Meeting of the Central Valley Flood Protection Board
March 25, 2011

Staff Report

Three Rivers Levee Improvement Authority (TRLIA)
Feather River Levee Repair Project (FRLRP) – Feather River Elderberry Transplant Area (FRET), Yuba County

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1.0 – ITEM

Consider approval of Permit No. 18637 (Attachment B)

2.0 – APPLICANT

Three Rivers Levee Improvement Authority (TRLIA)

3.0 – LOCATION

The project is located south of Marysville and west of Highway 70. (Feather River, Sutter County, see Attachment A)

4.0 – DESCRIPTION

The applicant proposes to plant 203 elderberry seedlings and 355 associated native species, and authorize 92 elderberry transplants, 2,705 elderberry seedlings, and 4,737 associated native species planted within a 44-acre area on the overflow area of the left (east) bank levee of the Feather River.

5.0 – PROJECT ANALYSIS

The proposed project is a mitigation measure for the Valley Elderberry Longhorn Beetle (VELB), which will be managed in the manner shown in Exhibit A to Permit No. 18637. Elderberry shrub mitigation (including associated native species) will be planted in the recently expanded Feather River Floodway. The area would mitigate for the Elderberry shrubs impacted by the construction of the Feather River Setback Levee (FRSL) and

the degradation of the existing levee. The FRET site will extend from Station 244+00 to 264+00 (northern end of Segment 2 FRSL) and is approximately 1,100-feet wide, which accounts for an area of approximately 44-acres. The plantings to be authorized for this permit are shown in the planting quantities below:

	Total
Elderberry Transplants	**92**
Elderberry Seedlings	**2,705**
Associated Native Species:	**4,737**
Name	
Box Elder *(Acer negundo L.)*	271
Buttonbush *(Cephalanthus occidentalis)*	309
California Blackberry *(Rubus ursinus)*	901
Coyote Bush *(Baccharis pilularis)*	462
Oregon Ash *(Fraxinus latifolia)*	276
Poison Oak *(Toxicodendron diversilobum)*	316
Valley Oak *(Quercus lobata)*	308
California Rose *(Rosa californica)*	1,029
Arroyo Willow *(Salix lasiolepis)*	292
Sandbar Willow *(Salix exigua Nutt.)*	288
Mulefat *(Baccharis salicifolia)*	285
	4,737

At least 558 plants (203 elderberry seedlings and 355 associated plantings) remain to be planted. This number could increase following reinitiated consultation with the U.S. Fish and Wildlife Service (USFWS) regarding elderberry mitigation. Planting densities will be as shown in Exhibit A to Permit No. 18637. Spacing between planting rows will be 20-feet, with 10-feet spacing between plants within a row.

5.1 – Project Background

The proposed project was originally included in the overall hydraulics analysis that was approved for the Feather River Setback Levee (Segment 2) in March of 2008, under permit No. 18227. The inclusive hydraulics allowed for conservative values for vegetation for the area that will be added to the floodway after completion of the setback levee.

In June 2009, the Board approved Permit No. 18430, which included the degradation of the existing setback levee. Per staff recommendation, 2 items that were originally requested as part of Application No. 18430, were removed from that permit and were required by the Board (July 2009 meeting) to come back with separate permits. The 2 items that were removed and required separate permits, due to lack of information

(planting plan/tile, species counts, and long-term management plans), were the Feather River Elderberry Transplant Site (FRET) and the Vegetated Wave Buffer.

The Vegetated Wave Buffer, Permit No. 18556, was approved by the Board at the February 25, 2011 Board meeting and was signed and issued on March 4, 2011. The FRET project is covered under this application and Permit No. 18637.

In February 2010, a small percentage of the mitigation seedlings and associate plantings were planted to complete the seedling and associate plantings begun in January/February 2009. Both episodes of planting were completed under the same contract between TRLIA and River Partners. Given the restriction in Permit No. 18430 BD on additional plantings in the FRET area, TRLIA realized that the February 2010 seedling and associate plantings likely should have been done in coordination with the Central Valley Flood Protection Board (CVFPB) or under the permit requested in this application.

The FRET is not yet complete due to the need to plant the final associates to meet the requirements of the Biological Opinion. It is the planting of these final associates that will be completed under the permit requested herein. The ultimate number of elderberry shrubs impacted by the overall project slightly exceeded the number assumed in the Biological Opinion. TRLIA has communicated with the U.S. Army Corps of Engineers (USACE) regarding this discrepancy and has requested that the USACE reinitiate consultation with the USFWS to update the impact information and establish final mitigation requirements. The remaining number of seedlings and associated plantings required to completely mitigate elderberry impacts will be determined after this additional consultation. At that time, if additional seedlings or plantings of any type will be required, TRLIA must make a formal request to staff to modify Permit No. 18637 to represent the additional plantings (prior to planting any vegetation not currently covered under Permit No. 18637) and TRLIA must also submit, with their request, a revised planting tile, species count, and location map of where the plantings will be located that shall be approved by the Board as a modification to the approved permit. Special Condition FOURTEEN incorporates the above concept into Permit No. 18637.

5.2 – Project Design Review

Board staff has reviewed the following documents, provided by the applicant, in preparation of this staff report:

- Design Attachments to Encroachment Permit Application 18637 (Attachment C)

- Hydraulics Analysis for the Setback Levee Project (Segment 2), Permit No. 18227 (see Hydraulic Roughness Coefficient Map in Attachment D)

5.3 – Hydraulic Analysis

The hydraulics analysis conducted on the Feather River Setback Levee (Segment 2) project assumed dense vegetation in the newly-created and enlarged floodway. The FRET conforms to the vegetation assumptions in the setback levee project's hydraulic analysis and is part of the setback levee project.

As stated above, the proposed project is consistent with the Setback Levee (Segment 2) hydraulics analysis. The hydraulics analysis was conducted using the two-dimensional RMA2 model and 200-year flood event. The analysis utilized composite Manning's roughness coefficients of 0.030 to 0.070 for pre-project conditions and a value of 0.10 for the entire setback levee's post-project values. Increases in the roughness coefficients, represented in the setback levee hydraulics analysis, reflect a dense vegetation scenario within the entire floodway and that a 1 to 2-foot decrease in WSE would be realized as a result of constructing the setback levee.

The proposed project is going to be maintained, as outlined in Section 5.4 below, which includes minimal maintenance that the hydraulic analysis does support. Staff has concluded that the project does not adversely affect the Flood Control System and was included as mitigation for the previously permitted setback levee referenced in Section 5.1, above.

5.4 – Geotechnical Analysis

Upon completion of staff review of the design plans, staff is in agreement with the applicant's conclusion that this project does not bear any significant geotechnical impacts on the Setback Levee and other flood control works, and all work to be completed will be done in a manner that does not pose a threat to the structural integrity of the levee or floodway. All work within the newly created floodway shall be completed in compliance with Permit No. 18637 (Attachment B) and Title 23 Standards.

5.5 – Long-Term Management

The FRET mitigation site will be monitored and maintained by River Partners for the first 3 years, as an establishment period, and will be done under a contract between TRLIA and River Partners. After the 3-year establishment period is over, RD 784 will maintain the mitigation area. Maintenance responsibilities are outlined in Exhibit B to Permit No.

18637, and the document is incorporated into the permit in Special Condition TWENTY-SEVEN. RD 784 will receive its funding from the TRLIA Flood Control Facilities Assessment District. After the establishment period, maintenance within the mitigation area will be minimal. Irrigation of the mitigation area would cease and the only routine maintenance would be the removal of large debris after a flood event and monitoring required by USFWS Guidelines. Maintenance for flood conveyance purposes would occur in the clear toe access corridor next to the levee embankment and in the "State Cut" just west of the mitigation area as described above. TRLIA is responsible for and will use contractors for the long term maintenance and monitoring of the elderberry mitigation area. If there is a need to change this responsibility in the future, CVFPB concurrence on the change will be obtained.

5.6 – Project Benefits

The project has the following benefits associated with its completion:

- Provides necessary mitigation feature for impacts to Elderberry shrubs and VELB habitat that was lost with construction of the new FRSL – Segment 2 project.
- Meets the requirements of the USACE Section 404 Permit as outlined in the Biological Opinion (BO).
- On-site VELB mitigation is half the cost to Federal, State, and Local cost-sharing partners.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- USACE 208.10 Comment Letter is expected to be received prior to the March 25, 2011 and is incorporated to Permit No. 18637 as Exhibit C.
- Reclamation District (RD) 784 has provided additional comments to be included in Permit No. 18637 and is incorporated by reference as Exhibit D.
- Levee District (LD) 1 has provided additional comments to be included in Permit No. 18637 and is incorporated by reference as Exhibit E.

7.0 – PROPOSED CEQA FINDINGS

Board staff has prepared the following CEQA Findings:

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Report (DEIR) (August, 2006) and the Final Environmental Impact Report (FEIR) (SCH No. 2006062071, November 2006) for the Feather River Levee Repair Project submitted by the Three Rivers Levee Improvement Authority (TRLIA). TRLIA, as the lead agency determined that the project would have a significant effect on the environment and adopted Resolution 2007-04 dated February 6, 2007 (which includes a Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program). TRLIA adopted an Addendum (January 11, 2011) to the EIR to include the FRET site and filed a Notice of Determination with the State Clearinghouse on January 13, 2011, determining there will not be additional effects on the environment resulting from the FRET site as part of the Feather River Levee Repair Project.

CEQA Guidelines Section 15164 Addendum to an EIR states that a lead agency may prepare an Addendum to a previously certified EIR if some changes or additions are necessary providing the changes do not require the preparation of a subsequent EIR.

The EIR and associated Mitigation Monitoring and Reporting Program remain valid for assessing and mitigating identified impacts that would result from implementation of the approved project. The FRET site, as described in the Addendum and any altered conditions since certification of the EIR on February 6, 2007, would not result in any new significant environmental effects, and would not substantially increase the severity of previously identified effects. In addition, no new information of substantial importance has arisen in accordance with CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR that shows:

- the project would have new significant effects;
- the project would have substantially more severe effects;
- mitigation measures or alternatives previously found to be infeasible would in fact be feasible;
- mitigation measures or alternatives that are considerably different from those analyzed in the EIR would substantially reduce one or more significant effects on the environment.

Conditions for preparing a subsequent EIR have not occurred; therefore, an Addendum to include the FRET site is in accordance with CEQA Guidelines Section 15164.

These documents including project design and TRLIA resolutions may be viewed or downloaded from the Central Valley Flood Protection Board website at http://www.cvfpb.ca.gov/meetings/2011/03-25-2011.cfm under a link for this agenda item. The documents are also available for review in hard copy at the Board and TRLIA offices.

7.1 – Impacts that can be Mitigated

The significant impacts and the mitigation measures to reduce them to less than significant are adopted in TRLIA Resolution 2007-04 dated February 6, 2007 (which includes a Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program). Based on its independent review of the FEIR and TRLIA Resolution 2007-04, the Board finds that for each of the significant impacts described, changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the FEIR. Moreover, such changes or alterations are within the responsibility and jurisdiction of another public agency, TRLIA, and such changes have been adopted by that agency.

7.2 – Significant Unavoidable Adverse Impacts of the Project

The following impacts of the proposed project remain significant following adoption and implementation of the mitigation measures described in the FEIR:

- The proposed project conflicts with land use planning and policies resulting from levee repairs and the levee setback;
- The proposed project would result in the conversion of important farmland to nonagricultural uses resulting from levee repairs and strengthening;
- The proposed project would result in temporary emissions of air pollutants (Reactive Organic Gas (ROG); Nitrogen Oxides (NO_x); Particular Matter (PM_{10})) during construction; and
- The proposed project would result in temporary increases in noise levels during construction.

The Board finds that the specific economic, legal, social, technological or other benefits of the project outweigh the unavoidable adverse environmental effects, which are thus considered to be “acceptable.”

7.3 – Statement of Overriding Considerations

TRLIA adopted Resolution 2007-04 including the Statement of Overriding Considerations. The Board concurs with this Statement.

The Board has independently considered the significant and unavoidable environmental impacts of the proposed project. The Feather River Levee Repair Project will result in additional flood protection which in turn will yield economic benefits in the form of reduced costs associated with flood insurance and flood-related property damage. Flood protection also results in an increased sense of security in the community, particularly among owners of property that has flooded in the past or has been in been in danger of flooding. The Board has also considered the benefits of the project on the State Plan of Flood Control as it includes features that will provide 200-year protection. The Board finds that economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable adverse environmental effects of the project, and the adverse environmental effects are considered acceptable when these benefits of the project are considered.

The documents and other materials which constitute the record of the Central Valley Flood Protection Board's proceedings in this matter are in the custody of Jay Punia, Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

   The Board has considered all the evidence presented in this matter, including the original and updated applications, past and present Staff Reports and attachments. The Board has also considered all letters and other correspondence received by the Board and in the Board's files related to this matter.

   The custodian of the file is Executive Officer Jay Punia at the Central Valley Flood Protection Board.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

   This project does not have significant impacts on the State Plan of Flood Control, as the project does not impair the structural or hydraulic functions of the system.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   There are no other foreseeable projected future events that would impact this project.

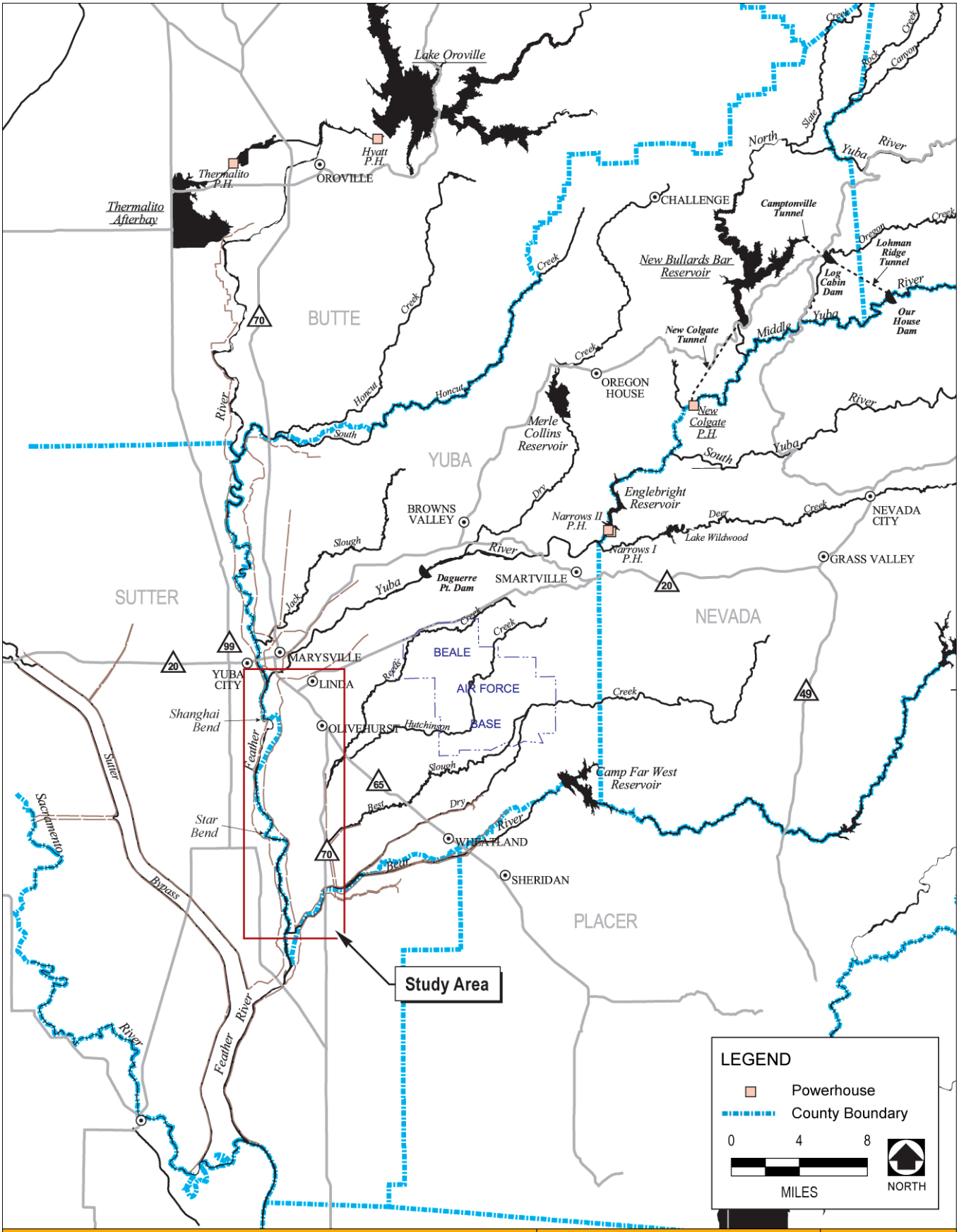
9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the CEQA Findings, approve Permit No. 18637 conditioned upon receipt of a USACE 208.10 letter of determination confirming that the USACE has no objection to the project, and direct the Executive Officer to take necessary actions to execute the permit and to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

A. Location Maps
B. Draft Permit No. 18637
   - Exhibit A: FRET Mitigation Area Approved Planting Tile
   - Exhibit B: Project Description Document with Long-Term Management
   - Exhibit C: USACE 208.10 Comment Letter (expected prior to 3/25/11 mtg.)
   - Exhibit D: RD 784 Special Conditions for Permit No. 18637
   - Exhibit E: LD-1 Special Conditions for Permit No. 18637
C. Encroachment Permit Application 18637 Attachments
D. Hydraulic Roughness Coefficient Map (Permit No. 18227)

Design Review:	Nancy C. Moricz, P.E.
Environmental Review:	Andrea Mauro, E.S. and James Herota, E.S.
Document Review:	David R. Williams, P.E., Dan S. Fua, P.E., and Len Marino, P.E.



Feather River Setback Levee

Setback Levee in Project Segment 2
Regional Setting

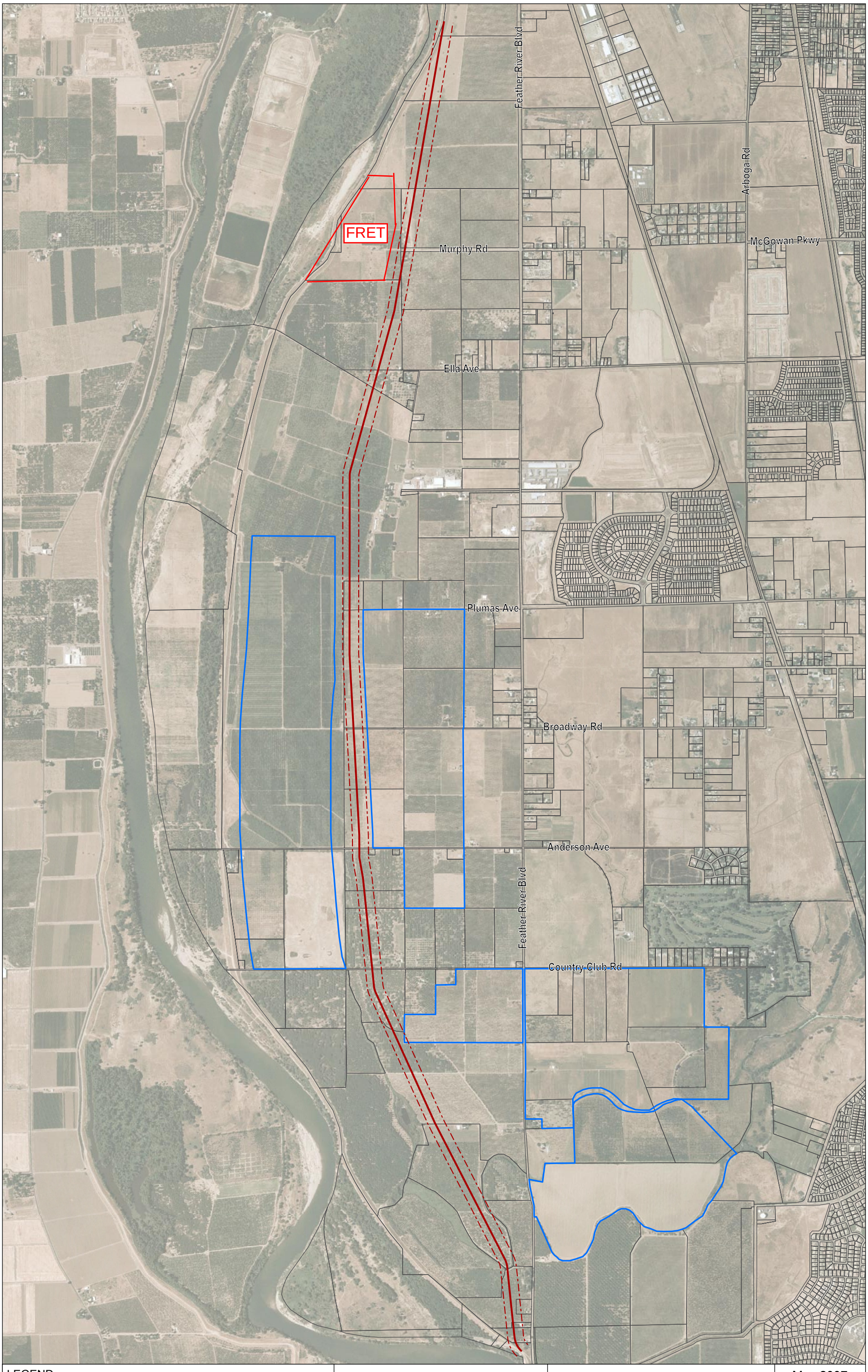
Sources: Yuba Count Water Agency; GEI 2004

G024

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
114 Yuba Street, Suite 218
Marysville, CA 95901

May 2007

Sheet 1



LEGEND

- Setback Levee Centerline
- Setback Levee Easement
- Areas being considerd for soil borrow sites.

0 1000 2000

FEET

NORTH

X060

Feather River Setback Levee Alignment

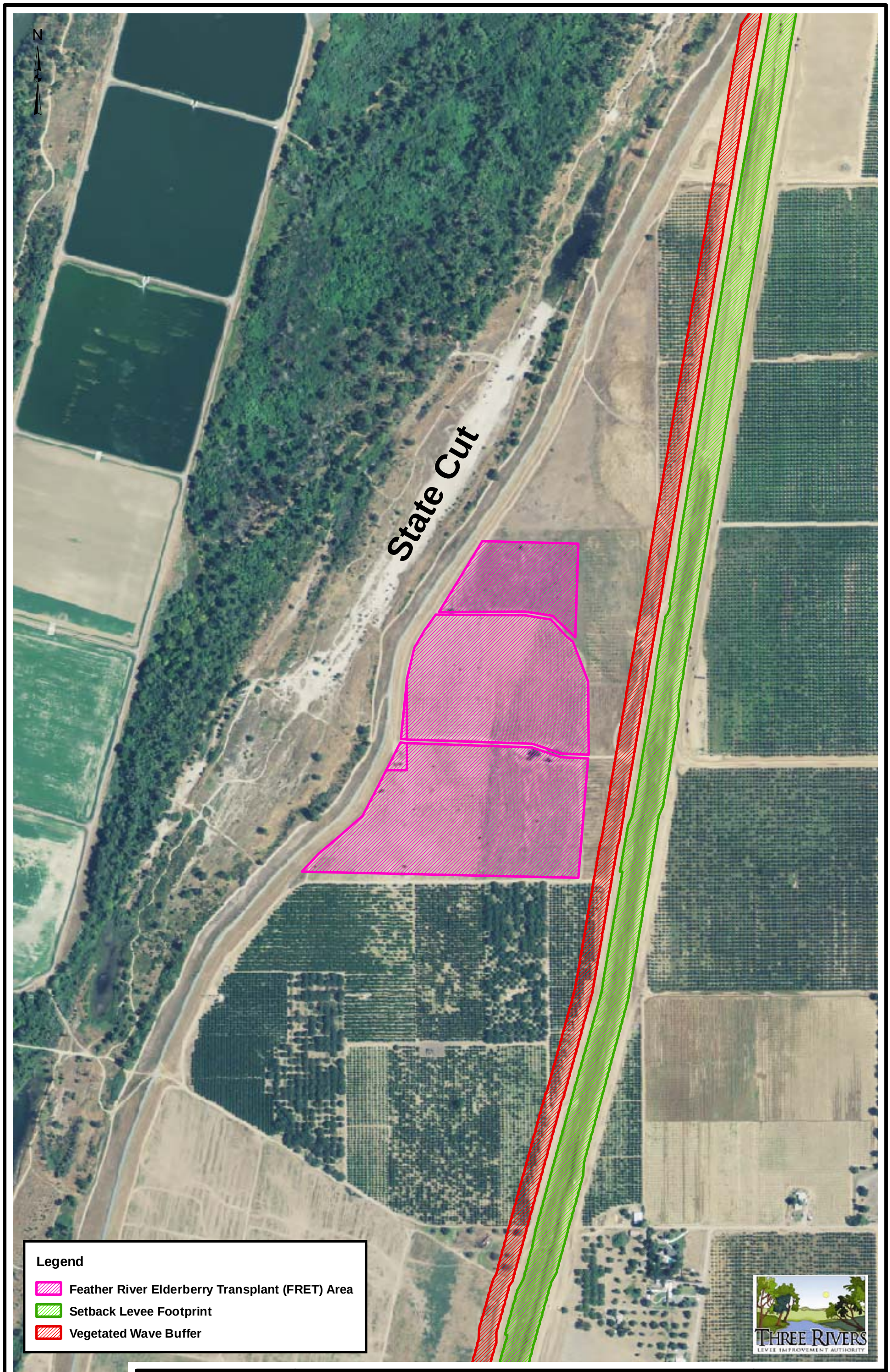
Source: NAIP 2006; GEI 2007

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

1114 Yuba Street, Suite 218
Marysville, CA 95901

May 2007

Sheet 3



MBK ENGINEERS

Figure 2 - Feather Setback Area and Adjacent Lands
Feather River Elderberry Transplant (FRET) Area

0 250 500
Scale in Feet

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18637 BD

This Permit is issued to:

Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, California 95901

To plant 203 elderberry seedlings and 355 associated native species, and authorize 92 elderberry transplants, 2,705 elderberry seedlings, and 4,737 associated native species planted within a 44-acre area on the overflow area of the left (east) bank levee of the Feather River. The project is located south of Marysville, west of Feather River Blvd. adjacent to Murphy Road (Section 12, T14N, R3E, MDB&M, Reclamation District 784, Feather River, Yuba County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

_____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18637 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: There shall be no additional plantings within the project area under this permit. Only those plantings expressly described under this permit shall be allowed within the project area and any modifications to the quantity, species, or location of the plantings will require a modification to the approved planting tile, species count, and location map, as well as a Board approved modification to this permit based on the aforementioned modified documents.

FIFTEEN: Prior to commencement of work, the permittee shall create a photo record, including associated descriptions, of the project conditions. The photo record shall be certified (signed and stamped) by a licensed land surveyor or professional engineer registered in the State of California and submitted to the Central Valley Flood Protection Board within 30 days of beginning the project.

SIXTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SEVENTEEN: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

EIGHTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted encroachments and shall defend and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

NINETEEN: The permittee shall be responsible for securing any necessary permits incidental to habitat manipulation and restoration work completed in the flood control project, and will provide any biological surveying, monitoring, and reporting needed to satisfy those permits.

TWENTY: The permittee agrees to incur all costs for compliance with local, State, and Federal permitting and resolve conflicts between any of the terms and conditions that agencies might impose under the laws and regulations it administers and enforces.

TWENTY-ONE: The Central Valley Flood Protection Board, Department of Water Resources, and Reclamation District 784 shall not be held liable for damages to the permitted encroachment(s) resulting from releases of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

TWENTY-TWO: The permittee shall be responsible for repair of any damages to the project levee and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-THREE: The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board.

TWENTY-FOUR: Except with respect to the activities expressly allowed under this permit, the work area shall be restored to the condition that existed prior to start of work.

TWENTY-FIVE: Temporary staging, formwork, stockpiled material, equipment, and temporary buildings shall not remain in the floodway during the flood season from November 1 to April 15.

TWENTY-SIX: Any construction activities, other than those associated with the transplant of the elderberry shrubs and seedlings, shall not be permitted during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-SEVEN: Proposed vegetative rows shall be parallel to the direction of the overbank flow and shall not direct the flows toward any levee and shall be in accordance with the Feather River Elderberry Transplant Mitigation Area Approved Planting Tile and shall be maintained in accordance with the Project Description Document with Long-Term Management, which are attached to this permit as Exhibits A and B, respectively, and are incorporated by reference.

TWENTY-EIGHT: No new wild rose, grape, blackberries, or other bushy thickets shall be propagated at this site, except for those described within this permit.

TWENTY-NINE: The landscaping, appurtenances, and maintenance practices shall conform to standards contained in Section 131 of the Central Valley Flood Protection Board's Regulations.

THIRTY: The Central Valley Flood Protection Board may require clearing and/or pruning of trees planted within the floodway in order to minimize obstruction to floodflows.

THIRTY-ONE: The ground surface shall be kept clear of fallen trees, branches, and debris.

THIRTY-TWO: Cleared trees and brush (or prunings therefrom) shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to April 15.

THIRTY-THREE: After each period of high water, debris that accumulates at the site shall be completely removed from the floodway.

THIRTY-FOUR: All debris generated by this project shall be disposed of outside the floodway.

THIRTY-FIVE: Areas where plantings are lost to erosion on the floodplain shall not be replanted.

THIRTY-SIX: In the event that levee or bank erosion injurious to the adopted plan of flood control occurs at or adjacent to the permitted encroachment(s), the permittee shall repair the eroded area and propose measures, to be approved by the Central Valley Flood Protection Board, to prevent further erosion.

THIRTY-SEVEN: If the proposed project result(s) in an adverse hydraulic impact, the permittee shall provide appropriate mitigation measures, to be approved by the Central Valley Flood Protection Board, prior to implementation of mitigation measures.

THIRTY-EIGHT: The permittee shall operate and maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of Department of Water Resources or any other agency responsible for maintenance. Maintenance may include actions to preserve the integrity of the flood control system under emergency conditions. These actions will be taken at the sole expense of the permittee.

THIRTY-NINE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

FORTY: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

FORTY-ONE: The easement required by Reclamation District 784 for construction, operation, and maintenance of the Pump Station 10 outfall shall be maintained free from vegetation, with the exception of grasses for erosion control.

FORTY-TWO: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

FORTY-THREE: The permittee shall submit as-built drawings to the Department of Water Resources' Flood Project Inspection Section, located at 3310 El Camino Ave, Room 256, Sacramento, California, 95821, upon completion of the project.

FORTY-FOUR: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

FORTY-FIVE: The permittee should contact the U.S. Army Corps of Engineers (USACE), Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

FORTY-SIX: This permit is not valid until the Central Valley Flood Protection Board has received written notification from the USACE that the USACE has no objection to this project. The permittee shall comply with all conditions set forth in the letter from the USACE, once it is received, which shall be attached to this permit as Exhibit C and is incorporated by reference.

FORTY-SEVEN: The permittee shall comply with all conditions set forth in project endorsement from Reclamation District 784 dated November 16, 2010, which is attached to this permit as Exhibit D and incorporated by reference.

FORTY-EIGHT: The permittee shall comply with all conditions set forth in project endorsement from Levee District 1 dated November 8, 2010, which is attached to this permit as Exhibit E and incorporated by reference.

FORTY-NINE: This permit shall run with the land and all conditions are binding on permitee's successors and assigns.

Feather River Elderberry Transplant Mitigation Area
Plant Species and Density

44 Acres

Common Name	Scientific Name	Species Code	Plants per Tile	Density (plants/acre)	Total Number 44 Acres
Box elder	*Acer negundo L.*	BE	2	9	291
Coyote brush	*Baccharis pilularis DC.*	CB	3	13	497
Mulefat	*Baccharis salicifolia*	MF	2	9	306
Oregon ash	*Fraxinus latifolia Benth*	AS	2	9	297
Poison Oak	*Toxicodendron diversilobum*	PO	2	9	340
California rose	*Rosa californica*	RO	7	30	1,106
Arroyo willow	*Salix lasiolepis Benth.*	AW	2	9	314
Elderberry	*Sambucus*	EB	18	78	2,908
Sandbar (narrow-leaf) willow	*Salix exigua Nutt.*	SW	2	9	310
Valley Oak	*Quercus lobata*	VO	2	9	331
Buttonbush	*Cephalanthus occidentalis*	BU	2	9	332
California blackberry	*Rubus ursinus*	BB	6	26	969
			50	218	8,000

Feather River Elderberry Transplant Mitigation Area

Plant#\Row	1	2	3	4	5
1	EB	VO	RO	EB	BU
2	EB	VO	SW	EB	EB
3	CB	CB	MF	BB	PO
4	BB	EB	EB	BB	PO
5	EB	EB	BU	EB	AW
6	EB	SW	EB	BB	AW
7	RO	RO	EB	BB	MF
8	RO	CB	EB	RO	RO
9	EB	EB	BB	BE	AS
10	EB	EB	RO	BE	AS

Rows are 20 feet apart.
Plants are spaced on 10-foot centers.

NOTE: This Tile Repeated Until Entire Area is Covered

ATTACHMENT B: Exhibit A - FRET Mitigation Area Approved Planting Tile

Attachment A

Application to the Central Valley Flood Protection Board

Project Description

Application Item No. 1—Description of Proposed Work

Feather River Levee Repair Project
Feather River Elderberry Shrub Mitigation Area

Three Rivers Levee
Improvement Authority

October 2010

1 INTRODUCTION AND BACKGROUND

This application is for an elderberry shrub mitigation area planted in the recently expanded Feather River Floodway. The area would mitigate for elderberry shrubs impacted by construction of the Feather Setback Levee and degradation of the existing levee. The area would extend from station 244+00 to 264+00 and is approximately 1,100 feet wide for an area of 44 acres.

1.1 BACKGROUND

Studies by the California Department of Water Resources (DWR), the U.S. Army Corps of Engineers (Corps), Reclamation District 784 (RD 784), and Three Rivers Levee Improvement Authority (TRLIA) found in 2005 that several reaches of the levee system protecting the RD 784 area (see Sheet 1 in Attachment C for general location) did not satisfy geotechnical criteria for seepage at the water surface elevation for the 100-year flood event. An analysis, focused on the Feather River levee, was performed by Kleinfelder and is described in *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District No. 784* (PIR) (Kleinfelder 2006). The PIR addresses the Feather River left (east) bank levee from approximately Project Levee Mile (PLM) 13.3 near RD 784 Pump Station No. 2 to the beginning of the Yuba River left (south) bank levee at approximately PLM 26.1, and the Yuba River south bank levee from PLM 0.0 to PLM 0.3 (see Sheet 2 in Attachment C). The conclusions of the PIR indicated that portions of the subject levee did not meet the geotechnical criteria for through-seepage or underseepage needed to secure Federal Emergency Management Agency (FEMA) accreditation.

To correct these deficiencies, TRLIA implemented the Feather River Levee Repair Project (FRLRP) as part of a more comprehensive program to repair and improve the Feather River and Yuba River levees within RD 784. The FRLRP is divided into three project segments as follows:

- Segment 1— Repair and strengthening of the existing Feather River east bank levee from PLM 13.3 to PLM 17.2 (from approximately Pump Station No. 2 to Star Bend) (see Sheet 2 in Attachment C). This segment of the project is complete and was covered by Central Valley Flood Protection Board (CVFPB) Permit No. 18170 BD.

- Segment 2— Along the existing Feather River east bank levee from approximately PLM 17.2 to PLM 23.4 (from Star Bend to immediately south of Shanghai Bend [west of the Yuba County Airport]), TRLIA has constructed a setback levee following the route shown in Sheet 3 in Attachment C. Construction of the setback levee was permitted under CVFPB Permit No. 18227 BD. TRLIA then removed the existing levee to allow floodwaters to enter the setback area, decommissioned and removed the existing Pump Station No. 3, and modified an existing drainage channel (floodplain swale) to allow flood waters to drain from the setback area in a way that minimizes the potential for fish stranding. These levee degrade activities were accomplished under CVFPB Permit No. 18430 BD. Construction of the setback levee, degradation of the existing levee, and modification of the drainage swale resulted in impacts to elderberry shrubs in the area of construction which must be mitigated.

The subject of this permit application is an elderberry mitigation area that TRLIA is creating in the setback area.

- Segment 3— Repair and strengthening of the existing Feather River east bank levee from PLM 23.4 to PLM 26.1, and the Yuba River south bank levee from PLM 0.0 to PLM 0.3 (west of the Yuba County Airport to the Western Pacific Railroad crossing just west of the State Route [SR] 70 bridge) (see Sheet 2 in Attachment C). This segment of the project is complete and is covered by CVFPB Permit No. 18170 BD.

Construction of the setback levee was accomplished in two parts (A & B) under Permit No. 18227 BD. Construction of Part A of the setback levee (those facilities not requiring a Section 404 permit or Section 408 approval by the U.S. Army Corps of Engineers (Corps)) under Permit No. 18227 BD began in April 2008 after the permit was issued. Construction of the setback levee resulted in impacts to elderberry shrubs in the footprint of the setback levee and associated facilities. Since the elderberry is habitat for the threatened Valley Elderberry Longhorn Beetle (VELB), Federal law requires that these impacts be mitigated. Based on cost considerations and extensive discussions with the U.S. Fish and Wildlife Service (USFWS), TRLIA chose to mitigate these elderberry impacts by establishing an elderberry mitigation area onsite. Initial transplants were made on the landside of the existing levee prior to this area becoming incorporated into the floodway in August 2008.

The final Biological Opinion issued by the USFWS addressing elderberry mitigation was dated August 28, 2008, and soon thereafter TRLIA began transplanting elderberries that were not subject to Section 404 permit requirements. The Section 404 permit for the setback levee became effective on December 15, 2008, and Section 408 approval from the Corps was issued on December 12, 2008. These two Corps actions allowed work to commence on Part B of the work permitted under CVFPB Permit No. 18227 BD. The majority of the elderberry seedlings and associated plantings required by the Biological Opinion were planted in the mitigation area in January and February of 2009. Initial transplants from wetland areas in the levee footprint were made to the proposed mitigation area in March of 2009. These plantings and transplants were accomplished in an area that was approved by the USFWS.

During the initial consideration of Permit No. 18430 for existing levee degradation at the June 2009 CVFPB Meeting, the board was presented with four planting-related activities planned for the setback area: (1) mitigation plantings in a floodplain drainage swale required as a condition of the Section 404 permit provided by the Corps; (2) Messick Lake mitigation area, also a condition of the Section 404 permit; (3) plantings required to mitigate elderberry impacts caused by the setback levee project called for in the August 2008 Biological Opinion issued by the USFWS as part of the 404 permit (the FRET); and (4) a vegetated wave buffer along the waterside of the levee to absorb wave energy and protect the waterside slope of the levee from wave erosion and overtopping which is part of the 200-year design.

The Messick Lake Mitigation Area (item no 2), the elderberry mitigation area (item no. 3), and the vegetated wave buffer (item no. 4) were planned for portions of the setback area that would become part of the Feather River Floodway once the existing levee was degraded. The board requested more information about these plantings for consideration at its next meeting in July 2009. At the July 2009 meeting, the CVFPB determined that the floodplain swale and Messick

Lake Mitigation Area would be included in Permit No. 18430 BD for the levee degradation, but that the FRET mitigation area plantings and the vegetated wave buffer would require separate permits. Also at the July 2009 meeting, the board clarified that TRLIA could continue to transplant shrubs impacted by the levee degrade and floodplain swale creation to the elderberry mitigation area during the levee degrade.

In February 2010, a small percentage of the mitigation seedlings and associate plantings were planted to complete the seedling and associate plantings begun in January/February 2009. Both episodes of planting were completed under the same contract between TRLIA and River Partners. Given the restriction in Permit No. 18430 BD on additional plantings in the FRET area, we now realize that the February 2010 seedling and associate plantings likely should have been done in coordination with the CVFPB or under the permit requested herein.

The FRET is not yet complete due to the need to plant the final associates to meet the requirements of the Biological Opinion. It is the planting of these final associates that will be completed under the permit requested herein. The ultimate number of elderberry shrubs impacted by the overall project slightly exceeded the number assumed in the Biological Opinion. TRLIA has communicated with the Corps about this and has requested that the Corps reinitiate consultation with the USFWS to update the impact information and establish final mitigation requirements. The remaining number of seedlings and associated plantings required to completely mitigate elderberry impacts will be determined after this additional consultation.

This current application addresses only the creation of an elderberry shrub mitigation area in the Feather River Setback Area through transplanting impacted elderberry shrubs and the additional planting of associate species as called for in the USFWS Biological Opinion. A separate application was made for an encroachment permit for the vegetated wave buffer.

2 OVERVIEW OF THE FEATHER RIVER SETBACK LEVEE — PROJECT SEGMENT 2

2.1 STAGE 1 PROJECT ELEMENTS

The alignment for the setback levee in FRLRP Segment 2 is shown in Sheet 3 in Attachment C. The location of the setback levee was selected to achieve substantial reductions in river stage while maintaining a Feather River floodway width that is consistent with upstream and downstream reaches of the river. A second consideration was to take advantage of the existing configuration of the levee system to identify constructible locations where the setback levee could be tied into the existing levee. This alignment was refined based on topographic, geologic, and socioeconomic considerations. The setback levee was aligned as much as possible along a topographically elevated area formed by older, more consolidated soils, while making adjustments as practicable to reduce impacts on the local landowners.

The setback levee is approximately 5.7 miles long. The new levee segment is set back approximately 0.5 mile to the east of the existing Feather River levee, except near the northern and southern ends, where it will join the existing levee. The area between the existing levee and the setback levee alignment (the setback area) and the footprint of the setback levee (including

access corridors and a landside drainage ditch) includes approximately 1,600 acres. On each side of the setback levee, a 50-foot-wide access corridor has been acquired to support levee maintenance and inspection and flood fighting activities. The design crown elevation of the setback levee is the same as the crown elevation of the existing levee at each given latitude along the alignment. The height of the setback levee generally ranges from about 20 to 30 feet above the existing ground surface. The most common levee height above the adjacent land is approximately 25 feet. Other dimensions of the setback levee are: a crown width of 20 feet; a footprint width (levee toe to levee toe) of approximately 170 feet (depending on levee height); levee slopes at a 3:1 ratio (H:V); and a 12-foot-wide patrol road on the levee crown.

Construction of the setback levee includes six main elements:

- Preparation of the levee foundation, including clearing and grubbing of all unsuitable surface and subsurface materials, stripping of low-growing vegetation and topsoil to a depth of at least 6 inches, and excavating and backfilling an inspection trench along the full length of the levee. Elderberry shrubs were located in the levee footprint and had to be transplanted out of the way.

- Construction of a slurry cutoff wall along those portions of the setback levee where widespread strata of permeable sands and gravels exist in the foundation.

- Construction of the setback levee embankment and stability berms.

- Tieing the setback levee foundation and embankment into the existing Feather River levee at the northern and southern ends of the setback levee.

- Removal of soil from borrow areas developed on both the waterside and landside of the setback levee alignment to provide material for setback levee construction.

- Construction of a relocated Pump Station No. 3 at the landside toe of the setback levee to continue to provide interior drainage to the RD 784 basin. Decommissioning and removal of the existing pump station is part of Stage 2 activities described below.

2.2 STAGE 2 PROJECT ELEMENTS - DEGRADATION OF EXISTING LEVEE

All of the existing levee in Segment 2 was removed to achieve the maximum hydraulic benefits of the levee setback by allowing water to flow into and out of the levee setback area during high river stages and to fill primary borrow areas in the setback area. The existing levee was excavated to the level of the adjoining ground surface in the levee access corridor. Material removed from the existing levee was placed in borrow areas developed during Stage 1 setback levee construction.

With the existing levee degraded, the existing Pump Station No. 3 was no longer needed to move stormwater and irrigation runoff over the levee to the Feather River. Concurrent with levee degradation, the existing Pump Station No. 3 was decommissioned and dismantled.

A floodplain swale was excavated along the alignment of the existing Pump Station No. 3 discharge channel from the existing Pump Station No. 3 location to the Feather River. This

swale connects the setback area lowlands to the Feather River and thus facilitates drainage and allows flood waters to recede from the setback area in a manner that minimizes fish stranding. The existing channel was enlarged and deepened to accommodate flood flows leaving the setback area and to minimize the potential for fish stranding as flood waters recede. The swale was constructed in a manner that minimized vegetation disturbance, fish stranding, and other environmental impacts. However, many elderberry shrubs were in the footprint of the swale and were transplanted to the FRET to minimize impact to the elderberry shrub population in the setback area. The swale also acts to allow backwater to flow into the setback area from the Feather River, increasing the inundation frequency of portions of the setback area and resulting in high quality habitat.

3 FEATHER RIVER SETBACK LEVEE — ELDERBERRY SHRUB MITIGATION AREA

3.1 NEED FOR THE ELDERBERRY SHRUB MITIGATION AREA

Construction of the setback levee embankment and floodplain swale impacted elderberry shrubs in the area. Because the elderberry shrub is habitat for the threatened Valley Elderberry Longhorn Beetle (VELB), impacts to the habitat must be mitigated. This mitigation was required and outlined by the August 28, 2008 USFWS Biological Opinion and was a condition of the USACE Section 404 Permit. Without agreement by TRLIA to mitigate for project impacts to this threatened species habitat, the setback levee project would not have been allowed to proceed. TRLIA opted to relocate and transplant elderberries into the setback area because the cost to mitigate these impacts onsite was approximately 50% of the cost to mitigate at an offsite mitigation bank. Onsite mitigation cost is approximately $612,700 versus offsite mitigation cost estimated at approximately $1,474,000. (44 acres at $33,500 per acre = $1,474,000)

3.2 DESCRIPTION OF THE ELDERBERRY SHRUB MITIGATION AREA

The Feather River Elderberry Transplant (FRET) mitigation area is a 44 acre elderberry mitigation site located in the northern end of the setback area, see Figures 1 and 2, and is a requirement of both the USFWS Biological Opinion and the Corps 404 Permit. The mitigation area must be protected in perpetuity as habitat for the valley elderberry longhorn beetle. A conservation easement or deed restriction to protect the area must be arranged. Monitoring for ten years must occur to assure the USFWS of the success of the transplanted elderberry shrubs.

This site has been designated by the USFWS as an appropriate mitigation site for the transplant of approximately 58 elderberry shrubs and their associate plantings. TRLIA has utilized the USFWS planting guidelines in transplanting the elderberry shrubs to the site. An initial number of associate plantings have been made in the FRET. TRLIA has not completed the planting of associate plants in the area pending approval of the encroachment permit for this proposed mitigation area and reinitiation of consultation with the USFWS regarding the final number of transplants which occurred. The actual number of transplants slightly exceeded the number discussed in the BO. The number of stems impacted is however very close to the number in the BO. TRLIA is reinitiating consultation with the USFWS to report the number of actual stems impacted and time of impact and to determine final numbers of elderberry seedlings and associated native plantings required to completely mitigate the impact.

In addition to the elderberry transplants, the following associate species *(scientific name)* have been planted in the FRET area:

- Elderberry Transplants 92 Transplants
- Elderberry Seedlings 2,705 Plants
- Associated Native Species Total: 4,737 Total Plants of the Following Species
  - Box Elder *(Acer negundo L.)* 271
  - Buttonbush *(Cephalanthus occidentalis)* 309
  - California Blackberry *(Rubus ursinus)* 901
  - Coyote Bush *(Baccharis pilularis.)* 462
  - Oregon Ash *(Fraxinus latifolia)* 276
  - Poison Oak *(Toxicodendron diversilobum)* 316
  - Valley Oak *(Quercus lobata)* 308
  - California Rose *(Rosa califomica)* 1,029
  - Arroyo Willow *(Salix lasiolepis)* 292
  - Sandbar willow *(Salix exigua Nutt.)* 288
  - Mulefat *(Baccharis salicifolia)* 285

At least 558 plants (203 elderberry seedlings and 355 associated plantings) remain to be planted. This number could increase following reinitiated consultation with the USFWS regarding elderberry mitigation.

A planting plan for the FRET is shown in Sheet 4 of Attachment C. Plant rows are 20 feet apart with the spacing of plants in the rows at 10 feet. Irrigation is supplied through a drip system installed underground using a small tractor. The actual plantings are accomplished using standard agricultural procedures and involve hand labor, small trucks, trailers, and tractors. Dust, noise, and air quality impacts are no different than with most farm operations that occur in this area of Yuba County.

After planting, the vegetation will be maintained for at least three years by a TRLIA contractor to ensure establishment of the plants. Maintenance consists of fertilizing and watering and the control of invasive plant species. In some cases, replanting of the described species may be required due to high mortality of the initial plantings. Monitoring will occur for another 7 years. If success criteria are not met according to the USFWS 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle (60% survival of elderberry plants and 60% of the associated native plants) then additional consultation will have to occur between TRLIA and the USFWS. The guidelines also require that a conservation easement be placed on the mitigation area.

3.3 HYDRAULIC IMPACT OF THE ELDERBERRY SHRUB MITIGATION AREA

The location of the elderberry mitigation area at the north end of the Feather Setback Area has no impact to design hydraulics and the need for future clearing for additional flood conveyance. Hydraulic analysis indicates that the Feather River Floodway already conveys the 1957 design discharges at elevations less that the 1957 Design Profile. Hydraulic design for the setback levee project was done assuming that the entire setback area would be planted in riparian vegetation which is consistent with the plantings done for elderberry mitigation. Should the need arise for additional clearing in the future to increase flood conveyance, this clearing would more logically

occur along the old river channel that exists on the waterside of the degraded levee footprint and would clear from the FRET area and towards the current river channel, see Figure 2. This old channel is known as the "State Cut" and has existed for many years to accommodate flood flows of the Feather River. This would avoid the need to clear through the mitigation area. This other area available for any potential future clearing in this reach would allow adequate maintenance to occur for flood purposes without having to impact the elderberry mitigation area. Hydraulic analysis done to establish the design 200-year profile assumed that the entire setback area, including the elderberry shrub mitigation area, would someday establish into riparian type vegetation. This was the most conservative assumption to make for the purpose of hydraulic design. Construction of the Feather Setback Levee has created regional flood protection benefits by lowering Feather River flood elevations from Star Bend to Yuba City. The proposed plantings for the elderberry mitigation area match the design assumptions made for the hydraulic analysis of the Setback Levee and will not diminish flood reliability for levees along the Feather River or reduce the regional flood protection benefits.

3.4 MANAGEMENT OF THE ELDERBERRY SHRUB MITIGATION AREA

TRLIA has a contract with River Partners to monitor and maintain the Feather River elderberry mitigation area for three years. After three years it is anticipated that RD784 will maintain the mitigation area. RD784 funding will come from the TRLIA levee benefit assessment district. Once the mitigation plantings are established at the end of three years, management of the mitigation area will be minimal. Irrigation of the mitigation area would cease and the only routine maintenance would be the removal of large debris after a flood event and monitoring required by USFWS Guidelines. Maintenance for flood conveyance purposes would occur in the clear toe access corridor next to the levee embankment and in the "State Cut" just west of the mitigation area as described above. TRLIA is responsible for and will use contractors for the long term maintenance and monitoring of the elderberry mitigation area. If there is a need to change this responsibility in the future, CVFPB concurrence on the change will be obtained.

4 FEATHER RIVER FLOODWAY — LONG TERM MAINTENANCE ACTIONS

DWR formed the Lower Feather River Floodway Corridor Management committee to develop a land management plan for the Feather River Floodway corridor between the confluence of the Yuba River southerly to the Sutter By-pass. A critical part of the land management plan is to lay out a way (most likely via Safe Harbor Like Agreements) to allow floodway maintenance to occur with limited restrictions in areas that contain threatened or endangered species. TRLIA is a partner in this endeavor. DWR, CVFPB, local maintaining agencies, and environmental resource agencies (FWS, F&G, etal) are meeting to develop this plan that will allow restoration to continue in the Feather River Floodway without hampering future flood maintenance actions that also need to occur. The land management plan and Safe Harbor Like agreements are still several years out. Because of the hydraulic assumptions, Setback Area in full restoration, used for the Setback Levee design, it is not expected that floodway maintenance actions in this area will be required for many years. TRLIA is committed to work with this group and CVFPB until an approved approach is developed and accepted.

LITERATURE CITED

Kleinfelder, Inc. 2006 (February 20). *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District No. 784*. Sacramento, CA.

Three Rivers Levee Improvement Authority. 2006 (August). *Draft Environmental Impact Report, Feather River Levee Repair Project, Vol 1: Chapters 1-11 and Vol 2: Appendices*, State Clearinghouse No. 2006062071. Prepared by EDAW and Flood Prevention Study Team.

Three Rivers Levee Improvement Authority. 2008 (January). *Phase 4 Feather River Levee Repair Project, Feather River Setback Levee, Design Report in 5 Volumes.* Prepared by GEI and Flood Prevention Study Team.

USFWS. August 28, 2008. *Biological Opinion on the proposed Feather River Levee Repair project Segment 2 (Corps file number 2007005778), Yuba County, California.*

USACE, October 2008. *Final Environmental Impact Statement, 408 Permission and 404 permit to Three Rivers Levee Improvement Authority for the Feather River Levee Repair Project, California, Segment 2.*

USACE. December 17, 2008. *Department of the Army Section 404 Permit SPK-2007-00578.*

ATTACHMENT B – Exhibit B: Corps 208.10 Comment Letter

These letters have not been received by Board staff; however, it is expected to arrive prior to the Board Meeting on March 25, 2011

State of California | DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD | The Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work:
This application is for an elderberry shrub mitigation area planted in the recently expanded Feather River Floodway. The area would mitigate for elderberry shrubs impacted by construction of the Feather Setback Levee and degradation of the existing levee. The area would extend from station 244+00 to 264+00 and is approximately 1,100 feet wide for an area of 44 acres. See Attachment A and C for more details on the type and density of plantings proposed for the elderberry mitigation area

2. Location: South of Marysville, Yuba County, in Section 12 ,
Township: 14N (N) (S), Range 3E (W), M. D. B. & M.

3. Three Rivers Levee Improvement Authority (Name of Applicant) of 1114 Yuba Street, Suite 218 (Address)

Marysville (City) | CA (State) | 95901 (Zip Code) | 530-749-7841 (Telephone Number)

530-749-6990 (Fax Number)

4. Endorsement: (of Reclamation District)
We, the Trustees of Reclamation District No. 784 (Name and District Number)

approve this plan, subject to the following conditions:

☒ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Rick Brown 11-16-2010
Trustee Date | Trustee Date

5. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If add ional space is required, list names and addresses on back of the application form or an attached sheet.

See Attachment B
Name | Address | Zip Code

Reclamation District No. 784 has the following conditions to be included on the Central Valley Flood Protection Board Encroachment Permit to create an elderberry shrub mitigation area in the recently expanded Feather River Floodway. The area would mitigate for elderberry shrubs impacted by construction of the Feather River Setback Levee and degradation of the existing levee. The Feather River Elderberry Transplant (FRET) is a 44 acre located near the northern end of setback area adjacent to Murphy Road. The main condition deals with the location of the FRET and the impact on the proposed outfall pipeline and channel. The proposed outfall pipeline and channel are part of Reclamation District No. 784 Master Drainage Plan. The portion of the pipeline within the levee was constructed as part of the Feather River Setback levee consisting of two thirty-six (36) inch HDPE fusion welded pipelines. The outfall was originally planned to extend down Murphy Road to the levee then over the levee to an outfall structure in the old river channel. When TRLIA proposed the setback levee concept, RD 784 hired TRLIA to construct the pipe crossing portion of the Pump Station No. 10 outfall pipe. Pump Station No. 10 is the regional pump station for Drainage Basin C and upper Drainage Basin B. The regional detention pond has already been completed and the pump station is the final phase of the critical improvement. The construction of the FRET would result in a new alignment for the outfall pipeline and channel resulting additional cost and mitigation. The Condition No. 1 below addresses Reclamation District No. 784 concern and allows both the mitigation project and the Regional Pump Station project to coexist. The conditions below are the minimum conditions:

1. A 50 foot easement shall be granted to Reclamation District No. 784 along the projection of Murphy Road to the old river channel for discharge pipeline, a 120 foot easement around the mitigation area to the old river channel for open channel, or a flowage easement which would allow RD 784 to discharge water approximately 100 feet from levee toe and sheet flow across lands to the old river channel. Since the 50 foot easement option would potentially be adjacent to elderberry shrubs and other planted mitigation, the construction of pipeline should be allowed under the mitigation plan. The easement shall be for construction, operation, and maintenance.

2. All improvements shall meet Central Valley Flood Protection Board Standards;

3. The proposed project shall not increase, as determined by the U.S. Corps of Engineers and the California Central Valley Flood Protection Board the 1-in-100 and 1-in-200 water surface elevation or the velocity on the east or west bank of the Feather River;

4. Grading or Tree Plantings shall be designed not to direct water towards the existing levee or the diversion levees. Grading shall not affect the hydraulic characteristics of the river in a negative manner;

5. A copy of operation and maintenance manual shall be provided to Reclamation District No. 784 upon completion of the work;

6. A set of As-Built Mylar plans shall be provided to Reclamation District No. 784 upon completion of the work;

7. A copy of the final Central Valley Flood Protection Board Permit shall be provided to Reclamation District No. 784 prior to any work.

8. Reclamation District No. 784 shall be notified five (5) working days prior to any construction activities.

9. Reclamation District No. 784 shall be included in all construction status meetings.

10. Reclamation District No. 784 shall be reimbursed by the encroachment permit applicant for all costs directly related to review and endorsement on the Central Valley Flood Protection Board Encroachment Permit application.

State of California DEPARTMENT OF WATER RESOURCES The Resources Agency

APPLICATION FOR A RECLAMATION BOARD ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work:
Transplant approximately 34 elderberry shrubs and plant additional associated species into an existing mitigation site (Anderson Site) to mitigate elderberry impacts from the Upper Yuba Levee Improvement Project. See Attachment A for more details. The Three Rivers Levee Improvement Authority (TRLIA) intends to meet the requirements presented in the CVFPB letter of September 16, 2010 in order to utilize this existing mitigation site.

2. Location: South of Marysville, Yuba County, in Section Section 23,
Township: 14N (N) (S), Range 3E (W), M. D. B. & M.

3. Three Rivers Levee Improvement Authority (Name of Applicant) of 114 Yuba Street, Suite 218 (Address)

Marysville (City) CA (State) 95901 (Zip Code) 530-749-7841 (Telephone Number)

530-749-6990 (Fax Number)

4. Endorsement: (of Reclamation District)
We, the Trustees of Levee District No. 1 (Name and District Number)

approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☒ Conditions Attached ☐ No Conditions

Francis K. Silva 11/8/10
Trustee Date

Trustee Date

5. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If add ional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment B		

Levee District No. 1 has the following conditions to be included on the Central Valley Flood Protection Board Encroachment Permit to create an elderberry shrub mitigation area in the recently expanded Feather River Floodway as proposed by Three Rivers Levee Improvement Authority. The conditions below are the minimum conditions:

1. All improvements shall meet Central Valley Flood Protection Board Standards;

2. The proposed project shall not increase, as determined by the U.S. Corps of Engineers and the California Central Valley Flood Protection Board, the 1-in-100 and 1-in-200 water surface elevation or the velocity on the east or west bank of the Feather River. A copy of the hydraulic report and computer modeling (HEC – RAS) approved by USACE and CVFPB shall be provided to Levee District No. 1;

3. The TRLIA shall indemnify Levee District No. 1 from any and all liability associated with the endorsement of the project;

4. Grading or Tree/Shrub Plantings shall be designed not to direct water towards the existing levee or the diversion levees. Grading shall not affect the hydraulic characteristics of the river in a negative manner;

5. Appropriate operation and maintenance shall be performed by the project owners to prevent any adverse impacts on the floodway and levee systems. A copy of the operation and maintenance manual shall be provided to Levee District No. 1;

6. A set of As-Built Mylar plans shall be provided to Levee District No. 1 upon completion of the work;

7. A copy of the final Central Valley Flood Protection Board Permit shall be provided to Levee District No. 1 prior to any work;

8. Levee District No. 1 shall be notified five (5) working days prior to any construction activities;

9. Levee District No. 1 shall be notified five(5) working days prior to the Central Valley Flood Protection Board meeting which included approval of the encroachment permit.

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
1114 Yuba Street, Suite 218
Marysville, CA 95901
Office (530) 749-7841 Fax (530) 749-6990

October 25, 2010

Mr. Jay Punia
Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, RM 151
Sacramento, CA 95821

Subject: Central Valley Flood Protection Board Encroachment Permit Application Package
Three Rivers Levee Improvement Authority – Reclamation District No. 784 Levees
Establishing an Elderberry Mitigation Area in the Feather Setback Area

Dear Mr. Punia,

Enclosed are four copies of an encroachment permit application package and environmental questionnaire for activities associated with establishing the Feather River Elderberry Transplant (FRET) mitigation area in the Setback Area of the Feather River Setback Levee. The proposed mitigation site is situated between the new Setback levee (waterside) and the existing levee (landside). The Three Rivers Levee Improvement Authority (TRLIA) has completed construction of the Feather River Setback Levee under Central Valley Flood Protection Board (CVFPB) Permit No. 18227 BD, and has degraded the existing levee under Permit No. 18430.

Construction of the setback levee was accomplished in two parts (A & B) under Permit No. 18227 BD. Construction of Part A of the setback levee (those facilities not requiring a Section 404 permit or Section 408 approval by the U.S. Army Corps of Engineers (Corps)) under Permit No. 18227 BD began in April 2008 after the encroachment permit was issued. Construction of the setback levee resulted in impacts to elderberry shrubs in the footprint of the setback levee and associated facilities. Since the elderberry is habitat for the threatened Valley Elderberry Longhorn Beetle (VELB), Federal law requires that these impacts be mitigated. Based on cost considerations and extensive discussions with the U.S. Fish and Wildlife Service (USFWS), TRLIA chose to mitigate these elderberry impacts by establishing an elderberry mitigation area onsite. Initial transplants were made on the landside of the existing levee prior to this area becoming incorporated into the floodway.

The final Biological Opinion issued by the USFWS addressing elderberry mitigation was dated August 28, 2008, and soon thereafter TRLIA began transplanting elderberries that were not subject to Section 404 permit requirements. The Section 404 permit for the setback levee became effective on December 15, 2008, and Section 408 approval from the Corps was issued on December 12, 2008. These two Corps actions allowed work to commence on Part B of the work permitted under CVFPB Permit No. 18227 BD. The majority of the elderberry seedlings and associated plantings required by the Biological Opinion were planted in the mitigation area in January and February of 2009. Initial transplants from wetland areas in the levee footprint were made to the proposed mitigation area in March of 2009. These plantings and transplants were accomplished in an area that was approved by the USFWS.

During the initial consideration of Permit No. 18430 for existing levee degradation at the June 2009 CVFPB Meeting, the board was presented with four planting-related activities planned for the setback area: (1) mitigation plantings in a floodplain drainage swale required as a condition of the Section 404 permit

provided by the Corps; (2) Messick Lake mitigation area, also a condition of the Section 404 permit; (3) plantings required to mitigate elderberry impacts caused by the setback levee project called for in the August 2008 Biological Opinion issued by the USFWS as part of the 404 permit (the FRET); and (4) a vegetated wave buffer along the waterside of the levee to absorb wave energy and protect the waterside slope of the levee from wave erosion and overtopping which is part of the 200-year design.

The Messick Lake Mitigation Area (item no 2), the elderberry mitigation area (item no. 3), and the vegetated wave buffer (item no. 4) were planned for portions of the setback area that would become part of the Feather River Floodway once the existing levee was degraded. The board requested more information about these plantings for consideration at its next meeting in July 2009. At the July 2009 meeting, the CVFPB determined that the floodplain swale and Messick Lake Mitigation Area would be included in Permit No. 18430 BD for the levee degradation, but that the FRET mitigation area plantings and the vegetated wave buffer would require separate permits. Also at the July 2009 meeting, the board clarified that TRLIA could continue to transplant shrubs impacted by the levee degrade and floodplain swale creation to the TRLIA Feather River elderberry mitigation area during the levee degrade.

In February 2010, a small percentage of the mitigation seedlings and associate plantings were planted to complete the seedling and associate plantings begun in January/February 2009. Both episodes of planting were completed under the same contract between TRLIA and River Partners. Given the restriction in Permit No.18430 BD on additional plantings in the FRET area, we now realize that the February 2010 seedling and associate plantings likely should have been done in coordination with the CVFPB or under the permit requested herein.

The FRET is not yet complete due to the need to plant the final associates to meet the requirements of the Biological Opinion. It is the planting of these final associates that will be completed under the permit requested herein. The ultimate number of elderberry shrubs impacted by the overall project slightly exceeded the number assumed in the Biological Opinion. TRLIA has communicated with the Corps about this and has requested that the Corps reinitiate consultation with the USFWS to update the impact information and establish final mitigation requirements. The remaining number of seedlings and associated plantings required to completely mitigate elderberry impacts will be determined after this additional consultation.

The proposed 44 acre FRET mitigation site is located at the north end of the Setback Area. Hydraulic design for the Feather Setback Levee assumed that this area as well as the rest of the Setback Area would be planted in riparian plantings. Thus the establishment of a planted mitigation area matches hydraulic design assumptions and no reduction in the design purposes of the Setback Levee will occur.

TRLIA has a contract with River Partners to monitor and maintain the Feather River elderberry mitigation area for three years. After three years it is anticipated that RD784 will maintain the mitigation area. RD784 funding will come from the TRLIA levee benefit assessment district. Once the mitigation plantings are established at the end of three years, maintenance of the mitigation area will be minimal. Irrigation of the mitigation area would cease and the only routine maintenance would be the removal of large debris after a flood event and monitoring required by USFWS Guidelines. TRLIA is responsible for and will use contractors for the long term maintenance and monitoring of the elderberry mitigation area. If there is a need to change this responsibility in the future, CVFPB concurrence on the change will be obtained.

TRLIA is a partner in the Lower Feather River Corridor Management Plan working group which is seeking to balance flood maintenance needs with the environmental benefits that occur through restoration efforts in the Feather floodway. The Department of Water Resources, local maintaining agencies, and environmental resource agencies are developing a plan that will allow restoration to continue in the Feather River Floodway without hampering future flood maintenance actions that also need to occur. Determination of

the final land use of the Feather Setback Area and Safe Harbor like agreements is expected to be a part of this group's deliberations.

TRLIA has provided the encroachment permit application to the Reclamation District 784 Board for consideration of their endorsement at their November 2, 2010 Board Meeting. TRLIA will provide the CVFPB Staff the results of that endorsement consideration after the Board Meeting.

Please contact me at (530) 749-5679 or pbrunner@co.yuba.ca.us or Larry Dacus, TRLIA Design Manager, at (916) 437-7515 or dacus@mbkengineers.com on any matter related to the subject encroachment permit application for completion of the FRET.

Sincerely,

Paul G. Brunner P.E.
Executive Director
Three Rivers Levee Improvement Authority

Attachments:

Forms DWR 3615 and 3615a
Attachment A: Project Description
Attachment B: Adjacent Property Owners Sharing a Common Boundary with the Project
Attachment C: Project Exhibits
Attachment D: Photographs Depicting the Project Site

Cc: Steve Fordice – Reclamation District No. 784
Len Marino – Chief Engineer, Central Valley Flood Protection Board
Kent Zenobia - DWR
Charles Rabamad - DWR
Ric Reinhardt – MBK Engineers
Alberto Pujol – GEI Consultants
Sean Bechta – EDAW
Scott Shapiro/Andrea Clark – Downey Brand

Attachment A

Application to the Central Valley Flood Protection Board

Project Description

Application Item No. 1—Description of Proposed Work

Feather River Levee Repair Project
Feather River Elderberry Shrub Mitigation Area

Three Rivers Levee
Improvement Authority

October 2010

1 INTRODUCTION AND BACKGROUND

This application is for an elderberry shrub mitigation area planted in the recently expanded Feather River Floodway. The area would mitigate for elderberry shrubs impacted by construction of the Feather Setback Levee and degradation of the existing levee. The area would extend from station 244+00 to 264+00 and is approximately 1,100 feet wide for an area of 44 acres.

1.1 BACKGROUND

Studies by the California Department of Water Resources (DWR), the U.S. Army Corps of Engineers (Corps), Reclamation District 784 (RD 784), and Three Rivers Levee Improvement Authority (TRLIA) found in 2005 that several reaches of the levee system protecting the RD 784 area (see Sheet 1 in Attachment C for general location) did not satisfy geotechnical criteria for seepage at the water surface elevation for the 100-year flood event. An analysis, focused on the Feather River levee, was performed by Kleinfelder and is described in *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District No. 784* (PIR) (Kleinfelder 2006). The PIR addresses the Feather River left (east) bank levee from approximately Project Levee Mile (PLM) 13.3 near RD 784 Pump Station No. 2 to the beginning of the Yuba River left (south) bank levee at approximately PLM 26.1, and the Yuba River south bank levee from PLM 0.0 to PLM 0.3 (see Sheet 2 in Attachment C). The conclusions of the PIR indicated that portions of the subject levee did not meet the geotechnical criteria for through-seepage or underseepage needed to secure Federal Emergency Management Agency (FEMA) accreditation.

To correct these deficiencies, TRLIA implemented the Feather River Levee Repair Project (FRLRP) as part of a more comprehensive program to repair and improve the Feather River and Yuba River levees within RD 784. The FRLRP is divided into three project segments as follows:

- Segment 1— Repair and strengthening of the existing Feather River east bank levee from PLM 13.3 to PLM 17.2 (from approximately Pump Station No. 2 to Star Bend) (see Sheet 2 in Attachment C). This segment of the project is complete and was covered by Central Valley Flood Protection Board (CVFPB) Permit No. 18170 BD.

- Segment 2— Along the existing Feather River east bank levee from approximately PLM 17.2 to PLM 23.4 (from Star Bend to immediately south of Shanghai Bend [west of the Yuba County Airport]), TRLIA has constructed a setback levee following the route shown in Sheet 3 in Attachment C. Construction of the setback levee was permitted under CVFPB Permit No. 18227 BD. TRLIA then removed the existing levee to allow floodwaters to enter the setback area, decommissioned and removed the existing Pump Station No. 3, and modified an existing drainage channel (floodplain swale) to allow flood waters to drain from the setback area in a way that minimizes the potential for fish stranding. These levee degrade activities were accomplished under CVFPB Permit No. 18430 BD. Construction of the setback levee, degradation of the existing levee, and modification of the drainage swale resulted in impacts to elderberry shrubs in the area of construction which must be mitigated.

The subject of this permit application is an elderberry mitigation area that TRLIA is creating in the setback area.

- Segment 3— Repair and strengthening of the existing Feather River east bank levee from PLM 23.4 to PLM 26.1, and the Yuba River south bank levee from PLM 0.0 to PLM 0.3 (west of the Yuba County Airport to the Western Pacific Railroad crossing just west of the State Route [SR] 70 bridge) (see Sheet 2 in Attachment C). This segment of the project is complete and is covered by CVFPB Permit No. 18170 BD.

Construction of the setback levee was accomplished in two parts (A & B) under Permit No. 18227 BD. Construction of Part A of the setback levee (those facilities not requiring a Section 404 permit or Section 408 approval by the U.S. Army Corps of Engineers (Corps)) under Permit No. 18227 BD began in April 2008 after the permit was issued. Construction of the setback levee resulted in impacts to elderberry shrubs in the footprint of the setback levee and associated facilities. Since the elderberry is habitat for the threatened Valley Elderberry Longhorn Beetle (VELB), Federal law requires that these impacts be mitigated. Based on cost considerations and extensive discussions with the U.S. Fish and Wildlife Service (USFWS), TRLIA chose to mitigate these elderberry impacts by establishing an elderberry mitigation area onsite. Initial transplants were made on the landside of the existing levee prior to this area becoming incorporated into the floodway in August 2008.

The final Biological Opinion issued by the USFWS addressing elderberry mitigation was dated August 28, 2008, and soon thereafter TRLIA began transplanting elderberries that were not subject to Section 404 permit requirements. The Section 404 permit for the setback levee became effective on December 15, 2008, and Section 408 approval from the Corps was issued on December 12, 2008. These two Corps actions allowed work to commence on Part B of the work permitted under CVFPB Permit No. 18227 BD. The majority of the elderberry seedlings and associated plantings required by the Biological Opinion were planted in the mitigation area in January and February of 2009. Initial transplants from wetland areas in the levee footprint were made to the proposed mitigation area in March of 2009. These plantings and transplants were accomplished in an area that was approved by the USFWS.

During the initial consideration of Permit No. 18430 for existing levee degradation at the June 2009 CVFPB Meeting, the board was presented with four planting-related activities planned for the setback area: (1) mitigation plantings in a floodplain drainage swale required as a condition of the Section 404 permit provided by the Corps; (2) Messick Lake mitigation area, also a condition of the Section 404 permit; (3) plantings required to mitigate elderberry impacts caused by the setback levee project called for in the August 2008 Biological Opinion issued by the USFWS as part of the 404 permit (the FRET); and (4) a vegetated wave buffer along the waterside of the levee to absorb wave energy and protect the waterside slope of the levee from wave erosion and overtopping which is part of the 200-year design.

The Messick Lake Mitigation Area (item no 2), the elderberry mitigation area (item no. 3), and the vegetated wave buffer (item no. 4) were planned for portions of the setback area that would become part of the Feather River Floodway once the existing levee was degraded. The board requested more information about these plantings for consideration at its next meeting in July 2009. At the July 2009 meeting, the CVFPB determined that the floodplain swale and Messick

Lake Mitigation Area would be included in Permit No. 18430 BD for the levee degradation, but that the FRET mitigation area plantings and the vegetated wave buffer would require separate permits. Also at the July 2009 meeting, the board clarified that TRLIA could continue to transplant shrubs impacted by the levee degrade and floodplain swale creation to the elderberry mitigation area during the levee degrade.

In February 2010, a small percentage of the mitigation seedlings and associate plantings were planted to complete the seedling and associate plantings begun in January/February 2009. Both episodes of planting were completed under the same contract between TRLIA and River Partners. Given the restriction in Permit No. 18430 BD on additional plantings in the FRET area, we now realize that the February 2010 seedling and associate plantings likely should have been done in coordination with the CVFPB or under the permit requested herein.

The FRET is not yet complete due to the need to plant the final associates to meet the requirements of the Biological Opinion. It is the planting of these final associates that will be completed under the permit requested herein. The ultimate number of elderberry shrubs impacted by the overall project slightly exceeded the number assumed in the Biological Opinion. TRLIA has communicated with the Corps about this and has requested that the Corps reinitiate consultation with the USFWS to update the impact information and establish final mitigation requirements. The remaining number of seedlings and associated plantings required to completely mitigate elderberry impacts will be determined after this additional consultation.

This current application addresses only the creation of an elderberry shrub mitigation area in the Feather River Setback Area through transplanting impacted elderberry shrubs and the additional planting of associate species as called for in the USFWS Biological Opinion. A separate application was made for an encroachment permit for the vegetated wave buffer.

2 OVERVIEW OF THE FEATHER RIVER SETBACK LEVEE — PROJECT SEGMENT 2

2.1 STAGE 1 PROJECT ELEMENTS

The alignment for the setback levee in FRLRP Segment 2 is shown in Sheet 3 in Attachment C. The location of the setback levee was selected to achieve substantial reductions in river stage while maintaining a Feather River floodway width that is consistent with upstream and downstream reaches of the river. A second consideration was to take advantage of the existing configuration of the levee system to identify constructible locations where the setback levee could be tied into the existing levee. This alignment was refined based on topographic, geologic, and socioeconomic considerations. The setback levee was aligned as much as possible along a topographically elevated area formed by older, more consolidated soils, while making adjustments as practicable to reduce impacts on the local landowners.

The setback levee is approximately 5.7 miles long. The new levee segment is set back approximately 0.5 mile to the east of the existing Feather River levee, except near the northern and southern ends, where it will join the existing levee. The area between the existing levee and the setback levee alignment (the setback area) and the footprint of the setback levee (including

access corridors and a landside drainage ditch) includes approximately 1,600 acres. On each side of the setback levee, a 50-foot-wide access corridor has been acquired to support levee maintenance and inspection and flood fighting activities. The design crown elevation of the setback levee is the same as the crown elevation of the existing levee at each given latitude along the alignment. The height of the setback levee generally ranges from about 20 to 30 feet above the existing ground surface. The most common levee height above the adjacent land is approximately 25 feet. Other dimensions of the setback levee are: a crown width of 20 feet; a footprint width (levee toe to levee toe) of approximately 170 feet (depending on levee height); levee slopes at a 3:1 ratio (H:V); and a 12-foot-wide patrol road on the levee crown.

Construction of the setback levee includes six main elements:

- Preparation of the levee foundation, including clearing and grubbing of all unsuitable surface and subsurface materials, stripping of low-growing vegetation and topsoil to a depth of at least 6 inches, and excavating and backfilling an inspection trench along the full length of the levee. Elderberry shrubs were located in the levee footprint and had to be transplanted out of the way.

- Construction of a slurry cutoff wall along those portions of the setback levee where widespread strata of permeable sands and gravels exist in the foundation.

- Construction of the setback levee embankment and stability berms.

- Tieing the setback levee foundation and embankment into the existing Feather River levee at the northern and southern ends of the setback levee.

- Removal of soil from borrow areas developed on both the waterside and landside of the setback levee alignment to provide material for setback levee construction.

- Construction of a relocated Pump Station No. 3 at the landside toe of the setback levee to continue to provide interior drainage to the RD 784 basin. Decommissioning and removal of the existing pump station is part of Stage 2 activities described below.

2.2 STAGE 2 PROJECT ELEMENTS - DEGRADATION OF EXISTING LEVEE

All of the existing levee in Segment 2 was removed to achieve the maximum hydraulic benefits of the levee setback by allowing water to flow into and out of the levee setback area during high river stages and to fill primary borrow areas in the setback area. The existing levee was excavated to the level of the adjoining ground surface in the levee access corridor. Material removed from the existing levee was placed in borrow areas developed during Stage 1 setback levee construction.

With the existing levee degraded, the existing Pump Station No. 3 was no longer needed to move stormwater and irrigation runoff over the levee to the Feather River. Concurrent with levee degradation, the existing Pump Station No. 3 was decommissioned and dismantled.

A floodplain swale was excavated along the alignment of the existing Pump Station No. 3 discharge channel from the existing Pump Station No. 3 location to the Feather River. This

swale connects the setback area lowlands to the Feather River and thus facilitates drainage and allows flood waters to recede from the setback area in a manner that minimizes fish stranding. The existing channel was enlarged and deepened to accommodate flood flows leaving the setback area and to minimize the potential for fish stranding as flood waters recede. The swale was constructed in a manner that minimized vegetation disturbance, fish stranding, and other environmental impacts. However, many elderberry shrubs were in the footprint of the swale and were transplanted to the FRET to minimize impact to the elderberry shrub population in the setback area. The swale also acts to allow backwater to flow into the setback area from the Feather River, increasing the inundation frequency of portions of the setback area and resulting in high quality habitat.

3 FEATHER RIVER SETBACK LEVEE — ELDERBERRY SHRUB MITIGATION AREA

3.1 NEED FOR THE ELDERBERRY SHRUB MITIGATION AREA

Construction of the setback levee embankment and floodplain swale impacted elderberry shrubs in the area. Because the elderberry shrub is habitat for the threatened Valley Elderberry Longhorn Beetle (VELB), impacts to the habitat must be mitigated. This mitigation was required and outlined by the August 28, 2008 USFWS Biological Opinion and was a condition of the USACE Section 404 Permit. Without agreement by TRLIA to mitigate for project impacts to this threatened species habitat, the setback levee project would not have been allowed to proceed. TRLIA opted to relocate and transplant elderberries into the setback area because the cost to mitigate these impacts onsite was approximately 50% of the cost to mitigate at an offsite mitigation bank. Onsite mitigation cost is approximately $612,700 versus offsite mitigation cost estimated at approximately $1,474,000. (44 acres at $33,500 per acre = $1,474,000)

3.2 DESCRIPTION OF THE ELDERBERRY SHRUB MITIGATION AREA

The Feather River Elderberry Transplant (FRET) mitigation area is a 44 acre elderberry mitigation site located in the northern end of the setback area, see Figures 1 and 2, and is a requirement of both the USFWS Biological Opinion and the Corps 404 Permit. The mitigation area must be protected in perpetuity as habitat for the valley elderberry longhorn beetle. A conservation easement or deed restriction to protect the area must be arranged. Monitoring for ten years must occur to assure the USFWS of the success of the transplanted elderberry shrubs.

This site has been designated by the USFWS as an appropriate mitigation site for the transplant of approximately 58 elderberry shrubs and their associate plantings. TRLIA has utilized the USFWS planting guidelines in transplanting the elderberry shrubs to the site. An initial number of associate plantings have been made in the FRET. TRLIA has not completed the planting of associate plants in the area pending approval of the encroachment permit for this proposed mitigation area and reinitiation of consultation with the USFWS regarding the final number of transplants which occurred. The actual number of transplants slightly exceeded the number discussed in the BO. The number of stems impacted is however very close to the number in the BO. TRLIA is reinitiating consultation with the USFWS to report the number of actual stems impacted and time of impact and to determine final numbers of elderberry seedlings and associated native plantings required to completely mitigate the impact.

In addition to the elderberry transplants, the following associate species *(scientific name)* have been planted in the FRET area:

- Elderberry Transplants 92 Transplants
- Elderberry Seedlings 2,705 Plants
- Associated Native Species Total: 4,737 Total Plants of the Following Species
  - Box Elder *(Acer negundo L.)* 271
  - Buttonbush *(Cephalanthus occidentalis)* 309
  - California Blackberry *(Rubus ursinus)* 901
  - Coyote Bush *(Baccharis pilularis.)* 462
  - Oregon Ash *(Fraxinus latifolia)* 276
  - Poison Oak *(Toxicodendron diversilobum)* 316
  - Valley Oak *(Quercus lobata)* 308
  - California Rose *(Rosa califomica)* 1,029
  - Arroyo Willow *(Salix lasiolepis)* 292
  - Sandbar willow *(Salix exigua Nutt.)* 288
  - Mulefat *(Baccharis salicifolia)* 285

At least 558 plants (203 elderberry seedlings and 355 associated plantings) remain to be planted. This number could increase following reinitiated consultation with the USFWS regarding elderberry mitigation.

A planting plan for the FRET is shown in Sheet 4 of Attachment C. Plant rows are 20 feet apart with the spacing of plants in the rows at 10 feet. Irrigation is supplied through a drip system installed underground using a small tractor. The actual plantings are accomplished using standard agricultural procedures and involve hand labor, small trucks, trailers, and tractors. Dust, noise, and air quality impacts are no different than with most farm operations that occur in this area of Yuba County.

After planting, the vegetation will be maintained for at least three years by a TRLIA contractor to ensure establishment of the plants. Maintenance consists of fertilizing and watering and the control of invasive plant species. In some cases, replanting of the described species may be required due to high mortality of the initial plantings. Monitoring will occur for another 7 years. If success criteria are not met according to the USFWS 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle (60% survival of elderberry plants and 60% of the associated native plants) then additional consultation will have to occur between TRLIA and the USFWS. The guidelines also require that a conservation easement be placed on the mitigation area.

3.3 HYDRAULIC IMPACT OF THE ELDERBERRY SHRUB MITIGATION AREA

The location of the elderberry mitigation area at the north end of the Feather Setback Area has no impact to design hydraulics and the need for future clearing for additional flood conveyance. Hydraulic analysis indicates that the Feather River Floodway already conveys the 1957 design discharges at elevations less that the 1957 Design Profile. Hydraulic design for the setback levee project was done assuming that the entire setback area would be planted in riparian vegetation which is consistent with the plantings done for elderberry mitigation. Should the need arise for additional clearing in the future to increase flood conveyance, this clearing would more logically

occur along the old river channel that exists on the waterside of the degraded levee footprint and would clear from the FRET area and towards the current river channel, see Figure 2. This old channel is known as the "State Cut" and has existed for many years to accommodate flood flows of the Feather River. This would avoid the need to clear through the mitigation area. This other area available for any potential future clearing in this reach would allow adequate maintenance to occur for flood purposes without having to impact the elderberry mitigation area. Hydraulic analysis done to establish the design 200-year profile assumed that the entire setback area, including the elderberry shrub mitigation area, would someday establish into riparian type vegetation. This was the most conservative assumption to make for the purpose of hydraulic design. Construction of the Feather Setback Levee has created regional flood protection benefits by lowering Feather River flood elevations from Star Bend to Yuba City. The proposed plantings for the elderberry mitigation area match the design assumptions made for the hydraulic analysis of the Setback Levee and will not diminish flood reliability for levees along the Feather River or reduce the regional flood protection benefits.

3.4 MANAGEMENT OF THE ELDERBERRY SHRUB MITIGATION AREA

TRLIA has a contract with River Partners to monitor and maintain the Feather River elderberry mitigation area for three years. After three years it is anticipated that RD784 will maintain the mitigation area. RD784 funding will come from the TRLIA levee benefit assessment district. Once the mitigation plantings are established at the end of three years, management of the mitigation area will be minimal. Irrigation of the mitigation area would cease and the only routine maintenance would be the removal of large debris after a flood event and monitoring required by USFWS Guidelines. Maintenance for flood conveyance purposes would occur in the clear toe access corridor next to the levee embankment and in the "State Cut" just west of the mitigation area as described above. TRLIA is responsible for and will use contractors for the long term maintenance and monitoring of the elderberry mitigation area. If there is a need to change this responsibility in the future, CVFPB concurrence on the change will be obtained.

4 FEATHER RIVER FLOODWAY — LONG TERM MAINTENANCE ACTIONS

DWR formed the Lower Feather River Floodway Corridor Management committee to develop a land management plan for the Feather River Floodway corridor between the confluence of the Yuba River southerly to the Sutter By-pass. A critical part of the land management plan is to lay out a way (most likely via Safe Harbor Like Agreements) to allow floodway maintenance to occur with limited restrictions in areas that contain threatened or endangered species. TRLIA is a partner in this endeavor. DWR, CVFPB, local maintaining agencies, and environmental resource agencies (FWS, F&G, etal) are meeting to develop this plan that will allow restoration to continue in the Feather River Floodway without hampering future flood maintenance actions that also need to occur. The land management plan and Safe Harbor Like agreements are still several years out. Because of the hydraulic assumptions, Setback Area in full restoration, used for the Setback Levee design, it is not expected that floodway maintenance actions in this area will be required for many years. TRLIA is committed to work with this group and CVFPB until an approved approach is developed and accepted.

LITERATURE CITED

Kleinfelder, Inc. 2006 (February 20). *Problem Identification Report, TRLIA Phase 4 Feather River and Yuba River Left Bank Levees, Reclamation District No. 784*. Sacramento, CA.

Three Rivers Levee Improvement Authority. 2006 (August). *Draft Environmental Impact Report, Feather River Levee Repair Project, Vol 1: Chapters 1-11 and Vol 2: Appendices*, State Clearinghouse No. 2006062071. Prepared by EDAW and Flood Prevention Study Team.

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USFWS. August 28, 2008. *Biological Opinion on the proposed Feather River Levee Repair project Segment 2 (Corps file number 2007005778), Yuba County, California.*

USACE, October 2008. *Final Environmental Impact Statement, 408 Permission and 404 permit to Three Rivers Levee Improvement Authority for the Feather River Levee Repair Project, California, Segment 2.*

USACE. December 17, 2008. *Department of the Army Section 404 Permit SPK-2007-00578.*

Attachment B

Application to the Central Valley Flood Protection Board

Adjacent Property Owners Sharing a Common Boundary with the Project Area

• ***Application Item No. 5—Names and addresses of adjacent property owners***

Feather River Levee Repair Project
Feather River Elderberry Shrub Mitigation Area

Three Rivers Levee
Improvement Authority

October 2010

Attachment B **Adjacent Property Owners Sharing a Common Boundary with the Project Area** **Feather River Levee Repair Project—Feather River Elderberry Shrub Mitigation Area**	
Landowner	Mailing Address
Three Rivers Levee Improvement Authority.	1114 Yuba Street, Suite 218 Marysville, CA 95901
Sacramento San Joaquin Drainage District	Attn: Wes Dote California Department of Water Resources Division of Engineering Real Estate Branch 1416 Ninth Street, Room 425 Sacramento, CA 95814
Joga S. Mann and Rikki A. K. Mann	2210 Watt Avenue, Suite B Sacramento, CA. 95825
Danna Investment Company	Stephen Danna P. O. Box 729 Yuba City, CA 95992

Attachment C

Application to the Central Valley Flood Protection Board

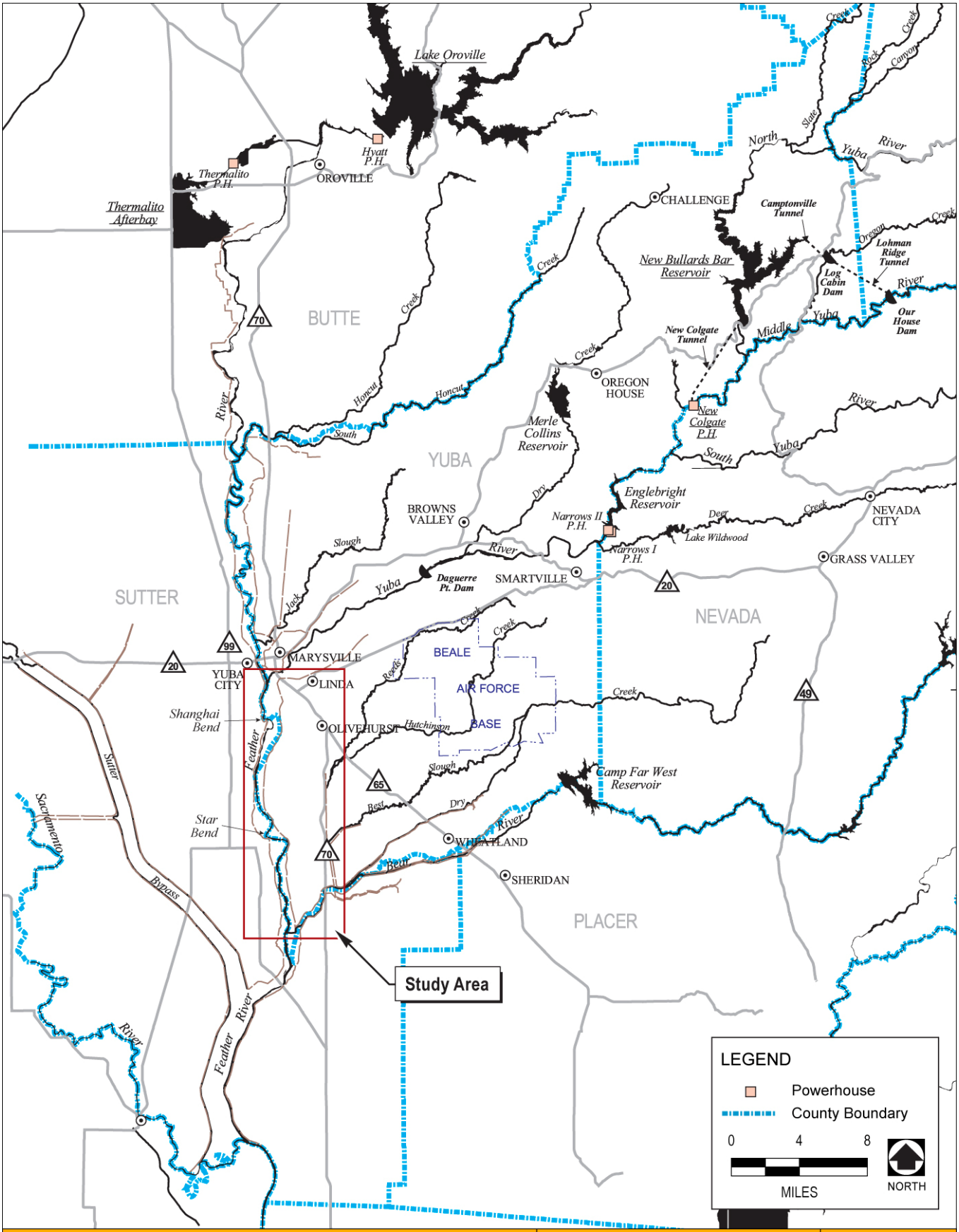
Project Exhibits

Application Exhibit A—Map showing regional location of the proposed work (Sheet 1)
Application Exhibit A—Map showing the project area (Sheet 2)
Application Exhibit A—Map showing the project site (Sheet 3)
Application Exhibit B—Planting Tile for the Elderberry Mitigation Area (Sheet 4)
Application Exhibit A—Map showing current land use in the Setback Area (Figure 1)
Application Exhibit A—Map showing immediate area of the Elderberry Mitigation Area (Figure 2)

Feather River Levee Repair Project
Feather River Elderberry Shrub Mitigation Area

Three Rivers Levee
Improvement Authority

Ooctober 2010



Feather River Setback Levee

Setback Levee in Project Segment 2
Regional Setting

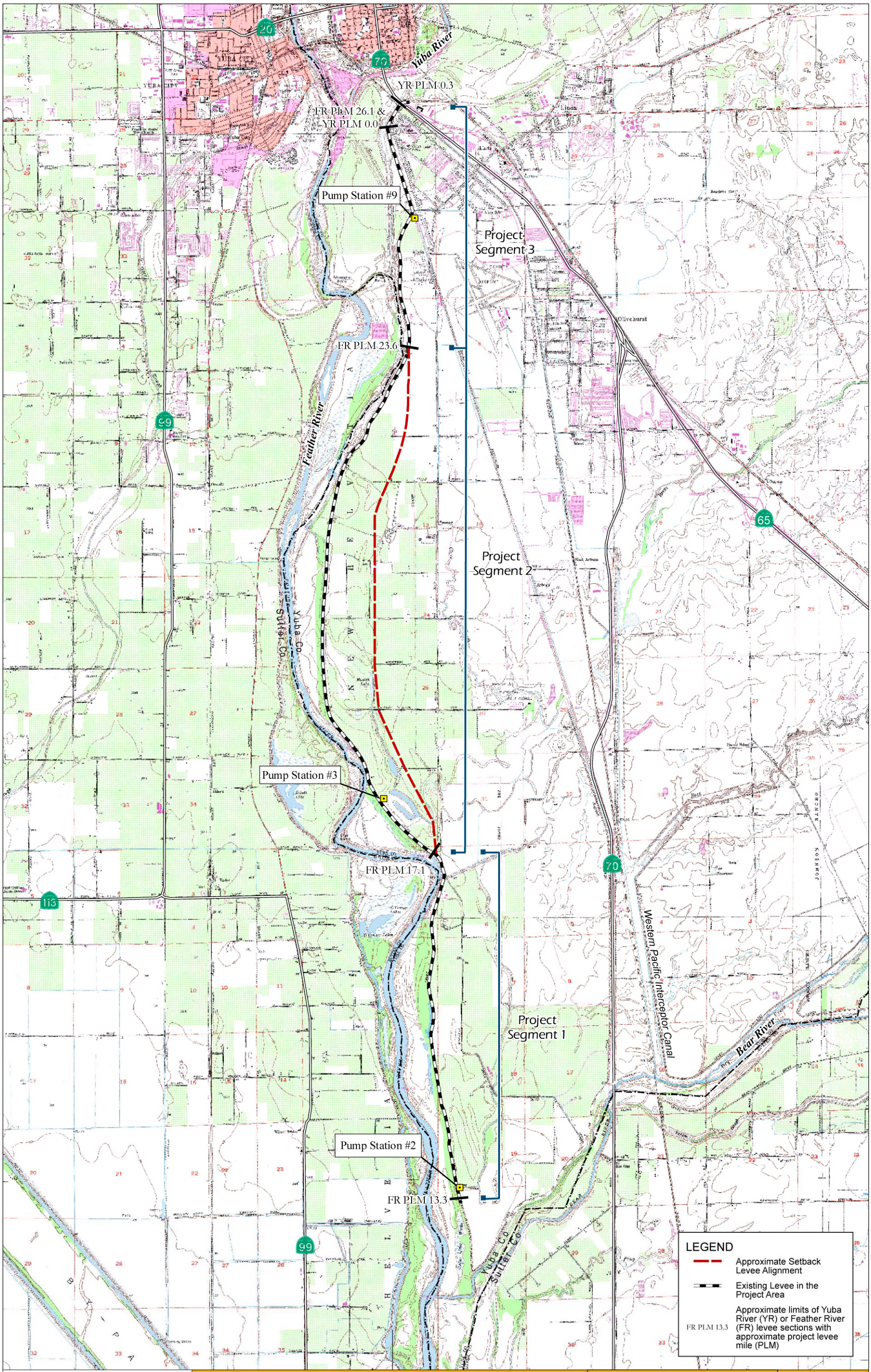
Sources: Yuba Count Water Agency; GEI 2004

G024

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
114 Yuba Street, Suite 218
Marysville, CA 95901

May 2007

Sheet 1



Feather River Setback Levee

Setback Levee in Project Segment 2
FRLRP Project Area

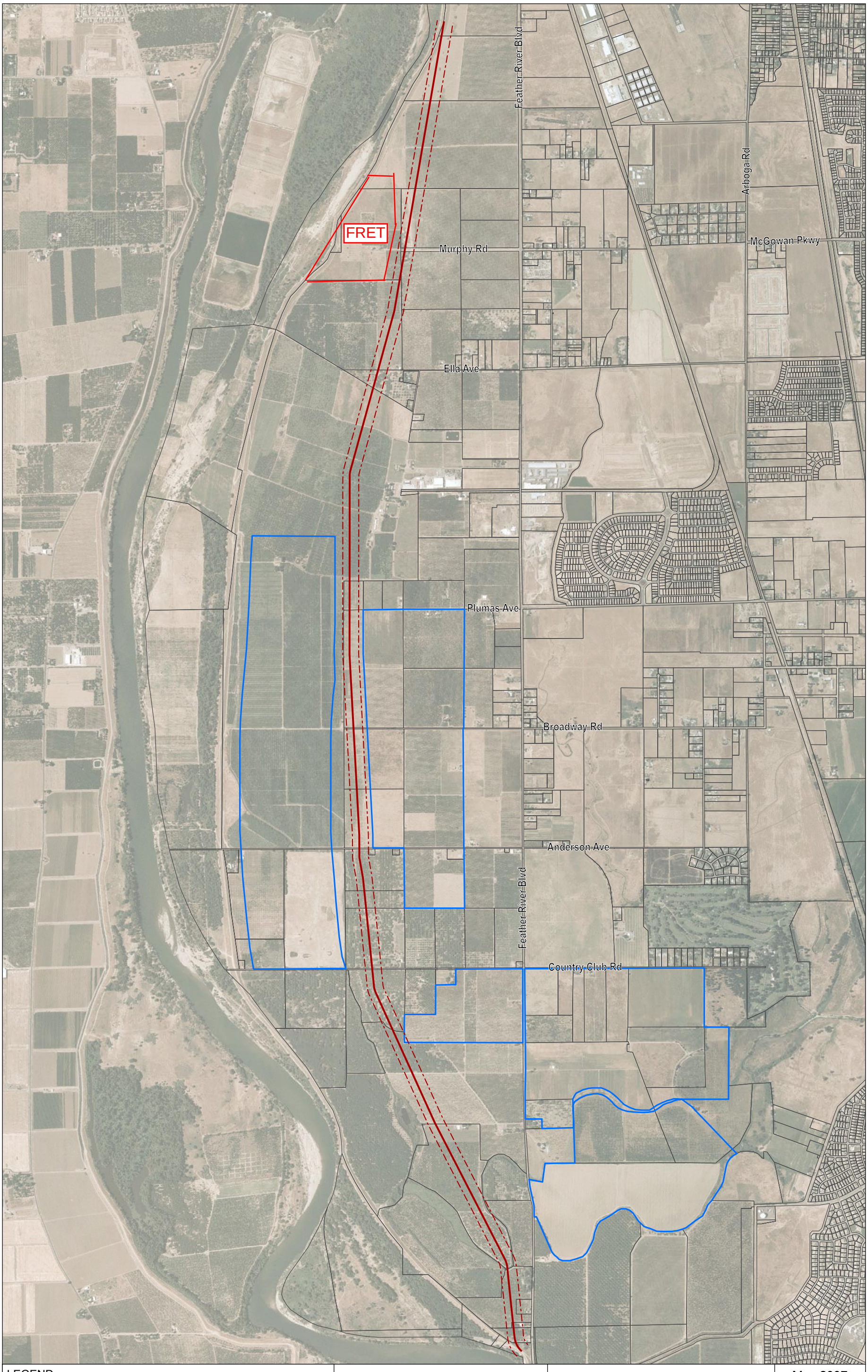
Sources: EDAW 2004; GEI 2004

G025

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
114 Yuba Street, Suite 218
Marysville, CA 95901

May 2007

Sheet 2



LEGEND

- Setback Levee Centerline
- Setback Levee Easement
- Areas being considerd for soil borrow sites.

0 1000 2000

FEET

NORTH

X060

Feather River Setback Levee Alignment

Source: NAIP 2006; GEI 2007

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

1114 Yuba Street, Suite 218
Marysville, CA 95901

May 2007

Sheet 3

Feather River Elderberry Transplant Mitigation Area
Plant Species and Density

44 Acres

Common Name	Scientific Name	Species Code	Plants per Tile	Density (plants/acre)	Total Number 44 Acres
Box elder	*Acer negundo L.*	BE	2	9	291
Coyote brush	*Baccharis pilularis DC.*	CB	3	13	497
Mulefat	*Baccharis salicifolia*	MF	2	9	306
Oregon ash	*Fraxinus latifolia Benth*	AS	2	9	297
Poison Oak	*Toxicodendron diversilobum*	PO	2	9	340
California rose	*Rosa californica*	RO	7	30	1,106
Arroyo willow	*Salix lasiolepis Benth.*	AW	2	9	314
Elderberry	*Sambucus*	EB	18	78	2,908
Sandbar (narrow-leaf) willow	*Salix exigua Nutt.*	SW	2	9	310
Valley Oak	*Quercus lobata*	VO	2	9	331
Buttonbush	*Cephalanthus occidentalis*	BU	2	9	332
California blackberry	*Rubus ursinus*	BB	6	26	969
			50	218	8,000

Feather River Elderberry Transplant Mitigation Area

Plant#\Row	1	2	3	4	5
1	EB	VO	RO	EB	BU
2	EB	VO	SW	EB	EB
3	CB	CB	MF	BB	PO
4	BB	EB	EB	BB	PO
5	EB	EB	BU	EB	AW
6	EB	SW	EB	BB	AW
7	RO	RO	EB	BB	MF
8	RO	CB	EB	RO	RO
9	EB	EB	BB	BE	AS
10	EB	EB	RO	BE	AS

Rows are 20 feet apart.
Plants are spaced on 10-foot centers.

NOTE: This Tile Repeated Until Entire Area is Covered

N

Legend

- Agricultural Lands
- Areas Owned by Others
- Feather River Elderberry Transplant (FRET) Area
- Levee Footprint
- Limited Disturbance Enviromental Area
- Mitigation Areas
- Open Space Area
- Uppal Remnant
- Vegetated Wave Buffer

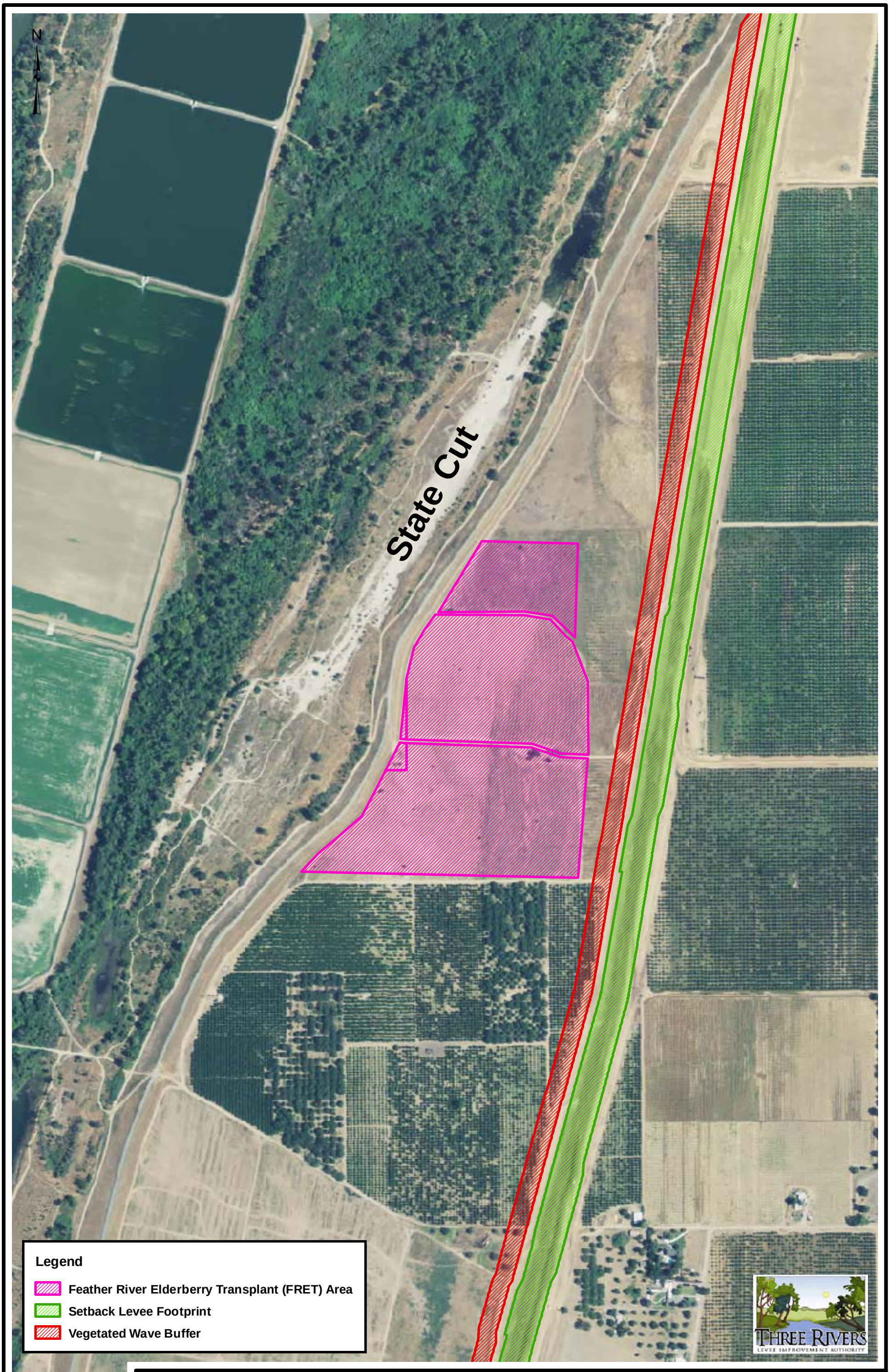
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

MBK ENGINEERS

Figure 1 - Feather Setback Area and Adjacent Lands Land Use after Construction Completion

0 1,500 3,000

Scale in Feet



MBK ENGINEERS

Figure 2 - Feather Setback Area and Adjacent Lands
Feather River Elderberry Transplant (FRET) Area

0 250 500
Scale in Feet

Attachment D

Application to the Central Valley Flood Protection Board

Photographs Depicting the Project Site

Application Exhibit E—Photographs depicting the project site

Feather River Levee Repair Project
Feather River Elderberry Shrub Mitigation Area

Three Rivers Levee
Improvement Authority

October 2010

A. Feather River Elderberry Transplant Area – Looking South from Setback Levee

B. Feather River Elderberry Transplant Area – Looking Southwest from Setback Levee.

C. Feather River Elderberry Transplant Area – Looking West from Setback Levee.

D. Feather River Elderberry Transplant Area – Looking Northwest from Setback Levee.

E. Feather River Elderberry Transplant Area – Looking North from Setback Levee.

F. Area Just North of Feather River Elderberry Transplant Area - Looking from Setback Levee.

G. Degraded Levee Footprint Just West of Feather River Elderberry Transplant Area and East of State Cut - Looking North.

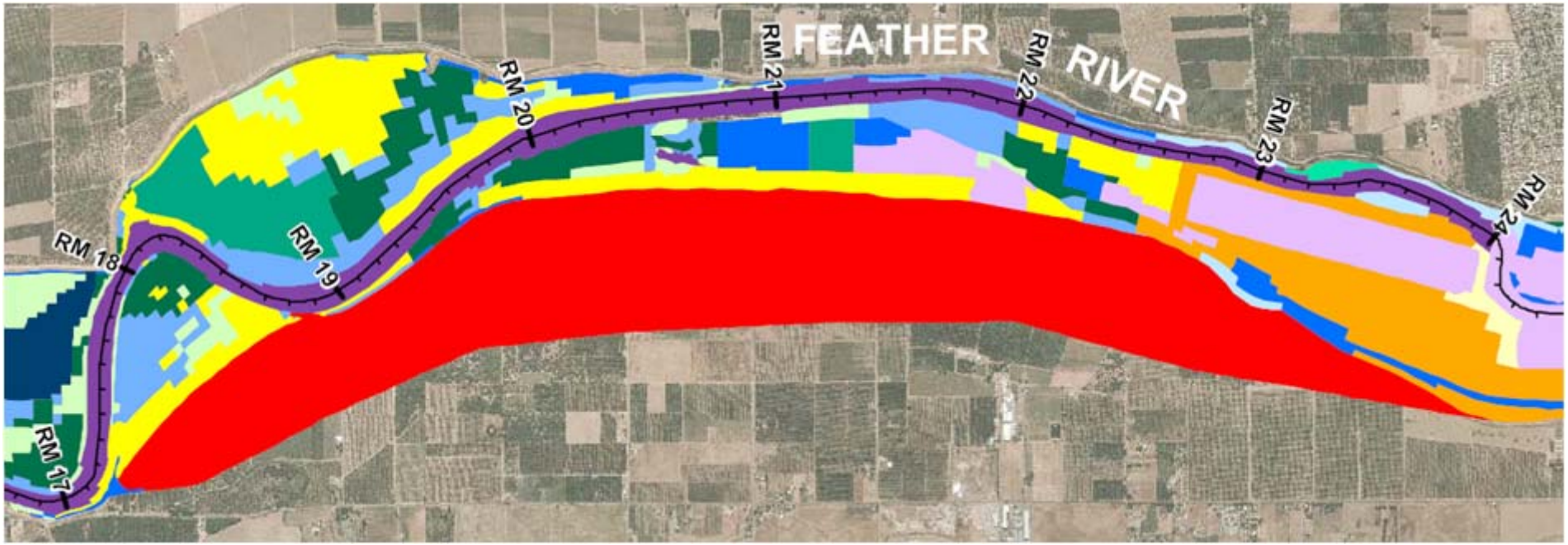
H. State Cut Just West of Degraded Levee Footprint and west of Feather River Elderberry Transplant Area - Looking North.

I. State Cut Just West of Degraded Levee Footprint and West of Feather River Elderberry Transplant Area - Looking West.

J. Degraded Levee Footprint Just East of State Cut and West of Feather River Elderberry Transplant Area - Looking North.

K. Degraded Levee Footprint Just of West of Feather River Elderberry Transplant Area and East of State Cut - Looking South.

Permit No. 18227 Roughness Coefficient Map



Legend

Manning's n-value

0.022		
0.025		
~~0.030~~	→ grasses	
0.035		
0.040		
0.042	→ mixed channel trees	
0.050		
0.052		
0.055		
0.060		
0.062		
0.070		
0.075		
~~0.080~~	→ sparse trees	
0.085		
0.100		
~~0.120~~	→ dense trees	

ATTACHMENT D - Hydraulic Roughness Coefficient Map