MINUTE ITEM
This Calendar Item No. C26 was approved as Minute Item No. 26 by the State Lands Commission by a vote of 3 to 0 at its 11-26-01 meeting.

CALENDAR ITEM
C26

A 2

S 4

11/26/01
PRC 7203.9
D. Jones

AMENDMENT OF MASTER LEASE

LESSEE:
The Reclamation Board
1416 Ninth Street
Sacramento, California 95814

AREA, LAND TYPE, AND LOCATION:
Master Lease:
Designated areas along the Sacramento River and sloughs, distributaries and tributaries that join it.

Proposed Amendment:
Sovereign lands in the Sacramento River, near the city of Colusa, Colusa County.

AUTHORIZED USE:
Master Lease:
Construction and maintenance of bank protection.

Proposed Amendment:
The construction and maintenance of approximately 770 linear feet of bank protection on the left bank of the Sacramento River at River Mile 149.0L.

LEASE TERM:
Master Lease:
Term of maintenance of existing structures:
30 years, beginning May 1, 1988.

Term of new construction:
Five years beginning May 1, 1988, or upon completion of Phase II, Part 2 of the Sacramento River Bank Protection Project, whichever is greater. Phase II has not been completed.

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CONSIDERATION:

The public benefit; with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interest.

PROPOSED AMENDMENT:

The amendment will add a parcel of land to the Master Lease for the purpose of constructing new bank protection at River Mile 149.0L. All other terms and conditions of the lease shall remain in effect without amendment.

OTHER PERTINENT INFORMATION:

1. Applicant has the right to use the uplands adjoining the lease premises.

2. The U. S. Army Corps of Engineers and The Reclamation Board are working together under the Sacramento River Bank Protection Project to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The Project is a long-range program of bank protection and setback levee construction authorized by the Flood Control Act of 1960.

3. The proposed project site is downstream of Hamilton Bend and will measure approximately 770 linear feet along the left bank of the Sacramento River at River Mile 149.0L. The site currently encompasses a steep, actively eroding bank with no overhead cover and small quantities of instream woody material in nearshore areas. The project has both a bank protection and fishery enhancement component. Rock revetment will be placed to stabilize the critically eroding shoreline, and rock groins will be constructed and inverted trees placed to provide nearshore fish habitat.

4. A Mitigated Negative Declaration and Mitigation Monitoring Program were prepared and adopted for this project by The Reclamation Board. The California State Lands Commission's staff has reviewed such document.

5. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code sections 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

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APPROVALS OBTAINED:

U. S. Army Corps of Engineers, U. S. National Marine Fishery Services, U. S. Fish and Wildlife Service, California Regional Water Quality Control Board, California Department of Fish and Game,

EXHIBITS:

A. Site and Location Map
B. Mitigation Monitoring Program

PERMIT STREAMLINING ACT DEADLINE:

April 18, 2002

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDING:

FIND THAT A MITIGATED NEGATIVE DECLARATION AND A MITIGATION MONITORING PROGRAM WERE PREPARED AND ADOPTED FOR THIS PROJECT BY THE RECLAMATION BOARD AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.

ADOPT THE MITIGATION MONITORING PROGRAM, AS CONTAINED IN EXHIBIT B, ATTACHED HERETO.

SIGNIFICANT LANDS INVENTORY FINDING:

FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED BY THE COMMISSION FOR THE LAND PURSUANT TO PUBLIC RESOURCES CODE SECTIONS 6370, ET SEQ.

AUTHORIZATION:

AUTHORIZE THE AMENDMENT OF MASTER LEASE NO. PRC 7203.9, A GENERAL LEASE - PUBLIC AGENCY USE, OF LANDS SHOWN ON EXHIBIT A ATTACHED AND BY THIS REFERENCE MADE A PART HEREOF, EFFECTIVE DECEMBER 1, 2001, TO ADD A NEW PARCEL OF SOVEREIGN LAND TO THE MASTER LEASE FOR THE PURPOSE OF CONSTRUCTING APPROXIMATELY 770 LINEAR FEET OF BANK PROTECTION; ALL OTHER TERMS AND CONDITIONS OF THE LEASE WILL REMAIN IN EFFECT WITHOUT AMENDMENT.

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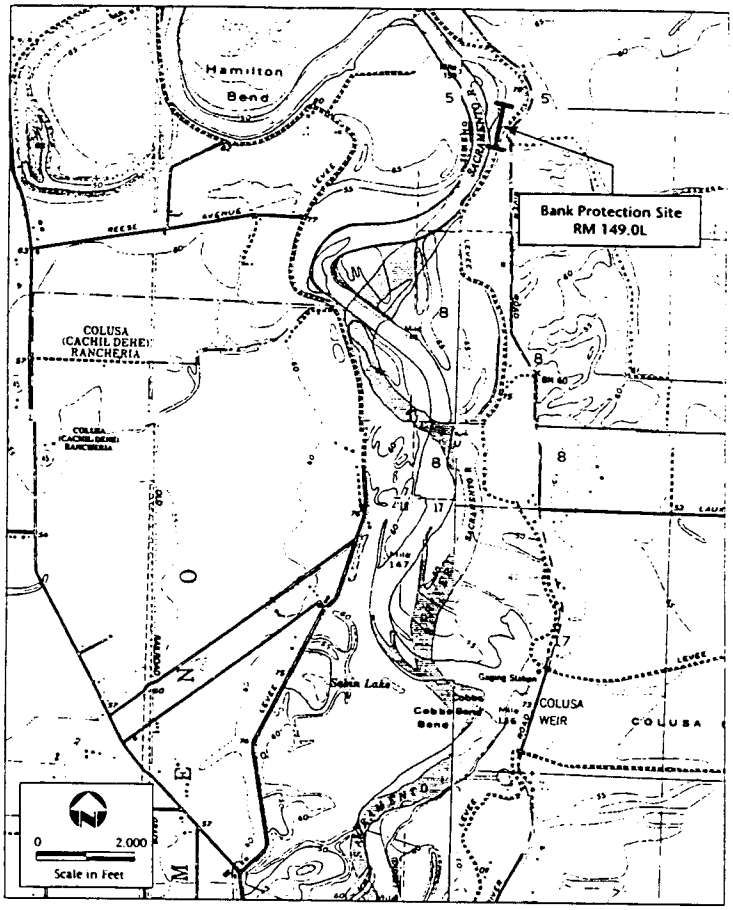

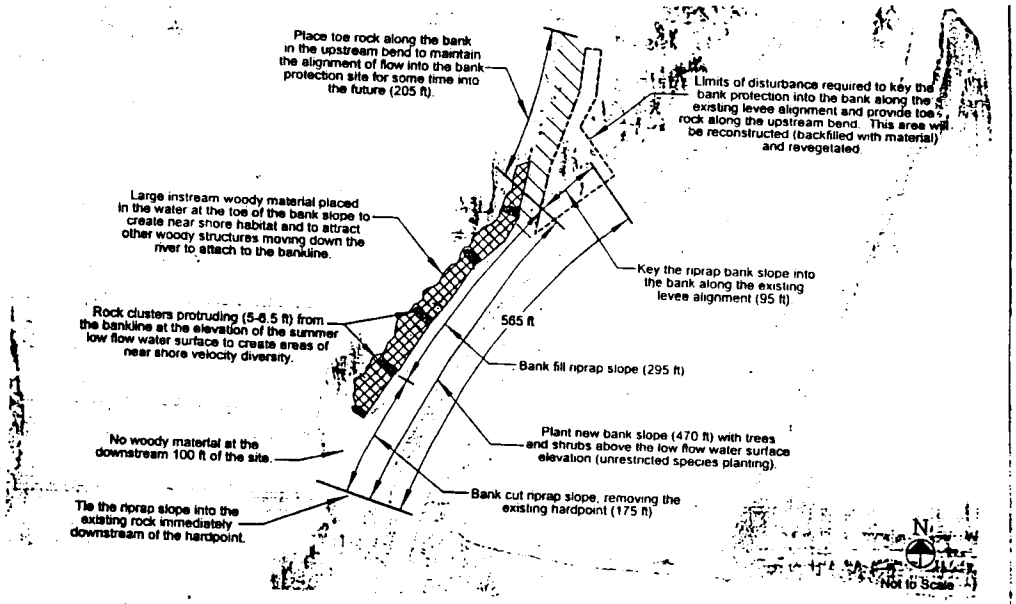

Source: Ayres Associates pers. comm.

Jones & Stokes

Figure 4-1
Plan View of Proposed Bank Protection at RM 149.0L

This exhibit is solely for purposes of generally defining the area to be leased, and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or other property.

Exhibit A
PRC 7203.9

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EXHIBIT B

Appendix C. Proposed Mitigation Monitoring and Remediation Program During the Construction Period

INTRODUCTION

CEQA and NEPA require that a monitoring program be developed and implemented to ensure that mitigation measures adopted for SRBPP Contract 42E, Site RM 149.0L are successfully implemented. This appendix identifies monitoring responsibilities, requirements, and performance standards for mitigation and compensation measures described in Section 5, "Environmental Consequences (Environmental Impacts)" for:

- biological resources,
- water quality,
- construction disturbances,
- cultural resources, and
- navigation and recreation safety, and
- land use

Potential remedial measures that may be implemented if performance standards are not achieved are also identified. Additional monitoring and remediation actions for biological resources will be developed by the interagency working group overseeing implementation of reasonable and prudent measures for ESA implementation. Some of these actions will last for up to 50 years (Table S-1). The monitoring actions will focus on gaging performance of mitigation features in providing intended habitat value.

The Corps is responsible for implementing *this* monitoring and remediation program during the construction period. The construction period extends for a 4-year period that begins from January 1 in the calendar year that construction is initiated and ends on December 31. The construction period includes the period required to install hardscape features (Year 1), plant riparian vegetation (Year 2), and establish planted riparian vegetation (Years 3 and 4). It is anticipated that monitoring for all mitigation and compensation measures will be completed during the construction period.

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BIOLOGICAL RESOURCES

Biological resource monitoring will be conducted to ensure successful installation of SRA instream cover features; installation and maintenance of riparian plantings; protection of existing riparian vegetation and elderberry shrubs; protection of Swainson's hawk, white-tailed kite, and Cooper's hawk nest sites from construction disturbance; and protection of bank swallow colonies from construction disturbance.

Shaded Riverine Aquatic Instream Cover

After the construction of SRA instream cover mitigation features is completed, the Corps construction inspector will inspect each site to ensure that the following features are installed as designed in the final engineering construction documents (i.e., plans and specifications):

- rock ridges,
- dimensions and amounts of instream woody material anchored to installed revetment, and
- length and area of new revetment and toe rock.

The performance standard is to construct instream SRA cover features in conformance with the final engineering construction documents. If instream SRA cover features are not constructed in conformance with engineering construction documents, remediation measures may be required. Because reconstruction of most instream SRA cover features would be infeasible, potential onsite remedial measures that could be implemented would likely be limited to placement of additional instream woody cover onsite where SRA cover has not achieved the performance standards. If this action is insufficient to achieve the performance standards, additional offsite mitigation may be required.

Adjacent Existing Riparian Habitat

The Corps construction inspector will monitor construction activities at regular intervals to ensure that the area disturbed by construction is limited to the work area identified in the final engineering construction documents and protect existing riparian vegetation adjacent to the work area from loss or damage. If adjacent riparian vegetation is lost or damaged, remedial measures may be required. Remedial measures could include planting up to three native shrubs or trees in the affected area for each affected shrub or tree. These remedial plantings will be maintained in the same manner prescribed in the engineering construction documents as for riparian habitat plantings.

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The Corps construction inspector will also monitor the single elderberry shrub present, adjacent to the work area, to ensure construction fencing placed around the elderberry shrub, to demarcate its location and prevent unintentional damage from operation of equipment, is properly installed and maintained in accordance with the construction documents.

Riparian Habitat Plantings and Shaded Riverine Aquatic Overhead Cover

Following installation of riparian plantings, the construction inspector will inspect planted riparian vegetation to ensure the number, species, and density of installed plants and the associated irrigation system conform to the final planting specifications. The construction inspector will also conduct periodic inspections during the planting maintenance period to ensure that plantings are maintained in conformance with the final planting specifications.

A qualified biologist will count the number of each living plant by species in June following the first and second year after plants are installed (i.e., monitoring Years 3 and 4) to ensure conformance with riparian habitat performance standards. These counts will be conducted for two discreet areas: 1) the SRA overhead cover zone, defined as the extent of riparian vegetation planted within 30 horizontal feet from the mean August water surface elevation, and 2) the remaining planted area, defined as the extent of riparian vegetation planted at distances greater than 30 horizontal feet from the mean August water surface elevation. Performance standards for each survey area are the same and are presented in Table C-1.

If riparian vegetation reestablished in either of the survey areas fails to meet performance standards, implementation of remedial measures may be required. Specific remedial measures and the level of effort required will be determined based on the magnitude and causes of failure. Potential remedial measures that may be implemented to achieve performance standards include planting additional riparian plants onsite or at offsite locations.

Swainson's Hawk, White-Tailed Kite, Cooper's Hawk, and Bank Swallow

As described in Section 5, "Environmental Consequences (Environmental Impacts)", preconstruction surveys will be conducted by a qualified biologist at and adjacent to the project site to locate active Swainson's hawk, white-tailed kite, and Cooper's hawk nest sites and bank swallow colonies. If active nests or colonies are present near the project site during the construction period, the nests or colonies will be periodically monitored by a qualified biologist to determine if construction-related disturbances could be impairing nesting success. The required proximity of an active nest or colony to the site that would be necessary to require monitoring and the specific monitoring methods that would need to be implemented will be determined following completion of preconstruction nesting surveys in coordination with DFG.

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OTHER RESOURCES

Water Quality

The Corps construction inspector will require that the contractor measure turbidity and settleable solids at Central Valley Regional Water Quality Control Board (RWQCP)-specified distances upstream and downstream of the project site during turbidity-generating construction activity. The contractor will notify the inspector prior to initiating activities causing visible sediment releases to the river. Reports of measurements will be provided to the construction inspector. If turbidity or settleable solids exceed RWQCB-specified thresholds established for SRBPP, the inspector will require the contractor to take action to bring levels beneath the thresholds.

Construction Disturbances

The contractor will be required to prepare an environmental protection plan meeting the requirements of the Corps Environmental Regulation 385-1-1. The Corps construction inspector will review and approve or conditionally approve the plan. The contractor will abide by the plan, subject to oversight by the construction inspector. The plan will incorporate the mitigation measures described in Section 5, "Environmental Consequences (Environmental Impacts)", of this report for construction disturbance impacts, which include noise, air quality, and traffic safety impacts.

Cultural Resources

The construction contractor will be required to stop disturbance activities and notify the Corps construction inspector if buried or otherwise obscured cultural resources are encountered during construction. In such an event, the construction inspector would immediately consult with the Corps cultural resources specialists. Appropriate action would be determined by the specialists to prevent significant adverse effect to any significant cultural site, property, or resource.

Navigation and Recreation Safety

During placement of IWM over the new revetment, the Corps construction inspector will verify that the material has been placed in conformance with constructions plans and specifications, which will assure that the material is securely anchored and that hazards to navigation are not created. To preclude creation of hazards, the contractor may be required to adjust orientation of the material or remove portions of the material.

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Land Use

The Corps construction inspector, in coordination with affected landowners, will verify that disturbed or replaced agricultural irrigation facilities conform to the project plans and specifications and are fully functional upon completion of the construction.

MONITORING REPORTS

Monitoring report schedules, and contents for biological resources are described in Table C-2.

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Table C-1. Construction Period Riparian Habitat Planting Performance Standards

	Percent Plant Survival			
	SRA Overhead Cover Zone[1]		Remaining Riparian Planting Areas[2]	
Species	Year 1	Year 2	Year 1	Year 2
Fremont cottonwood	80	70	80	70
White alder	80	70	N/A	N/A
Other tree species	80	70	80	70
Shrubs	80	70	80	70

Notes:

Final performance standards will be based on performance standards identified in the final engineering construction documents.

N/A = Not applicable. White alder will not be planted in these areas.

[1] Percentage of the original number of plants surviving in June of the first and second year following the year that riparian plantings are installed that are located within 30 horizontal feet of the mean August low flow elevation.

[2] Percentage of the original number of plants surviving in June of the first and second year following the year that riparian plantings are installed that are located greater than 30 horizontal feet from the mean August low flow elevation.

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Table C-2. Biological Monitoring Report Schedule and Contents

	Report Requirement	Reporting Year[1] 1	2	3	4
1.	As-built construction drawings showing instream SRA cover features.	X			
2.	A description of proposed and implemented remedial measures for instream SRA cover features if performance standards are not achieved.	X	X		
3.	Description of unanticipated construction impacts on riparian vegetation.	X			
4.	As-built planting plan to include drawings showing the extent of planting areas and extent of the SRA overhead cover planting zone, and number and species of plants planted in each planting area.		X		
5.	The number of surviving riparian plants by species for the SRA overhead cover zone and remaining riparian planting areas.			X	X
6.	A description of how riparian plantings are performing relative to performance standards.			X	X
7.	A qualitative description of the growth and vigor of riparian vegetation, including the SRA overhead cover zone.			X	X
8.	A description environmental factors that may be adversely affecting success of riparian plantings.			X	X
9.	A description of proposed and implemented remedial measures for riparian and SRA overhead cover plantings.			X	X
10.	Results of pre-construction Swainson's hawk, white-tailed kite, Cooper's hawk, and bank swallow surveys.	X			
11.	Recommended monitoring requirements if active Swainson's hawk, white-tailed kite, or Cooper's hawk nests or bank swallow colonies are located near the project site at the time of construction.	X			

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Table C-2. Continued

Report Requirement	Reporting Year[1]			
	1	2	3	4
12. Results of nest site and colony monitoring.[2]	X			
13. Copies of field survey data forms and maps.	X		X	X

Notes:

[1] Reports are submitted by December 31 of each reporting year. The first monitoring year extends from January 1-December 31 in the year construction is initiated.

[2] As described in Section 5, "Environmental Consequences (Environmental Impacts)", DFG will be immediately notified if monitoring indicates construction-related activities appear to be having an adverse effect on Swainson's hawk, white-tailed kite, Cooper's hawk, or bank swallow nesting success.

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Appendix D. List of Preparers

PROJECT TEAM

This document was prepared by Jones & Stokes staff, including:

Ken Casaday – project manager
Pete Rawlings – wildlife biologist and assistant project manager.
Bill Mitchell – fisheries biologist
Gregg Ellis – environmental specialist

Ken Casaday. Geophysicist/geomorphologist, stream restorationist, natural resource management planner, and senior project manager at Jones & Stokes. For 28 years Mr. Casaday has directed multidisciplinary teams in preparation of land and resource restoration and management plans and impact assessments, concurrently preparing technical evaluations in the geomorphic, hydrologic, and riparian-ecology subject areas.

Mr. Casaday developed strategies for restoration of wildlife habitats and alternatives for streambank protection along the Sacramento River for the U.S. Army Corps of Engineers. His restoration technical studies have included analyses and restoration plans for streams tributary to Mono Lake, the dewatered reach of the American River at the Auburn damsite, revetted streambanks and leveed floodplains along the lower American and Sacramento Rivers, and several small eroding streams in the northern Sierra-Nevada. Mr. Casaday's education includes an AB in Geology and Geophysics in 1965, a MA in Geophysics in 1967, and advancement to PhD candidacy in Geophysics in 1969, all at the University of California, Berkeley.

Pete Rawlings. Senior wildlife biologist. Mr. Rawlings has more than 19 years of experience in wildlife management and related fields. He specializes in habitat restoration, mitigation planning and design, and environmental impact assessment. He has applied his wildlife management expertise to a wide range of projects, including habitat restoration, water storage, flood control, and river bank stabilization projects.

Mr. Rawlings served as project manager assisting CALFED with development of its Multi-Species Conservation Strategy, as task leader for the CALFED Ecosystem Restoration Program, Contra Costa Water District's Los Vaqueros Reservoir Project, the State Water Resources Control Board's Delta Wetlands EIS/EIR, and HEP analyses for the Corps of Engineers' Sacramento River

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Bank Protection Project contracts for the American and Sacramento Rivers. Mr. Rawlings received a BS in Wildlife Management in 1978 from Humboldt State University, Arcata, California.

Bill Mitchell. Senior fisheries biologist. Mr. Mitchell has a diverse background in aquatic sciences and special expertise in fisheries impact assessment, fish population and habitat modeling, habitat assessment techniques and mitigation design, and habitat suitability criteria development. He has extensive experience in preparing biological assessments and mitigation plans for special-status species, including winter-run chinook salmon, spring-run chinook salmon, steelhead trout, Delta smelt, and Sacramento splittail. Mr. Mitchell served as regional coordinator for statewide program to review, analyze, and synthesize information on steelhead trout in California, and coauthored a comprehensive report submitted to the National Marine Fisheries Service to assist them in their ruling on the status of steelhead under the Federal Endangered Species Act. He has participated in interagency efforts to evaluate the long-term effects of alternative harvest management strategies and water project operations on chinook salmon populations in the Klamath River and Sacramento River basins.

Mr. Mitchell's recent experience includes assisting the Corps and consulting engineers in addressing fish passage issues and designing habitat mitigation for a proposed riverbed gradient facility and associated fish screen and bypass facilities at the Glenn-Colusa Irrigation District's Hamilton City Pumping Plant on the Sacramento River. He has also applied habitat assessment procedures to evaluate impacts on shaded riverine aquatic cover, and has worked closely with engineers, vegetation ecologists, and landscape architects to design shaded riverine aquatic cover mitigation features for alternative streambank and levee protection projects on the lower American and Sacramento Rivers. Mr. Mitchell received a B.S. in biology from San Diego State University, San Diego, California, in 1980 and an M.S. in fisheries biology from Humboldt State University, Arcata, California, in 1988.

Gregg Ellis. Environmental planner. Mr. Ellis specializes in water resource planning and impact analysis, land use planning and impact analysis, environmental compliance, and project management and coordination. He has managed and/or assisted in the preparation of several environmental assessments/initial studies and environmental impact studies/reports for various flood control/restoration projects in the Sacramento-San Joaquin Delta and American River; managed an Environmental Information Paper for a reservoir in the American River Watershed; coordinated preparation of a floodway management plan for the lower American River; conducted research and provided resource data for use in a multi-disciplinary evaluation of levee systems and a flood damage reduction/environmental restoration study in the Sacramento-San Joaquin Delta; and coordinated efforts of technical team members for two large Sacramento-San Joaquin Delta planning programs. Mr. Ellis received a B.A. in geography from the University of California, Berkeley, in 1993.

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Appendix E. Agencies and Persons Consulted

Ayres Associates, Sacramento and Fort Collins, Colorado (project design engineers)

McConahy, Jason – design engineer
Schall, Jim – hydraulic engineer and project manager
Smith, Tom – civil and geotechnical engineer
Tibbits, Dan – civil engineer

California Department of Fish and Game, Region II, Sacramento

Roscoe, Terry – wildlife biologist

California Department of Water Resources

Petersen, Mike – lands and right-of-way specialist

County of Colusa

Pride, Darrel – Department of Public Works, traffic engineer
Kelly, David – Planning Department, planner

National Marine Fisheries Service, Protected Resources Division, Sacramento

Smith, Dennis – fisheries biologist

Natural Resources Conservation Service

Martynn, Dan – District Conservationist

The Reclamation Board, State of California (project sponsor)

Bronson, Annalena – environmental resources specialist
Wong, Michelle – engineer

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U.S. Fish and Wildlife Service, Sacramento District.

Amy, William – fish and wildlife biologist
DeHaven, Richard – fish and wildlife biologist
Falxa, Gary – fish and wildlife biologist

U.S. Army Corps of Engineers (project sponsor)

Hucks, Creg – Sacramento River Bank Protection Project program manager
Pearson, Tore – design engineer
Jarvis, Barry – design engineer
Davis, Matt – environmental resources specialist

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Appendix F. Comments on the Draft Document and Responses to Comments

SUBMITTED COMMENT

Only one comment on the draft report was submitted (Exhibit F-1). The commentor, a downstream property owner, is concerned with the effects of the project on his pump facility that withdraws water from the Sacramento River for irrigation of adjacent farmlands. The commentor's specific concern is that removal of the hardpoint at the project site, which was constructed to protect the intake facility, may result in loss of or damage to the intake facility. The commentor is not sure if additional bank protection is being proposed at and around his intake facility.

RESPONSE TO COMMENT

As stated on page 5-10 of the draft and final documents, the proposed project will result in increased protection of the irrigation intake facility. However, in response to the this comment, the Corps' commissioned its design engineers to conduct a two-dimensional hydraulic modeling assessment of the potential effects of the proposed action on the downstream pumping facility. The results of this assessment are summarized below.

Assessment Purpose and Approach

Additional two-dimensional hydraulic modeling of the Contract 42E erosion site at RM 149 efforts was conducted to address landowner concerns that the construction of planned bank protection measures would adversely impact the stability of an irrigation intake facility located a short distance downstream of the site. Of particular concern is the proposed removal of an existing "hardpoint" that is located at the downstream limit of the erosion site. This feature appears to cause deflection of flow away from the left bankline, thereby providing shelter to the bank at the location of the pump intake. The proposed design calls for the removal of the hardpoint.

Hydraulic modeling was conducted to provide some quantification to the impacts of implementing the proposed design. Two conditions—existing conditions and project design conditions—were analyzed for three streamflows: 135,000 cfs, 30,000 cfs, and 15,000 cfs. The 135,000 cfs flow condition is the Sacramento River Flood Control Project (SRFCP) levee design

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flow. The project levees were designed to contain this flow with a minimum of 3 ft. of freeboard. 30,000 and 15,000 cfs represent lower flow conditions at the project site. The 30,000 cfs flow is less than a "bankfull" condition but is representative of a 1.5-year return period flow.

Changes in Hydraulic Conditions

The results show, especially under the low flow conditions, the hardpoint does alter the flow patterns along the left bank. For the 135,000 cfs condition, the hardpoint is submerged, causing an acceleration of flow over its top and slight redirection of flow toward the channel on the backside. For the 30,000 and 15,000 cfs conditions, rather large eddies are developed off the tip of the hardpoint and extend some distance downstream. It should be noted, however, that the eddy under each of these conditions does not appear to extend down to the location of the intake structure. By the time flow reaches the intake, flow appears to be adjusted to conditions that move into the downstream channel with flow vectors lined up parallel to the bank and higher velocities acting on the bank toe.

The results show, especially under the low flow conditions, the hardpoint does alter the flow patterns along the left bank. For the 135,000 cfs condition, the hardpoint is submerged, causing an acceleration of flow over its top and slight redirection of flow toward the channel on the backside. For the 30,000 and 15,000 cfs conditions, rather large eddies are developed off the tip of the hardpoint and extend some distance downstream. It should be noted, however, that the eddy under each of these conditions does not appear to extend down to the location of the intake structure. By the time flow reaches the intake, flow appears to be adjusted to conditions that move into the downstream channel with flow vectors lined up parallel to the bank and higher velocities acting on the bank toe.

Stability of Existing Cobble Protection

Sacramento River Bank Protection Project (SRBPP) maps show that cobble protection was placed on the left bank starting at the hardpoint and continuing on downstream through the location of the intake. The cobble was placed sometime during the 1940s and is currently difficult to locate at the site which may be due to several reasons: (1) it may be covered with sediment and/or vegetation, (2) it may be damaged or missing in places, or (3) it may have been replaced by landowners or local agencies as part of maintenance activities. Since the cobble is the authorized, Sac Bank revetment placed at the site, its stability was analyzed for both existing and design conditions at the location of the intake.

Modeling results show that the computed factor of safety is actually higher under design conditions than for existing conditions. This is primarily due to the fact that flow is more turbulent under existing conditions due to the presence of the hardpoint. The low safety factors show that

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under both existing and design conditions, the 1940s cobble protection, if still present, would be in a state of imminent failure for the project design flow.

Impact on Debris Flow

Another concern pertaining to the intake is how changes in hydraulic conditions will effect the likelihood of debris to accumulate at the structure. A qualitative analysis of this can be provided by investigating the surface flow patterns as well as observations of current debris accumulation near the site.

As noted above, for low flows (15,000 to 30,000 cfs), a large eddy is formed off the back side of the hardpoint under existing conditions that is not present under design conditions. Field observations indicate the presence of debris accumulation in this eddy, upstream of the pump structure. A reduction in debris accumulation upstream of the pump structure is expected to occur with the project, but debris accumulation at the structure may remain relatively unchanged.

Conclusions

1. For the three flow conditions modeled, there is no noticeable increase in velocity conditions at the pump intake, and the velocity vectors are more streamlined for the proposed design conditions than under existing conditions.

2. The stability of the existing cobble revetment at the location of the pump intake is precarious for both existing and design conditions. Based on the preliminary calculations, the cobble has a safety factor of less than 1 for existing conditions. For the proposed design, where local conditions are less turbulent, the safety factor is slightly higher at 1.0

3. Based on the flow patterns predicted by the two-dimensional model as well as field observations, no detrimental change in the path of floating debris is expected at the pump site.

Recommendation

The hydraulic analysis of the proposed design reveals that there is no noticeable impact to the pump structure. As a result, no revision or extension of the project limits is recommended.

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Citation

Ayres Associates. Memorandum to Peter Valentine, Sacramento District, U.S. Army Corps of Engineers. August 29, 2000. Regarding: 2D modeling of impacts to pump intake near RM 149 (Contract 42E). Sacramento, CA.

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EXHIBIT F-1

Colonel Michael J. Walsh
District Engineer
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, Ca.95814-2922

Matthew W. Boeger
General Partner
Boeger Land Company
891 Hazel Str.
Gridley, Ca. 95948

Colonel Walsh,

We would like to take this opportunity to formally respond to the draft EA/.SSR. It is indeed encouraging to see that the agencies are finally ready to repair this seriously eroded portion of our levee protection system. It has been an awfully long time coming.

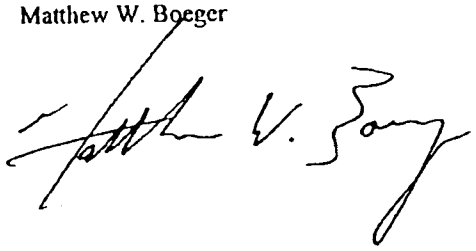
We have serious concerns about the effects of the proposed levee changes as to the long-term viability of our property's water delivery system only several feet downstream of the proposed construction area. There appears to have been, as usual, a tremendous amount of work done to evaluate and protect the various endangered species in the vicinity of the project, but very little if any discussion or study of the effect of this project on our pumping plant. Specifically, the project plans to remove a hardpoint that is directly upstream of our pumping plant. We are having a very hard time determining from the Study whether there will be adequate protections put into place above, below, and directly at the pumping site to prevent future bank erosion, given the loss of this deflective hardpoint upstream, from taking out our pumping station. This pumping plant provides irrigation water to approximately 850 acres of our farmland on this ranch and is, very obviously, of great concern to us. The study makes one mention of tying into downstream SRPP but we don't know exactly what this means to us. The diagrams showing the proposed work area do not encompass our pumping plant.

We would ask that if this hardpoint is to removed that the bank around our pumping plant and the pumping plant itself be adequately protected and built up to prevent future loss of this facility in the event of a serious high water event. The area just to the downstream side of our pumping plant, just upstream of the existing SRPP has also eroded seriously and will soon be a problem. Again, we can't tell from the study what is to be done in this area.

We would like this study to be amended to include more specific information relating to what is included in this project to mitigate any future damage to our pumping plant.

Thank You,

Matthew W. Boeger



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