13
Complete Back Check	19 Dec 13 – 16 Jan 14
SPD Approval of SAR Responses	17 Jan 13 – 31 Jan 14
Type II IEPR Final Reports	31 Jan 14 – 28 Feb 14

2. Funding. It is anticipated that the total cost for the IEPRs identified within this plan will be approximately \$300,000. The cost of panels for Type II IEPR, will be shared in accordance with the project purpose(s). The PDT will complete an RMC contract capacity request, Independent Government Estimate and Scope of Work. RMC will transfer SAR contract capacity to the MSC/District for completion of the SAR.

## VIII. DOCUMENTATION OF REVIEW.

### A. ATR.

1. ATR Communication and Documentation. The communication and documentation plan for the ATR is as follows:

- i. The team will use DrChecks to document the ATR process. The Technical Project Leader will facilitate the creation of a project portfolio in the system to allow access by all PDT and ATR team members. An electronic version of the documents, appendices, and any significant and relevant public comments shall be posted in Adobe Acrobat PDF format at: <ftp://ftp.usace.army.mil/pub/> at least one business day prior to the start of the comment period.
- ii. The PDT shall send the ATR team leader one hard copy of the documents for each ATR team member such that the copies are received at least one business day prior to the start of the comment period.
- iii. The PDT shall host an ATR kick-off meeting virtually to orient the ATR team during the first week of the comment period. If funds are not available for an on-site meeting, the PDT shall provide a presentation about the project, including photos of the site, for the team.
- iv. The Technical Project Leader shall inform the ATR team leader when all

responses have been entered into DrChecks and conduct a briefing to summarize comment responses to highlight any areas of disagreement.

v. A revised electronic version of the documents with comments incorporated shall be posted at <ftp://ftp.usace.army.mil/pub/> for use during back checking of the comments.

vi. PDT members shall contact ATR team members or leader as appropriate to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks but a summary of discussions may be provided in the system.

vii. Reviewers will be encouraged to contact PDT members directly via email or phone to clarify any confusion. DrChecks shall not be used to post questions needed for clarification.

## 2. ATR Resolution.

i. Reviewers shall backcheck PDT responses to the review comments and either close the comment or attempt to resolve any disagreements. Conference calls shall be used to resolve any conflicting comments and responses.

ii. Reviewers may "agree to disagree" with any comment response and close the comment with a detailed explanation. If reviewer and responder cannot resolve a comment, it should be brought to the attention of the ATR team leader. If the ATR team leader is unable to resolve the issue, the ATR team leader will implement the guidelines as described below.

The ATR team will identify significant issues that they believe are not satisfactorily resolved and will note these concerns in the Technical Review Certification documentation. The ATR team will prepare a Review Report which includes a summary of each unresolved issue. Review Reports will be considered an integral part of the ATR documentation. Annotated ATR comments will be provided to the RMC and the RMC will notify the District of closure of each phase of ATR or identify issues remaining for resolution.

Significant unresolved ATR concerns that are documented by the RMC will be forwarded through the MSC to the HQ USACE RIT, including basic research of Corps guidance and an expression of desired outcome, for further resolution in accordance with the policy issue resolution process described in ER 1110-2-12 or Appendix H, ER 1105-2-100, as appropriate. HQ USACE may choose to defer the issue to the policy compliance review process or address it directly. At this point the ATR documentation for the concern may be closed with a notation that the concern has been elevated for resolution by HQ USACE. Subsequent submittals of reports for MSC and/or HQ USACE review and approval shall include documentation of the issue resolution process.

3. ATR Certification. The ATR shall be certified in accordance with EC 1165-2-209. Certification by the ATR team leader and the Technical Project Leader will occur once issues raised by the reviewers have been addressed to the review team's satisfaction or deferred by HQ USACE to a separate process. To fully document the ATR process, a statement of technical review will be prepared for each product reviewed. The ATR documentation will include the text of each ATR comment, the PDT response, a brief summary of the pertinent points in the ensuing discussion, including any vertical coordination, and the agreed upon resolution. Indication of this concurrence will be documented by the signing of a certification statement (Appendix D).

B. IEPR.

1. IEPR Communication and Documentation. The communication and documentation plan for the IEPR is as follows:

i. The panel will use DrChecks to document the IEPR process. The Technical Project Leader will facilitate the creation of a project portfolio in the system to allow access by all PDT and the IEPR panel. An electronic version of the documents, appendices, and any significant and relevant public comments shall be posted at: <ftp://ftp.usace.army.mil/pub/> at least one business day prior to the start of the comment period.

The IEPR manager will compile the comments of the IEPR panelists, enter them into DrChecks, and forward the comments to the District. The District will consult the PDT and outside sources, as necessary, to develop a proposed response to each panel comment. The District will enter the proposed response into DrChecks, and then return the proposed response to the panel. The panel will reply to the proposed response through the IEPR manager, again using DrChecks. This final panel reply may or may not concur with the District's proposed response and the panels final response will indicate concurrence or briefly explain what issue is blocking concurrence. There will be no final closeout iteration. The District will consult the vertical team and outside resources to prepare an agency response to each comment. The initial panel comments, the District's proposed response, the panels reply to the District's proposed response, and the final agency response will all be tracked and archived in DrChecks for the administrative record. However, only the initial panel comments and the final agency responses will be posted. This process will continue to be refined as experience shows need for changes.

ii. The PDT shall send the IEPR manager one hard copy (with color pages, as applicable) of the document and appendices for each panel member such that the copies are received at least one business day prior to the start of the comment period.

iii. The Technical Project Leader shall inform the IEPR manager when all

responses have been entered into DrChecks and conduct a briefing to summarize comment responses to highlight any areas of disagreement.

iv. A revised electronic version of the documents with comments incorporated shall be posted at <ftp://ftp.usace.army.mil/pub/> for use during backchecking of the comments.

v. PDT members shall contact IEPR panel members, through the IEPR manager, as appropriate, to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks but a summary of discussions may be provided in the system.

vi. The IEPR panel shall produce final Review Reports, including documentation of the peer review of the project's design and field visit reports on construction activities.

vii. The SAR comments and recommendation letter must be provided to RMC as soon as they become available.

2. IEPR Resolution. The IEPR manager shall review the products and comments, PDT responses and backcheck of responses to reviewer's comments to identify any outstanding disagreements between members of the PDT and the review panel. Resolution meetings must be set when resolution is not readily achievable. The RMC must attend the SAR comment resolution meetings with the panel and the meeting must be scheduled with consideration of the RMC schedules and with enough notice to facilitate attendance. When resolutions are not readily achievable, the RMC should engage the PCX or MSC subject matter experts (SMEs) to help facilitate resolution, and they in turn may choose to engage HQ USACE SMEs. HQ USACE may choose to defer the issue to the policy compliance review process or address it directly. If a specific concern still remains unresolved, the district is to pursue resolution through the policy issue resolution processes described in Appendix H, ER 1105-2-100, ER 1110-1-12, or other applicable guidance.

3. IEPR Certification. The responses to the SAR comments must be provided to the RMC. RMC must concur with closure of the SAR

**IX. POINTS OF CONTACT.** Questions about this Review Plan may be directed to the Los Angeles District Project Delivery Team, Design Lead Supervisor, Mrs. Emili Kolevski at (213) 452-3659, or to the Project Manager for the Santa Maria Valley Levees - South Levee Improvement, Bradley Canyon Extension project, Mrs. Tawny Tran at (213) 452-3319. The Chief, Engineering Division is Mr. Richard J. Leifield, PE at (213) 452-3629. Inquiries to the MSC should be directed to Paul Bowers at (415) 503-6556.

## **X. REVIEW PLAN APPROVAL.**

The Review Management Office for work products of Santa Maria Valley Levees – South Levee

Improvement, Bradley Canyon project is the RMC with FMR-PCX coordination.

In summary, the Los Angeles District proposes to fully comply with all existing guidance, and conduct DQC, ATR and Type II IEPR in accordance with EC 1165-2-209. Approval of this RP as outlined above will help facilitate the District's completion of the Santa Maria Valley Levees - South Levee Improvement, Bradley Canyon Extension project within the authorized schedule. In order to ensure the RP is in compliance with the principles of EC 1165-2-209, the RP must be approved by the applicable MSC, in this case the Commander, SPD. Once the RP is approved, the District will post it to its district public website and notify SPD. If necessary, any changes to the RP will be approved by following the process used for initially approving the plan.

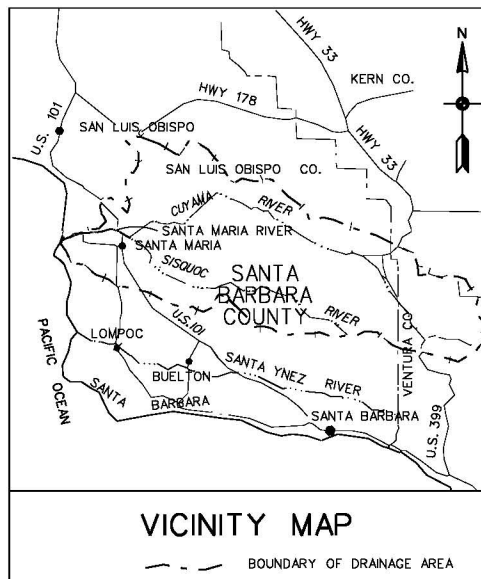
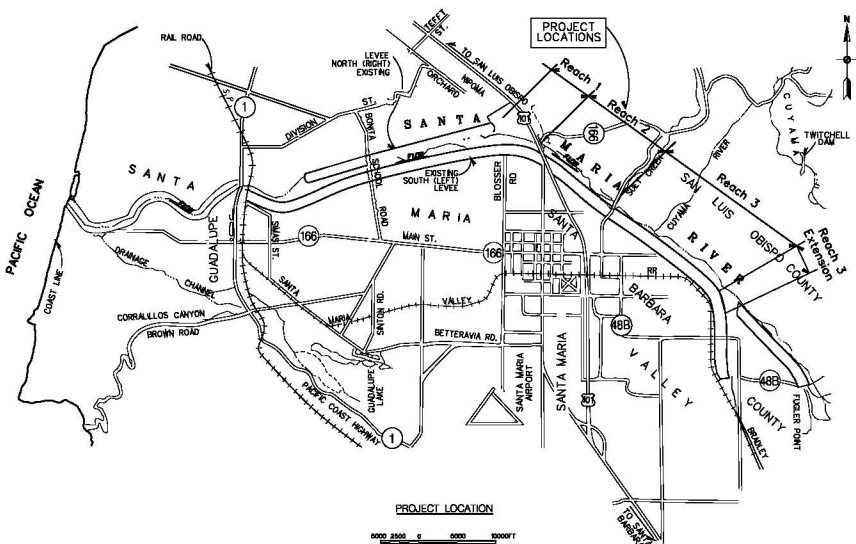
The Los Angeles District requests that the South Pacific Division endorse the above recommendations and approve this RP as described in Appendix B of EC 1165-2-209.

\* \* \*



# APPENDIX A

## Santa Maria Valley Levees - South Levee Improvement Project Vicinity Location



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## APPENDIX B

### PROJECT DELIVERY TEAM AND REVIEW TEAM MEMBERS

<b>PROJECT DELIVERY TEAM (PDT)</b>			
PDT Discipline	Name	Agency/Office	Phone No.
Project Manager	Tawny Tran	CESPL-PM-C	(213) 452-3319
Civil	David Pham	CESPL-ED-DA	(213) 452-3637
Geotechnical	Douglas Chitwood	CESPL-ED-GD	(213) 452-3587
Materials	Francis Omoregie	CESPL-ED-GI	(213) 452-3599
Hydraulics	Van Crisostomo	CESPL-ED-HH	(213) 452-3558
Structural	Tony Wong	CESPL-ED-DS	(213) 452-3700
Cost	Nate Govan	CESPL-ED-DS	(213) 452-3739
Economics	Benjamin Nakayama	CESPL-PD	(213) 452-3833
Biologist	Naeem Siddiqui	CESPL-PD-RN	(213) 452-3852
<b>DISTRICT QUALITY CONTROL (DQC)</b>			
ITR Discipline	Name	Agency/Office	Phone No.
Project Manager	Tawny Tran	CESPL-PM-I	(213) 452-3319
ITR Manager	Huma Nisar	CESPL-ED-DB	(213) 452-3665
Civil	Stephen Vaughn	CESPL-ED-DB	(213) 452-3654
Geotechnical	Christopher Sands	CECO-C-RAO	(213) 452-3447
Materials	William Halczak	CESPK-ED-GS	(916) 557-7427
Hydraulics	Mylene Guron	CESPL-ED-HH	(213) 452-3551
Structural	Robert Ngo	CESPL-ED-DS	(213) 452-3609
Cost	Juan Dominguez	CESPL-ED-DS	(213) 452-3737
Economics	Michael Hallisey	CESPL-PD-WE	(213) 452-3815
Construction	David Gaynor	CESPL-CD-SA	(805) 734-4670
Environmental	Jodi Clifford	CESPL-PD	(213) 452-3840
Resources	Joy Jaiswal	CESPL-PD	(213) 452-3851
Branch	Randy Tabije	CESPL-PD	(213) 452-3871

### POINTS OF CONTACT

<b>POINTS OF CONTACT</b>		
OFFICE NAME	Name	Phone No.
Planning Center of Expertise (PCX)		
Directory of Expertise (DX)		
Vertical Team:		
South Pacific Division (SPD)		
Regional Management Center (RMC)		
Headquarters, U.S. Army Corps of Engineers (HOUSACE)		

AGENCY TECHNICAL REVIEW

AGENCY TECHNICAL REVIEW (ATR)			
ATR Discipline	Name	Agency/Office	Phone No.
ATR Team Leader			
Hydrology and Hydraulics			
Geotechnical			
Structural			
Environmental			
Cost			
Economics			
Real Estate			

ATR members for must have the minimum expertise listed below for the appropriate discipline:

ATR Team Leader. The ATR Team Leader should have 10 or more years experience with Civil Works Projects and have performed ATR Team Leader duties on complex civil works projects.

Hydrology and Hydraulics. Reviewer should be a registered professional with 10 or more years experience in conducting and evaluating hydrologic and hydraulic analyses for flood risk management projects. Experience with all aspects of hydraulic engineering including: knowledge of analyses techniques of sediment and regime flows, forecasting of scour based on channel slope, sediment loads, sediment budget, geology, and basin/historic hydrology, and designing of the appropriate protection/launching apron dimensions and other river engineering structures; water velocities, pressures, directions, trajectories, and erosion potential; and hydraulic modeling is desired. Experience with the Dam or Levee Safety program is also desired. Active participation in related professional societies is encouraged. (Review work products, as necessary.)

Geotechnical Engineering. Reviewer shall have 20 or more years experience in geotechnical engineering and shall be a recognized expert in the analysis, design and construction of embankment dams and levees on alluvial foundations with extensive experience in subsurface investigations; liquefaction analyses; earthquake induced embankment deformations; seepage and slope stability analysis; sheet pile analysis; design and construction; and preparing plans and specifications for embankment dams and levees. The reviewer shall be a licensed professional engineer. Experience with the Dam or Levee Safety program is also desired. Active participation in related professional societies is encouraged. (Review work products, as necessary.)

Structural Engineering. Reviewer shall have 10 or more years experience in structural engineering. The reviewer shall have extensive experience in design and evaluations of large complex hydraulic structures associated with flood risk management projects such as deep sheet pile walls subject to erosion and undermining by direct high flows and meandering action. Also experience in design of hydraulic structures such as side drains constructed through levees. Practical knowledge of construction methods and techniques as it relates to structural portions of projects is encouraged. (Review work products, as necessary.)

NEPA Compliance. Reviewer should have 10 or more years experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements for complex civil/site work projects. Experience in levee system projects is required. (Review work products, as necessary.)

Cost Engineering. Reviewer should have 10 or more years demonstrated in the preparation of cost estimates, cost risk analyses and cost engineering. Experience is needed for complex Civil Works projects to include levee revetment and sheet pile installation. Reviewer should be certified as a Cost Engineer by the Walla Walla DX which requires an 8-hour training and signed certificate. (Review work products, as necessary.)

Economics. Reviewer should have at least 10 years experience performing economic and financial analysis. The reviewer should be familiar with the processes used to assess Federal interest in Corps civil works projects, and specific and recent experience conducting benefit/cost analysis for flood risk management studies. Reviewer should have knowledge and understanding of Corps regulations, policies and guidelines relating to economic analysis for civil works projects and in particular flood risk management projects. (Review work products, as necessary.)

Real Estate. Reviewer will be experienced in federal civil works real estate laws, policies, and guidance. (Review work products, as necessary.)

## TYPE II, INDEPENDENT EXTERNAL PEER REVIEW

The Type II IEPR panel will include the following disciplines: Hydrology and Hydraulics, Geotechnical, Structural. To ensure that an appropriate level of review expertise is obtained, the following models are anticipated to be used in the design of the project. H&H analyses will include the following models: HEC-HMS, HEC-RAS, HEC-SSP, PREFRE, ArcView, HEC-GeoHMS, HEC-GeoRAS. Geotechnical and structural analyses will include the following models: Seep/W, Slope/W, EZ-FRISK, CWALSHT and CURTCUL. Civil 3-dimensional

modeling will include: InRoads. In addition, Type II, IEPR panel members must have the minimum expertise listed below for the appropriate discipline:

Hydrology and Hydraulics (H&H) Panel Member. H&H panel member should be a registered professional from academia, a public agency, or an Architect-Engineer or consulting firm with 15 or more years experience in conducting and evaluating hydrologic and hydraulic analyses for flood risk management projects. Panel member should be experienced in Flood Damage Reduction Projects. Panel member requires knowledge of analyses techniques of sediment and regime flows, forecasting of scour based on channel slope, sediment loads, sediment budget, geology, and basin/historic hydrology, and designing of the appropriate protection/launching apron dimensions and other river engineering structures. The panel member(s) should be familiar with USACE application of risk and uncertainty analyses in flood damage reduction studies and a familiarity with standard USACE hydrologic and hydraulic computer models. Active participation in related professional societies is encouraged. (Review work products, as necessary.)

Geotechnical Engineering Panel Member. Geotechnical Engineer panel member is preferred to possess a PhD degree in geotechnical engineering, although an MS degree is acceptable with professional registration as a geotechnical engineer. Panel member should be from academia, a public agency, an Architect-Engineer or consulting firm with 20 years or more experience in geotechnical and earthquake engineering for critical flood risk management infrastructure and levee safety evaluations. Panel member will be a recognized expert in the analysis, design and construction of embankment dams and levees on alluvial foundations with extensive experience in subsurface investigations; liquefaction analyses; earthquake induced embankment deformations; seepage and slope stability analysis; sheet pile analysis; design and construction; and preparing plans and specifications for embankment dams and levees. (Review work products, as necessary.)

Structural Engineering Panel Member. Structural Engineer panel member should be a registered professional from academia, a public agency, or an Architect-Engineer or consulting firm with 10 or more years experience in design of hydraulic structures for large and complex civil works projects including deep sheet pile walls subject to erosion and undermining by direct high flows and meandering action. sheet pile. Also experience in design of hydraulic structures such as side drains constructed through levees. Practical knowledge of construction methods and techniques as it relates to structural portions of projects is encouraged. (Review work products, as necessary.)

**APPENDIX C**

**REVIEW PLAN APPROVAL MEMO**

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REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS  
1455 MARKET STREET  
SAN FRANCISCO, CALIFORNIA 94103

7 Mar 2011

CESPD-PDC

MEMORANDUM FOR Commander, Los Angeles District, ATTN: CESPL-PM-C,  
Ms. Tawny Tran

SUBJECT: Review Plan for Santa Maria Valley Levees - South Levee  
Improvement, Santa Barbara County, California.

1. Reference. CESPL-ED-DA Memorandum for CESPD-PDC, Mr. Paul W. Bowers, Civil Works Integration Division; CEIWR-RMC, Mr. William B. Empson, Risk Management Center; CESPD-PDS-P, Mr. Eric W. Thaut, Flood Risk Management Center of Expertise, SAB, dated 18 Feb 2011 (Enclosure 1).
2. The subject Review Plan has been prepared in accordance with EC 1165-2-209. The Review Plan has been coordinated with the DST, Planning Center of Expertise - Flood Risk Management, Planning Center of Expertise - Ecosystem, and Risk Management Center.
3. The Santa Maria Levees Review Plan is approved, subject to comments in Enclosure 2. With this MSC approval and changes made to the Review Plan the Review Plan will be made available for public comment via the internet and the comments received will be incorporated into future revisions of the Review Plans. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.
4. The point of contact for this action is Mr. Paul Bowers (CESPD-PDC), 415-503-6556, [paul.w.bowers@usace.army.mil](mailto:paul.w.bowers@usace.army.mil).

***Building Strong on the Cornerstone of the Southwest!***

Andrew Constantaras, P.E., SES  
Director, Regional Business Directorate

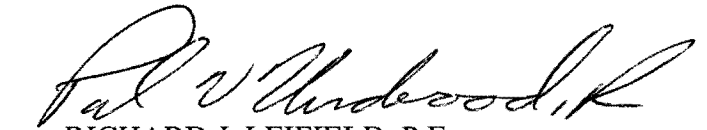
- 3 Encls  
1. SPL Memo  
2. Comments  
3. Review Plan

MEMORANDUM FOR Commander, South Pacific Division, Attention: CESPDPDC, Mr. Paul W. Bowers, Civil Works Integration Division; CEIWR-RMC, Mr. William B. Empson, Risk Management Center; CESPDPDS-P, Mr. Eric W. Thaut, Flood Risk Management Center of Expertise

SUBJECT: Transmittal of Review Plan for Santa Maria Valley Levees – South Levee Improvement, Bradley Canyon Extension Project, Santa Barbara County, California.

1. Reference Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 January 2010.
2. The enclosed Review Plan for Santa Maria Valley Levees – South Levee Improvement, Bradley Canyon Extension Project, in Santa Barbara County, California has been prepared in accordance with EC 1165-2-209 and is presented for your review and approval.
3. In FY 08, Congress allocated FY 08 appropriations for the Corps of Engineers (COE) to prepare a Supplemental Design Deficiency Report (SDDR). The subject project is a correction to the project recommended in the SDDR and ensures that the City of Santa Maria is protected as intended in the original project authorization. Based upon the criteria in ER 1165-2-119 (Modifications to Completed projects), the construction required for these corrective actions are authorized under the existing project authority in Section 203 of Flood Control Act of 1954 (68 Stat. 1264)1954.
4. Under this authority, the COE's corrective actions will ultimately protect the southern levee of the Santa Maria River from Blosser Road to the upstream end of the Bradley Canyon Extension project. After construction, the COE will turn over the project in its entirety to the local sponsor, Santa Barbara Flood Control Water Conservation District for OMRR&R.
5. As justified in the enclosed Review Plan, the Los Angeles District recommends that the project be granted a waiver from conducting a Type I Independent External Peer Review (IEPR). Los Angeles District also recommends, as described in the Review Plan, that a full review process be conducted on all work products for the Bradley Canyon Extension project; to include District Quality Control, Agency Technical Review, Type II IEPR (Safety Assurance Review), and Policy and Legal Review. Further, the Los Angeles District recommends that no additional reviews are necessary for the current Santa Maria Valley Levees – South Levee Improvement project, because Type II IEPR has already been performed.

6. Please provide your comments to the Review Plan by March 4, 2011. For further information, please contact Ms. Tawny Tran at (213) 452-3319 or Mr. Juan Urena at (213) 452-3637.



**RICHARD J. LEIFIELD, P.E.**  
Chief, Engineering Division

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