

FLOOD REVIEW BOARD

Date: November 20, 2019

Time: 8:30 a.m., MST

Location: Watson Lake Room, 3rd Floor, 200 West Oak St., Fort Collins, CO

Contact: Devin Traff, Larimer County Engineering Department

MEETING MINUTES

Staff Present: Devin Traff, Tina Kurtz

Board Members: Chris Thornton, Chris Carlson, John Hunt, Greg Koch, Mike Oberlander (via phone)

Public Members: Brian Varrella, Jake Maybach, Dave Pizzi, Lyle Zevenbergen, Brendan Carroll, Nathan Corbin

Mr. Koch opened the meeting at 8:32 a.m., MST

Mr. Traff introduced the project. The applicant, Joint Venture (CDOT-Kramer IHC), is requesting review and comment by the Flood Review Board of a no-rise analysis for the I-25 Bridge Improvements Project over the Big Thompson River.

Mr. Maybach, the project engineer, described the project. It was evident after the 2013 Flood that the bridge was undersized. New hydrology for this area resulted in a larger discharge, showing that a larger bridge is needed to pass the 1% Annual Chance Flood. The Thompson River Ranch Letter of Map Revision (LOMR) was used as the basis for the project model. A two-dimensional model was used to inform the one-dimensional model of the three proposed crossings (two on I-25 and one on the Frontage Road), which resulted in a no-rise condition. Mr. Varrella noted that the overall purpose of the I-25 project is to improve safety, mobility, and operational stability of the corridor.

Mr. Traff noted that the applicant will be required to submit grading plans for the unincorporated portion of the project southeast of the bridges to the County.

Mr. Carlson reviewed the City of Loveland comments on the project, as stated below, which the Board subsequently discussed with the applicants:



1. Section 5.2.3 about the proposed conditions hydraulic analysis and Section 6.2.5 about mitigation measures states that the bike trail was not included in the design or analysis. A 14-foot wide bench was included in the grading plan that will be armored with the 12-inch d50 riprap as abutment protection. It is my understanding going back to meetings in spring 2019 then to the agreed upon ROM from June 2019 that the concrete bike trail would be constructed within CDOT's right-of-way limits at the same time as the bridge construction by the JV. The City of Loveland would be paying for the trail. Not constructing the trail now puts the onus on the City to complete an additional hydraulic analysis for No Rise Certification, its own Floodplain Development Permit, new CDOT permitting, removal of the proposed riprap as currently shown in order to construct the paved trail at a later date, and potential revision of the abutment protection design. That is costly and not to anyone's benefit. Please revise the analysis, design, and report to include the paved trail.

During discussion on these items, the applicants said they are in negotiations for a trail under the bridge, but it is currently modeled as a rip-rap bench. Mr. Carlson said they will need a permit addendum for the future trail.

2. The report references the regraded/realigned ranch road on the east side of I-25 and its importance to achieving a No Rise result. A note on the grading plans says, "See Access Rd. Plan and Profile for Grading"; however, grading for the ranch road was not included. Please submit grading plans for the ranch road and documentation that easements have been obtained (temporary construction or permanent) for the required grading work outside of the right-of-way.

During discussion on these items, the applicants said they are expecting easement documentation and will be submitting grading plans for Ranch Road.

3. Section 6.2.1 states that channel velocities will increase under the proposed conditions but it does not say by how much. The bridge has abutment protection but not channel protection. Please provide documentation within the report showing the change in velocities and demonstrate that the channel will be stable under the increased velocities. If there's an increased risk of instability, please include appropriate mitigation designs to address the higher velocities and shear stresses.

During discussion on these items, the applicants said that there is backwater upstream of the existing bridge, most of which will be removed with the project. They used a 10-year event to model velocity and found that the proposed channel velocity is basically in the same range as the existing velocity, so there should not be erosion upstream. The proposed erosion protection would be for a greater than 10-year event. The project would drop the water surface three feet, decreasing velocity upstream of the bridge.

4. Section 6.2.5.2 states that permanent erosion protection will be designed at a later date to protect the regraded ranch road in a way that meets landowner and environmental approval. Given the importance of the ranch road grading to the No Rise Certification, please include the design of this erosion protection within the report. If the ranch road were to erode or be modified by the private landowner in the future, how would that impact the bridges or the ability to maintain a no rise condition?



During discussion on these items, the applicants said they have met with landowners several times about the project and are now in the process of getting temporary and permanent easements. They said the landowners are happy with the project. The applicants also mentioned that they will provide additional information on plantings in the revised report.

5. The report states that abutment protection was designed using HEC-23 and found to require a riprap D50 of 18 inches. However, the bridge plans show 12-inch D50 on the left bank abutment instead of 18-inch, which was called out for the right bank abutment. Please clarify this between the report text and bridge plans, correct if necessary, and provide the design calculations. Why does one abutment require less protection than the other? Please include documentation and design calculations for all proposed erosion or scour mitigation measures required for this project.

There was a discussion on scour protection for the piers and abutments. The applicant said the most scour would occur on the south side of the I-25 bridges. They will be using 18" rip-rap instead of 12" rip-rap on both the north and south sides of the piers for scour protection.

6. How will the river channel be modified, regraded, or impacted by construction of the bridges? Both the grading and bridge plans indicate that the low flow channel will be narrowed and centered between the bridge piers with benches to each side leading to the abutment slopes. What capacity and recurrence interval discharge is intended to be conveyed within the new low flow channel? What slope is proposed for the banks? How will the banks be vegetated? Do these banks need erosion protection, is vegetation sufficient, or will they be allowed to move? Will the new low flow channel have adequate sediment transport capacity?

During discussion on these items, the applicants said that the bankfull low flow channel is 900 cfs and has a vegetated 4:1 slope. The channel upstream and downstream is stable, so additional erosion protection will not be needed as this is a transition zone. They did not do a sediment transport analysis. Mr. Carlson suggested they document how they determined with the low flow data.

7. Please provide the SRH-2D model and results used to inform the 1-D HEC-RAS model.

Several of the Board members mentioned that the applicant should provide information used to determine impacts to surrounding properties, such as velocity data which could include a velocity contour map of existing and proposed conditions.

Mr. Traff stated that for a condition of the permit will be to provide access agreements for areas where work will be performed outside of CDOT right-of-way and within unincorporated Larimer County. The applicant stated that these agreements will be submitted with the ROW plans. The City of Loveland permit will cover the ROW permit.

Meeting adjourned at 10:04 a.m., MST