STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD

PERMIT NO. 18095 GM

This Permit is issued to:

Three Rivers Levee Improvement Authority
915 8th Street
Suite 115
Marysville, California 95901

To construct approximately 6,800 linear feet of slurry cutoff wall, a 380-linear-foot landside seepage berm and flatten the waterside slope to a minimum grade 3:1 on the left (south) bank levee of the Yuba River. The project is located south of Marysville starting just west of Highway 70 and extending east to Simpson Lane (Section 19,20&24, T15N, R4E, MDB&M, Reclamation District 784, Yuba River, Yuba County).

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

(SEAL)

Dated: AUG 2 4 2006

Dan S. Fua
General Manager Acting

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 Reclamation Board.

DWR 3784 (Rev. 9/85)

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 Reclamation 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 Reclamation 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 Reclamation 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. 18095 GM

THIRTEEN: Prior to construction, the permittee shall provide the Sacramento and San Joaquin Drainage District, acting by and through The Reclamation Board of the State of California, a permanent easement granting all flood control rights upon, over and across the property to be occupied by the existing or to-be-constructed levee and seepage berm. The easement must include the area within the floodway, the levee section, the area ten (10) feet in width adjacent to the landward levee toe and landward toe of the seepage berm if the area is not presently encumbered by a Reclamation Board easement. For information regarding existing Reclamation Board easements and required easements, please contact Jeff Fong at (916) 657-2831.

FOURTEEN: 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 Reclamation Board.

FIFTEEN: The maximum crown elevations of the levee reaches addressed by this permit shall be limited to the maximum crown elevations shown for the same levee reaches on the US Army Corps of Engineers' Sacramento River Flood Control Project, California, Levee and Channel Profiles, dated March 15, 1957, or as modified by the Corps of Engineers and shown on "as-built" drawings provided subsequent to March 15, 1957.

SIXTEEN: Upon completion of the project, the permittee shall submit a levee crown profile survey, certified by a licensed land surveyor or professional engineer registered in the State of California, to The Reclamation Board.

SEVENTEEN: The permittee shall 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 the Department of Water Resources or any other agency responsible for maintenance.

EIGHTEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-1213, 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.

NINETEEN: The permittee shall provide supervision and inspection services acceptable to The Reclamation Board. A professional engineer registered in the State of California shall certify that all work was inspected and performed in accordance with submitted drawings, specifications, and permit conditions.

TWENTY: If FEMA certification of the levee by the Corps is being considered, the project proponent should contact the U. S. Army Corps of Engineers regarding inspection of the project during construction.

TWENTY-ONE: The Reclamation Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

TWENTY-TWO: 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 Reclamation Board may remove the encroachment(s) at the permittee's expense.

TWENTY-THREE: The permittee should contact the U.S. Army Corps of Engineers, 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.

TWENTY-FOUR: 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-FIVE: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend and hold harmless the State of California, or any departments thereof, from any liability or claims of liability associated therewith.

TWENTY-SIX: 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 Reclamation Board and Department of Water Resources, at the permittee's or successor's cost and expense.

TWENTY-SEVEN: Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite LL30, Sacramento, California 95821.

TWENTY-EIGHT: No construction work of any kind shall be done during the flood season from November 1 to April 15 without prior approval of The Reclamation Board.

TWENTY-NINE: Cleared trees and brush 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: No material stockpiles, temporary buildings, or equipment shall remain in the floodway during the flood season from November 1 to April 15.

THIRTY-ONE: 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 Reclamation Board or Department of Water Resources. If the permittee does not comply, The Reclamation Board may modify or remove the encroachment(s) at the permittee's expense.

THIRTY-TWO: During construction of the project, any and all anticipated or unanticipated conditions encountered which may impact levee integrity or flood control shall be brought to the attention of the Flood Project Inspector immediately and prior to continuation. Any encountered abandoned encroachments shall be completely removed or properly abandoned under the direction of the Flood Project Integrity and Inspection Branch Inspector.

THIRTY-THREE: The stability of the levee shall be maintained at all times.

THIRTY-FOUR: Excavations below the design flood plane and within the levee section or within 10 feet of the projected waterward and landward levee slopes shall have side slopes no steeper than 1 horizontal to 1 vertical. Flatter slopes may be required to ensure stability of the excavation.

THIRTY-FIVE: A profile of the levee crown roadway and all access ramps that will be utilized for access to and from the project shall be submitted to The Reclamation Board prior to commencement of excavation.

THIRTY-SIX: Any access ramps and utilized levee crown roadway shall be maintained in a manner prescribed by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

THIRTY-SEVEN: Any damage to the levee crown roadway or access ramps that will be utilized for access for this project shall be promptly repaired to the condition that existed prior to this project.

THIRTY-EIGHT: Equipment used in the construction of the slurry wall shall not exceed live-load surcharge to a level that causes or contributes to the instabilty of the levee during construction operations.

THIRTY-NINE: Fluid pressures and flow rates shall be carefully monitored and controlled to minimize the potential for hydrofracturing.

FORTY: The permittee shall be responsible for all damages due to settlement, consolidation, or

heave from any construction-induced activities.

FORTY-ONE: Excess bentonite or other slurry fluids shall be properly disposed of outside of the floodway. The bentonite or other slurry fluids shall not be used as backfill.

FORTY-TWO: Restoration of degraded levee shall not begin until slurry wall has cured for 7 days and reached a minimum compressive strength of 300 psi or as allowed by the Corps.

FORTY-THREE: All fencing, gates and signs removed during construction of this project shall be replaced in kind and at the original locations. If it is necessary to relocate any fence, gate or sign, the permittee is required to obtain written approval from The Reclamation Board prior to installation at a new location.

FORTY-FOUR: All temporary fencing, gates and signs shall be removed upon completion of project.

FORTY-FIVE: All pipe or conduit being reinstalled in the levee section or within ten (10) feet of both the waterward and landward levee toes shall meet Title 23 standards.

FORTY-SIX: Fill on the levee slope shall be keyed into the existing levee section with each lift.

FORTY-SEVEN: Backfill material for excavations within the levee section and within 10 feet of the levee toes shall be placed in 4- to 6-inch layers, moisture conditioned above optimum moisture content, and compacted to a minimum of 90 percent relative compaction as measured by ASTM Method D1557-91.

FORTY-EIGHT: Density tests by a certified materials laboratory will be required to verify compaction of backfill within the levee section and within ten (10) feet of the levee toes.

FORTY-NINE: Imported material shall be used when developing the waterside levee slope and levee crown fill areas, and no cuts shall remain in the levee section upon completion.

FIFTY: Fill material shall be placed only within the area indicated on the approved plans.

FIFTY-ONE: All fill material shall be imported impervious material with 20 percent or more passing the No. 200 sieve, a plasticity index of 8 or more, and a liquid limit of less than 50 and free of lumps or stones exceeding 3 inches in greatest dimension, vegetative matter, or other unsatisfactory material. Fill material shall be compacted in 4- to 6-inch layers to a minimum of 90 percent relative compaction as measured by ASTM Method D1557-91.

FIFTY-TWO: The fill surface area shall be graded to direct drainage away from the toe of the levee.

FIFTY-THREE: All drains and abandoned conduits shall be removed from the site prior to levee construction.

FIFTY-FOUR: All holes, depressions, and ditches in the foundation area shall be stripped of surface vegetation to a depth of 6-inches. Organic soil and roots greater than 1-1/2 inches shall be removed to a depth of 3 feet. Backfill material shall be placed in 4- to 6-inch layers and compacted to a minimum of 90 percent relative compaction per ASTM Method D1557-91.

FIFTY-FIVE: Prior to construction or enlargement of the embankment, all areas to receive fill shall have surface vegetation removed to a depth of 6 inches. Organic soil and roots greater than 1-1/2 inches in diameter shall also be removed to a depth of 3 feet.

FIFTY-SIX: The slopes of the proposed levee shall be no steeper than 3 horizontal to 1 vertical on the water side and 2 horizontal to 1 vertical on the land side.

FIFTY-SEVEN: The reconstructed levee crown roadway and access ramps shall be surfaced with a minimum of 4 inches of compacted, Class 2, aggregate base (Caltrans Specification 26-1.02A).

FIFTY-EIGHT: Aggregate base material shall be compacted to a relative compaction of not less than 95 percent per ASTM Method D1557-91, with a moisture content sufficient to obtain the required compaction.

FIFTY-NINE: The levee section, access ramps and any encountered active utility crossings shall be restored to at least the condition that existed prior to commencement of work.

SIXTY: All debris generated by this project shall be disposed of outside the floodway and off the levee section.

SIXTY-ONE: The permittee shall replant or reseed the levee slopes to restore sod, grass, or other non-woody ground covers if damaged during project work.

SIXTY-TWO: The seepage berm is considered a Flood Control Project feature and is subject to Title 23 California Code of Regulations.

SIXTY-THREE: Debris that may accumulate on the permitted encroachment(s) and related facilities shall be cleared off and disposed of outside the floodway after each period of high water.

SIXTY-FOUR: In the event existing revetment on the channel, channel bank or levee slope is disturbed or displaced, it shall be restored to its original condition upon completion of the proposed installation.

SIXTY-FIVE: 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 Reclamation Board, to prevent further erosion.

SIXTY-SIX: The permittee shall comply with all conditions set forth in the letter from the Department of the Army dated August 7, 2006, which is attached to this permit as Exhibit A and is incorporated by reference.

SIXTY-SEVEN: This permit is not valid until the permittee has resolved all comments provided by the Corps of Engineers in the letter, including all attachments, from the Department of the Army dated August 7, 2006, attached to this permit as Exhibit A.

SIXTY-EIGHT: Any additional encroachment(s) in the floodway, on or in the levee section and within ten (10) feet of the landward levee toe require an approved permit from The Reclamation Board and

shall be in compliance with The Reclamation Board's regulations (Title 23 California Code of Regulations).

SIXTY-NINE: Upon completion of the project, the permittee shall submit proposed revisions to the Corp of Engineers, Supplement to Standard Operation and Maintenance Manual, Sacramento River Flood Control Project, Unit No. 145-Part No. 1, incorporating the slurry wall, seepage berm, or any other system improvements implemented as part of this permit as project features to The Reclamation Board.

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

REPLY TO ATTENTION OF

August 7, 2006

Navigation and Flood Control Unit (18095)

General Manager
The Reclamation Board
State of California
3310 El Camino Ave. Rm. LL40
Sacramento, California 95821

Dear General Manager:

We have reviewed an application for a permit by Three Rivers Levee Improvement Authority (Reclamation Board Number 18095). These plans include constructing approximately 6,800 linear feet of slurry cutoff walls, installing a 380 linear foot landside seepage berm, raising the crown (reach B and C) of the levee by 0.4-feet and flattening the waterside slope to maintain a 3:1 grade for approximately 2,100 linear feet, raising the crown (reach E) by 0.5 feet for approximately 4,100 linear feet and flattening the waterside slope to a 3:1 grade, and placing riprap along approximately 400 linear feet of the waterside slope of the left bank levee of the Yuba River. The project is located south of Marysville, just west of Highway 70 and extending east to Simpson Lane in Sections 19, 20, and 24, Township 15 North, Range 4 East, M.D.B.&M. Survey, Yuba County, California.

The District Engineer has no objection to approval of this application by your Board from a flood control standpoint subject to the following conditions:

a. That the excavation in the project for the proposed work shall not be made or remain during the flood season of November 1 to April 15, unless otherwise approved in writing by your Board.

b. That in the event trees and brush are cleared, they shall be properly disposed of by either complete burning or complete removal outside the limits of the project works.

c. That after the installation of the slurry cutoff wall, the levee shall be reconstructed to at least the profile shown in the O&M Manual or the height before construction, whichever is higher.

d. That the reconstructed levee crown shall have an all-weather surface.

e. That any revetment that may have been removed by the project be reinstalled.

f. That in the event erosion occurs at the site, the applicant shall repair the eroded areas and place adequate revetment on the riverbank to prevent future erosion.

g. That the project levee section and roadway shall be restored to at least the same condition as existed prior to commencement of the proposed work.

h. That all area to receive fill shall be cleared of all vegetation prior to fill placement.

In addition to the above comments, I have attached comments from our Soil Design Section and Hydraulic Design Section, that should be addressed by the applicant.

Based upon the information provided, no Section 10 or Section 404 permit is needed.

If you have any questions concerning our comments on this permit application, please contact Mr. Mohsen Tavana at (916) 557-5282 or Mr. Robert Murakami at (916) 557-6738.

Sincerely,

Michael D. Mahoney, P.E.
Chief, Construction-Operations Division

Enclosure

CF:
Mr. Tirath Pal Sandhu, Chief, Flood Project Integrity and Inspection Branch,
3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821

CESPK-ED-GS

2 June 2006

Corps of Engineers geotechnical review of:
90% Design Submittal (Plans and Specifications) for Yuba River Levee Repair Project Phase 4, May 2006, prepared by HDR.
Review conducted by Henri Mulder, Soil Design Section

References

Yuba River Levee Repair Project Phase 4 Technical Specifications 90% Submittal, May 2006.

Contract Drawings for TRLIA Yuba River Levee Repair Project Phase IV, 90% Submittal, 19 May 2006

Review Comments

1) Provide documentation and analysis to demonstrate that the size and thickness of the corner seepage berm (located between approximate Sta 35+00 and 39+00) is sufficient,

2) Provide details for slurry wall construction at the gas, fiber optic, and cable lines crossing the levee at Simpson Lane.

3) Provide a list of all utilities crossing the levee. Include the type, size, material type, and depth below top of levee. Also include direction on how the utility is to be accommodated during levee degrading, slurry wall construction, and levee restoration.

4) The Simpson Lane Profile shown on sheet C-25 shows the elevation of road directly above the slurry wall at about two feet below the 200-year water surface. This differential head may cause excess water pressure under the select material zone and could lead to levee and pavement integrity issues if the excess pressure is high enough. Provide analysis that demonstrates that proposed alignment of the slurry wall has no adverse seepage effects on the levee. If analysis can't demonstrate the adequacy of the alignment, then the slurry wall will have to move to the north so that the elevation of the top of wall corresponds to the 200-year water surface profile.

5) Sheet C-22 CUTOFF WALL CAP DETAIL: Utilize a slurry wall cap dimension and geometry similar to Phase I slurry wall cap. This includes the base width of cap of 8 feet and minimum top width of 6 feet. The dimensions and geometry currently shown on Sheet C-22 is difficult to construct and may lead to poor construction and quality of the cap.

6) Spec 02261 paragraph 3.3.1: Change slurry wall width from 30" to 36" in the second sentence.

7) Spec 02261 paragraph 3.3.3: Change slurry wall width from 30" to 36".

8) Spec 02261 paragraph 2.7: Please include maximum sand content requirements. The slurry shall have a maximum sand content of 15% by weight. The sand content shall be determined by API sand tube test (API RP13B-1)

9) Spec 02261 paragraph 2.7: Please include pH requirements. The pH level shall be between 6.5 and 10.

10) Spec 02261paragraph 3.3.5: Include the following sentence: Delays in the placement of backfill material for longer than forty-eight (48) hours shall require cleaning, conditioning, and /or re-circulating of the trench slurry.

11) Spec 02261 paragraph 3.7.2.2: The rig-shift quality control reports shall also include density, pH, and sand content of the slurry. The description of trench materials by the Trench Logger shall also be included in the reports.

12) Spec 02331 paragraph 2.1.1: The Corps allows for levee material with a liquid limit of 45 or less.

13) Spec 02331 paragraph 2.1.2: Last sentence needs to be completed. List the locations where excavated materials may not be reused or if there are no such locations state NONE.

14) Spec 02331 paragraph 2.1.6: Specify a gradation band for the cobbles. The gradation requirements in the spec is too ambiguous.

15) Spec 02331 paragraph 3.13: Include requirements for preparing the subgrade for the slurry wall cap. Requirements should be similar the those specified for the Phase I slurry wall project. Requirements should include the required minimum strength of the slurry wall material before subgrade preparation is allowed and that the subgrade preparation shall be done is such a manner as not to damage the slurry cutoff wall.

16) Spec 02331 paragraph 3.17.3.2.b: The moisture-density relationship should be determined in accordance to ASTM D1557 in lieu of D698 because the compaction requirements found in paragraph 3.15 are based on D1557.

Murakami, Robert SPK

From: Thompson, Ethan A SPK
Sent: Wednesday, August 02, 2006 8:56 AM
To: Tavana, Mohsen SPK
Cc: Murakami, Robert SPK; Mulder, Henri V SPK; Carroll, John M SPK
Subject: Rec Board Permit - 18095 (Yuba River-TRLIA)

Mohsen,

Looked over the TRLIA work on Yuba. I don't have any comment.

It appears the permit is for work from Simpson Lane to just downstream of SPRR. The project does not change the '57 design profile. There is levee raising involved, but that would only impact a larger event than what the original design was based upon. So for example it is possible that the levee raising could impact others under a 200-yr event. I don't believe the permit deals with this situation, only the '57 profile.

Thanks for letting me review. I'd appreciate an opportunity to comment on any of these permits dealing with TRLIA. I have been involved with the 100-yr certification review like Henri, but I believe this is the first Rec Board permit I have reviewed. I may have different comments depending upon the type of review (ie certification or Rec Board Permit) since I am looking at those from a different perspective. The overall project includes work on the WPIC, Bear, Yuba and Feather Rivers. It has been coming in pieces, so it is difficult to keep track of.

Thanks,
Ethan

Ethan A. Thompson, P.E.
Hydraulic Design Section
Sacramento District
US Army Corps of Engineers
(916) 557-7142