REVIEW PLAN

Delta Islands and Levees Feasibility Study (Delta Study)
Sacramento – San Joaquin Delta, California
Feasibility Report

Sacramento District

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US Army Corps
of Engineers ®

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Delta Islands and Levees Feasibility Study, California (Delta Study).

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
(3) Engineering Regulation (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) Sacramento – San Joaquin Delta Islands and Levees, California, Project Management Plan for Feasibility Phase

c. Requirements.

This review plan was developed in accordance with EC 1165-2-209, 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 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the FRM-PCX.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules and contingencies. The RMO will also coordinate with the ECO-PCX as needed for ecosystem restoration model certification and review and the Risk Management Center for Safety Assurance Issues.

3. STUDY INFORMATION

a. Decision Document.

The Delta Islands and Levees Feasibility Study is a Feasibility Study resulting in a Feasibility Report, and is intended to result in a decision document to Congress for potential authorization of a new project. The study purpose is to evaluate and recommend measures and alternatives to improve Flood Risk Management and provide opportunities for Ecosystem Restoration.

Environmental studies to be conducted include preparation of Environmental Impact Statement/Environmental Impact Report (EIS/EIR), and all National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements. The final EIS/EIR will be approved by HQUSACE.

b. Study Description.

Over the past 150 years, a network of 1,100 miles of levees has been constructed to alter the flow of water through the Delta. Historically, the Delta was defined by wetlands, primarily comprised of peat soils. The Swamp and Overflow Land Act of 1850 transferred ownership of all swamp and overflow land, including Delta marshes, from the federal government to the State of California. This Act began the reclamation of wetlands in the Delta through the construction of levees and drainage channels, typically by the new land owners. Nearly three fourths of the Delta is now in agriculture, yielding billions of dollars in production for the nation. Two deep water ports serve as economic engines for the Central Valley and Northern California and are reliant on Delta waters for navigation. Delta levees protect such critical infrastructure as state highways, rail lines, natural gas fields, gas and fuel pipelines, drinking water pipelines, and numerous businesses and towns.

The Sacramento – San Joaquin Delta (Figure 1) is a web of channels and reclaimed islands at the confluence of the Sacramento, San Joaquin, Cosumnes, Mokelumne, and Calaveras Rivers. Forty percent of the State's land area is contained within the watersheds of these rivers. The Delta covers about 738,000 acres, interlaced with hundreds of miles of waterways. Much of the land is below sea level and protected by 1100 miles of levees. The land behind the levees is pre-dominantly agricultural (corn, wheat, vineyards, cattle) and waterways provide recreational outlets and essential habitat for fish and wildlife (Delta Atlas, p. 1).

Agricultural use in the Delta has contributed to soil erosion and oxidation of peat soils. Oxidation of peat soils on a majority of Delta islands is causing levee foundations and the levees to consolidate. This consolidation, along with interior island subsidence causes uneven settling and further weakening of the levees. Delta soils have a high to very high shrink/swell potential and low strength for supporting the load for embankments, dikes and levees (Corps, 1998).

The Delta is part of the largest estuary in the world, and home to hundreds of species of fish, birds, mammals and reptiles. The Delta is also the largest single source of California's water supply, providing 25 million Californians with drinking water and irrigating millions of acres of farmland in the Central Valley. In addition, more than 500,000 people live within the Delta and rely upon it for water, recreation, and livelihood.

A Feasibility Cost Share Agreement (FCSA) was executed May 26, 2006 with DWR, the non-Federal sponsor of the Delta Study. The feasibility study is the Corps' mechanism to participate in a cost-shared solution to a variety of water resources needs for which we have an authority.

The Feasibility Report will analyze the flood and ecosystem problems and develop alternatives for Flood Risk Management, restoration of environmental resources, and possible secondary benefits to recreation and water quality in the study area. The alternatives will include the no action plan and various combinations of structural and non-structural measures. The engineering, economic, and environmental feasibility of the alternatives will be evaluated, and the optimal alternative identified. If the optimal alternative is found to be feasible, the alternative will be recommended and carried forward for continued PED and construction. The report will also attempt to establish coordinated interagency efforts in areas such as emergency management and response, land use planning, scientific analyses, and water use.

Potential FRM measures will consider levee stability improvement measures which would enhance seismic resistance, decrease erosion and seepage potential of dikes at select islands critical to water quality, reduce and/or reverse subsidence, create efficient emergency response, and protect significant public infrastructure. Possible measures include; updating levees to a Delta/Suisun Marsh levee maintenance standard; setback levees; adding, modifying and/or re-regulating storage on major tributaries; new transitory storage within floodplains; increasing conveyance through raising levees; widening channels and floodways; and dredging, construction or modifying weirs and bypasses. Non-structural floodplain management tools would also be considered.

Potential Ecosystem Restoration measures may include floodplain reconnection, restoration of wetlands and riparian habitats, conservation easements, construction of setback levees, and re-operating reservoirs to provide beneficial flows. There is a potential for Ecosystem Restoration measures to also provide benefits to Flood Risk Management.

Results of state planning efforts, along with team input, will be used to define problems, opportunities, and specific planning objectives. These will be built upon to investigate all Delta levees (including non-Federal levees) at risk of failure, the strategic location of levees to salt water intrusion, and the repair of critical levees. The feasibility study will also address seismicity, economics, water quality and water supply as they relate to Ecosystem Restoration and Flood Risk Management.

The current estimated project cost is $1,000,000,000. The non-Federal project sponsor is the State of California, Department of Water Resources.

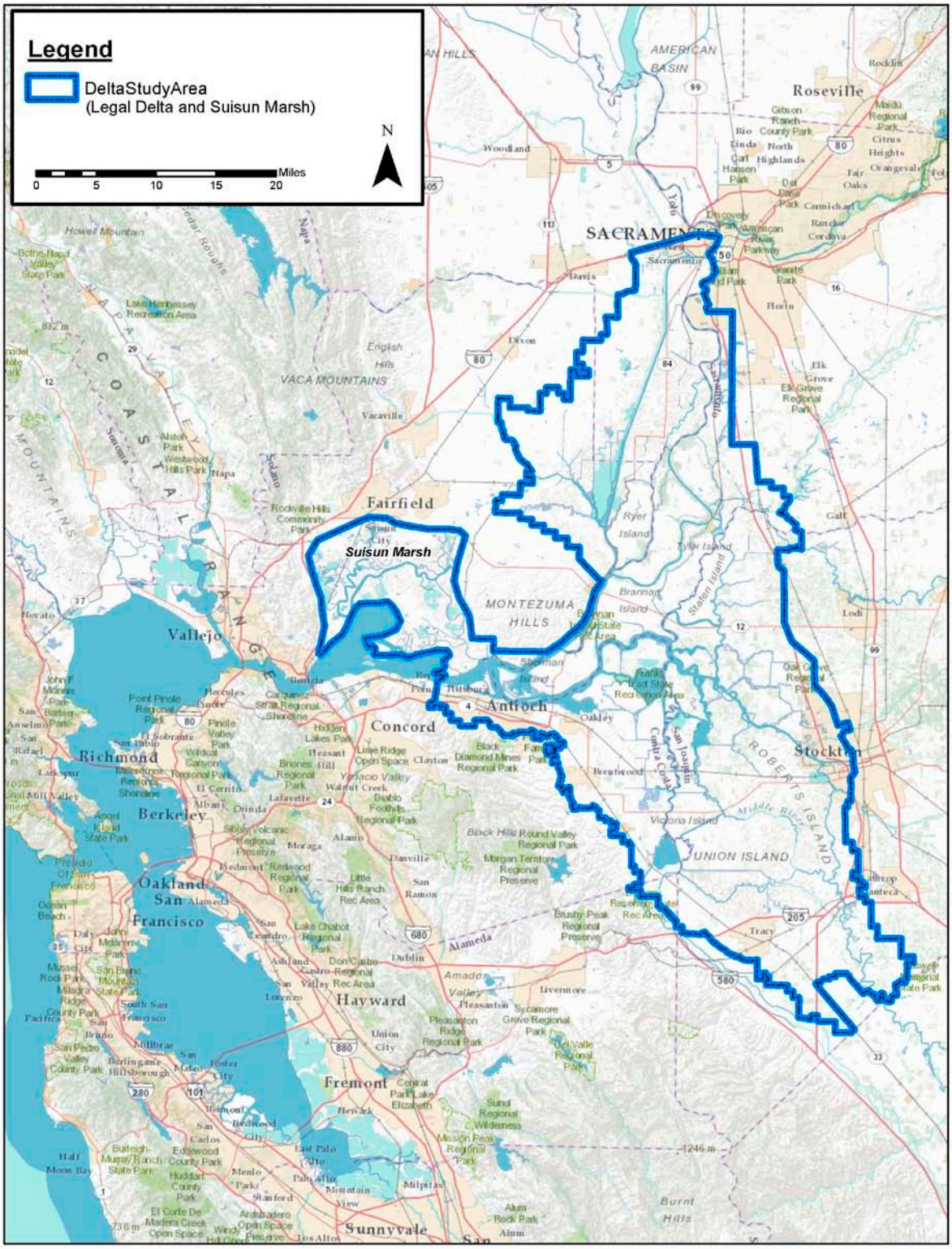

Figure 1 – The Sacramento-San Joaquin River Delta

c. Factors Affecting the Scope and Level of Review.

About two thirds of the Delta levees were constructed without engineering specifications and are considered non-Project (local) levees, while only 385 miles of levees are now part of the Federal Flood Control Project. Much of the reclaimed islands have subsided due to the oxidation and loss of peat soils and are now well below sea level. It is apparent by the frequency of historical flood events (over 168 instances) that the current levee system does not provide adequate flood protection for the 500,000 people living behind Delta levees. In addition, the impacts associated with failure of fragile Delta levees can reach beyond the geographic extent of the Delta and affect the water supply for 25 million Californians reliant on drinking water that passes through the Delta. For example, a levee failure on one island can have a domino effect, leading to the failure of levees on adjacent islands as the now subsided islands fill with water and experience water loading on interior levee walls. Reclaimed islands and land tracts act as a barrier between fresh and salt water, preventing sea waters from the San Francisco Bay and Pacific Ocean from entering into the State and Federal Water Project intake structures. A multi-island failure could result in the saltwater contamination of water supplies and could take a year to rectify.

Natural resource specialists agree that the remaining ecosystems in the Delta no longer maintain the functions and richness that defined the pre-channelized system, and that these measures of ecological health will continue to decline without preventive action. Not only is it certain that these natural systems will not recover their defining attributes under current conditions, it is unlikely that even the current, degraded ecological conditions can be sustained into the future. For example, delta smelt, key indicators of ecosystem health continue to decline in number throughout the watershed. Another example is the decline in populations of salmonids; commercially, recreationally, and culturally important fish species in the Delta.

There are numerous contributors to the ecological decline of Delta species and habitats, each of which having the capability to produce adverse impacts independently and/or in combination with other stressors. For example, pesticides, channelization, exotic and non-native invasive species, water supply diversions, agricultural and urban runoff, and wastewater discharges have all been identified as contributors of adverse impacts to the ecological health of the Delta ecosystem.

Specifically, channelization of rivers and streams through the construction of levees has resulted in the widespread loss of tidal marsh, shaded riverine aquatic habitat, and the disconnection of floodplains from waterways. If this loss of Delta habitats and disconnection from floodplains continues, the current substantial declines in the Delta's fisheries could result in the extinction of culturally and economically critical species. Many of the defining characteristics of the pre-channelized ecosystem (spatial extent, habitat heterogeneity, and dynamic storage) have either been lost or substantially altered as a result of land use and water management practices during the past 100 years in California. Nearly 95 percent of the historic wetland habitat in the Delta has been converted to agricultural and urban uses.

Current operation of the State and Federal water projects, as well as other export operations and diversions that result in consumptive losses, supply water to 25 million Californians and 4.5 million acres of irrigated land. At the same time, these water resource operations can have a damaging effect on the plants and animals inhabiting the Delta. For example, the operation of pumping facilities is known to alter the flow patterns, affecting the migration of salmonids passing through the river system. Delta smelt are drawn into the flow of water to the pumping facilities and can be entrained, resulting in the mortality of this Federally-listed species.

Challenging aspects of the study include; the continuing subsidence of peat foundation on Delta islands; providing significant ecosystem restoration benefits while restoring flood capacity of the existing channel; uncertainty regarding the effects of future sea level rise in the Delta; effectively addressing potential environmental concerns; constant risk of a seismic event; constraining practices of levee construction (such as levee height requirements and levee design standards) ; and many conflicting values between interested parties.

This project is likely to have significant interagency and public interest, and as with most multi-purpose projects the Delta Study has the potential to be highly controversial as there will be many conflicting values among the public and institutions. Public and agency input will be sought in order to reduce the potential for controversy. The entities with interest in the Delta have many conflicting values, yet are all competing for the same resource: water. Some are concerned with water supply and jurisdiction, others with the environment of the Delta, and others with protecting the infrastructure and homes of the 500,000 people living behind the levees.

The feasibility study will investigate the likelihood of having significant economic, environmental, and social affects to the nation. It is not anticipated that the study will recommend actions that would result in significant adverse impacts to social, cultural, or economic resources of the Delta or the Nation. As Ecosystem Restoration is an equal project goal to Flood Risk Management, it is not anticipated that the project will result in substantial adverse impacts on fish and wildlife species or their habitat, including impacts to species listed as endangered or threatened, or designated critical habitat, under the Endangered Species Act.

This study is very likely to contain influential scientific information and be an influential scientific assessment. In order to reach a recommendation and preferred measures and alternatives, extensive scientific evaluation and study of the Delta will be necessary. Extensive and innovative modeling of the Delta will need to be used and created as the Delta Study is unique and highly complex.

Project Magnitude and Risk

Due to the fragile, complex nature of the study area, a potential recommended project has a high magnitude of risk associated with it. There is a high frequency of historical flooding events and a critical lack of engineering and stability of the levees in the Delta. Delta levees are at a constant risk of failure, even during dry weather conditions, and the existing levee system is under high stress to maintain structural soundness against projected higher floods. The risk of levee failure and subsequent flooding of an island is prevalent throughout the Delta, as many of the levees are not up to a standard which could hold back heavy water flows. The consequences of multiple levee failures in the Delta have the potential to be catastrophic. The ecosystem of the Delta is fragile and unstable. Any change to the physical Delta will result in a change to the biological Delta and Flood Risk Management measures pose a great risk to the multitude of species residing on the islands and in the water. The risks of the project are likely far smaller than the catastrophic risk of multiple island failure. In the absence of the project, risk is extended to the 500,000 people living behind the unstable levees in the Delta. The life safety risk under a potential future with-project condition will decrease due to FRM measures implemented. The study will be formulated to avoid encouraging growth in the Delta, transferring risk, or otherwise increasing the risk to life safety. This study will address the safety assurance factors as identified in EC 1165-2-209 and additional

information regarding risk will be developed as the evaluation of without-project conditions continues. The Sacramento District Chief of Engineering concurs with the assessment of life safety described in this Review Plan. A life safety risk is present for this study and therefore an IEPR I and IEPR II will be conducted.

d. In-Kind Contributions.

It is anticipated that the non-Federal sponsors will contribute in-kind services for Project Management, Program Coordination, Water Resources planning, Public Involvement, Environmental Planning, Editorial Reviewer, GIS/Survey/Map and graphics, Hydrology, Hydraulics, Civil Design, Structural Design, Geotech-Geology, Geotech-Soil Design, Real Estate, Economics, Cost Estimating, HTRW Assessment, Peer reviews, and Value Engineering. All in-kind work products will undergo review by the PDT for determination of adequacy; products will ultimately undergo DQC. In-kind products will undergo both ATR and IEPR.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

a. Documentation of DQC. A comment-response document in Microsoft Word will be used to document all DQC comments, responses and associated resolutions accomplished throughout the review process. This documentation will be supplied to the ATR Team upon initiation of ATR.

b. Products to Undergo DQC. Products currently scheduled to undergo DQC include charette documentation, Alternatives Milestone Meeting documentation, Tentatively Selected Plan documentation, Agency Decision Milestone documentation, Draft Report (including NEPA and supporting/environmental compliance documentation and technical appendixes), and the Final Report (including NEPA and supporting/environmental compliance documentation). Additional DQC of key technical and interim products that support subsequent analyses will be reviewed prior to ATR of the product and may include: surveys & mapping, project planning, environmental compliance, economics, hydrology & hydraulics, civil design, geotechnical investigations, real estate, cultural resources, economic and social inventories, annual damage and benefit estimates, cost estimates, etc. Additional review of key interim products will be identified as needed. Operation and Maintenance (O&M) Manuals will undergo DQC when developed at the PED phase.

c. Required DQC Expertise. The DQC Team is comprised of individuals from the Sacramento District and will be chosen based on expertise, experience, and/or skills.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria,

guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. 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 and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

The leader of the ATR team will participate in milestone conferences and the Civil Works Review Board (CWRB) to address review concerns. The ATR leader must complete a statement of technical review for all final products and final documents. In the case of civil works decision documents forwarded to HQUSACE for review, a statement of technical review will accompany both draft and final documents. The ATR team leader, project manager, RMO, and the chief of the function shall certify that the issues raised by the ATR team have been resolved.

Products to Undergo ATR. The ATR team will participate in the Technical Review Strategy Session which will introduce the ATR Team to the study. ATR will be conducted for the Draft Report (including NEPA and supporting /environmental compliance documentation and technical appendixes) and the Final Report (including NEPA and supporting/environmental compliance documentation). Additional ATR of key technical and interim products that support subsequent analyses will be seamlessly reviewed prior to being used in the study and may include: surveys & mapping, project planning, environmental compliance, economics, hydrology & hydraulics, civil design, geotechnical investigations, real estate, cultural resources, economic and social inventories, annual damage and benefit estimates, cost estimates, etc. Additional review of key interim products will be identified as needed. Operation and Maintenance (O&M) Manuals will undergo ATR when developed at the PED phase.

Required ATR Team Expertise. The ATRT is comprised of individuals that have not been involved in the development of the decision document and will be chosen based on expertise, experience, and/or skills. The members roughly mirror the composition of the PDT, and wherever possible, the lead shall reside outside of the South Pacific Division region. The team consists of approximately 10 reviewers. The lead PCX for FRM is responsible for identifying the ATR team members, and Sacramento District can provide suggestions on possible reviewers.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning	Team member will be experienced with current Flood Risk Management planning and policy guidance, integrating measures for Flood Risk Management, Ecosystem Restoration, recreation, farmlands irrigation and planning in a collaborative environment. Knowledge of PL 84-99 is also recommended.
Economics	Team member will be experienced in civil works and related flood risk management projects. Must have a thorough understanding of HEC-FDA.

Environmental Resources	Team member will be experienced in NEPA/CEQA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration. Experience with application of HEP procedures is required.
Cultural Resources	Team member will be experienced in tribal issues, regulations and laws.
Hydrology and Hydraulics	Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of river flows and of but not limited to, flood conditions, low flow/drought, channel flows, reservoir operations, and potential impacts of urban and farmland run-off. Team member will have a working knowledge of RMA computer modeling programs. Knowledge of flood walls and levee impacts is recommended and experience working with non structural measures in preferred. A registered professional engineer and a certified flood plain manager is recommended but not required.
Geotechnical Engineering	Team member will be experienced in levee and floodwall design, post construction evaluation and rehabilitation. Knowledge of PL 84-99 is also recommended. Registered professional engineer recommended.
Civil/Structural Engineering	Team member will have experience in levee, floodwall, box culvert and drainage structure design, and utility relocations. Experience with design and construction of flood control structures in areas of high peat content is recommended. Knowledge of PL 84-99 is also recommended. A registered professional engineer is highly recommended.
Cost Engineering	Team member will be familiar with similar civil works for projects using MCACES. Team member will be a Certified Cost Technician, Certified Cost Consultant or Certified Cost Engineer. A separate process and coordination is required through the Walla Walla District for cost engineering.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results.
Real Estate	Team member will be experienced in Federal civil works real estate laws, policies and guidance.
Structural Engineer	

Documentation of ATR.

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

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

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. Reviewers are encouraged to contact PDT members to resolve issues and clarify concerns through webinars, video teleconferencing, teleconference, email and/or phone. If an issue cannot be resolved this way, and the funds are available, reviewers may be flown in to visit the project site and resolve the issue face to face.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

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, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

- 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.

Type I IEPR

a. Decision on IEPR. The Draft Report will be subject to Type I IEPR, including Safety Assurance Review factors, and Type II IEPR during the subsequent Design and Implementation Phase if a project is recommended for construction. This decision is based on the information presented above in Section 2.c., including the presence of life safety issues and complexity of the project (including potential robustness measures). No requests to conduct IEPR have been received from a head of a Federal or state agency charged with reviewing the project.

EC 1165-2-209 sets forth the triggers for an IEPR: “Type I IEPR is conducted on project studies. It is of critical importance for those decision documents and supporting work products where there are public safety concerns, significant controversy, a high level of complexity, or significant economic, environmental and social effects to the nation.” This study meets majority of these criteria and therefore a Type I IEPR will be conducted.

This review plan will serve as the coordination document to obtain vertical team consensus. Subsequent to PCX approval, the plan will be provided to the vertical team for approval. MSC approval of the plan will indicate vertical team consensus.

Products to Undergo Type I IEPR. The Draft Report will be subject to Type I IEPR, including Safety Assurance Review factors, and Type II IEPR during the subsequent Design and Implementation Phase if a project is recommended for construction. Documentation and response to these reviews will follow the process laid out in 6.d.

b. Required Type I IEPR Panel Expertise. The IEPR Team will be selected by a qualified Outside Eligible Organization (OEO). The FRM PCX will identify an IEPR manager, who will work with the PDT to write a scope of work for the OEO that includes developing a charge to reviewers that outlines the scope and requirements of the review, identifying potential reviewers, contracting them, managing the review, and documenting the review. Due to the nature and complexity of the study it is expected that multiple team members will be needed for certain disciplines. The team will consist of approximately 5 reviewers.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should be experienced in civil works and related flood risk management projects. Must have a thorough understanding of HEC-FDA
Environmental	Team member will be experienced in NEPA/CEQA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration.
Civil/Structural Engineering	Team member will have experience in levee, floodwall, box culvert and drainage structure design, and utility relocations. Experience with design and construction of flood control structures in areas of high peat content is recommended. A registered professional engineer is highly recommended.
Geotechnical Engineering	Team member will be experienced in levee and floodwall design, post construction evaluation and rehabilitation. Registered professional engineer recommended.
Hydrology and Hydraulic Engineering	Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of river flows and of but not limited to, flood conditions, low flow/drought, channel flows, reservoir operations, and potential impacts of urban and farmland run-off. Team member will have a working knowledge of RMA computer modeling programs. Knowledge of flood walls and levee impacts is recommended and experience working with non structural measures in preferred. A registered professional engineer and a certified flood plain manager is recommended but not required.

c. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental

methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- 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; 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.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet and will be included in the Final Feasibility Report.

Type II IEPR

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.

a. Decision on IEPR. The Final Report will be subject to Type I IEPR, including Safety Assurance Review factors, and Type II IEPR during the subsequent Design and Implementation Phase if a project is recommended for construction. This decision is based on the information presented above in Section 2.c., including the presence of life safety issues and complexity of the project (including potential robustness measures). No requests to conduct IEPR have been received from a head of a Federal or state agency charged with reviewing the project.

b. Products to Undergo Type II IEPR. The Final Report (including NEPA/CEQA documentation and technical appendices), Review Plan, O&M Manual, and design and construction activities will be subject to Type II IEPR.

c. Required Type II IEPR Panel Expertise. The Type II IEPR Team will be selected and managed by an organization external to the Corps, per EC 1165-2-209. The RMC will coordinate the Type II IEPR and work with the PDT to write a scope of work for the review that includes developing a charge to reviewers that outlines the scope and requirements of the review, identifying potential reviewers, contracting them, managing the review, and documenting the review. Due to the nature and complexity of the study it is expected that multiple team members will be needed for certain disciplines. The team will consist of approximately 6 reviewers.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should be experienced in civil works and related flood risk management projects. Must have a thorough understanding of HEC-FDA
Environmental	Team member will be experienced in NEPA/CEQA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration.
Civil/Structural Engineering	Team member will have experience in levee, floodwall, box culvert and drainage structure design, and utility relocations. Experience with design and construction of flood control structures in areas of high peat content is recommended. A registered professional engineer is highly recommended.
Geotechnical Engineering	Team member will be experienced in levee and floodwall design, post construction evaluation and rehabilitation. Registered professional engineer recommended.
Hydrology and Hydraulic Engineering	Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of river flows and of but not limited to, flood conditions, low flow/drought, channel flows, reservoir operations, and potential impacts of urban and farmland run-off. Team member will have a working knowledge of RMA computer modeling programs. Knowledge of flood walls and levee impacts is recommended and experience working with non structural measures in preferred. A registered professional engineer and certified flood plain manager is recommended but not required.
Construction	Team member will have experience in construction of levees, floodwalls, box culverts, and drainage structures. Experience with construction of flood control structures in areas of high peat content is recommended.

d. Documentation of Type II IEPR. Per EC 1165-2-209, Appendix E, 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 includes:

- Introduction,
- Composition of the review team,
- Summary of the review during design,
- Summary of the review during construction,
- Lessons learned in both the process and/or design and construction,

- 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. The final Review Report will be submitted no later than 60 days following the close of the review period. The District Chief of Engineering, with full coordination with the Chiefs of Construction and Operations, shall consider all comments contained in the report and prepare a written response for all comments and note concurrence and subsequent action or non-concurrence with an explanation. The District Chief of Engineering shall submit the panel's report and the Districts responses shall be submitted to the MSC for final MSC Commander approval and then make the report and responses available to the public on the District's website

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

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

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used

whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

a. Planning Models. The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.5a (Flood Damage Analysis)	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans.	Certified
Various Habitat Evaluation Procedure (HEP) Models	Various Habitat Evaluation Procedure (HEP) models: The Ecosystem Restoration Planning Center of Expertise has responsibility for approving ecosystem output methodologies for use in ecosystem restoration planning and mitigation planning. The Ecosystem PCX will need to certify or approve for use each regionally modified version of these methodologies and individual models and guidebooks used in application of these methods. The PDT will coordinate with the Ecosystem PCX during the study to identify appropriate models and certification approval requirements.	Individually Certified
IWR- Planning Suite (Certified):	This software assists with the formulation and comparison of alternative plans. While the IWR-PLAN was initially developed to assist with environmental restoration and watershed planning studies, the program can be useful in planning studies addressing a wide variety of problems. IWR-PLAN can assist in plan comparison by conducting cost effectiveness and incremental cost analysis, identify plans with the best financial investments and display the effects of each on a range of decision variables.	Certified

b. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification/ Approval Status
MCACES or MII	Cost estimating models will provide for uniform cost estimating of project alternatives for comparison and detailed estimates for the recommended plan.	CoP Preferred

Crystal Ball software	Contingencies will be determined using the Crystal Ball software, an add-in to Microsoft Excel. A spreadsheet is created and the relative cost data added from the previously developed cost estimate and total project schedule. The PDT will meet to assess risk factors and create a risk register identifying critical project elements. Monte Carlo simulations are performed using probability distributions functions (as deemed appropriate by the PDT) and these are applied to the quantities, cost and schedule elements. A Cost and Schedule Risk Analysis Report is then developed that indicates the results and recommendations (cost and schedule sensitivity analysis, contingency summary, cost summary, project duration summary, etc).	Approved
HEC-HMS	By applying this model the PDT is able to define the watersheds' physical features, describe meteorological conditions, estimate parameters, analyze simulations, and obtain GIS connectivity.	CoP Preferred
HEC-ResSim 4.0	This model predicts the behavior of reservoirs and to help reservoir operators plan releases in real-time during day-to-day and emergency operations. The major features of HEC-ResSim include Graphical User Interface, Map-Based Schematic, and Rule-Based Operations.	Reservoir Systems Analysis CoP Preferred Model
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady and unsteady flow analysis to evaluate the future without- and with-project conditions around McCormack-Williamson Tract.	HH&C CoP Preferred Model
FLO-2D:	An integrated river and floodplain model. A complete flood routing hydrologic and hydraulic model with urban detail features, sediment transport, mudflow, and groundwater modeling. Will be used for overbank reaches.	Allowed for Use
GMS-SEEP2D	The SEEP2D model embedded within the GMS graphical user interface is used to conduct finite-element two-dimensional seepage analysis. This is primarily used to evaluate levee underseepage and levee through-seepage.	Groundwater Hydrology CoP Preferred Model
EFDC:	Hydrodynamic model that can be used to simulate aquatic systems in one, two, and three dimensions. EFDC uses stretched or sigma vertical coordinates and Certesian or curvilinear, orthogonal horizontal coordinates to represent the physical characteristic of a waterbody. It solves three dimensional, vertically hydrostatic, free surface, turbulent averaged equations of motion for a variable-density fluid. This is an Environmental Protection Agency (EPA) model and will be used for water levels, velocitites and circulation and is the engine behind the ecological, sediment, and water quality models.	Allowed for Use
ADh	Adaptive Hydraulics Modeling system is capable of handling both saturated and unsaturated groundwater, overland flow, three-dimensional Navier-Stokes flow, and two- or three- dimensional	Under Review

	shallow water problems. Allows for rapid convergence of flows to stead state solutions. ADH contains other essential features such as wetting and drying, completely coupled sediment transport, and wind effects. A series of modularized libraries make it possible for ADH to include vessel movement and friction descriptions. For the purposes of this study this model will be used to model fish passage.	

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The PDT District shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Lead Planner will work with the ATR Leader to ensure that adequate funding is available and is commensurate with the level of review needed. The current cost estimate for this review is $100,000. This cost is an estimate and will be refined as the study progresses and ATR requirements better understood. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring. The team leader shall provide organization codes for each team members 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 Lead Planner to any possible funding shortages.

The ATR process for this document will follow the following timeline. Actual dates will be scheduled once the period draws closer. All products produced for these milestones will be reviewed.

Task	Date
Technical Review Strategy Session	August 2013
ATR of Tentatively Selected Plan Milestone Documentation (Draft Feasibility Report/EIS)	December 2013 – January 2014
Backcheck of ATR Comments	January 2014
ATR Certification Draft Feasibility Report/EIS	February 2014
Final Feasibility Report Development	March – June 2014
ATR of Final Report Milestone Documentation (Final Feasibility Report/EIS)	July 2014
Backcheck ATR of Final Feasibility Report	July 2014
ATR Certification Final Feasibility Report/EIS	August 2014
Final Report Milestone	September 2014

b. Type I IEPR Schedule and Cost. The FRM-PCX will identify someone independent from the PDT to scope the IEPR and develop an Independent Government Estimate. The Sacramento District will provide funding to the IEPR panel and for PCX support for the IEPR. The IEPR will occur at the Draft Feasibility Report/EIS (February-March 2014). Due to the complex and unique nature of the study the estimated cost for the IEPR is $225,000, of which $200,000 is associated with the cost of the IEPR contract and is not cost-shared with the non-Federal sponsor.

c. Model Certification/Approval Schedule and Cost. Planning models to be used in this study have been certified. The computational models to be employed in the study have been developed by or for the USACE or by a contractor for the DWR. Model certification and approval for all identified planning models will be coordinated through the PCX as needed. Project resources and schedules will be adjusted to address this process for certification and PCX coordination. The level of certification required for engineering models will be determined as the study proceeds.

d. Value Engineering. Value Engineering will be conducted in coordination with the District VE Officer prior to the Alternatives Milestone.

11. PUBLIC PARTICIPATION

The public and agencies will have multiple opportunities to participate in this study. The earliest opportunity for interested Federal and State agencies will be as part of the PDT. Public review of the Draft Report will occur after issuance of the Draft Report and concurrence from SPD that the document is ready for public release. Public review of the Draft Report will be concurrent with ATR of the Draft Report in order to expedite the review process. The period will last a minimum of 30 days. One public workshop will be held during the public review period. Comments received during the public comment period for the draft report will be provided to the PDT prior to completion of the final Review Report and to the ATR Team before review of the final Decision Document. The public review of necessary state or Federal permits will also take place during this period. A formal State and Agency review will occur concurrently with the public review. However, it is anticipated that intensive coordination with these agencies will have occurred concurrent with the planning process. Upon completion of the review period, comments will be consolidated in a matrix and addressed, if needed. A comment resolution meeting will take place if needed to decide upon the best resolution of comments. A summary of the comments and resolutions will be included in the document. A communication plan for public participation has been developed and identifies informal as well as additional formal forums for participation in the study. The public will not be asked to nominate potential peer reviewers.

12. REVIEW PLAN APPROVAL AND UPDATES

The South Pacific Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Delta Islands and Levees Feasibility Study, Planner at (916) 557-5299

- MSC point of contact-TBD
- Program Manager, Flood Risk Management Planning Center of Expertise at (415) 503-6852

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM

PDT Members Name/District	Title/Discipline	Office
SPK		
Dennis Clark	Project Manager	CESPK-PM-C
Brooke Schlenker	Lead Planner/Planning	CESPK-PD-WF
Matilda Evoy-Mount	Planning	CESPK-PD-WF
Lawrence Nemetz	Civil/Structural Design	CESPK-ED-DC
Douglas Edwards	Environmental Analysis	CESPK-PD-RP
Steve Holmstrom	Hydrology/Reservoir Operations	CESPK-ED-HH
Eugene Maak	Hydraulic Design/Engineering Lead	CESPK-ED-HD
Dean McLeod	Economics	CESPK-PD-WW
Bob Vrchoticky	Cost Engineering	CESPK-ED-DR
Jeremy Hollis	Real Estate	CESPK-RE-B
Shellie Sullo	Cultural Resources	CESPK-PD-RC
Wayne Smith	Geotechnical Engineering	CESPK-ED-GS
Arianna Raymundo	Geotechnical Engineering	CESPK-ED-GS

DISTRICT QUALITY CONTROL TEAM

DQC Members Name/District	Title/Discipline	Office
SPK		
Ben Gompers	Geotechnical	CESPK-ED-GS
Jerry Fuentes	Water Resources Planner	CESPK-PD
Mike Dietl	Planning	CESPK-PD-WF
Jane Rinck	Environmental Manager	CESPK-PD
Jane Rinck	Cultural Resources	CESPK-PD
TBD	Civil/Structural Design	CESPK-ED-DC
Peter Valentine	Civil Design	CESPK-ED-DC
TBD	Cost Engineer	CESPK-ED-SC
Joe Yee	Cost Engineer	CESPK-ED-SC
TBD	Hydraulics	CESPK-ED-HD
TBD	Hydrology	CESPK-ED-HH
TBD	Economics	CESPK-PD-W
Nick Applegate	Economics	CESPK-PD-W

AGENCY TECHNICAL REVIEW TEAM

Name	Discipline	Office	Experience
TBD	ATR Manager		
TBD	Civil/Structural Design		
TBD	Environmental Resources		
TBD	Hydrology/Reservoir		
TBD	Hydraulics		
TBD	Economics		
TBD	Cost Engineering [1]		
TBD	Risk Analysis		
TBD	Real Estate/Lands		
TBD	Cultural Resources		
TBD	Geotechnical Engineering		
TBD	Plan Formulation		

[1]The cost engineering team member nomination will be coordinated with the NWW Cost Estimating Center of Expertise as required. That PCX will determine if the cost estimate will need to be reviewed by PCX staff.

VERTICAL TEAM

Name	Discipline	Office
Karen Berresford	District Support Team Lead	CESPD-PDC
Pauline Acosta	Regional Integration Team	CEMP-SPD-RIT

INDEPENDENT EXTERNAL TECHNICAL REVIEW PANEL

Name	Discipline	Office
TBD	Hydraulics	
TBD	Environmental	
TBD	Geotechnical	
TBD	Economics	
TBD	Civil/Structural	

PLANNING CENTER OF EXPERTISE
FLOOD RISK MANAGEMENT

Eric Thaut	Program Manager, PCX – Flood Risk Management	415-503-6852
Jodi Staebell	Program Manager, PCX – Ecosystem Restoration	309-794-5448

[1] Primary PCX is FRM, who will coordinate with PCX for ER as appropriate.

ATTACHMENT 2: ATR CERTIFICATION

STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Delta Islands and Levees Feasibility Study, California. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

SIGNATURE _____ _____

Name Date
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ _____

Dennis Clark Date
Project Manager
CESPK-PM

SIGNATURE _____ _____

Name Date
Architect Engineer Project Manager[1]
Company, location

SIGNATURE _____ _____

Eric Thaut Date
Review Management Office Representative
CESPD-PDP

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Describe the major technical concerns and their resolution.*

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

SIGNATURE _____ _____

Rick Poeppelman — Date
Chief, Engineering Division
CESPK-ED

SIGNATURE _____ _____

Alicia Kirchner — Date
Chief, Planning Division
CESPK-PD

[1] Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSC	The District or MSC responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act

ATTACHMENT 5: REVIEW PLAN CHECKLIST

DRAFT SPD Review Plan Checklist

Section I - Decision Documents

Review Plan Checklist
For Decision Documents

Planning Working Group will revise National and SPD RP checklists based on the new EC 1165-2-209. The existing National and SPD RP checklists based on EC 1105-2-410 for decision documents is included below.

Date: November 1st, 2012
Originating District: SPK
Project/Study Title: Delta Islands and Levees Feasibility Study
PWI #:
District POC: Brooke Schlenker
PCX Reviewer: Eric Thaut

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate PCX. Any evaluation boxes checked 'No' indicate the RP possibly may not comply with EC 1165-2-209 and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
1. Is the Review Plan (RP) a stand alone document?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?		a. Yes ☒ No ☐
b. Does it include a table of contents?		b. Yes ☒ No ☐
c. Is the purpose of the RP clearly stated and EC 1105-2-410 referenced?		c. Yes ☒ No ☐
d. Does it reference the Project Management Plan (PMP) of which the RP is a component?		d. Yes ☒ No ☐
e. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?		e. Yes ☒ No ☐
f. Does it include a paragraph stating the		f. Yes ☒ No ☐

title, subject, and purpose of the decision document to be reviewed? g. Does it list the names and disciplines of the Project Delivery Team (PDT)?* **Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*	EC 1105-2-410, Appendix B, Para 4a	g. Yes ☒ No ☐ **Comments:**
2. Is the RP detailed enough to assess the necessary level and focus of peer review?	EC 1105-2-410, Appendix B, Para 3a	Yes ☒ No ☐
a. Does it indicate which parts of the study will likely be challenging?	EC 1105-2-410, Appendix B, Para 3a	a. Yes ☒ No ☐
b. Does it provide a preliminary assessment of where the project risks are likely to occur and what the magnitude of those risks might be?	EC 1105-2-410, Appendix B, Para 3a	b. Yes ☒ No ☐
c. Does it indicate if the project/study will require preparation of an environmental impact statement (EIS)? *Will an EIS be prepared? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410 Para 7c & 8f	c. Yes ☒ No ☐
d. Does it address if the project report is likely to contain influential scientific information or be a highly influential scientific assessment? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix B, Para 4b	d. Yes ☒ No ☐
e. Does it address if the project is likely to have significant economic, environmental, and social affects to the nation, such as (but not limited to):	EC 1105-2-410, Para 6c	e. Yes ☒ No ☐
• More than negligible adverse impacts on scarce or unique cultural, historic, or tribal resources?	EC 1105-2-410 Para 8f	
• Substantial adverse impacts on fish and wildlife species or their habitat,	EC 1105-2-410 Para 8f	

prior to implementation of mitigation? • More than negligible adverse impact on species listed as endangered or threatened, or to the designated critical habitat of such species, under the Endangered Species Act, prior to implementation of mitigation? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410 Para 8f	
f. Does it address if the project/study is likely to have significant interagency interest? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Para 6c	f. Yes ☒ No ☐
g. Does it address if the project/study likely involves significant threat to human life (safety assurance)? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	g. Yes ☒ No ☐
h. Does it provide an estimated total project cost? *What is the estimated cost: <u>$1B</u>* *(best current estimate; may be a range)* *Is it > $45 million? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	h. Yes ☒ No ☐
i. Does it address if the project/study will likely be highly controversial, such as if there will be a significant public dispute as to the size, nature, or effects of the project or to the economic or environmental costs or benefits of the project? *Is it likely? Yes ☒ No ☐* *If yes, IEPR is required.*	EC 1105-2-410, Appendix D, Para 1b	i. Yes ☒ No ☐
j. Does it address if the information in the decision document will likely be based on novel methods, present complex	EC 1105-2-410, Appendix D, Para 1b	j. Yes ☒ No ☐

challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices? *Is it likely? Yes* ☒ *No* ☐ *If yes, IEPR is required.*		**Comments:**
3. Does the RP define the appropriate level of peer review for the project/study?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?	EC 1105-2-410, Para 7a	a. Yes ☒ No ☐
b. Does it state that ATR will be conducted or managed by the lead PCX?	EC 1105-2-410, Appendix D, Para 3a	b. Yes ☒ No ☐
c. Does it state whether IEPR will be performed? *Will IEPR be performed? Yes* ☒ *No* ☐	EC 1105-2-410, Appendix B, Para 4b	c. Yes ☒ No ☐
d. Does it provide a defensible rationale for the decision on IEPR?		d. Yes ☒ No ☐
e. Does it state that IEPR will be managed by an Outside Eligible Organization, external to the Corps of Engineers?	EC 1105-2-410, Para 7c	e. Yes ☒ No ☐ n/a ☐ **Comments:**
4. Does the RP explain how ATR will be accomplished?	EC 1105-2-410, Appendix B, Para 4l	Yes ☒ No ☐
a. Does it identify the anticipated number of reviewers?	EC 1105-2-410, Appendix B, Para 4f	a. Yes ☒ No ☐
b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?	EC 1105-2-410, Appendix B, Para 4g	b. Yes ☒ No ☐
c. Does it indicate that ATR team members will be from outside the home district?	EC 1105-2-410, Para 7b	c. Yes ☒ No ☐
d. Does it indicate that the ATR team leader will be from outside the home MSC?	EC 1105-2-410, Para 7b	d. Yes ☒ No ☐

e. Does the RP state that the lead PCX is responsible for identifying the ATR team members and indicate if candidates will be nominated by the home district/MSC? f. If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?* **Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*	EC 1105-2-410, Appendix B, Para 4k(1) EC 1105-2-410, Appendix B, Para 4k(1)	e. Yes ☒ No ☐ f. Yes ☐ No ☐ n/a ☒ **Comments:** Reviewers are not yet identified. Will update RP as appropriate.
5. Does the RP explain how IEPR will be accomplished?	EC 1105-2-410, Appendix B, Para 4k & Appendix D	**Yes** ☒ **No** ☐ **n/a** ☐
a. Does it identify the anticipated number of reviewers? b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? c. Does it indicate that the IEPR reviewers will be selected by an Outside Eligible Organization and if candidates will be nominated by the Corps of Engineers? d. Does it indicate the IEPR will address all the underlying planning, safety assurance, engineering, economic, and environmental analyses, not just one aspect of the project?	EC 1105-2-410, Appendix B, Para 4f EC 1105-2-410, Appendix B, Para 4g EC 1105-2-410, Appendix B, Para 4k(1) & Appendix D, Para 2a EC 1105-2-410, Para 7c	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ d. Yes ☒ No ☐ **Comments:**
6. Does the RP address peer review of sponsor in-kind contributions?		Yes ☒ No ☐
a. Does the RP list the expected in-kind	EC 1105-2-410,	a. Yes ☒ No ☐

contributions to be provided by the sponsor? b. Does it explain how peer review will be accomplished for those in-kind contributions?	Appendix B, Para 4j	b. Yes ☒ No ☐ n/a ☐ **Comments:**
7. Does the RP address how the peer review will be documented?		Yes ☒ No ☐
a. Does the RP address the requirement to document ATR and IEPR comments using Dr Checks?	EC 1105-2-410, Para 8g(1)	a. Yes ☒ No ☐
b. Does the RP explain how the IEPR will be documented in a Review Report?	EC1105-2-410, Appendix B, Para 4k(13)(b)	b. Yes ☒ No ☐ n/a ☐
c. Does the RP document how written responses to the IEPR Review Report will be prepared?	EC 1105-2-410, Appendix B, Para 4l	c. Yes ☒ No ☐ n/a ☐
d. Does the RP detail how the district/PCX will disseminate the final IEPR Review Report, USACE response, and all other materials related to the IEPR on the internet and include them in the applicable decision document?	EC 1105-2-410, Para 8g(2) & Appendix B, Para 4l	d. Yes ☒ No ☐ n/a ☐ **Comments:**
8. Does the RP address Policy Compliance and Legal Review?	EC 1105-2-410, Para 7d	Yes ☒ No ☐ **Comments:**
9. Does the RP present the tasks, timing and sequence (including deferrals), and costs of reviews?	EC 1105-2-410, Appendix B, Para 4c & Appendix C, Para 3d	Yes ☒ No ☐
a. Does it provide a schedule for ATR including review of the Feasibility Scoping Meeting (FSM) materials, Alternative Formulation Briefing (AFB) materials, draft report, and final report?	EC 1105-2-410, Appendix C, Para 3g	a. Yes ☒ No ☐
b. Does it include interim ATR reviews for key technical products?	EC 1105-2-410, Appendix C, Para 3g	b. Yes ☒ No ☐ c.

c. Does it present the timing and sequencing for IEPR? d. Does it include cost estimates for the peer reviews?		d. Yes ☒ No ☐ n/a ☐ e. Yes ☒ No ☐
10. Does the RP indicate the study will address Safety Assurance factors? Factors to be considered include: • Where failure leads to significant threat to human life • Novel methods\complexity\ precedent-setting models\policy changing conclusions • Innovative materials or techniques • Design lacks redundancy, resiliency of robustness • Unique construction sequence or acquisition plans • Reduced\overlapping design construction schedule	EC 1105-2-410, Para 2 & Appendix D, Para 1c	**Yes ☒ No ☐ n/a ☐** **Comments:**
11. Does the RP address model certification requirements?	EC 1105-2-407	Yes ☒ No ☐
a. Does it list the models and data anticipated to be used in developing recommendations (including mitigation models)? b. Does it indicate the certification/approval status of those models and if certification or approval of any model(s) will be needed? c. If needed, does the RP propose the appropriate level of certification/approval for the model(s) and how it will be accomplished?	EC 1105-2-410, Appendix B, Para 4i	a. Yes ☒ No ☐ b. Yes ☒ No ☐ c. Yes ☒ No ☐ n/a ☐ **Comments:**
12. Does the RP address opportunities for public participation?		Yes ☒ No ☐
a. Does it indicate how and when there will be opportunities for public comment on the decision document? b. Does it indicate when significant and	EC 1105-2-410, Appendix B, Para 4d EC 1105-2-410,	a. Yes ☒ No ☐ b. Yes ☒ No ☐

relevant public comments will be provided to reviewers before they conduct their review?	Appendix B, Para 4e	
c. Does it address whether the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers?	EC 1105-2-410, Appendix B, Para 4h	c. Yes ☒ No ☐
d. Does the RP list points of contact at the home district and the lead PCX for inquiries about the RP?	EC 1105-2-410, Appendix B, Para 4a	d. Yes ☒ No ☐ **Comments:**
13. Does the RP address coordination with the appropriate Planning Centers of Expertise?	EC 1105-2-410, Para 8a	Yes ☒ No ☐
a. Does it state if the project is single or multi-purpose? Single ☐ Multi ☒ List purposes: FRM, ER		a. Yes ☒ No ☐
b. Does it identify the lead PCX for peer review? Lead PCX: **FRM**		b. Yes ☒ No ☐
c. If multi-purpose, has the lead PCX coordinated the review of the RP with the other PCXs as appropriate?	EC 1105-2-410, Appendix D, Para 3c	c. Yes ☒ No ☐ n/a ☐ **Comments:**
14. Does the RP address coordination with the Cost Engineering Directory of Expertise (DX) in Walla Walla District for ATR of cost estimates, construction schedules and contingencies for all documents requiring Congressional authorization?	EC 1105-2-410, Appendix D, Para 3	Yes ☒ No ☐
a. Does it state if the decision document will require Congressional authorization?		a. Yes ☒ No ☐
b. If Congressional authorization is required, does the state that coordination will occur with the Cost Engineering DX?		b. Yes ☒ No ☐ n/a ☐ **Comments:**
15. Other Considerations: This checklist highlights the minimum requirements for an RP based on EC 1105-2-410. Additional factors to consider in preparation of the RP include, but may not be limited to:		**Comments:** a. No b. No c. No d. No

a. Is a request from a State Governor or the head of a Federal or state agency to conduct IEPR likely? b. Is the home district expecting to submit a waiver to exclude the project study from IEPR? c. Are there additional Peer Review requirements specific to the home MSC or district (as described in the Quality Management Plan for the MSC or district)? d. Are there additional Peer Review needs unique to the project study?	EC 1105-2-410, Appendix D, Para 1b EC 1105-2-410, Appendix D, Para 1d	
Detailed Comments and Back check:		

SPD CHECKLIST

1. Is there a Technical Review Strategy Session identified early in the study process? (See Appendix C paragraph 8.2,)

Yes.

2. Are there any potential Continuing Authority Program (CAP) "spinoffs" identified, and the appropriate QCP identified for them?

No.

3. Are the review costs identified? for District Quality Control (DCQ), ATR, and Independent External Technical Review (IETR)?

Yes.

4. Does the RP identify seamless technical review (8.4) including supervisory oversight of the technical products? (8.5)

Yes.

5. Does the RP identify the recommended review comment content and structure? (8.5.4)

Yes.

6. Does the RP encourage face-to-face resolution of issues between PDT and reviewers? (8.5.5)

No. Due to funding constraints the reviewer's travel will be limited. Phone calls, emails, and VTC are encouraged for issue resolution.

7. And if issues remain, does the RP must identify an appropriate dispute resolution process? (8.6)

Yes.

8. Does the RP require documentation of all the significant decisions and leave a clear audit trail?(8.5.6)

Yes.

9. Does the RP identify all the requirements for technical certifications? (8.5.7)

Yes.

10. Does the RP identify the requirement that without-project hydrology is certified at the Feasibility Scoping Meeting? (8.5.8)

The Review Plan identifies the ATR of the Draft Report with seamless reviews of technical interim products, however, the milestones have been updated to comply with new SMART Planning Guidance.

11. Does the RP fully address products developed by contractors? (8.10)

Yes.

12. Is the need for a VE study identified and incorporated into the review process subsequent to the feasibility scoping meeting? (8.11) has the proper coordination with the VE Officer taken place?

Yes.

13. Does the RP include a Feasibility Alternative Review Milestone, where CESPD buy-in to the recommended plan is obtained?(12.1)

Yes. Buy-in to the recommended plan will be obtained at the Tentatively Selected Plan Milestone.

14. Does the RP identify the final public meeting milestone? (See Appendix C, Enclosure 1, SPD Milestones)

Yes.

15. Does the RP identify the report approval process and if there is a delegated approval Authority?

Yes.

16. Has the proper coordination occurred with the Regional Technical Specialist (RTS) program manager, CESPD-RBM, to ensure the relevant technical skill sets are supporting the Review Plan process?

Yes.

17. Have regional Indefinite Delivery/ Indefinite Quantity (IDIQ) contracts been surveyed for potential AE support in the Review Plan process?

N/A.

18. Did you confirm that the PED agreement is consistent with the engineering scopes of work for the Design Documentation Reports (DDR's) and Engineering Documentation Reports (EDR's) if applicable?

N/A.

Section II - Implementation Documents

Review Plan Checklist
For Implementation Documents

Date:
Originating District:
Project/Study Title:
PWI #:
District POC:
PCX Reviewer:

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate RMO. For DQC, the District is the RMO; for ATR of Dam and Levee Safety Studies, the Risk Management Center is the RMO; and for non-Dam and Levee Safety projects and other work products, SPD is the RMO; for Type II IEPR, the Risk Management Center is the RMO. Any evaluation boxes checked 'No' indicate the RP possibly may not comply with EC 1165-2-209 and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
1. Is the Review Plan (RP) a stand alone document?	EC 1165-2-209, Appendix B Para 4a	Yes ☐ No ☐
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?		a. Yes ☐ No ☐
b. Does it include a table of contents?		b. Yes ☐ No ☐
c. Is the purpose of the RP clearly stated and EC 1165-2-209 referenced?	EC 1165-2-209 Para 7a	c. Yes ☐ No ☐
d. Does it reference the Project Management Plan (PMP) of which the RP is a component including P2 Project #?	EC 1165-2-209 Para 7a (2)	d. Yes ☐ No ☐
e. Does it include a paragraph stating the title, subject, and purpose of the work product to be reviewed?	EC 1165-2-209 Appendix B Para 4a	e. Yes ☐ No ☐
f. Does it list the names and disciplines in the home district, MSC and RMO to whom inquiries about the plan may be	EC 1165-2-209, Appendix B, Para 4a	f. Yes ☐ No ☐

directed?* **Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*		
2. Documentation of risk-informed decisions on which levels of review are appropriate.	EC 1165-2-209, Appendix B, Para 4b	Yes ☐ No ☐
a. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?	EC 1165-2-209 7a	a. Yes ☐ No ☐
b. Does it contain a summary of the CW implementation products required?	EC1165-2-209 Para 15	b. Yes ☐ No ☐
c. DQC is always required. The RP will need to address the following questions:	EC1165-2-209 Para 15a	
i. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?	EC1165-2-209 Para 8a	i. Yes ☐ No ☐
ii. Does it list the DQC activities (for example, 30, 60, 90, BCOE reviews, etc)	EC 1165-2-209 Appendix B (1)	ii. Yes ☐ No ☐
iii. Does it list the review teams who will perform the DQC activities?	EC 1165-2-209 Appendix B 4g	iii. Yes ☐ No ☐
iv. Does it provide tasks and related resource, funding and schedule showing when the DQC activities will be performed?	EC 1165-2-209 Appendix B Para 4c	iv. Yes ☐ No ☐
d. Does it assume an ATR is required and if an ATR is not required does it provide a risk based decision of why it is not required? If an ATR is required the RP will need to address the following questions:	EC1165-2-209 Para 15a	d. Yes ☐ No ☐
i. Does it identify the ATR District, MSC, and RMO points of contact?	EC 1165-2-209 Para 7a	i. Yes ☐ No ☐ ii. Yes ☐ No ☐

ii. Does it identify the ATR lead from outside the home MSC?	EC 1165-2-209 Para 9c	iii. Yes ☐ No ☐
iii. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)? If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*	EC 1165-2-209 Appendix B 4g	iv. Yes ☐ No ☐
iv. Does it provide tasks and related resource, funding and schedule showing when the ATR activities will be performed?	EC 1165-2-209 Appendix C Para 3e	v. Yes ☐ No ☐
v. Does the RP address the requirement to document ATR comments using Dr Checks?	EC 1165-2-209 Para 7d (1)	
**Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.*		
e. Does it assume a Type II IEPR is required and if a Type II IEPR is not required does it provide a risk based decision of why it is not required including RMC/ MSC concurrence? If a Type II IEPR is required the RP will need to address the following questions:	EC1165-2-209 Para 15a	e. Yes ☐ No ☐
i. Does it provide a defensible rationale for the decision on Type II IEPR?	EC 1165-2-209 Para 7a	i. Yes ☐ No ☐
ii. Does it identify the Type II IEPR District, MSC, and RMO points of contact?	EC 1165-2-209 Appendix B Para 4a	ii. Yes ☐ No ☐
iii. Does it state that for a Type II IEPR, it will be contracted with an A/E contractor or arranged with another government agency to manage external to the Corps of Engineers?	EC 1165-2-209 Appendix B Para 4k (4)	iii. Yes ☐ No ☐
iv. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be made up of independent, recognized experts from outside of the USACE in the appropriate disciplines,	EC 1165-2-209 Appendix B, Para 4k(1) & Appendix E, Para's 1a & 7	iv. Yes ☐ No ☐

representing a balance of expertise suitable for the review being conducted?		
v. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be selected using the National Academy of Science (NAS) Policy which sets the standard for "independence" in the review process?	EC 1165-2-209 Para 6b (4) and Para 10b	v. Yes ☐ No ☐
vi. If the Type II IEPR panel is established by USACE, has local (i.e. District) counsel reviewed the Type II IEPR execution for FACA requirements?	EC1165-2-209 Appendix E, Para 7c(1)	vi. Yes ☐ No ☐
vii. Does it provide tasks and related resource, funding and schedule showing when the Type II IEPR activities will be performed?	EC1165-2-209 Appendix E, Para 5a	vii. Yes ☐ No ☐
viii. Does the project address hurricane and storm risk management or flood risk management or any other aspects where Federal action is justified by life safety or significant threat to human life? *Is it likely? Yes ☐ No ☐* *If yes, Type II IEPR must be addressed.*	EC1165-2-209 Appendix E Para 2	viii. Yes ☐ No ☐
ix. Does the RP address Type II IEPR factors? Factors to be considered include: • Does the project 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? • Does the project design require redundancy, resiliency and robustness • Does the project have unique construction sequencing or a reduced or overlapping design construction schedule; fro example, significant		ix. Yes ☐ No ☐

project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems. *Is it likely? Yes ☐ No ☐* *If yes, Type II IEPR must be addressed.* g. Does it address policy compliance and legal review? If no, does it provide a risk based decision of why it is not required?	EC 1165-2-209 Para 14	g. Yes ☐ No ☐
3. Does the RP present the tasks, timing, and sequence of the reviews (including deferrals)?	EC 1165-2-209, Appendix B, Para 4c	Yes ☐ No ☐
a. Does it provide and overall review schedule that shows timing and sequence of all reviews?	EC 1165-2-209, Appendix C, Para 3g	a. Yes ☐ No ☐
b. Does the review plan establish a milestone schedule aligned with the critical features of the project design and construction	EC 1165-2-209, Appendix E, Para 6c	b. Yes ☐ No ☐
4. Does the RP address engineering model certification requirements?	EC 1165-2-209, Appendix B, Para 4i	Yes ☐ No ☐
a. Does it list the models and data anticipated to be used in developing recommendations?		a. Yes ☐ No ☐
b. Does it indicate the certification /approval status of those models and if certification or approval of any model(s) wil be needed?		b. Yes ☐ No ☐
c. If needed, does the RP propose the appropriate level of certification??? /approval for the model(s) and how it will be accomplished?		c. Yes ☐ No ☐
5. Does the RP explain how and when there will be opportunities for the public to comment on the study or project to be reviewed?	EC 1165-2-209, Appendix B, Para 4d	Yes ☐ No ☐

a. Does it discuss posting the RP on the District website? b. Does it indicate the web address, and schedule and duration of the posting?		a. Yes ☐ No ☐ b. Yes ☐ No ☐
6. Does the RP explain when significant and relevant public comments will be provided to the reviewers before they conduct their review?	EC 1165-2-209, Appendix B, Para 4e	Yes ☐ No ☐
a. Does it discuss the schedule of receiving public comments? b. Does it discuss the schedule of when significant comments will be provided to the reviewers?		a. Yes ☐ No ☐ b. Yes ☐ No ☐
7. Does the RP address whether the public, including scientific or professional societies, will be asked to nominate professional reviewers?*	EC 1165-2-209, Appendix B, Para 4h	Yes ☐ No ☐
a. If the public is asked to nominate professional reviewers then does the RP provide a description of the requirements and answer who, what, when, where, and how questions? * Typically the public will not be asked to nominate potential reviewers		a. Yes ☐ No ☐
8. Does the RP address expected in-kind contributions to be provided by the sponsor?	EC 1165-2-209, Appendix B, Para 4j	Yes ☐ No ☐
a. If expected in-kind contributions are to be provided by the sponsor, does the RP list the expected in-kind contributions to be provided by the sponsor?		a. Yes ☐ No ☐
9. Does the RP explain how the reviews will be documented? a. Does the RP address the requirement to document ATR comments using Dr Checks and Type II IEPR published comments and responses pertaining to the design and construction activities summarized in a report reviewed and	EC 1165-2-209, Para 7d	Yes ☐ No ☐ a. Yes ☐ No ☐

approved by the MSC and posted on the home district website?		
b. Does the RP explain how the Type II IEPR will be documented in a Review Report?	EC 1165-2-209 Appendix B Para 4k (14)	b. Yes ☐ No ☐
c. Does the RP document how written responses to the Type II IEPR Review Report will be prepared?	EC 1165-2-209 Appendix B Para 4k (14)	c. Yes ☐ No
d. Does the RP detail how the district/PCX/MSC and CECW-CP will disseminate the final Type II IEPR Review Report, USACE response, and all other materials related to the Type II IEPR on the internet?	EC 1165-2-209 Appendix B Para 5	d. Yes ☐ No ☐
10. Has the approval memorandum been prepared and does it accompany the RP?	EC 1165-2-209, Appendix B, Para 7	Yes ☐ No ☐

Appendix A – CW Products and Type of Reviews

There are few absolutes in terms of review and those tend towards higher levels of review rather than lower. All Civil Works products shall get district quality control. All decision and implementation documents shall undergo Agency Technical Review. The law states when peer review is mandatory. Beyond this, the EC requires a risk informed decision be made on each individual study/project to determine the appropriate level of review. This determination will first be made as part of the review plan, which is part of the PMP. But the determination may change based upon changes the product undergoes during its development.

Any deviation from the following requires use of a risk informed decision process.

CW Planning Products	Required Review	SPD Requirement
Reconnaissance Report	DQC, ATR	
Feasibility Study	DQC, ATR, Type I IEPR	
General Reevaluation Report	DQC, ATR, Type I IEPR	
Limited Reevaluation Report	DQC, ATR, Type I IEPR	
Continuing Authorities Project	DQC, ATR, Type I IEPR	
Major Rehab Report (Hydropower, Navigation)	DQC, ATR, Type I IEPR	
Dredge Material Management Plan	DQC, ATR	
Shoreline Management Plan	DQC, ATR, Type I IEPR	
Master Plan	DQC, ATR	
Master Plan Update	DQC	
Operational Management Plan	DQC	
Annual Work Plan	DQC	
Hydrologic Studies*	DQC, ATR	QMP

*Data from hydrologic studies must undergo a minimum of DQC and ATR prior to its substantive use in plan formulatin studies.

CW Engineering Products	Required Review	SPD Requirement
Engineering Studies (EDR's, DDR's, etc)	DQC, ATR,SAR	
Cost Engineering Products	DQC, ATR	
Engineering Appendices for FS	DQC, ATR, SAR*	
Operation and Maintenance Manuals	DQC, ATR, SAR*, Policy Review	
Major Maintenance Reports	DQC, ATR	
PL 84-99 Project Information Reports	DQC, ATR	
PL 84-99 Rehab Plans and Specs	DQC, ATR, SAR*	
Plan and Specs for Levee and Dam	DQC, ATR, SAR	

Projects		
Purchase Orders	DQC, ATR	
Field Investigations	DQC, ATR	
Plan and Specs	DQC, ATR, SAR*	
Construction	SAR* (assumes DQC, ATR and IEPR were done in PED)	
Plans and Specs	DQC, ATR, SAR*	
Issue Evaluation Studies	DQC, ATR	
Engineering Investigations	DQC, ATR	

Operations Engineering Products	**Required Review**	**SPD Requirement**
Operation and Maintenance Manuals	DQC, ATR, SAR*	
Major Maintenance Reports	DQC, ATR	
Plan and Specs for Levee or Dam Projects	DQC, ATR, SAR	
Purchase Orders	DQC, ATR	
Field Investigations	DQC, ATR	
Construction		
Plan and Specs	DQC, ATR	
Engineering Investigations	DQC, ATR	
Routine Maintenance/Replacement-in-kind	DQC***	
Periodic Inspections of Completed Projects	DQC, ????	

* SAR is required for any engineering product with life safety issues.

** Routine maintenance work typically does not require any DQC because the DQC occurs during the development/update of the O&M manual.

*** Routine maintenance or Replacement–In-Kind that follows industry standards does not require DQC.

ATTACHMENT 6: PCX CONCURRENCE

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

REPLY TO
ATTENTION OF

CESPD-PDP (FRM-PCX) 11 December 2012

MEMORANDUM FOR Matilda Evoy-Mount, Sacramento District

SUBJECT: Delta Islands and Levees Feasibility Study, California Review Plan

1. The Flood Risk Management Planning Center of Expertise (FRM-PCX) has reviewed the Review Plan (RP) submitted to the PCX on 11 December 2012 for the subject study and concurs that the RP satisfies peer review policy requirements outlined in Engineering Circular (EC) 1165-2-209 Civil Works Review Policy, dated 31 January 2010 and outlines an appropriate scope and level of review.

2. The FRM-PCX recommends the RP for approval by the Major Subordinate Command (MSC). Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum, and the link to where the RP is posted on the District website to Eric Thaut, FRM-PCX Deputy Director (eric.w.thaut@usace.army.mil) and Dean McLeod, FRM-PCX Regional Manager for South Pacific Division (dean.m.mcleod@usace.army.mil).

3. The RP is a living document and should be updated as the study progresses. Please provide any updates to the Agency Technical Review (ATR) Lead, FRM-PCX Regional Manager, and me to enable us to provide effective and timely PCX support for the study.

4. Thank you for the opportunity to assist in the preparation of the RP. Please coordinate the peer review efforts defined in the review plan with Dean McLeod, 916-557-7436.

Encl

Eric Thaut
Deputy Director, FRM-PCX