

FLOOD REVIEW BOARD

Date: December 15, 2022

Time: 8:30 AM, MST

Location: Lake Loveland Conference Room, 2nd Floor, 200 W Oak St., Fort Collins, and Zoom meeting

Contact: Tina Kurtz, Larimer County Engineering Department

MEETING MINUTES

Staff Present: Tina Kurtz, Caryn Nezat, Traci Shambo, Devin Traff

Staff Online: Jake Wilson

Board Members Present: John Hunt, Dr. Chris Thornton, Elisabeth Ervin-Blankenheim, Mike Oberlander, Chad Morris, Chris Carlson, Jamis Darrow

Board Members Online: None

Call to Order: Dr. Thornton opened the meeting at 8:32 a.m., MST

Introductions

Item #1:

Northern Colorado Water Association – Replacement water line under Boxelder Creek - Floodplain Project Review

Applicants Present: Josh Cook, NOCO Engineering Company; Joe Huffaker, Northern Colorado Water Association

Ms. Kurtz introduced the project to the Flood Review Board (FRB) and stated that this is a Floodplain Project Review for a replacement water line under Boxelder Creek in a Best Available Zone AE (Floodway) Floodplain Zone. The applicable Larimer County Land Use Code (LCLUC) for the Floodplain Special Review is LCLUC 12.1.6.H. The purpose of this replacement water line is an emergency repair of approximately 300 linear feet of a broken 2-inch water line. The depth of the repaired line is approximately 13.75 feet below Boxelder Creek. This was done with horizontal boring, all of which was returned to grade.

Mr. Cook described that the project was an emergency repair to restore service. It was a directional bore in private easements under Boxelder Creek. All work was done in 2-3 days. The project area was returned to grade after the work was done. The bore pits were outside the floodplain boundaries.



Motion:

Mr. Hunt motioned to recommend approval of the Floodplain Project Review for a replacement water line under Boxelder Creek to the County Engineer.

Mr. Carlson seconded the motion.

Further Discussion:

None

Vote:

Mr. Hunt – Yes

Dr. Thornton – Yes

Mr. Morris – Yes

Ms. Ervin-Blankenheim – Yes

Mr. Oberlander – Yes

Mr. Carlson – Yes

Mr. Darrow – Yes

Motion passed 7-0.

Item #2:

Larimer County Engineering – Improvements to County Road 70 and County Road 9 – Floodplain Project Review

Applicants Present: Dusty Robinson, Ayres Associates; Devin Traff, Jake Wilson, Larimer County Engineering Department

Ms. Kurtz introduced the project to the Flood Review Board (FRB) and stated that this is a Floodplain Project Review for improvements to County Road 70 and County Road 9, including a new bridge on CR 70 over Boxelder Creek, a replacement culvert at Boxelder Creek under CR 9 and a replacement local drainage culvert under CR 9. This is in the Boxelder Creek Zone A floodplain. The applicable Larimer County Land Use Code (LCLUC) for the Floodplain Special Review is LCLUC 12.1.6.H.

Ms. Kurtz states that the consultants created a 2-D model of the area due to multiple split-flow locations and multiple culverts at different angles. The project will remove flow from the area west of CR 9 and removes overtopping on both CR 9 and CR 70. This project will result in a rise of the water surface elevation (WSEL) of greater than a 0.3' and a decrease in the WSEL of greater than 0.3'. This condition will require a Letter of Map Revision (LOMR).

Mr. Robinson continued the introduction by stating that the reason for the resubmittal is that they wanted to pursue the Flood Review Board's suggestion from the prior Board meeting in June 2022, that the design engineering team should investigate the hydrology model used for a recent study done in this area. When pursuing the suggestion, they found that the recent study developed hydrology that shows



this area to have a 100-year flow rate of 220 cubic feet per second (CFS) higher than the flow rate they had originally used. The team reevaluated their design with the updated flow rate of 220 CFS higher than the previous flow and found that the design no longer performed as they intended and that a larger crossing under County Road 9 would be required. County Engineering performed a cost benefit analysis on upsizing the crossing at County Road 9. Based on the cost analysis, the team chose to redesign the crossing near the roundabout and upsize the northern bridge under CR 9, which will eliminate the split flow on the west side of CR 9 and convey all flows to the east side of CR 9. With the flows now being conveyed on the east side of CR 9, the original design of the crossing under CR 70 should suffice based on the small amount of drainage it will pick up with the newly proposed changes.

Mr. Robinson discussed the floodplain regulatory aspect of the floodplain map changes and clarified that the floodplain is changing from a wide Zone A floodplain to a floodplain limit that contains the flows in the main channel, substantially narrowing the floodplain. He pointed out that there is a natural berm along the reach, next to the south side of the channel where the split flow is occurring along CR 9. In anticipation that FEMA will want to see how the design performs without this berm, they analyzed the “no berm” scenario as well and found that the design still can convey all the design flows and there will still not create a split flow. The submittal of the future LOMR will include this berm analysis & discussion. Lastly, he pointed out that, although the project does cause rise in channel by up to 0.5’ because they are taking a split flow and consolidating flows in the main flow path, the design is substantially reducing the overall extents of the Zone A floodplain limits and will ultimately improve the floodplain limits on several private properties. It was noted that, because this model is detailing an approximate Zone A model, the Colorado Water Conservation Board (CWCB) confirmed that they would not require a CLOMR and would support only submitting a LOMR at the end of the project.

Mr. Carlson asked if they addressed the erosion & stability. Mr. Robinson answered that the design team analyzed the scour calculations for both bridges and is comfortable with the design being sustainable. He noted that the northern bridge has higher velocity because there is a little more contraction at this location due to the channel being a little wider. He confirmed that the riprap they have designed does not go as deep as the scour depth but their design accounts for maximum scour.

Dr. Thornton, referred to Figure 13 in the report and noted that it shows a high velocity at the CR 9 crossing at 5.9 FPS and a velocity of 6 FPS at CR 70 crossing. Mr. Robinson responded to the high velocity concern that the high velocity segments are within the bridge and that the “hot spots” are away from the abutments, and he therefore does not have a concern. He noted that the combination of the main channel, the berm noted above, and the presence of high ground related to an existing access road in the area, all create a pinch point for flows and is a natural constriction that is causing the higher velocity just before the bridge. They noted that they do expect erosion upstream of the bridge at this constriction, but they find that the erosion impacts are not expected to make it downstream to the bridge.

Mr. Oberlander asked for clarification if the County is designing the width of the northern bridge under CR 9 for the ultimate width of the road section and asked if the width should be increased to account for a wider road in the future, such as a 4-lane roadway. Mr. Wilson stated that the intent of the design at this time is to improve road safety by adding widened shoulders in anticipation of increased truck traffic



because of the new County landfill site. In looking at the County 2030 transportation master plan, it is not showing a need for additional lanes.

Mr. Darrow asked how far they traced the changes downstream and if they noted impacts to floodplain limits downstream on properties because of taking water from the west side of CR 9 and conveying all flows on the east side of CR 9. Mr. Robinson answered by showing an exhibit from their report that indicates by color shading the flow areas being removed and flow areas being added and pointed out that at the southern boundary of their study, they are showing that the flow change is very close to being back to existing condition and any change is negligible.

Mr. Morris asked if the LOMR will be in a 1-D or 2-D model. Mr. Robinson answered that likely they will perform the study using a 1-D model and find that this will be acceptable and accurate enough for this situation. Mr. Traff pointed out that FEMA accepts tie-ins up to a 0.5' threshold. Mr. Hunt, said that at the downstream end of the study, he noted that the comparison of water surface elevations is less than 0.2' difference.

Mr. Morris asked if the water surface elevations at cross sections are the contour cross section lines? Mr. Robinson confirmed that is a standard practice to use the contour lines to delineate cross-sections in a 2D model. Mr. Robinson answered that it is standard practice with 2-D modeling to use the same method they use with 1-D modeling, which is cross-section averaged water surface elevation.

Mr. Darrow asked Mr. Robinson if he is expecting similar results as their current 2-D model when they model it again using 1-D methods as part of the LOMR effort. Mr. Robinson answered that they expect close to same results as the 2-D model when they run the 1-D model.

Mr. Morris asked why there is not a Conditional Letter of Map Revision (CLOMR) being required by CWCB or FEMA. There was coordination with CWCB and FEMA on the need for a CLOMR and they indicated that a CLOMR was not needed for this project.

Mr. Hunt points out that LOMR's usually require a whole series of models and is wondering if the design team thinks they might run into complications where there is no effective model now. Mr. Robinson said that since there is no effective map, the series of maps are not needed, and they will model and map the result that will become the effective detailed final floodplain map.

Motion:

Mr. Oberlander motioned to approve the Larimer County Engineering improvements to CR 70 and CR 9 Floodplain Project Review to the County Engineer.

Ms. Ervin-Blankenheim seconded the motion.

Further Discussion:

None



Vote:

Mr. Hunt – Abstain
Dr. Thornton – Yes
Mr. Morris – Yes
Ms. Ervin-Blankenheim – Yes
Mr. Oberlander – Yes
Mr. Carlson – Yes
Mr. Darrow – Yes

Motion passed 6-0, with 1 abstentions.

Item #3:

Approve Minutes from the Board meeting on November 21, 2022.

Motion:

Mr. Carlson motioned to approve the November 21, 2022, Board minutes.

Mr. Morris seconded the motion.

Further Discussion:

None

Vote:

Mr. Hunt – Yes
Dr. Thornton – Abstain
Mr. Morris – Yes
Mr. Oberlander – Yes
Ms. Ervin-Blankenheim – Abstain
Mr. Carlson – Yes
Mr. Darrow – Abstain

Motion passed 4-0 with 3 abstentions.

Other items:

- Discussed January agenda:
 - Three short-term rentals (STRs) in Fawn Valley
 - Board asked if Ms. Kurtz could send the minutes from the meeting where previous STRs at Fawn Valley were discussed
 - Barleen Deck resubmittal
 - Issues are the constructability issues related to the vertical wall
 - Stream Stabilization
 - Potentially Deer Path Street culvert on Buckhorn Creek, which is just upstream of Wildsong Road which the Board reviewed at the November meeting



Meeting adjourned at 9:10 a.m., MST.