



Clear Creek Progress Meeting

**August 2, 2007
10:00 AM
UD&FCD Board Room**

Meeting called by: ICON/UDFCD **Facilitator:** Craig Jacobson
Note taker: Craig Jacobson/Souzanna Vang

Invited Attendees: See Attached Sign-in Sheet

Agenda

Item:	Presented By:	Time:
1. Introduction	Ben Urbonas	2 minutes
2. Review Changes to – Adams County Reaches	ICON	15 minutes
3. Jefferson County Preliminary Design	ICON	45 Minutes
3a. Plan & Profile Sheets		
3b. Property Acquisition		
3c. Cost Estimates		
4. Coordination Areas	ICON	10 minutes
4a. Cabelas/SH58/I70		
4b. Coors		
5. Remaining Areas	ICON	10 minutes
5a. Ford Street / Golden		
6. Draft Phase B Submittal	ICON	5 minutes

Action Items

Item:	Person Res ponsible:	Due Date:

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- Meeting agendas and a sign in sheet were distributed.
- Craig began the meeting with a brief discussion on what was presented at the previous meeting and the purpose of this meeting. Craig mentioned that the last meeting covered the preliminary design for the Adams County areas. The main purpose of this meeting was to review the preliminary design for the Jefferson County areas. Craig acknowledged that there were questions on some of the areas in the Adams County (mainly the North Overflow) and Craig planned on spending around 10 to 15 minutes reviewing the questions and changes.
- Craig presented the changes to the North Overflow Channel plan and profile sheets. Craig mentioned that the elevations of the sanitary sewer interceptor lines had been refined and controlled the elevation of the channel. The channel was typically 6-feet deep at the downstream end of the overflow path with around a 300-foot right-of-way for the channel and maintenance path.
- It was asked how the North Overflow Improvements would tie into the main channel. Craig presented the plan & profile sheets upstream of the Union Pacific Railroad. At this location the channel invert along Clear Creek would be lowered and a drop structure would be constructed. Craig pointed out that these improvements were necessary to fix the flooding problems at Federal Boulevard.
- It was asked about why the channel right-of-way had increased over previous reports for the area. Craig explained that the Clear Creek split flows (North Overflow) had been re-analyzed with recent reports for the UDFCD. Even though the overall 100-year discharge had not been changed, new engineering analysis indicated the distribution of flows between the main channel and North Overflow was significantly different. The new discharge reported for the North Overflow was over 10,500-cfs and nearly double the previously reported discharge.
- The proposed bridge at Lowell Boulevard, along the North Overflow Reach was discussed. Craig mentioned that the opening would be around 150 feet. Jack Calabrese asked if the bridge needed to be changed and Craig responded that there was no bridge there before and that this was a new bridge.
- Along the Highland Hills property reach, Craig mentioned that the proposed channel profile was modified so that the water storage pond elevations remained unchanged. Craig also pointed out that pertinent elevations adjacent to the

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proposed channel were identified to maintain enough channel capacity as the park develops. Craig also mentioned that a sanitary sewer line (City of Arvada) was identified just upstream of the proposed North Overflow channel crossing at Tennyson Street. As a result, the bridge size and channel profile was modified since the sanitary sewer is very shallow and would not be able to be relocated. Craig said that the revised Tennyson Street Bridge was changed to 220-foot wide, from 150-foot previously.

- Craig discussed the overflow from the main channel to the North Overflow, downstream of Sheridan Boulevard, and indicated riprap protection will be identified for the overflow location on the plan and profile sheets. It was asked if a levee had been considered to contain the flows to the main channel and eliminate the need for the North Overflow. Craig explained that UDFCD's and FEMA's current policies do not support new levee construction and was eliminated from consideration early on in the project. Additionally, flooding problems exist along the main channel downstream and containing all of the water to them main channel would make the flood problems worse.
- Jack Calabrese asks what the process was for plan approvals. Ken MacKenzie explained that this was a master plan design and that the projects are prioritized by the local jurisdictions based on benefits and funding. The current status of the FEMA Flood Insurance Rate Map (FIRM) was discussed in that the current Flood Hazard Area Delineation (FHAD) study was on the FEMA maps. It was asked if copies of the draft plan & profile sheets could be made available. Ben Urbonas requested that Craig provide Jessica Stevens with "DRAFT" copies of the North Overflow maps.
- Craig mentioned that the preliminary design for the areas in Jefferson County were about 75% to 80% complete.
- At the West 52nd Avenue Bridge, a small amount of excavation was required downstream to reduce the tailwater at the bridge and eliminate overtopping during the 100-year event. Craig also mentioned that due to the proximity of the sanitary sewer interceptor lines, he couldn't move the bridge abutments further to the north and moving to the south would run into properties. The bridge ended up with an opening with of 185-feet. Craig said that the bridge itself was not very tall, around 13-foot and the proposed trail underpass would likely require a flood wall to keep low flows off of the trail.

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- Craig discussed the drop structure retro-fits at Marshall Street and upstream of Wadsworth Boulevard.
- Downstream of 47th Avenue, bank erosion areas were identified and called out with riprap protection.
- Downstream of West 44th Avenue, a drop structure retro-fit was identified to protect the sanitary sewer lines in the area. The bridge at West 44th Avenue was proposed to be replaced with a 240-foot bridge opening. Craig identified the areas where the floodplain would be reduced due to the bridge improvements. Craig also noted there would be significant utilities to address in the area, including the possible relocation of an 8" sanitary sewer line.
- Craig discussed the channelization area upstream of 44th Avenue. He discussed that the channel is proposed to have a variable sloped bench and low flow to keep base flows in Clear Creek. He said that there would be a significant environmental impact, as the channel quite wide and the overflow is over 6-feet deep.
- The Moffit Drain Line Settling Ponds area was discussed. Craig pointed out that the pond embankments were significantly higher in elevation than the pond water elevations. The embankments greatly restrict the 100-year flows and result in local flooding. Lowering the pond embankments will significantly reduce the 100-year floodplain elevations. Steve Nguyen asked if Denver Water had been contacted regarding the feasibility of the plan. Craig said that they had not. Ken MacKenzie requested that Craig send him a PDF of the sheet and he would contact Denver water.
- The Kipling Street Area was discussed. Craig mentioned that without levee improvements, significant channelization was required on both the upstream and downstream side of the bridge. However, the property upstream of the bridge was City of Wheat Ridge open space. The bridge opening was estimated to be around 280-foot wide. Given the shallow depth of the bridge below the proposed low chord, the proposed pedestrian bridge would need to be constructed below grade with a flood wall to protect the trail during low flow conditions. A large drop structure would also be needed to tie the channel improvements back into the main channel.

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- The proposed overflow at Tabor Lake was discussed and included a proposed bolder overflow and pedestrian bridge at the existing trail crossing. Ken suggested using a concrete “Texas” crossing instead of the pedestrian bridge.
- Upstream of I-70, Craig mentioned that he had been coordinating with Felsburg Holt and Martin & Martin regarding the proposed changes associated with the Cabelas development and I-70. Craig mentioned that the I-70 interchange improvements did not appear to impact the master plan. However, Martin & Martin did identify a proposed bridge crossing to access the Cabela’s site. This bridge has been shown on the plan and profile sheets. Two large drop structures were also identified to protect the Denver Water raw water conduits. Ben Urbonas mentioned that since there was an existing drop at that location and it was on Coors’ property for the protection of Denver Water Utilities, it was not necessary to propose new drops in the Master plan. Craig also explained that re-grading of the channel had been proposed to eliminate the floodplain problems around the existing pedestrian bridge. Ben said that since fill could be placed as the site develops, the master plan should just identify a fill elevation level and not improvements along the channel.
- Craig identified improvements to the Coors railroad bridge where the limited capacity results in a split flow. Craig explained how the railroad bridge could be extended to eliminate the split flow. The opening width perpendicular to flow would be increased to around 110-feet (60-feet extension). Ben suggests that Craig show it as a concept as it is on Coors’ property and lengthening the bridge versus rebuilding it may not be feasible. Craig then asked if he should show as a cost for the recommendation. Ben said to show a cost.
- At the Coors/Golden wastewater treatment plant, Craig discussed the proposed floodwall alternative. The master pan indicated the top of the wall a minimum of one-foot above the proposed 100-year profile elevation.
- The Ford Street Bridge area was discussed in Golden. Craig mentioned that he had had some discussions with Chris Pauley at Anderson Consulting Engineers but had not seen the report that they submitted to the City of Golden. Vince Auriemma discussed what the City had found regarding the alternatives for the area. He mentioned that they looked at several alternatives to lower the tailwater including: lowering areas in the left overbank between the pedestrian bridge and Tucker Gulch, lowering the diversion crest of the Coors cooling water diversion, extending the pedestrian bridge or adding a pier to increase the span, and returning the invert of the channel to what it used to be below Ford Street Bridge.

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Vince stated that even though none of the alternatives appeared to work independently, combined they were effective in eliminating overtopping of the Ford Street bridge. It was requested that Vince copy ICON and UDFCD on the results of the analysis so that they can be incorporated into the Phase B report.

- Ben Urbonas asked if it had been determined whether the inflatable dam was up or down during ICON's survey. Craig mentioned that ICON believed it was down based on what was discussed at the time of the survey. However, subsequent discussions indicated that it may have been up at the time of the survey based on Ken Vaught's description as to how low the dam could actually be lowered. Ben mentioned that since the dam required manual deflation, it was appropriate to consider a raised dam for an analysis such as the FHAD. However, the recommended alternative for the Phase B report should consider an automated mechanism to lower the dam during high water. Ben also requested that the dam crest elevations be verified. Craig mentioned that he would coordinate an elevation check with Ken.
- Craig closed the meeting and mentioned that ICON hoped to have the DRAFT Phase B report completed in a month, or so, depending on when all of the information became available for Ford Street and Denver Water. The next meeting will be set after review of the Draft report.

ACTION ITEMS:

- Ken MacKenzie will discuss the settling pond improvements with Denver Water. Craig will provide Ken with drawings.
- Craig will provide Jessica DRAFT copies of the North Overflow plan & profile sheets.
- Craig will work with Ken Vaught to verify inflatable dam elevations
- Vince Auriemma will provide ICON and UDFCD with the plan for improvements at Ford Street Bridge.

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- END OF MEETING--

To the best of my knowledge, these minutes are a factual account of the business conducted, the discussions that took place, and the decisions that were reached at the subject meeting. Please direct any exceptions to these minutes in writing to the undersigned within ten (10) days of the issue date appearing herein. Failure to do so will constitute acceptance of these minutes as statements of fact in which you concur.



Minutes prepared by:

Craig D. Jacobson, P.E.
ICON Engineering, Inc.

8-8-07
Date

