



DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1399

17 DEC 2009

CESPD-DE

MEMORANDUM FOR RECORD

SUBJECT: Review Plan approval for the Yuba River Basin, CA, Marysville Ring Levee Engineering Design Documentation Report Flood Risk Management.

1. The enclosed Review Plan for the Yuba River Basin, CA, Marysville Ring Levee Engineering Design Documentation Report was prepared in accordance with EC 1105-2-410.
2. The Review Plan will be made available for public comment, and the comments received will be incorporated into the Review Plan. The Review Plan was coordinated with the Flood Risk Management Planning Center of Expertise of the South Pacific Division. For further information, contact the PCX at 415-503-6852.
3. The Review Plan includes Independent External Peer Review Type II and a Safety Assurance Review will be conducted.
4. I hereby approve this Review Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.
5. The point of contact for this memorandum is Ms. Karen Berresford, (415) 503-6557, Karen.G.Berresford@usace.army.mil.

Building Strong on the Cornerstone of the Southwest!

A handwritten signature in black ink, appearing to read "S. Donahue", with a long horizontal line extending to the right.

SCOTT F. "ROCK" DONAHUE, P.E.
COL /(P), EN
Commanding

Encl



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

SEP 04 2009

CESPK-PD-W

MEMORANDUM FOR: Commander, South Pacific Division, ATTN: CESPD-PD-C,
(Berresford)


SUBJECT: Review Plan for the Yuba River Basin, California, Marysville Ring Levee
Engineering Documentation Report (EDR)

1. In accordance with EC 1105-2-410, Review of Decision Documents, dated 22 August 2008, draft EC 1165-2-209, Civil Works Review Policy, dated 1 July 2009, and draft ER 1110-2-1150 Engineering and Design for Civil Works Projects, dated 2008, the subject Review Plan is provided (Enclosure 1). Also enclosed is the SPD Review Plan checklist (Enclosure 2).
2. This Review Plan is in compliance with the referenced ER's. It has been coordinated with the Planning Center of Expertise for Flood Risk Management (PCX-FRM); however, because the EDR is an implementation document approved at the District, PCX concurrence is not required. The EDR is an engineering document and Engineering Division will be the overall manager of its review. Engineering Division, with assistance from Planning Division, will acquire independent reviewers outside the District for the ATR.
3. The Review Plan was submitted to the DST on 3 February 2009 for review. Subsequently, DST comments were received and suggested revisions have been incorporated into the Review Plan.
4. District point of contact for this action is Mr. Ted Werner.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. Piccola".

Encls

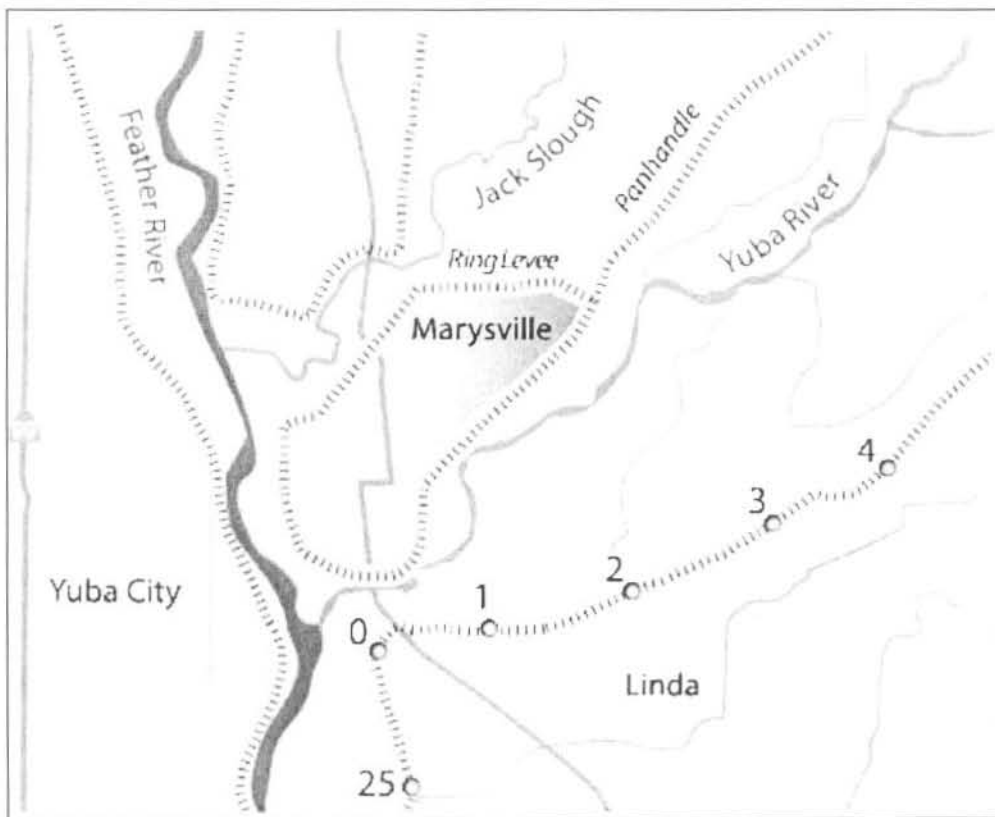
 Francis C. Piccola
Chief, Planning Division

REVIEW PLAN

YUBA RIVER BASIN, CALIFORNIA MARYSVILLE RING LEVEE

ENGINEERING DOCUMENTATION REPORT

SACRAMENTO DISTRICT



SEPTEMBER 2009



US Army Corps
of Engineers®

Encl 1

**REVIEW PLAN
YUBA RIVER BASIN, CALIFORNIA
MARYSVILLE RING LEVEE
ENGINEERING DOCUMENTATION REPORT**

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**REVIEW PLAN
YUBA RIVER BASIN, CALIFORNIA
MARYSVILLE RING LEVEE
ENGINEERING DOCUMENTATION REPORT**

1. PURPOSE AND REQUIREMENTS

A. Purpose.

This Review Plan (RP) provides the procedures for ensuring the quality and credibility of the Engineering Documentation Report (EDR) for the Marysville Ring Levee (MRL) project. The EDR is an engineering implementation document for the purpose of constructing the MRL that was authorized as part of the Yuba River Basin Project in WRDA 1999. The MRL was approved as a separable element of the Yuba River Basin Project on 12 February 2008. The EDR will confirm the Federal interest in the project and serve as the basis of the Project Partnership Agreement (cost sharing agreement). It will include an executive summary presenting cost and expenditure data since authorization, appendices for economic evaluation, engineering design and any refinements thereto since authorization, environmental assessment and a real estate plan. It is noted that the engineering refinements to the project do not warrant additional project authorization.

The RP is a component of the Yuba River Basin Project Management Plan (PMP). The RP presents the framework for establishing the appropriate level and independence of review and detailed requirements for review documentation and dissemination. The RP describes the review of the basic science and engineering work products focusing on fulfilling the project quality requirements.

B. Regulations

The basic quality guidance for the EDR, which is an engineering implementation document, is ER 1110-1-12, Engineering and Design Quality Management, dated September 2006. In order to be in compliance with Sections 2034 and 2035 of the Water Resources Development Act (WRDA) 2007 (Public Law 110-114), USACE implemented a more comprehensive independent review process with the publication of Engineering Circular (EC) 1105-2-410, Review of Decision Documents, in August 2008. This circular complies with Section 515 of Public Law 106-554 (referred to as the "Information Quality Act") and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin"). This regulation establishes a comprehensive life-cycle review strategy for Civil Works products by providing a seamless process for independent review of all Civil Works projects from initial planning through design, construction, and Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRRR).

Although the Marysville Ring Levee EDR is an implementation document and not a decision document, the new review procedures in EC 1105-2-410 are being utilized until new guidance is issued for review of implementation documents. That new guidance will utilize the same procedures as those for decision documents. The Review Plan will be updated to address future implementation phases of the project.

C. Requirements.

(1) Technical Review Strategy Session (TRSS). A TRSS, normally held early in the decision document stage, is not required for the implementation EDR.

(2) District Quality Control. DQC is managed in the Sacramento District (District) and will be conducted by in-house staff as long as the reviewers are not doing the work involved in the study, including contracted work that is being reviewed. The review consists of a seamless review with quality checks and

supervisory reviews. The PDT is responsible for a complete reading of the report to assure the overall integrity of the report and technical appendices. The DQC is conducted by non-PDT members and/or supervisory staff who will conduct this review for draft and final products, including products provided by the non-Federal sponsors as in-kind services following review of those products by the PDT.

The Major Subordinate Command (MSC) and District are directly responsible for the Quality Assurance (QA) and Quality Control (QC) respectively, and to conduct and document this fundamental level of review. A Quality Control Plan (QCP) is included in the PMP for the subject study and addresses DQC by the MSC/District. DQC is required for this project.

(3) Agency Technical Review. EC 1105-2-410 recharacterized ATR (which replaces the level of review formerly known as Independent Technical Review) as an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of a project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices.

The ATR team reviews the various work products and assures that all the parts fit together in a coherent whole. The ATR team will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.) and may be supplemented by outside experts as appropriate. Since the EDR is an implementation document, the ATR manager can be within the MSC. DrChecks will be used to document all ATR comments, responses, and associated resolution accomplished. This Review Plan outlines the proposed approach to meeting this requirement for the Marysville Ring Levee EDR. ATR is required for this project.

(4) Products Developed by Contractor. The development and execution of a quality control plan for products developed by a contractor shall be the responsibility of the contractor. The contractor's quality control plan shall be reviewed and approved at the District. In order to maintain contractor responsibility, the contractor shall be responsible for quality control of its own work. An overall quality control plan shall be developed by the district that outlines quality control activities by the district for any portion of a product developed by in-house forces and quality assurance activities by the District for overseeing the contractor's quality control activities. These quality assurance activities shall include actions to define the work for the contractor and ensure that the contractor meets the requirements of the contract, and they shall also include an independent quality assurance review.

(5) Safety Assurance Review (SAR). Section 2035 of WRDA 2007 requires that all projects addressing flooding or storm damage reduction undergo a safety assurance review during design and construction. Therefore, the safety assurance factors must be considered in all reviews for those studies. Although guidance is still under development, EC 1105-2-410 states that one of the factors to consider for conducting a SAR is where the failure of the project would pose a significant threat to human life. Therefore, SAR is required for the Marysville EDR.

(6) Review of Cost Estimates. The cost estimates will be reviewed and approved by the District engineering division. Because the EDR is an implementation document approved at the District level, a cost risk analysis and review by the Cost Engineering Directory of Expertise (DX) are not required.

(7) Public Review and Comment. The Review Plan will show how and when there will be opportunities for the public to comment on the document to be reviewed and when significant and relevant public comments will be provided to the reviewers before they conduct their review.

(8) Policy and Legal Compliance Review. In addition to the technical reviews, documents will be reviewed throughout the project implementation process for their compliance with law and policy. These

reviews determine that the reports and the supporting analyses and coordination comply with law and policy. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100. Technical review described in EC 1105-2-410 is to augment and complement the policy review processes by addressing compliance with published Army policies pertinent to planning products, particularly policies on analytical methods and the presentation of findings.

DQC and ATR efforts are to include the necessary expertise to address compliance with published planning policy. Counsel will generally not participate on ATR teams, but may at the discretion of the district or as directed by higher authority. When policy and/or legal concerns arise during DQC or ATR efforts that are not readily and mutually resolved by the PDT and the reviewers, the District will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H of ER 1105-2-100. Legal reviews will be conducted concurrent with ATR of the preliminary, draft and final feasibility report and environmental impact statement.

(9) Planning Center of Expertise for Flood Risk Management (PCX-FRM) Coordination. This Review Plan has been reviewed by the PCX-FRM but it will be approved by the MSC. Because the EDR is an implementation document, the PCX-FRM will not be involved in the review of the EDR.

(10) Submittal of EDR Review Documentation. The final EDR report submittal will include the documentation and certification of review. Certifications include the Certification of Agency Technical Review and the Statement of Technical Review as shown in Appendix A. The project summary accompanying the final report will present the dates of the certifications of the technical and legal adequacy of the final report.

2. DOCUMENT TO BE REVIEWED

The Yuba River Basin Flood Risk Management Project, authorized by WRDA 99 Section 101(a)(10) and WRDA 07 Section 3041, is currently under reevaluation in the Yuba Basin General Reevaluation Report. During the project reevaluation it was determined that the Marysville Ring Levee was separable and common to all alternatives under consideration. The project team determined that the Marysville Ring Levee should proceed to implementation under the WRDA 99 authorization, as amended.

This Review Plan covers the review process for the Engineering Documentation Report (EDR) that is being developed for the Marysville Ring Levee. The EDR is being developed in accordance with ER 1110-2-1150, Engineering and Design for Civil Works Projects. The EDR will include the design refinements that have occurred since the 1998 feasibility report and the 1999 and 2007 authorizations. The EDR will include an environmental assessment (EA), economic reevaluation, design and geotechnical appendix, hydraulics and hydrology analysis, MCACES cost estimate, and real estate plan. A Value Engineering study will be conducted during design studies subsequent to the EDR. The EDR will not culminate in a report to Congress for potential project authorization. The EDR will be approved by the District Commander. The document will present the implementation details of the authorized plan and will support the Project Partnership Agreement (PPA) for cost sharing and local cooperation requirements. It will also include changes in cost and expenditures since authorization, a Section 902 fact sheet, cost apportionment, and other pertinent data.

This Review Plan will be updated to address future implementation phases of the project. A Safety Assurance Review will be accomplished during each of the design phases.

3. PROJECT DESCRIPTION

A. General Site Description

As shown in Figure 1, the Yuba River Basin project area and the City of Marysville are located about 50 miles north of Sacramento, California in Yuba County. The Yuba River Basin project area is shown in

Figure 2 and the City of Marysville is shown in Figure 3. Since the City of Marysville and its surrounding levee are (1) hydraulically separate from the remainder of the Yuba River Basin Project and (2) the Marysville project has not changed substantially from the authorized plan, it was approved for construction as a separable element. The remainder of the Yuba River Basin project requires a general reevaluation requiring Congressional reauthorization. Land use in the City of Marysville is entirely urban, dense, and fully developed. Flood depths within the city would reach 20 feet for the 100-year event and 30 feet for the 500-year event. Figure 4 shows the City of Marysville surrounded by flood waters during the 1997 flood event. The city was evacuated during the 1955 flood event and, fortunately, the levee did not fail.

B. Project Scope.

The project is for flood risk management for the City of Marysville. The non-Federal sponsors are interested in reducing flood risk to the existing urbanized area.

C. Project Description.

The authorized project for the Marysville Ring Levee proposed that the existing levees should be strengthened in-place depending on the site specific situation. Of the existing 7.5 miles of levees protecting Marysville, approximately 5 miles of new slurry walls and stability berms would be required. The height of the levees will not be changed.

Several minor refinements have been made to the authorized project as a result of additional engineering studies. The project will be implemented in four phases. The construction contract for the first phase will be funded from the Economic Recovery Act in 2010. Future phases will be scheduled as funds are appropriated.

Nonstructural measures were considered as a preliminary plan during the feasibility study in accordance with Corps' regulations, which require that a nonstructural plan be included in a full array of alternatives. However, because of the large numbers of residential, commercial, industrial, and institutional structures in the flood plain, and high flood depths, raising structures or removing them from the flood plain would not be economically feasible. Similarly, flood-proofing measures such as constructing small walls or levees around structures would not be economically or socially feasible. Increased efforts in flood plain evacuation and local flood warning systems are currently being pursued in the study area by local and State agencies. Consequently, these nonstructural measures were not formulated into the final plan.

D. Project Hydrology

The hydrology for the study was certified in August 2004 in accordance with CESP R 1110-1-8, South Pacific Division Quality Management Plan.

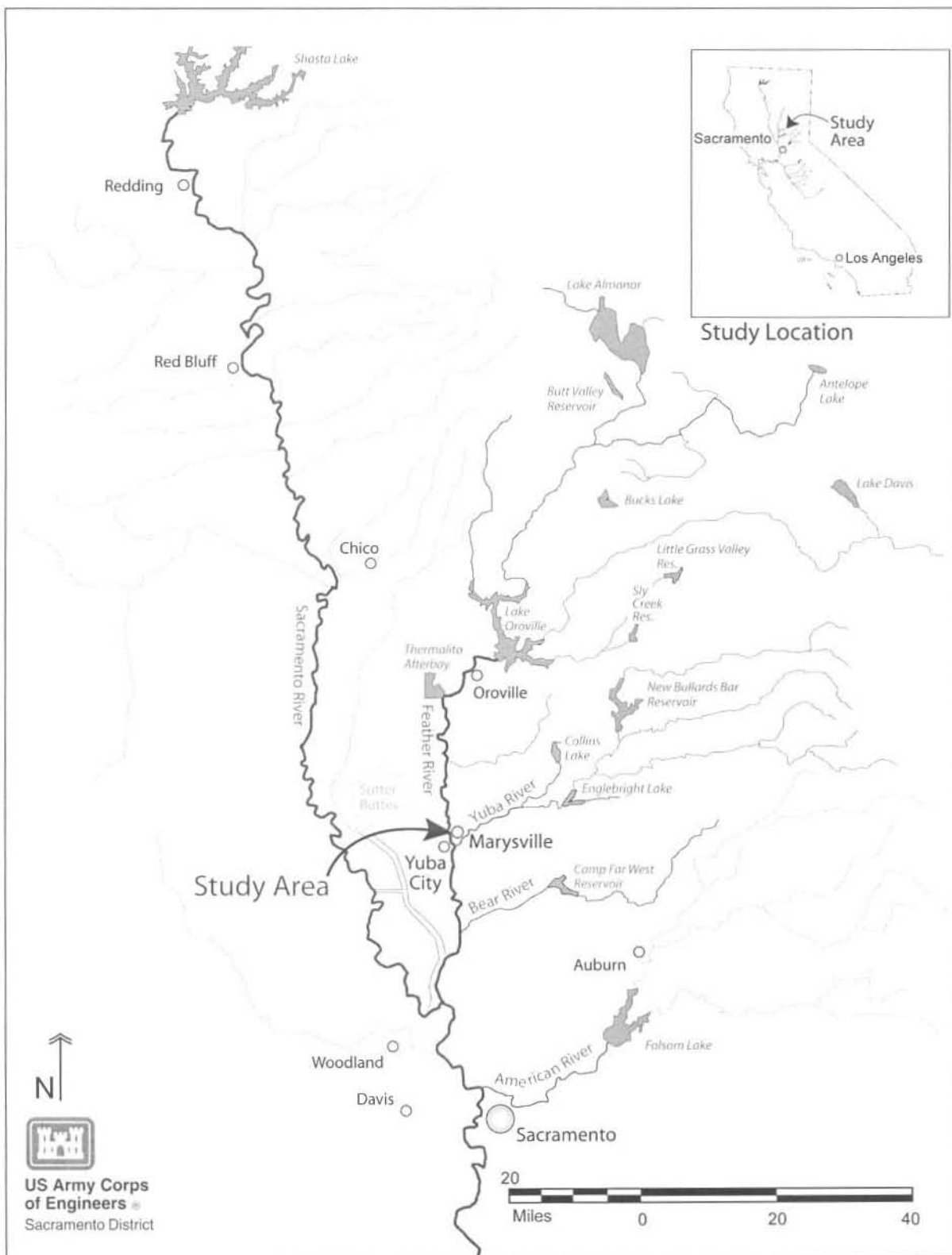


Figure 1. Marysville Vicinity Map

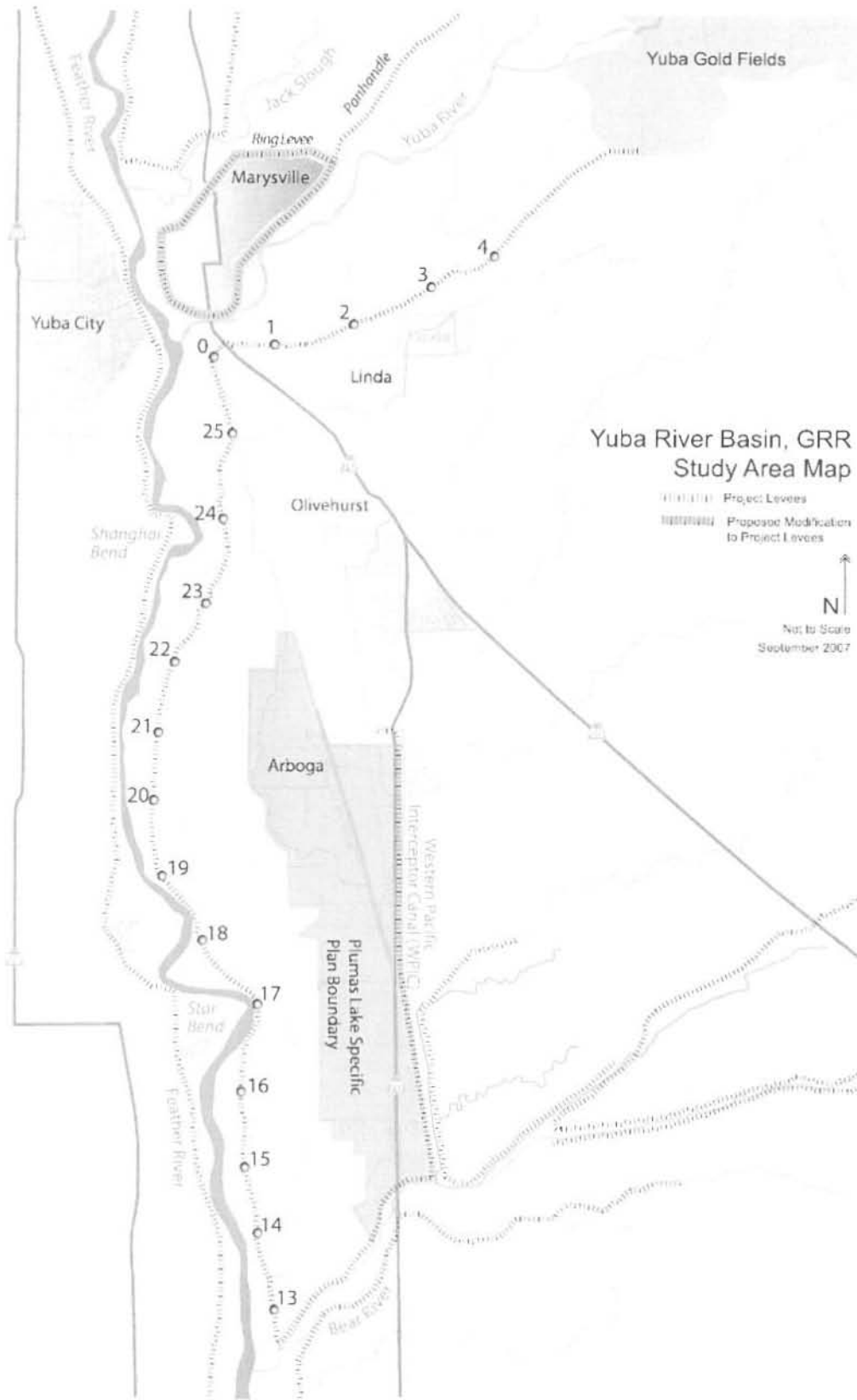


Figure 2. Yuba River Basin Study Area

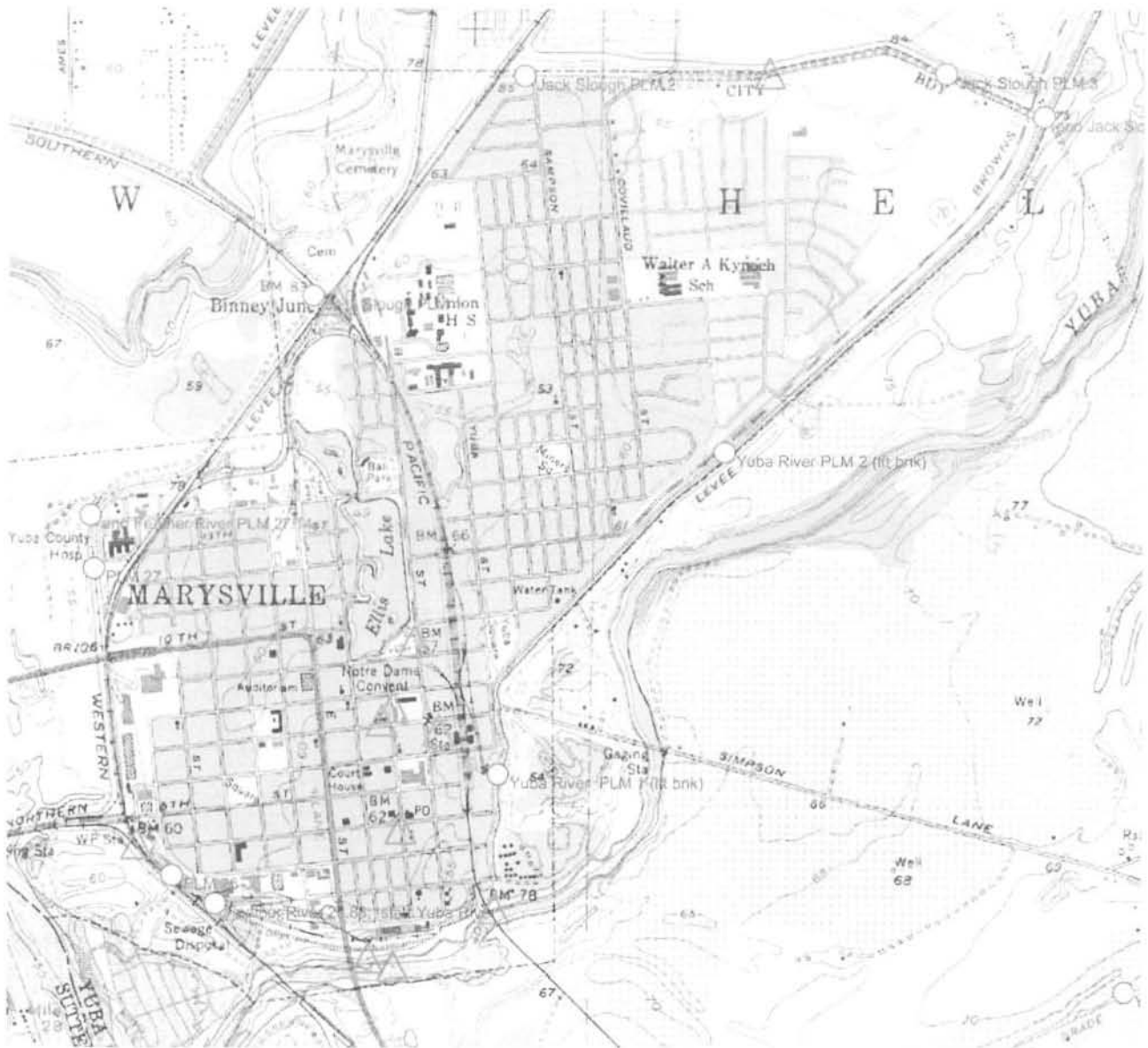


Figure 3. City of Marysville



Figure 4. Marysville (center) during the 1997 flood event.

4. REVIEW PROCESS

A. DISTRICT QUALITY CONTROL (DQC)

1. General

For the Marysville EDR, those not working on the project and/or supervisory staff will conduct this review for draft and final products, including products provided by the non-Federal sponsors as in-kind services following review of those products by the PDT. This seamless review includes quality checks and reviews, supervisory reviews, etc. To ensure specific discipline efforts are on target with regard to compliance with policy and criteria and an acceptable level of quality, sub-products are technically coordinated and reviewed before they are integrated into the overall project.

2. Working with ATRT Members

During the review, DQC reviewers may consult with their ATRT counterparts at appropriate points throughout project development to discuss major assumptions and functional decisions, as well as analytical approaches and significant calculations, in order to preclude the possibility of significant comments arising during the final ATR. Reviewers need to be actively involved throughout the project development process and must maintain constant lines of communication with the PM, ATRT leader, PDT counterparts and others as appropriate. It is the responsibility of the DQC reviewers to request these discipline-specific discussions with their ATRT counterparts throughout the project development process in a seamless manner. These discussions do not preclude ATRT members from making additional comments once the entire document is distributed for the formal ATR.

3. Policy and Legal Compliance Review

DQC efforts are to address compliance with published planning policy. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the PDT and the reviewers, the district will seek issues resolution support from the MSC and HQUSACE.

4. Documentation

Each discipline engages in their own counterpart discussions and documents the conclusions/agreements reached in an e-mail message forwarded to the ATRT leader and PM, with copies retained by each participant. All seamless reviews must be documented and included with the formal ATR documentation for QC certification.

5. Cost

The cost of the DQC is estimated at \$25,000.

B. AGENCY TECHNICAL REVIEW

The ATR for the implementation document is managed by a person within the MSC. For this project, due to the objective of flood risk management, the MSC has tentatively identified individuals to perform ATR as shown in Appendix B.

1. General.

The ATR leader is responsible for providing information necessary for setting up the review, communicating with the Project Manager, providing a summary of critical review comments, collecting grammatical and editorial comments from the ATR team (ATRT), ensuring that the ATRT has adequate funding to perform the review, facilitating the resolution of the comments, and certifying that the ATR has been conducted and resolved in accordance with policy. ATR will be conducted for the entire EDR including civil design, geotechnical engineering, cost engineering, real estate, cultural resources, environmental compliance, economics, hydrology and hydraulic design.

2. Contracted Products.

The EDR will be accomplished by AE Contract. The contractor shall develop a quality control plan to be reviewed and approved at the District. In order to maintain contractor responsibility, the contractor shall be responsible for quality control of its own work. Submittal of the EDR document shall include a certification by the contractor that quality control was accomplished. Quality assurance shall be done by the District that shall include actions to ensure that the contractor meets the requirements of the contract.

Portions of the EDR including the Economic, Geotechnical Design and Hydraulics Appendices, the Real Estate Plan and the Environmental Assessment will be accomplished in-house and undergo DQC prior to being furnished to the contractor. The complete EDR will then be subject to ATR review.

3. Agency Technical Review Team (ATRT).

The ATRT will be comprised of individuals that have not been involved in the development of the project document and have been chosen based on expertise, experience, and/or skills. The members roughly mirror the composition of the PDT. Because the EDR is an implementation document, the ATRT and ATR manager will reside within South Pacific Division region. It is anticipated that the team will consist of about 10 reviewers. The tentative ATRT members are identified in Appendix B.

4. Communication.

The communication plan for the ATR is as follows:

(a) The team will use DrChecks to document the ATR process. The Study Manager will facilitate the creation of a project portfolio in the system to allow access by all PDT and ATRT members. An

electronic version of the document, appendices, and any significant and relevant public comments shall be posted in Word format at: <ftp://ftp.usace.army.mil/pub/> at least one business day prior to the start of the comment period.

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

(c) The PDT shall host an ATR kick-off meeting virtually to orient the ATRT during the first week of the comment period. If funds are not available for an on-site meeting, the PDT shall provide a presentation about the project, including photos of the site, for the team.

(d) The Study Manager shall inform the ATR manager when all responses have been entered into DrChecks and conduct a briefing to summarize comment responses to highlight any areas of disagreement.

(e) A revised electronic version of the report and appendices with comments incorporated shall be posted at <ftp://ftp.usace.army.mil/pub/> for use during back checking of the comments.

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

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

(h) The ATRT, the PDT, and the vertical team shall conduct an after action review (AAR) no later than 2 weeks after the certification of the ATR review.

5. Cost and Funding

(a) The Sacramento District shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Project Manager will work with the ATR manager to ensure that adequate funding is available and is commensurate with the level of review needed. The current estimated cost estimate for this review is \$50,000. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

(b) The team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes.

(c) Reviewers shall monitor individual labor code balances and alert the ATRT Manager to any possible funding shortages.

6. Timing and Schedule

(a) The ATR process for this document will follow the scheduled timeline as shown in Table 1. Actual dates will be entered once the period draws closer. All products produced for these milestones will be reviewed, including those produced as in-kind services by the non-Federal sponsors.

(b) The ATR will be conducted on the EDR documentation and assumptions.

(c) The PDT will hold a "page-turn" session to review the draft report to ensure consistency across the disciplines and resolve any issues prior to the start of ATR. Writer/editor services will be performed on the draft prior to ATR as well.

(d) When the final report is submitted, the district will provide the documentation and certification of review.

7. Review

(1) ATRT responsibilities are as follows:

(a) Reviewers shall review the report to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the report shall be submitted into DrChecks.

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

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

(d) Review comments shall contain these principal elements:

1. a clear statement of the concern
2. the basis for the concern, such as law, policy, or guidance
3. significance for the concern
4. specific actions needed to resolve the comment

(e) The "Critical" comment flag in DrChecks shall not be used unless the comment is discussed with the ATR manager and/or the Project Manager first.

(2) PDT Team responsibilities are as follows:

(a) The team shall review comments provided by the ATRT in DrChecks and provide responses to each comment using "*Concur*", "*Non-Concur*", or "*For Information Only*". *Concur* responses shall state what action was taken and provide revised text from the report if applicable. *Non-Concur* responses shall state the basis for the disagreement or clarification of the concern and suggest actions to negotiate the closure of the comment.

(b) Team members shall contact the Project Manager and ATRT Manager to discuss any "Non-Concur" responses prior to submission.

8. Resolution

(a) Reviewers shall back check PDT responses to the review comments and either close the comment or attempt to resolve any disagreements. Conference calls shall be used to resolve any conflicting comments and responses. Face to face communication shall occur, if necessary, between review team and project delivery team members.

(b) Reviewers may "agree to disagree" with any comment response and close the comment with a detailed explanation. If reviewer and responder cannot resolve a comment, it should be brought to the attention of the ATR Manager and, if not resolved by the ATR Manager, it should be brought to the attention of the engineering division chief who will need to sign the certification. ATRT members shall keep the ATR Manager informed of problematic comments. The vertical team will be informed of any policy variations or other issues.

9. Certification

To fully document the ATR process, a statement of technical review will be prepared. Certification by the ATR Manager and the Project Manager will occur once issues raised by the reviewers have been addressed to the review team's satisfaction and the final report is ready for approval. Indication of this concurrence will be documented by the signing of a certification statement (Appendix A). A summary report of all comments and responses will follow the statement and accompany the report throughout the report approval process. An interim certification will be provided by the ATR team lead to indicate concurrence with the report to date until the final certification is performed when the report is considered final. Significant decisions must be recorded and the entire process must leave a clear audit trail.

C. SAFETY ASSURANCE REVIEW (SAR)

1. General .

EC 1105-2-410 describes the SAR required for a design and construction activity in accordance with Section 2035 of WRDA 2007. All aspects of the project will be included in the review but it will focus on public safety aspects. SAR will be conducted for this project during design and construction. Implementation guidance for Section 2035 is under development and will be included in the Review Plan when issued.

2. Factors Requiring Safety Assurance Review:

SAR is required due to the following factors as given in EC 1105-2-410:

- (a) Where the failure of the project would pose a significant threat to human life;
- (b) The project design lacks redundancy or the use of multiple lines of defense that are linked to potential failure modes.

3. Cost

The current estimated cost estimate for the SAR review is estimated to be \$50,000. The cost of the panel shall be shared with the local sponsor.

D VALUE ENGINEERING REVIEW

A Value Engineering (VE) Study for the Yuba-Feather River Basin, California general reevaluation study was conducted in March 2006. Another VE study will be conducted for the Marysville project during the early design phase.

E. REVIEW OF COST ESTIMATES.

The cost estimates will be reviewed and approved by the District engineering division. Because the EDR is an implementation document approved at the District level, a cost risk analysis and review by the Cost Engineering Directory of Expertise (DX) are not required.

F. MODEL CERTIFICATION.

Suitability of Software Models. Planning and engineering studies shall generally use well-known and proven USACE developed or commercial software. The use of sub-Community of Practice (sub-CoP) preferred software is strongly recommended, unless circumstances dictate otherwise. The professional practice of documenting the application of the software and modeling results will be followed. It is the responsibility of the planning and engineering functions to ensure that the application and proper use of the software is documented in the technical review process.

The computational models employed in the Marysville project have either been developed by or for the USACE. Project schedules and resources will be adjusted to address this process for certification and coordination.

The USACE Planning Models Improvement Program (PMIP) was established in 2003 to assess the state of planning models in the USACE and to make recommendations to assure that high quality methods and tools are available to enable informed decisions on investments in the Nation's water resources infrastructure and

natural environment. The main objective of the PMIP is to carry out “a process to review, improve and validate analytical tools and models for USACE Civil Works business programs.”

A PMIP Task Force was established to examine planning model issues, assess the state of planning models in the Corps, and develop recommendations on improvements to planning models and related analytical tools. The PMIP Task Force collected the views of Corps leaders and recognized technical experts, and conducted investigations and numerous discussions and debates on issues related to planning models. It identified an array of model-related problems, conducted a survey of planning models, prepared papers on model-related issues, analyzed numerous options for addressing these issues, formulated recommendations, and wrote a final report that is the basis for the development of this RP section. The Task Force considered ongoing Corps initiatives to address planning capability, and built upon these where possible.

The planning model being used is:

- HEC-FDA: This model has been certified. It was developed by the Corps’ Hydrological Engineering Center and will assist the PDT in applying risk analysis methods for flood damage reduction studies as required by, EM 1110-2-1419. This program:
 - Provides a repository for both the economic and hydrologic data required for the analysis
 - Calculates the Expected Annual Damages and the Equivalent Annual Damages
 - Computes the Annual Exceedence Probability and the Conditional Non-Exceedence Probability
 - Implements the risk-based analysis procedures in EM 1110-2-1619 and ER 1105-2-101.

The Science & Engineering Technology (SET) initiative endeavors to provide uniform Science and Engineering tools and practices to the Corps. Engineering models will be certified under a process established under SET. To date no formal enterprise standard has been issued for certification of engineering models. An interim Regional process for HH&C model selection (RGM CESP-2007-006) will be followed.

The engineering models being used are:

- MCACES or MII: These are cost estimating models.
- HEC-HMS: By applying this model the PDT is able to:
 - Define the watersheds’ physical features
 - Describe the metrological conditions
 - Estimate parameters
 - Analyze simulations
 - Obtain GIS connectivity
- HEC-ResSim: 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 following describes the major features of HEC-ResSim
 - Graphical User Interface
 - Map-Based Schematic
 - Rule-Based Operations
- HEC-RAS: The function of this model is to complete one-dimensional hydraulic calculations for a full network of natural and man made channels. HEC-RAS major capabilities are:
 - User interface
 - Hydraulic Analysis
 - Data storage and Management
 - Graphics and reporting
- FLO-2D: This model will be used for the overbank reaches.
- Groundwater Modeling System (GMS): This model is used to conduct seepage analysis.
- Utxas4: This model is used to conduct slope stability analysis.

G. PUBLIC AND AGENCY REVIEW

The public and agencies will have an opportunity to participate in the review of this project through the review of the draft NEPA/CEQA document. A public Notice of Availability will be issued and published in the local newspaper prior to the start of the 30 day review period.

5. STUDY TEAMS

A. Project Delivery Team.

The PDT is comprised of those individuals directly involved in the development of the documents and project. The EDR is being developed by contract and the contractors are part of the PDT. Individual contact information and disciplines are presented in Appendix B. In accordance with the PMP, it is planned that the non-Federal sponsors will contribute in-kind services for design assistance and technical data such as levee borings. All in-kind work products will undergo review by the PDT for a determination of adequacy and the products will ultimately undergo DQC. The ATRT will consult with PDT counterparts during ATR review.

B. Vertical Team.

The Vertical Team includes (1) District management, (2) District Support Team (DST) staff at the Division office and (3) Regional Integration Team (RIT) staff at Corps headquarters. Specific points of contact for the DST and RIT can be found in Appendix B.

6. REVIEW SCHEDULE

Table 1. Review Timeline

Task	Date
NEPA Document Public Review	December 2009
QC Certification of Contracted EDR Design	December 2009
ATR of Draft EDR and Appendices	December 2009
Safety Assurance Review Phase 1 Design	February 2010
District Approval of EDR	April 2010
Safety Assurance Review Subsequent Phases	TBD

7. EDR APPROVAL PROCESS

Subsequent to the review process, the EDR will be approved by the District Commander as stated in ER 1110-2-1150 for implementation documents. There is no delegated authority. The report will then be submitted to the Division office for information.

**REVIEW PLAN
YUBA RIVER BASIN, CALIFORNIA
MARYSVILLE RING LEVEE**

ENGINEERING DOCUMENTATION REPORT

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**APPENDIX A
STATEMENT OF TECHNICAL REVIEW**

**COMPLETION OF AGENCY TECHNICAL REVIEW (ATR)
YUBA RIVER BASIN, CALIFORNIA
MARYSVILLE RING LEVEE
ENGINEERING DOCUMENTATION REPORT**

The Sacramento District has completed the project implementation report and appendices for the Marysville Ring Levee EDR. Notice is hereby given that an agency technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. During the agency technical review, 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 result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ATR was accomplished by an agency team composed of staff from multiple districts. All comments resulting from the ATR have been resolved.

JANE RUHL
Team Leader, Marysville Ring Levee
Engineering Documentation Report
Agency Technical Review Team

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

A summary of all comments and responses is attached. Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact and resolution)

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

KEVIN KNUUTI
Chief, Engineering Division

Date

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APPENDIX B
REVIEW TEAMS

PROJECT DELIVERY TEAM (PDT)

Name	Discipline	Phone	Email	Location
Ellis, Mark	Corps Project Manager	916-557-6892	Mark.A.Ellis@usace.army.mil	SPK ¹
Dietl, Michael	“ Planning Section Chief	916-557-6742	Michael.L.Dietl@usace.army.mil	SPK
Parker, W Scott	“ Planning Lead	916-557-7258	W.Scott.Parker@usace.army.mil	SPK
Furman, Richard	“ Planning	916-557-7512	Richard.J.Furman@usace.army.mil	SPK
Werner, Ted	“ Planning	916-557-6753	Ted.A.Werner@usace.army.mil	SPK
Jordan, John	“ Economics	916-557-7267	John.F.Jordan@usace.army.mil	SPK
Hollis, Jeremy	“ Real Estate	916-557-6880	Jeremy.I.Hollis@usace.army.mil	SPK
James, Erik	“ Geotechnical	916-557-5259	Erik.W.James@usace.army.mil	SPK
Maak, Eugene	“ Hydraulics	916-557-7020	Eugene.C.Maak@usace.army.mil	SPK
Modini, Diana	“ Engineering Lead	916-557-6821	Diana.L.Modini@usace.army.mil	SPK
Fong, Sherman	“ Cost Engineering	916-557-6983	Sherman.C.Fong@usace.army.mil	SPK
Rinck, Jane	“ Environmental Lead	916-557-6715	Jane.L.Rinck@usace.army.mil	SPK
Dembosz, Lindsay	“ Environmental	916-557-5276	Lindsay.S.Dembosz@usace.army.mil	SPK
Murazzo, April	“ Environmental	916-557-7484	April.Murazzo@usace.army.mil	SPK
Mack, Johnnie	HDR Project Manager	916-817-4887	johnnie.mack@hdrinc.com	HDR ²
Adams, Tom	HDR Senior Planner	916-817-4737	Thomas.adams@hdrinc.com	HDR
Dirks, Richard	HDR Tech Lead	916-817-4887	richard.dirks@hdrinc.com	HDR
Johnson, Blake	HDR Civil Eng Lead	916-817-4887	Blake.Johnson@hdrinc.com	HDR
Krivanec, Chris	HDR Geotechnical	916-817-4887	christopher.krivanec@hdrinc.com	HDR
Gardenour, Stella	HDR Project Coordinator	916-817-4887	stella.gardenour@hdrinc.com	HDR
Engler, Thomas	TRLIA ⁵ Rep	916-456-0253	engler@mbkengineers.com	MBK ³
Reinhardt, Ric	TRLIA Rep	916-456-0253	reinhardt@mbkengineers.com	MBK
Zenobia, Kent	DWR Non-Fed Sponsor Representative	916-574-2884	kzenobia@water.ca.gov	DWR ⁴

¹ Corps of Engineers, Sacramento District,

² HDR, Inc., Sacramento

³ Murray, Burns and Kienlan, Inc., Sacramento

⁴ State of California Dept. of Water Resources, Sacramento

⁵ Three Rivers Levee Improvement Authority, South Yuba County

AGENCY TECHNICAL REVIEW TEAM (ATRT)

Name	Discipline	Location	Phone	Discipline Description
Jane Ruhl	ATR Leader Plan Formulation	CELRL	502-315-6862	Experienced in the planning process including formulating, and evaluating alternative plans and plan selection.
Roxanne Vidaurre	Civil Design	CESPL	213-452-3643	Experienced in developing feasibility-level quality design and cost estimates for the alternatives to be evaluated and final design and cost estimates for the recommended modifications to the authorized project and NED/NER plan. Prepares detailed Basis of Design (BOD) report that describes all aspects of the selected features, including planning and design assumptions, definition of and rationale for design features, plans and profiles of embankments, hydraulic structure features, relocations, channel details, bridge crossings, and operation and maintenance requirements.
Tiffany Kayama/ Nedenia Kennedy	Environmental Resources	CESPL	213-452-3845 213-452-3856	Experienced in NEPA/CEQA process and analysis and ecosystem restoration and has a biological or environmental background.
Shih Chieh	Hydrology/ Reservoir Operations	CESPL	213-452-3571	Experienced in the field of urban hydrology and the effects of best management practices and low impact development on hydrology. Has an understanding of computer modeling techniques that will be used for this project.
Glenn Mashburn	Hydraulics	CESPL	213-452-3549	Experienced in the field of urban hydraulics, with a thorough understanding of the dynamics of the both open channel flow systems and floodplain hydraulics. Knowledge of the application of hydraulics for levees and flood walls in an urban environment with space constraints. The team member will have an understanding of computer modeling techniques that will be used for this project.

Arden Sansom	Economics	CESPN	415-503-6748	Experienced in determining the values and structural characteristics using parcel information data, Marshal & Swift Valuation, and site visits. Evaluates existing conditions and future land use changes. Estimates damages, with uncertainty, for each flood plain event using risk analysis techniques. Participates with other PDT members in risk analysis activities. Determines the benefits for project alternatives estimating damage under with- and without-project conditions.
Nathaniel Govan	Cost Engineering *	CESPL	213-452-3739	Experienced with cost estimating for civil works projects using MCACES and is a Certified Cost Engineer.
Steven Gale	Real Estate/Lands	CESPL	602-640-2016	Experienced in federal civil work real estate laws, policies and guidance with experience working with respective sponsor real estate issues.
Steven Dibble	Cultural Resources	CESPL	213-452-3849	Experienced in cultural resources and tribal issues, regulations, and laws.
Greg Dombrosky	Geotechnical Engineering	CESPL	213-452-3592	Experienced in levee & floodwall design, post-construction evaluation, and rehabilitation.

CESPL is Los Angeles District, CESPN is San Francisco District, South Pacific Division

¹The cost engineering team member nomination will be coordinated with the NWW Cost Engineering Directory of Expertise (DX) as required. That DX will determine if the cost estimate will need to be reviewed by DX staff.

SAFETY ASSURANCE REVIEW PANEL

Name	Discipline	Phone	Email
TBD	Hydrology		
TBD	Hydraulic Design		
TBD	Geotechnical Engineering		
TBD	Economics		

VERTICAL TEAM

Name	Discipline	Location	Phone	Email
Karen Berresford	District Support Team Mgr ¹	CESPD	415-503-6557	Karen.G.Berresford@usace.army.mil
Ken Zwickl	SPD Regional Integration Team ²	HQUSACE	202-761-4085	Kenneth.J.Zwickl@usace.army.mil

¹ District Support Team (DST) – The DST is a group of Division Headquarters’ resources which serve as the District advocate and expeditor. DSTs are Regional assets which facilitate District execution of project-specific activities at the One Headquarters. DSTs participate in the vertical team as required, interfacing with the District and the Regional Integration team (RIT).

² Regional Integration Team (RIT) – A RIT is comprised of individuals focused on execution of the Civil Works missions. The RITs have a duty station in Washington, DC and represent the concerns of the Division and Districts to which they are assigned.

PLANNING CENTER OF EXPERTISE (PCX) FLOOD RISK MANAGEMENT

Name	Discipline	Phone	Email
Eric Thaut	Program Manager, PCX Flood Risk Management	415-503-6852	Eric.W.Thaut@usace.army.mil

REVIEW PLAN

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**APPENDIX C
ACRONYMS AND ABBREVIATIONS**

Term	Definition	Term	Definition
ASA(CW)	Assistant Secretary of the Army for Civil Works	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
ATR	Agency Technical Review	OEO	Outside Eligible Organization
CEQA	California Environmental Quality Act	PCX	Planning Center of Expertise
CESPD	Corps of Engineers, South Pacific Division	PDT	Project Delivery Team
		PAC	Post Authorization Change
DQC	District Quality Control	PPA	Project Partnership Agreement
DX	Directory of Expertise	PL	Public Law
EA	Environmental Assessment	QMP	Quality Management Plan
EC	Engineering Circular	QA	Quality Assurance
		QC	Quality Control
		RD	Reclamation District
EDR	Engineering Document Report	RED	Regional Economic Development
EIR	Environmental Impact Report	TRLIA	Three River Levee Improvement Authority (Yuba, Feather, Bear levees)
EIS	Environmental Impact Statement	WRCB	Water Resources Control Board
EO	Executive Order	WRDA	Water Resources Development Act
ER	Ecosystem Restoration		
FDR	Flood Damage Reduction		
FEMA	Federal Emergency Management Agency		
FRM	Flood Risk Management		
GRR	General Reevaluation Report		
IEPR	Independent External Peer Review		
ITR	Independent Technical Review		
MSC	Major Subordinate Command		
NED	National Economic Development		
NER	National Ecosystem Restoration		
NEPA	National Environmental Policy Act		
O&M	Operation and maintenance		
OMB	Office and Management and Budget		

CESPD SUPPLEMENTAL REVIEW PLAN CHECKLIST

YUBA RIVER BASIN, CALIFORNIA MARYSVILLE RING LEVEE

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1. Is there a Technical Review Strategy Session (TRSS) identified early in the study process? (See Appendix C paragraph 8.2.)
A TRSS is not required for the implementation EDR. A TRSS was held at the initiation of the Yuba River Basin PED studies.
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 Safety Assurance Review (SAR) (Type II Independent External Peer Review (IEPR))?
DQC - \$25,000
ATR - \$50,000
SAR – The scope and cost of the SAR are being developed. The SAR guidance has not been finalized.
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. The RP should encourage face-to-face resolution of issues between PDT and reviewers. (8.5.5)
Yes
7. And if issues remain, does the RP identify an appropriate dispute resolution process? (8.6)
Yes

Encl 2

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

It does.

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 hydrology has been certified.

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)

Yes.

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

Not applicable for an EDR.

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

Not applicable for an EDR.

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

The EDR is approved at the District level in accordance with EC 1110-2-1150.