



# County of Yolo

## PARKS AND RESOURCES DEPARTMENT

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### SPECIAL PUBLIC MEETING CACHE CREEK TECHNICAL ADVISORY COMMITTEE (TAC) April 27, 2009 Summary Minutes

1. CALL TO ORDER: The meeting was called to order by Kevin Schwartz at 10:10am.

Attendees: Tim Horner (TAC Hydrologist), Erik Ringelberg (TAC Riparian Biologist), Eric Larsen by phone conferencing (TAC Fluvial Geomorphologist), Brian King (Teichert Aggregates), John Perry (Syar Industries, Inc.), Mark Hirzy (CEMEX), Ron Wilson (CEMEX), Brian Foster (Cunningham Engineering), Steve Greenfield (Cunningham Engineering), Joe Muller (Teichert), John Weatherford (CEMEX), Ha Truong (National Resource Conservation Service, NRCS), Lynnel Pollock (Cache Creek Conservancy, CCC), Ann Scheuring (Gold Oak Ranch), Mark Cocke (City of Woodland), Marc Mammola (CEMEX), Mark Trask (Granite Construction), Max Stevenson (Yolo County Flood Control and Water Conservation District, YCFCWCD)

Staff: Kent Reeves, Kevin Schwartz, Tami Leathers, Warren Westrup

2. PUBLIC COMMENTS:

There were no public comments.

3. STAFF UPDATE:

3.1 Parks and Resources staff updates: Kent Reeves announced a bioengineering workshop taught by John McCullah and sponsored by the Parks and Resources Department. There will be no Cache Creek Walk this year. We will no longer be doing the Cache Creek Walk on an annual basis because of the amount of time and money required for the TAC and to focus that time on addressing and implementing items discussed in the 2008 Cache Creek Walk Summary. In the interest of time to focus on the main agenda items, no further updates were given.

4. REGULAR AGENDA:

Review of CEMEX bank stabilization and levee erosion plans (10:10 am -12:00 pm). Review entailed discussion of the Improvement Plans for Sites D, E and F, and the Erosion Control Plan, all submitted by CEMEX for consideration of a Flood Hazard Development Permit from the County. Yolo County Staff and TAC members began by asking questions about different aspects of the plans:

- 4.1 **HEC-RAS model, channel position and gravel skimming**

Kevin Schwartz mentioned that Cunningham Engineering needs to supply Yolo County with the updated HEC-RAS model and that all communications with the TAC members

need to carbon copy (cc) him. Eric Larsen discussed with Brian Foster the fact that when Eric ran the model using what was submitted to the County, the results were different than what were in the Cunningham Hydraulic Study Report. Brian forwarded Eric Larsen the correct geometry files. Eric expressed that the HEC-RAS model would be more accurate if it were calibrated to observed conditions. However, there aren't any historic 100-yr flood conditions to which to calibrate it. There may be other data that exist to which the model could be calibrated. Eric also commented that the Manning's n values used were not documented well. Eric commented generally that the model would give different results if different n values were used. He continued to say that both the calibration and the use of different n values would not be necessary if the main goal of the HEC RAS modeling was to show relative differences in flood levels at pre- and post-project conditions. Eric went on to have a number of questions about the spur dike design, which were summarized in an email sent to Kevin and were displayed as suggestions to Cunningham Engineering and CEMEX during the meeting..

For everything to be clearer from Eric's suggestions, the County needs to see:

1. An overview of this project, its definition and objectives.
2. Specific goals of the HEC-RAS model.
3. A description of the problem at this site.
4. A description of the rationale for using spur-dikes. What objectives are they designed to accomplish?
5. How the spur dikes are expected to perform?
6. How a decision was made to use spur dikes?
7. What performance measures we can have as to whether the spur dikes meet their objectives or not?

Tim Horner asked Eric how big of an issue it was that the HEC-RAS model be calibrated to observed conditions. Eric answered that it depends on the purpose of the model. If the model's purpose was to show that the 100-yr flood level does not increase with the proposed conditions, then the existing model adequately shows that to be the case. On the other hand, if we want to be able to point to a location and give the 100-yr level of the flood waters, then calibrating the model will give more accurate results. Eric gave an example. He developed and calibrated a model with data from Kamman Engineering of an area upstream of Rumsey Rancheria (also now called Yocha-De-He) using USGS flood surveys by Jerry Harman from the late 1970s and early 1980s. The model was calibrated based on flows between 20,000 and 30,000 cfs. Manning's "n" value was established from published values, and was also derived from observed conditions, that took into account the vegetation, the curve of the creek, and other parameters. This detailed approach to deriving Manning's "n" value produced a more robust estimate.

Tim Horner had concerns about the gravel skimming, the rerouting of the channel, and Site F. The plan would move the active channel from the right bank and towards the middle of the stream. Eric clarified that with high flows the area would be full and above the rerouted low-flow channel. Tim asked Cunningham Engineering whether shortening the channel length will affect things up or downstream. He mentioned that the most stable channel configuration is right where it is now.. Where would the channel migrate next if

we move the channel into the middle? Eric Larson commented that he doesn't know what will happen, or where the energy will go. Eric said that he has a hunch that little will happen, but he will have to look at that more thoroughly. Eric showed in his "Draft Cache Creek Technical Advisory Committee Memo" that the thalweg was previously along the CEMEX property. This can give us an idea of how far the channel can move, and we also know that the channel can change from year to year. Tim believes that if flow is diverted from the south bank that this could kick it towards the north bank and then we need to consider other property owners in the area. Kevin stated that we cannot use HEC-RAS to model channel sinuosity, but Eric mentioned he can do some simple calculations some of which would only take 5-10 minutes and others about 1 hour.

The below items were discussed as necessary follow-up to the above discussion:

8. Eric Larsen, in collaboration with CEMEX/Cunningham Engineering, will analyze the effects of moving the low flow channel. He will do some of the calculations he mentioned.
9. Tim would like to see the meandering pattern in the past number of years, possibly in the form of air photo close-ups. The county should have these photographs.

Mark Hirzy gave a brief history of historical channel position at the site. Based on Mark's description and Figure 5 from Eric Larsen's report, the low flow channel was near the middle of the active channel area before 2005. After the 2005-2006 storms, the active channel moved to its current position along the right (south) bank. At Sites D and E the low flow channel has oscillated between the left and right bank between 1997 and 2006. Tim Horner expressed uncertainty about where future meanders will migrate at Site F. Kevin mentioned that Model 1 modeled the conditions prior to the 2005-2006 storms and Model 2 showed the existing conditions, which were largely formed by the 2005-2006 events. Eric Larsen mentioned that using 2006 as the "existing conditions" is not necessarily representative of 2009 conditions.

Brian Foster gave a brief overview of the purpose of the gravel skimming. He said that sediment volume has increased in the center area and low flow channel that lies along the right bank, and this has pushed the low-flow channel against the bank. The right bank is currently eroding at the base. Kevin Schwartz asked if CEMEX/Cunningham Engineering had analyzed the volume of material that has accumulated between the time the channel had been away from the banks versus the time the channel has moved against and been eroding the bank. Kevin suggested that doing a volumetric comparison could answer the question as to how much material needs to be removed/moved. Mark Hirzy mentioned that the bank stabilization, construction, and gravel skimming are planned only for CEMEX's property. Kevin raised the point, however, that according to earlier discussion, the low-flow channel has moved back and forth and across property lines and will continue to do so.

Kevin Schwartz commented that the mid-channel gravel bars that influence the position of the low flow channel cross property lines, and that coordination with adjacent landowners will be necessary. Steve Greenfield from Cunningham Engineering assured the group that someone would go over the planned changes with the local landowners. Steve also stated some concerns about not wanting to "over engineer" the Creek. He said that the proposed

plans try to avoid over-engineering. Erik Ringelberg suggested that Eric Larsen, the County, Cunningham Engineering, and CEMEX coordinate and further refine the details of the amount of skimming, but that it wasn't necessary to continue that discussion at the TAC meeting. Tim Horner said that he would like to see more analysis to justify gravel skimming and the amount of gravel skimmed.

The below items were discussed as necessary follow-up to the above discussion:

10. Do a volumetric comparison of material that has aggraded around the CEMEX levee to have an objective measure of the amount of material that needs to be removed/moved in-channel using the County In-channel Maintenance Mining Ordinance (ICMMO). Kevin mentioned that gravel companies make volumetric comparisons from year to year on an annual basis for the Annual Compliance Review of the gravel mining operations. These comparisons are done using aerial photography and DTMs the County has provided the companies. This analysis will provide better justification for the gravel skimming proposed in the plan and will provide a more scientific basis for the plans.
11. While a list of adjacent landowners was provided, the plan does not currently mention coordination or notification of local landowners and the plan doesn't include construction across property lines. It is absolutely essential that coordination with the local landowners be initiated immediately. CEMEX must ensure that the County receives cc's on any communications and/or is given regular updates on these communications.

### **Construction Plan**

Tim Horner summarized his comments, as outlined in a letter to Yolo County dated April 20, 2009. These comments refer to the CEMEX plan and the letter is attached herein. Tim raised several questions about the proposed bank protection at Site F, and asked why CEMEX hadn't proposed the same bank stabilization technique at all three sites. Mark Hirzy from CEMEX answered that CEMEX doesn't have enough logs to use the same stabilization method at all sites. Site F was also treated differently because there are more erosion issues. Marc Mammola from CEMEX mentioned that there is no economic benefit for gravel skimming and that they had incorporated gravel skimming into the design based on the TAC's recommendations in the *2008 Creek Walk Summary*. Kent Reeves also mentioned that the ICMMO is not to be used for economic benefit. The TAC discussed whether gravel skimming would be effective downstream from I-505 where the Creek widens, slows down, and starts to deposit gravel. Kevin mentioned that gravel skimming would also alleviate pressure on the right bank at Sites D and E. Tim emphasized again that he would like to see more numbers and analysis to justify gravel skimming and the amount of gravel skimming.

Brian Foster mentioned that they incorporated gravel skimming due to the County's recommendations. While the design is increasing the volume of the Creek by putting in the spur dikes, the gravel skimming will take out the volume that will be filled by the spur dikes. Tim would like to see these justifications spelled out in the project and HEC-RAS summaries. He also mentioned that analysis is needed to see how the spur dikes would affect flows and the meander of the creek and the adjacent property owners.

Joe Muller mentioned that historically, keeping areas of the channel "clean" has been used

as justification to remove excess sediment or vegetation. While he doesn't encourage the "sterilization" of the Creek, this is something to consider at the I-505 Bridge. He also mentioned that when considering the construction of the spur dikes and bank stabilization areas, effort should be made not to use unsightly concrete that might also contain rebar. Kevin mentioned that there was discussion in the 2008 Creek Walk Summary regarding the use of concrete in the Creek and that the TAC and the County has emphasized the use of natural materials and bioengineering to supplant the use of concrete in Cache Creek.

The question was raised as to why Cunningham Engineering angled their spur dikes downstream. Mark Cocke has seen in recent NRCS research that spur dikes are most efficient at directing flow and trapping sediment when they are angled either upstream or at 90 degrees to the flow. Current plans have spur dikes angled downstream to direct flow toward the channel centerline and relieve the energy on the bank. Both Mark and Ha Truong from NRCS encouraged constructing the spur dikes so that they were angled at 90 degrees or slightly upstream to the flow. Ha mentioned that this design will encourage sedimentation and vegetation to accumulate behind the spur dikes. Mark mentioned that the barbed part of the spur dike should be modeled to withstand a 1.67 year event and should be straight rather than hooked in a downstream direction. Erik Ringelberg mentioned that as long as "sacrificial material" was being pushed up against the spur dikes from in-channel materials he felt the spur dikes could increase habitat complexity causing fish holes and that with time vegetation would move in to further stabilize the area.

The below items were discussed as necessary follow-up to the above discussion:

12. Justifications for spur dike construction clarified in the project and HEC-RAS summaries.
13. Analysis to see how the spur dikes would affect flows and the meander of the creek and the adjacent property owners.
14. Discussion of how the design will reflect the use of natural materials and bioengineering. The design will be prohibited from using concrete for stabilization on visible faces or as core material in areas that could be easily eroded and expose the concrete.
15. Construction documents that show that the new spur dike design.

#### **4.2 Storm Water Pollution Prevention Plan**

Erik Ringelberg's comments: Erik asked Cunningham Engineering and CEMEX whether they were tiering off the County's Regional Water Quality Control Board (RWQCB) 401 permit. Brian Foster stated they were, and had already sent the RWQCB notification. Erik asked for a cross-reference in the Storm Water Pollution Prevention Program (SWPPP) Best Management Practices (BMP) to show that they were compliant with the County's 401 permit. Erik Ringelberg mentioned that the stream is not 303 delisted for sediment, but is 303 delisted for Hg which is carried largely by sediment. He stated the plan mentions monitoring and sampling, but that it doesn't mention the specific monitoring needed. Erik asked if they are sampling for methyl-mercury or for sediment; if they are sampling for methyl-mercury the sampling mentioned isn't appropriate, according to Erik. Erik mentioned that the sampling needs to take into account Hg *and* sediment. Max Stevenson, YCFCWCD, mentioned that the Cache Creek Stakeholders Group was involved in setting the Hg TMDL monitoring for Cache Creek, and that monitoring

turbidity would be sufficient for Hg TMDL monitoring according to the 401 permit. Erik and Mark mentioned that they could leave the diversion channel or new low flow channel in place through the winter and into the following spring time to comply with BMPs for Hg. Erik said that he would like the BMPs laid out more clearly by Cunningham Engineering and CEMEX so that they will show how they meet the needs of the County in terms of complying with the 401 and 404 permits.

Erik also said that the Erosion Control Management & Monitoring Plan needs to be updated to include a watering plan with a water truck and/or sprinklers. The details of the monitoring plan also need to be described. A detailed planting plan needs to be included for each erosion area as well as plans for the exact areas where erosion control will be performed. Estimates of numbers of plants planted and percent cover of vegetation need to be recorded and monitored from year to year. A template should be established in order to accommodate possible erosion areas in the future.

Joe Muller said that Teichert has had excellent success in getting vegetation established by digging 4-5 ft deep holes behind the spur dikes and along the stream bank. These holes expose native tree seeds which germinate and grow quickly as the holes are dug below the water level elevation. Erik mentioned that this probably won't work for Cottonwoods, but that this is a good idea for in-channel vegetation establishment. Eric was more concerned about the upland higher bank stabilization areas and their water management, because these are the areas where CEMEX needs to deal with erosion control issues. The most serious problems are at the conveyor belt transfer points. Tim Horner had questions as to whether deeper excavation would be prevented by requirements in the CCRMP that prohibit excavation within a few feet of the water table. Kevin mentioned that the Cache Creek Improvement Program's (CCIP) guidelines revoked the theoretical thalweg concept<sup>1, 2</sup>.

The below items were discussed as necessary follow-up to the above discussion:

16. A cross-reference in the Storm Water Pollution Prevention Program (SWPPP) Best Management Practices (BMP) to show that CEMEX will be compliant with the County's 401 permit. Specific monitoring and methods need to be detailed (e.g. are they sampling for TDS, turbidity, methyl-mercury or for sediment?).
17. The BMPs more clearly laid out and described how they will meet the needs of the County in terms of complying with the 401 and 404 permits.
18. The Erosion Control Management & Monitoring Plan needs to be updated to include the watering plan, details of the planting plan, and details of the monitoring plan (e.g. what is being planted, when are they being planted, what density, expected cover and numbers, timeline for monitoring and planting, etc.)
19. Joe Muller's ideas for vegetation establishment are well worth consideration. Any construction using this method needs to be detailed in the construction plans and SWPPP.

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<sup>1</sup> Pg 22. "Excavation is not permitted by templates below a levee six feet above the thalweg elevation, except where the build-up of aggregate material would reduce channel capacity to below the 100-year flood capacity. Adjustments to the recommended cross-section templates may be necessary to permit aggregate removal under these circumstances.

<sup>2</sup> Pg 27. "Revoke the theoretical thalweg concept and 1979 mining boundary. Use management targets for channel characteristics listed in Table 9."

**4.3 California Department of Fish and Game (DFG) Streambed Alteration Agreement application**

This was not reviewed during the meeting.

**4.4 404 or General (58) Permit application**

This was not reviewed during the meeting.

**4.5 County Flood Hazard Development Permit (FHDP) application**

Steve Greenfield from Cunningham Engineering wanted clarification as to whether CEMEX had completed the requirement for I-505 coordination with Caltrans, as required in the recent Notice Of Violation (NOV). Previously, CEMEX hadn't recognized that scour holes under the bridge were related to CEMEX's activity, and hadn't coordinated with Caltrans as necessary. Erik mentioned that for this scale of project, there may be potential to destabilize the bridge. The project documents do not state "there is no potential for destabilization of the bridge", and could leave questions about liability if the bridge failed. Data need to be shown and an argument needs to be made as to why the proposed Creek work will have no affect on the bridge. Yolo County must also be informed about communication with Caltrans.

The below items were discussed as necessary follow-up to the above discussion:

20. CEMEX still is required to coordinate with Caltrans and evidence of this coordination needs to be presented to the County. Any action items related to this discussion need to be discussed and approved by the County in agreement with CEMEX and Caltrans.

Discussion on the planned gravel skimming and bank stabilization stopped at approximately 12:00.

**6. ADJOURNMENT:**

The meeting was adjourned at approximately 12:00pm.

Respectfully submitted by,

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