

Meeting Record

To:		From:	
Name:	Earl Nelson and meeting attendees	Name:	Anne Hoagland
Firm:	DWR - DFM	Firm:	AECOM
Fax number:		Date Sent:	November 2, 2011
Meeting Date:	September 15, 2011		
Project Name:	Lower Feather River Corridor Management Strategy		
Project Number:	60217656		
List of Attendees:	See last page for attendee list		

Subject: Lower Feather River Corridor Management Plan Meeting

Distribution: Attendees

The following is a summary of the meeting held at AECOM in Sacramento on September 15, 2011.

ITEM	Description	ACTION ITEMS
Introductions & Agenda Review	<p>The meeting began with a list of project updates.</p> <p>We are planning to skip the October and December Workgroup meetings due to budgeting issues so our next meeting will be in November.</p> <p>The Permitting Subcommittee will meet when there are specific issues they need to discuss. Right now they are waiting for guidance from the Corridor Management Plan, in particular the maintenance and restoration plans.</p> <p>Went over action Items from the 8/18 meeting and goals for today's meeting.</p>	
Corridor Management Plan	<p>Susan Sanders initiated a discussion on the goals of the Corridor Management Plan: We don't want to say the primary goal of the Plan is to get the approval of the Central Valley Flood Protection Board (CVFPB). She has revised the goals to reflect this and included a few other changes.</p> <p>Earl Nelson: What is missing from the first goal is the connection to habitat enhancement. Our main goal is public safety and by enhancing habitat we can also enhance public safety because the habitat enhancement would make it easier to get regulatory permits for maintenance.</p> <p>Susan: We need a statement up front about what the primary goal is: protecting public safety while providing habitat enhancement. The permitting plan can be an</p>	<p>The deadline for comments on the updated Goals and Objectives document is 9/29/11. Send comments to Susan Sanders and Caitlin Roddy.</p> <p>John Carlon will send Susan Sanders goals from the FloodSAFE document he thinks are relevant to the LFR CMP.</p>

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	<p>objective. Susan will rework current goals and objectives based on these ideas.</p> <p>Earl: Because we are not having an October Workgroup meeting Susan will send out a reminder email in a week and a half regarding comments on the goals and objectives.</p> <p>John Carlon: Instead of all of us trying to wordsmith the goals and objectives, the FloodSAFE document has some good goals that closely mirror our goals.</p> <p>Ken Cummings: What is the list of the permits we are discussing here?</p> <p>Earl: They are listed on page 1 of the LFR CMP website.</p>	
<p>Maintainer's Meeting (Aug 18, 2011)</p>	<p>Susan: The notes from the maintainers meeting are almost ready and we will send out to the group once the final tweaks have been made. Susan went over the attendee list. At the meeting we marked up the maps with the goal of having the people on the ground tell us what the current maintenance practices are and where problems and uncertainties exist.</p> <p>Went over the maps and pointed out issues identified during the Maintainers meeting:</p> <p>State Cut: We are still looking for more information on the origins and design intent of State Cut. Currently DWR clears vegetation (willows) and grades depressions and sediment mounds as far downstream as Island Avenue (midway), at which point the sediment and dense vegetation is too difficult to clear. The hydraulic analysis will determine what a change in topography and roughness might mean to DWR maintenance in that area.</p> <p>Feather River Setback area: In this currently mostly barren area we discussed creating riparian vegetation in strips alternating with grassland that would allow floodway in between. We also talked about a <u>potential</u> need for future floodway maintenance in orchards that <u>may</u> in the future be abandoned west of the FRS area on the east side of Feather River. This is an area where the Sutter Maintenance Yard will need some direction based on the hydraulic analysis.</p> <p>Abbott Lake and O'Connor Lakes: There is concern about the amount of vegetation at Abbott Lake area and the need to have flood waters pass through the vegetated floodplain (both orchards and riparian forest). O'Connor Lakes already has a flood flow pathway cleared regularly through a 300'-400' clearing in the otherwise dense riparian forest. These are areas of uncertainty over how much and whether or where vegetation clearing should occur.</p> <p>Earl: An email from Tina Bartlett (DFG) to Keith Swanson (DWR) about the Abbott Lake Agreement will be attached to the Maintainers Meeting notes.</p> <p>Ken: I have concern about O'Connor Lakes connectivity to the river.</p> <p>Steve Chainey: We consider this and other historic</p>	<p>Jeff Twitchell will look for geomorphic information on Shanghai Bend levee setback and State Cut and provide to group.</p> <p>John Carlon will send Susan Sanders a copy of the 1986 Feather River State Wildlife Area Management Plan.</p> <p>AECOM will set up a conference call with DFG regarding management issues and objectives on FRSWA land units.</p>

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	<p>borrow channels against the levees to be a problem area for potential fish entrapment and are looking into solutions.</p> <p>Susan: At the (waterside) base of levees in several areas, there are borrow channels which hold water throughout the dry season. Are those problem areas in terms of undermining the levees?</p> <p>Steve: This creates a problem because beavers take up residence in these ponded areas and burrow dens in levees, which can then collapse and compromise the integrity of the levees.</p> <p>Lake of the Woods: DWR currently clears a 4-mile long swath of vegetation in this area. Now that the Bear River levee setback has widened the floodway, we don't know if clearing is still needed in the downstream segment of this area. Vegetation removal to improve conveyance of floodwaters might be better applied at other locations in Lake of the Woods or other parts of the floodway.</p> <p>Earl: The maintainers are doing some of the work in these areas based on a field assessment rather than directed by hydraulic modeling (quantitative) analysis. We are looking to the hydraulic modeling to determine where vegetation clearing is needed and not needed.</p> <p>Nelson Slough: Hydraulic modeling for this area should help resolve the considerable uncertainty about sediment accumulation here and its effect on flood flow capacity.</p> <p>In summary, one thing that really came out of the maintainers meeting was the level of uncertainty about the benefit of vegetation clearing, and the need for more hydraulic analysis to guide maintenance activities at key locations along the river.</p> <p>Debra Bishop: Earl's point on the benefit of this process to the maintainers could be added to the goals and objectives. We should highlight that this plan will focus the maintenance efforts in a more cost effective way.</p> <p>John: Is it fair to say that what came out of this meeting was identification of areas that are currently being worked on and areas the maintainers think are problems and need more information on?</p> <p>Susan: Yes, that is a good summary.</p> <p>John: What actual maintenance is occurring right now?</p> <p>Steve: At the Lake of the Woods corridor every year or every other year they clear vegetation with grazers (goats and sheep) and with mechanical equipment. At the upstream half of State Cut, if there has been a lot of deposition or growth they smooth out the high spots and depressions and clear vegetation. O'Connor Lakes also has ongoing floodway clearing in defined areas. Steve said there were not a lot of bank erosion concerns that have not already been addressed with rock armoring. Two remaining areas of concern about bank erosion is the levee along State Cut and on the left bank of Feather River just upstream of where it connects to the Sutter Bypass. Those sites are likely to</p>	

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	<p>need bank protection projects over the next 10 years.</p> <p>Jeff Twitchell: There are three areas - State Cut, Lake of the Woods, and O'Connor Lakes where maintenance is occurring.</p> <p>John: As part of the current maintenance activities did we learn what permits are required? Who owns State Cut?</p> <p>Steve: It is likely state land but we don't have parcel ownership or flood easement records for State Cut.</p> <p>Ron Unger: How much do we know about this as a dynamic river system within the confines of the levee system?</p> <p>Steve: This topic will be addressed during the geomorphic presentation by Chris Campbell (cbec).</p> <p>Susan: We didn't talk about specific permits at the meeting but we did talk about the need for regulatory certainty for the maintainer's routine activities.</p> <p>Jeff noted that in discussing vegetation clearing we shouldn't forget needed O&M of the levees, and the footprint associated with maintaining the levees.</p> <p>John: It would be good to know what permits are needed to complete activities in the short term.</p> <p>Earl: The plan is to address the permitting issues in the long term.</p> <p>Susan: We can't finish the permitting strategy until the restoration and maintenance plans are developed.</p> <p>Jeff: LD 1 is in the process of extending a conservation easement at Star Bend Setback area.</p> <p>Ken: A group from NMFS went into Nelson Slough and found lots of evidence of unlawful shooting and use of powerful weapons. Somewhere along the line we must introduce the idea of personal safety.</p> <p>Next steps: Need to coordinate with DFG because they own or manage a lot of property where maintenance occurs and where restoration is proposed. Susan will contact DFG to set up a conference call to talk about what current management plans are available and DFG's goals and objectives for management of the FRSWA units.</p> <p>Some DFG staff that should be at this meeting include Colin Purdy, Tina Bartlett, Kelley Barker, Jason Holley and Dale Whitmore. AECOM will coordinate off-line with DFG to determine the appropriate participants for this meeting.</p> <p>Ryan Larson: How is the need for maintenance that is occurring defined?</p> <p>Earl: It is left up to the maintenance people to determine what is needed and take care of it.</p> <p>Steve: At O' Connor Lakes there is a defined corridor for maintenance.</p> <p>John: We found at O' Connor Lakes it was based informally on work days and the discretion of the</p>	

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	<p>equipment operator.</p> <p>Susan: Defining maintenance locations and dimensions (width, length, and frequency) needs to be an element of the maintenance plan.</p>	
<p>Flood Hydraulic Modeling Update</p>	<p>Steve: What we are doing in simple terms is comparing existing conditions to potential future conditions. The goal is to determine the effect of proposed restoration activities or changes in maintenance practices on flood stage, floodway capacity, and floodplain inundation compared to baseline conditions. CVFPB has already approved three levee setback projects including planting plans at defined restoration areas (Star Bend, Feather River, Bear River) with the assumption that at maturity the replanted areas would be characterized by very high roughness. The composite of the levee setback and potential future roughness was evaluated by CVFPB staff and approved. Our baseline condition is a hybrid of everything we know about existing conditions in 2011 combined with the anticipated future roughness conditions that were approved by the CVFPB.</p> <p>Don Trieu: Went over PowerPoint presentation:</p> <ul style="list-style-type: none"> • Update, refine and extend the current 2D hydraulic model developed for TRLIA. • Develop baseline hydraulic conditions for 100- and 200- year floods and 1957 design flows. • Move the model boundaries by extending into the Sutter Bypass (2 miles upstream and 4 miles downstream). • Simulate various restoration opportunities and maintenance priorities using the 2D model. <p>Don described models that are currently underway. One challenge MBK ran into was that we initially thought we could use the “comp study” (USACE’s Comprehensive Study and model of Central Valley flood control system) information for the Sutter Bypass but the resolution was not adequate. Instead we used DWR’s more detailed and up to date LiDAR and bathymetry data.</p> <p>MBK took a field trip to the study area to field-verify the vegetation types AECOM mapped to assign roughness value. AECOM did a very good job on these detailed maps, which were helpful in assigning roughness value. River Partners suggested a winter site review because the vegetation density differs after leaves have dropped (especially the understory).</p> <p>Next steps: Calibrate the 2D model, evaluate some existing 2D models of the Yuba River and Sutter Bypass, develop baseline conditions model using vegetation assumptions, and simulate 100- and 200-year floods, 1957 Design Flow, and simulate various restoration and maintenance opportunities. .</p> <p>1D models represent a uniform conveyance between widely spaced cross sections (e.g. 500-1,000 feet apart). 2D models include a dense “mesh” of squares and triangles that represent terrain and topography on</p>	

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	<p>a spatial variation. This does not confine where the water can go. We can assign a roughness value to each square and triangle. For QA purposes we calibrate the models to past flood events (where both measured flow and high water marks have been recorded in the field during flood peaks).</p>	
<p>Update on Hydrodynamic Modeling & Bathymetry Assessment</p>	<p>Steve: We have presented the restoration and maintenance concepts as objectives and features and then sketched them out on the maps and worked with cbec to express them in the terrain mesh of the model. In some places we have modified topography for restoration opportunities and improved flow conveyance.</p> <p>Chris Campbell went over the modeling matrix (See Attachment A). Once baseline conditions are completed by MBK, cbec will accept them into the geomorphic model.</p> <p>Went over maps:</p> <p>State Cut: Here we would model topographic changes, sediment removal and channel maintenance needed to achieve more uniform flow continuity with Eliza Bend and Old Feather River channel.</p> <p>Eliza Bend: Remove the upstream plug at Feather River and deepen the channel to have sufficient capacity to flow to braided channels, then open up into the setback area and inundate the low topography here. Vegetation could consist of alternating bands of vegetated riparian swale, oak woodland, and perennial grassland on higher ground. .</p> <p>John: If it's all been modeled to 0.10 N-value (roughness) and the orchards return to full density, what would the roughness be?</p> <p>Chris: We can assume 0.10 and that there would be compensation elsewhere.</p> <p>Swales: Alternative where if there was sedimentation there is an additional route for flows and sediment to be transported off of the floodplain and return to the Feather River channel at the downstream end.</p> <p>Abbott Lake: If we cleared a corridor of vegetation (similar to O'Conner Lakes) we wondered if there would be any benefits for improved flood conveyance.</p> <p>O'Connor Lakes: Does this still have the same hydraulic benefit of being cleared as when the old levee was in place? An area of concern is the deep channel at the end of the borrow area. Alternative of putting in a low flow drainage channel could be a viable option.</p> <p>Lake of the Woods: To what extent can ongoing clearing cease and revert back to the roughness condition adjacent to it? We might look at opportunities to reduce clearing in some places, and increase it in other areas where it may be needed.</p> <p>Nelson Slough: We would simulate creating an inset floodplain on the right bank of the river. Evaluate for sediment trap efficiency.</p>	

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	<p>These are the basic elements that we are going to tease out with the hydraulic model.</p> <p>Ken: What is the expected inundation duration?</p> <p>Chris: It depends on the flood hydrograph coming down the system.</p> <p>Eric Larsen River Meander Presentation:</p> <p>Eric provided background on previous projects to illustrate the nature of his work, and his role on this project. He is not specifically tasked with producing a deliverable, but will provide whatever useful information he can to integrate with this effort.</p> <p>Meander model: It is based on physics and fluid mechanics. It can make a prediction of where a channel will be in a predicted time period. We can input various things into the model: soils, landforms and structures. The model is calibrated.</p> <p>This portion of the river is not too sinuous, but rather is relatively straight. This model does not take into account hard points, erosion coefficients, or roughness from changing N values (so in channel changes will not make much difference in the outcome of the model).</p> <p>The initial goal for the Feather River meander model was to create a model without any actual constraints to bank migration (e.g. structures, riprap, bedrock, etc.).</p> <p>John: Would it be beneficial to use this model for the Shanghai Falls area to learn the predicted time frame of meander, and the consequences of new flood events and resulting new channel configuration?</p> <p>Steve: Can you input the naturally resistant banks (Modesto Formation) and rock armored banks in your model?</p> <p>Eric: Yes, that is fairly straightforward. This was the original model and it could easily be run again with constraints.</p> <p>Chris Bowles agreed that we could apply the river meander model to key areas (falls, cutoff points) and combine the flood model and geomorphic model.</p>	
<p>6.Update on Permitting Subcommittee Activities</p>	<p>Lisa Mangione: At the August 10th Permitting Subcommittee meeting we finalized the permitting Project Description as best we could. The Technical Memo is due in draft form to DWR On September 30th. We talked about a schedule that would get the final out on October 31st. We have had conversations internally about whether we should move forward with the Memo absent a more detailed Project Description. We need more detailed information as requested from the agencies; this will be particularly important for USACE to determine whether or not development of a Regional General Permit is warranted. We are having a discussion next week about possibly delaying the memo until the restoration and maintenance plans are done as these will provide much of the information necessary to develop a final permitting strategy. We talked about having a meeting with regard to the</p>	

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	Maintainers meeting outcomes, and have USFWS and USACE representatives speak about advanced mitigation.	
Action Items and Next Meeting (November 17)	<p>Next meeting will be November 17th at AECOM.</p> <p>The deadline for comments on the updated goals and objectives document is 9/29/11. Send comments to Susan Sanders and Caitlin Roddy.</p> <p>John Carlon will send Susan Sanders goals from the FloodSAFE document he thinks are relevant to the LFR CMP.</p> <p>Jeff Twitchell will look for geomorphic information on Shanghai Bend levee setback and State Cut and provide to group.</p> <p>John Carlon will send Susan Sanders a copy of the 1986 Management Plan for the Feather River State Wildlife Area (FRSWA).</p> <p>AECOM will set up a conference call with DFG regarding management issues and restoration objectives on FRSWA land units after the Maintainers meeting.</p>	

END OF NOTES

The record herein is considered to be an accurate depiction of the discussion and/or decisions made during the meeting unless written clarification is received by AECOM within five (5) working days upon receipt of this meeting record.

Lower Feather River Corridor Management Plan Thursday, September 15, 2011 Meeting Work Group Member Attendance

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