LARIMER COUNTY | ENGINEERING DEPARTMENT

P.O. Box 1190, Fort Collins, Colorado 80522-1190, 970.498.5700, Larimer.org

FLOOD REVIEW BOARD

Date: September 28, 2023

Time: 8:30 AM, MDT

Location: Lake Estes Conference Room, 3rd 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, Marin Kasperbauer

Staff Online: None

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

Board Members Online: Travis Rounsaville

Public Online: Nathan Ewert, Town of Wellington

Call to Order: Dr. Thornton opened the meeting at 8:30 a.m., MDT

Introductions

Item 1: Approval of August 24, 2023, Board meeting minutes

Motion:
Mr. Oberlander motioned to approve the August 24, 2023, Board meeting minutes as amended by Mr. Morris.

Mr. Morris seconded the motion.

Further Discussion:
None

Vote:
Mr. Hunt – Yes
Dr. Thornton – Yes
Mr. Morris – Yes
Dr. Ervin-Blankenheim – Abstain
Mr. Oberlander – Yes

Mr. Darrow – Yes
Mr. Rounsaville - Yes

Motion passed [6-0], with 1 abstention.

Item 2: A petition filed by Connie Fredman for a Variance under Section 12.1.6.E of the Larimer County Land Use Code for a variance to the Zone AO elevations for a new accessory structure in the Cache la Poudre FEMA and Best Available Zone AO Floodplain Overlay District at the following location to wit: Section 34, Township 8 North, Range 69 West, Larimer County, CO otherwise known as 1721 North Shields St, Fort Collins, CO

Applicants present: Michael Turner and Michelle Martin, Anderson Consulting Engineers; Connie Fredman, applicant.

Ms. Kurtz introduced the project to the Flood Review Board and stated that this is a Variance request for a variance to the Zone AO elevations for a new accessory structure. The project is located within the Cache la Poudre River FEMA and Best Available Zone AO Floodplain. The applicable Larimer County Land Use Code (LCLUC) for the Variance request is LCLUC 12.1.6.E.

The new accessory structure is currently located within the FEMA and Best Available Zone AO with 2-foot flood depth. A 2-dimensional model of the area around the structure was developed which showed the structure site no longer within the floodplain.

Ms. Martin introduced the project showing a 2-dimensional (2-D) survey taken of the project that was backed with an in-field study. They used a steady state hydrograph along the KOA pond and Ms. Martin showed how the flow is distributed through the property when the Larimer-Weld Canal is assumed full. She explained that there are 1-foot base flood elevations and showed how the pole barn is out of the 100-year floodplain.

Mr. Hunt asked if there are only 100 cfs over Shields Street and if that is the only overflow they are dealing with. Ms. Martin clarified that most of the flow sheds off to the west of the subject site, but there is a little that sheds to the south but it is insignificant when modeling. Mr. Hunt also asked how we could use this study for the floodplain modeling coming into effect. Ms. Nezat explained that this area will be updated with Larimer-Weld Irrigation Company's dam rehabilitation and that project is where they plan to include this study into their anticipated Conditional Letter of Map Revision/Letter of Map Revision floodplain modifications. Mr. Rounsaville asked if Ms. Martin checked the upstream boundary conditions further up than the pond. Mr. Hunt followed up by mentioning that a crossing on Taft Hill Road with a culvert should be setting the flow going into the pond in the upstream studies. Ms. Martin shared that the 2-D modeling did consider the culvert Mr. Hunt mentioned.

Motion:

Mr. Hunt moved to recommend approval of a Zone AO elevation variance for a new accessory structure at 1721 North Shields Street to the County Engineer.

Dr. Ervin-Blankenheim seconded the motion.

Further Discussion:

Vote:
Mr. Hunt – Yes
Dr. Thornton – Yes
Mr. Morris – Yes
Dr. Ervin-Blankenheim – Yes
Mr. Oberlander – Yes
Mr. Darrow – Abstain
Mr. Rounsaville - Yes

Motion passed [6-0], with 1 abstention.

Item 3: A petition filed by the Colorado Department of Transportation for a Map Amendment under Section 12.1.6.G of the Larimer County Land Use Code for a Letter of Map Revision in the Little Thompson River Best Available Zone A Floodplain Overlay District at the following location to wit: Sections 12 and 13, Township 4 North, Range 72 West, Larimer County, CO

Applicants Present: Haley Thomas and Sara Johnson, Muller Engineering; Kalli Wegren and Brian Varella, CDOT

Ms. Kurtz introduced the project to the Flood Review Board and stated that this is a Map Amendment for a Letter of Map Revision (LOMR) in the Little Thompson FEMA Zone AE Floodplain. The applicable Larimer County Land Use Code (LCLUC) Section for a Map Amendment is LCLUC Section 12.1.6.G.

The 2013 flood event damaged Highway 36 and severely eroded the Little Thompson River channel adjacent to the highway southeast of Estes Park. For this project, CDOT installed two new culverts to direct the flow of the Little Thompson under Hwy 36 and into a historic oxbow channel that loops around Muggins Gulch. The pre-project channel will remain as an overflow reach. Highway 36 does not overtop in the modeled flow events due to this project and there are no habitable structures impacted.

CDOT and Muller staff shared background information on the previous road conditions and effects of the 2013 floods. Design began in 2016 for permanent repairs to the road. During the planning, design and construction of the road this area became a FEMA regulatory floodplain. CDOT worked closely with the United States Forest Service (USFS) who owns the land impacted by the project. The project consisted of the installation of two culverts, one that was bored under the roadway, and the other is a three-sided box culvert meant to address aquatic organism passage and small mammal passage. Multiple floodplain permits were issued throughout the process once it became clear the regulatory floodplain would be effective and impacted by the project. Muller Engineering staff discussed the modeling for the project where they used the most updated modeling version. Ms. Thomas shared the realignment through the historical channel where the river was redirected. For topography and surveys

of the area, in the new main reach and the overflow along the roadway, they used both 2013 and 2014 LiDAR to improve quality and minimize noise. The box culvert does have a natural surface bottom and the box size is 14'x10'. The second culvert also has a natural surface bottom. There is a weir modeled in the box culvert to the overflow channel that potentially could spill less than 10 cfs. The 100-year flood event had minimal overtopping which didn't change the floodway and both the top and bottom of the project have a no-rise condition to the entire length of the stream. She also showed the tie-ins for the flood fringe and floodway.

Mr. Hunt asked to see the flow split detail and asked about the optimization used for the upstream weir and if they treated it as a lateral weir. Ms. Thomas confirms that was correct. Mr. Hunt asked about the tunnel and the average blocked elevation. CDOT staff clarified how the natural channel bottom was modeled as a blockage and Manning's n was updated. Game cameras have confirmed wildlife passage, both a deer and mountain lion have been spotted in the passages. There was discussion on the marine life usage and impacts at higher flow events. CDOT staff explained that the natural material was manually labored in and is not expected to stay in higher flow events; nor has a maintenance plan for the material that will be washed out been developed. Ms. Johnson also shared the flow decrease expected on the 100-year flood event and 500-year flood event. Mr. Varella followed with information about the old overflow conditions and how they were not working and how they were unsafe for the public. Mr. Hunt commented on the differences he noticed and thought they were insignificant and he approves of the model.

Motion:
Mr. Oberlander motioned to recommend approval of the CDOT Letter of Map Revision for Highway 36 in the Little Thompson FEMA Zone AE Floodplain Overlay District Map Amendment to the County Engineer.

Mr. Darrow seconded the motion.

Further Discussion:
Dr. Ervin-Blankenheim asked if we could recommend that materials be replaced if a storm comes through. Dr. Thornton clarified that is out of our purview and the Forest Service would have to oversee. CDOT staff commented they will encourage the replacement of the natural materials.

Dr. Ervin-Blankenheim moved to amend the motion to recommend that CDOT Maintenance Force inspects and maintains the natural bottom of the animal passage through the channel after significant flow events.

Mr. Hunt second the amendment.

Vote:
Mr. Hunt – Yes
Dr. Thornton – Yes
Mr. Morris – Yes
Dr. Ervin-Blankenheim – Yes
Mr. Oberlander – Yes

Mr. Darrow – Yes
Mr. Rounsaville - Yes

Motion passed [7-0], with 0 abstentions

Item 4: A petition filed by the Larimer and Weld Irrigation Company for a Floodplain Project Review under Section 12.1.6.H of the Larimer County Land Use Code for a repair of a grade control structure in the Cache la Poudre River FEMA Zone AE (Floodway) Floodplain Overlay District at the following location to wit: Section 34, Township 8 North, Range 68 West, Larimer County, CO

Applicants Present: Matt Clark and Scott Parker, Anderson Consulting Engineers

Ms. Kurtz introduced the project to the Flood Review Board and stated that this is a Floodplain Project Review for repair of a grade control structure in the Cache la Poudre FEMA Zone AE (Floodway). The applicable Larimer County Land Use Code (LCLUC) Section for a Floodplain Project Review is LCLUC Section 12.1.6.H.

This project is for repairing a grade control structure which is part of the Larimer and Weld Irrigation Company diversion structure on the Cache la Poudre River. The grade control structure was damaged in the 2013 flood event. The repair will consist of removing the existing structure and installing a new one in the same place. They will be repairing the dam in the future and this project will be part of the dam repair Conditional Letter of Map Revision/Letter of Map Revision process.

Mr. Clark then presented the design for the grade control structure and explained that it can be done under a no-rise condition. He explained the survey they collected in 2022 showed the dam crest had dropped relative to the effective model. They surveyed with a no-rise and the correct elevations that are to date and showed the floodway is completely in the Larimer County property on both banks. The design considerations included no-rise requirements and a new concrete structure for grade control. They are anticipating new fish passage requirements will tie into both the future dam and the grade control structure wanting to be installed currently. The fish requirements would most likely be a shoot and shows that the shoot could be installed within the workings of the concrete structure. The biggest changes that would be seen are the relaxing of the steepness of the banks and would impact the floodway. This will lead to a Conditional Letter of Map Revision/Letter of Map Revision (CLOMR/LOMR) and hydraulic modeling for both.

Mr. Darrow asked about the purpose of the grade control structures and with the fish passage if it was part of the grade control and the dam. It was clarified that the grade control is to protect the dam and the fish passage would be incorporated into both the grade control structure and the future dam. Mr. Hunt then asked about the riprap around the structure and the dam. Mr. Clark answered that would be in place around everything except the weir. Mr. Hunt also asked for the termination detail on the rip rap downstream and answered that they planned to section out and excavate the concrete gravel in the channel and specified that they will be digging into bedrock during the project. Dr. Thornton asked about the cross section and asked for that to be included. Mr. Hunt also asked for the termination details and that it is reviewed by himself or staff. It was also noted that the river can be swept at this

location so there will also be low flow integration in the future dam and that the cfs will have a very fine control and be used for data collection on the river. This location is also the last place for irrigation discharge before hitting Fort Collins. Dr. Ervin-Blankenheim asked if there is a needed US Army Corps of Engineers permit and answered that the agriculture exemption will not require it since they are allowed to perform maintenance. Mr. Darrow also asked if the banks were being expanded would it still be expected to fall under the no-rise requirements despite the elevation not changing. Mr. Hunt said that it would be fine unless there is a state requirement. Ms. Nezat clarified that the noticeable width increases would be within tolerance. For these reasons it is alright to look in the grade control and readdress it in the LOMR for the dam since it will cover the whole project. Mr. Hunt also added that a LOMR after construction would document all these changes. Mr. Darrow said the state was allowing up to 25 feet and that while it may be subjective to the Board's opinion based on the project and wants to state clear standards among the Board when clarifying overall standards with all projects concerned in these regulations. Ms. Nezat then said this will be reviewed as a prerequisite to the future project LOMR. Mr. Oberlander then agreed the state's map-model agreement includes the 25 feet and Mr. Rounsaville said the encroachments can be changed because no matter what it matches the floodway map model agreement. Mr. Rounsaville also asked Mr. Clark to explain the difference between the 100-year elevations and the elevations not encroached. Mr. Clark stated he cannot because he does not know the history of that data. Mr. Rounsaville showed the difference in the table of 5-6 feet and asked if it'd be revised in the LOMR and wanted to make sure they are correct. Mr. Clark clarified it would most likely be revised in the LOMR and that it is not necessarily a split floodway but maps as such. Mr. Hunt added that FEMA required the most conservative base flood elevations for the channel for previous modeling and that it would not need to be a hang-up for this project.

Motion:
Mr. Oberlander moved to recommend approval of the Larimer and Weld Irrigation Company grade control structure repair in the Cache la Poudre River Zone AE Floodplain Overlay District Floodplain Project Review to the County Engineer with following conditions: 1. That a profile be prepared through the structure and the downstream riprap tie-in and reviewed by staff and 2. The Board understands there is a minor widening width of the banks that will be covered in a future LOMR for a future project in this location.

Mr. Hunt seconded the motion.

Further Discussion:
None

Vote:
Mr. Hunt – Yes
Dr. Thornton – Yes
Mr. Morris – Yes
Dr. Ervin-Blankenheim – Yes
Mr. Oberlander – Yes
Mr. Darrow – Abstain
Mr. Rounsaville - Yes

Motion passed 6-0, with 1 abstentions

Item 5: A petition filed by the Larimer County Engineering Department for a Letter of Map Revision under Section 12.1.6.H of the Larimer County Land Use Code for reconstruction of County Road 47 following the 2013 flood event in the West Fork Little Thompson River FEMA Zone A Floodplain Overlay District at the following location to wit: Section 30, Township 4 North, Range 71 West, Larimer County, CO

Applicants Present: Matt Clark, Anderson Consulting Engineers

Ms. Kurtz introduced the project to the Flood Review Board and stated that this is a Letter of Map Revision for reconstruction of Larimer County Road 47 following the 2013 flood event in the West Fork of the Little Thompson River FEMA Zone A Floodplain. The applicable Larimer County Land Use Code (LCLUC) Section for a Floodplain Project Review is LCLUC Section 12.1.6.G.

Larimer County Road 47 received extensive damage to the roadway and loss of three culverts during the 2013 flood event. Temporary repairs were made after the flood and now permanent repairs have been made. Three new open bottom box culverts were installed, and portions of the roadway were regraded and repaved. The repairs are intended to improve roadway and resiliency. The rises in the 100-year water surface elevations are generally due to elevating the road above the 25-year water surface elevations. There are no adverse impacts to habitable structures due to the project.

Mr. Clark shared a presentation of flood repair project where the 2013 severely damaged the crossings on the road. There is one single private residence downstream of the final culvert. CDOT did a temporary repair to the road. The Colorado Hazard Mapping Project (CHAMP) came through and published an effective floodplain where this project is in a Zone A floodplain. The canyon is relatively narrow and does not back water up. During construction of the three-sided box culverts and elevating the road with aquatic organism passage grading there was hope the project would stay put since it is also installed in bedrock. There are rises compared to CHAMP on the road and headwalls. The only structure in the reach is removed from the flood map. Mr. Darrow asked how high the road was elevated. Mr. Oberlander answered that it went about 3-5 feet up and the conditions are very steep. The rest of the property is owned by the US Forest Service and the right of way is not clearly defined but Forest Service did have staff onsite during construction and agreed with the work. Mr. Rounsaville asked if the road was designed for the 25-year event and protected by riprap. Mr. Clark answered they were not allowed to place riprap along the entire road and while it was originally in the design it was cut before construction.

Motion:
Mr. Darrow moved to recommend approval of the reconstruction of Larimer County Road 47 following the 2013 flood in the West Fork Little Thompson River Zone A Floodplain Overlay District Map Amendment to the County Engineer.

Mr. Rounsaville seconded the motion.

Further Discussion:
None

Vote:
Mr. Hunt – Left before the vote
Dr. Thornton – Yes
Mr. Morris – Yes
Dr. Ervin-Blankenheim – Left before the vote
Mr. Oberlander – Yes
Mr. Darrow – Abstain
Mr. Rounsaville - Yes

Motion passed 4-0, with 1 abstentions

Other items:

- Discussed upcoming agendas

Meeting adjourned at 10:17 a.m., MDT.