

FLOOD REVIEW BOARD

Date: April 30, 2019

Time: 8:30 AM

Location: Larimer County Building (200 W. Oak Street), Jewell Conference Room

Contact: Devin Traff, Larimer County Engineering Department

MEETING MINUTES

Staff Present: Devin Traff, Tina Kurtz

Board Members: Chris Thornton, Chris Carlson, Bets Ervin-Blankenheim (via telephone), Mike Oberlander, Greg Koch, John Hunt

Applicant(s) Present: Brian Varrella (CDOT), Rich Christy (CDOT), Lyle Zevenberger (Tetra Tech), Brendan Carroll (RS&H), Nathan Corban (Kraemer, IHC JV), David Pizzi (Tetra Tech), Michael Brown (Tetra Tech), Heather Paddock (CDOT), George Tsiouvaras (RS&H), Linsey Chalfant (Fort Collins), Craig Jacobsen (ICON), Jaclyn Michaelson (ICON), Heidi Hansen (Fort Collins), Beck Anderson (Fort Collins), Dan Evans (Fort Collins), Chris Olson (Wright Water Engineers), Eric Southard (Xcel Energy), Brian Zick (Boxelder Sanitation), Andrew Waddoups (Burns & McDonnell), Jeremy Wilcox (PVREA), Neil Shaw (Uptown Services)

Mr. Koch opened the meeting at 8:35 A.M

Introductions

Kechter Inundation Area Conditional Letter of Map Revision (CLOMR)

Mr. Traff gave an introduction to the project. The petition is filed on behalf of the Kraemer-IHC Joint Venture to review a Conditional Letter of Map Revision (CLOMR) within the Cache la Poudre floodplain for proposed improvements to I-25 near Kechter Road. The project is proposing tolled express lanes along I-25 between SH 14 and SH 402, and construction within the Kechter Road area is planned for late 2019. The overall driving surface will be lowered from existing conditions and fill material will be added to the existing median to support the new express lanes. No changes are proposed for existing

frontage roads, ramps, bridge piers, or abutments for this portion of the project. A special consideration for this project involves the changes in topography that have occurred in and around the study area since the certified topography which was completed in 1984 and used in the effective Flood Insurance Study and Flood Insurance Rate Map. While the proposed project does not cause a rise in BFEs on insurable structures when compared to the existing condition, there are differences in the topography between the existing and corrected-effective conditions which appear to produce rises on insurable structures at the Island Lake Marine and Sports complex in the southwest quadrant of I-25 and Kechter. The highway has been incorporated by the City of Fort Collins. Therefore, the Flood Review Board is not reviewing this application as a floodplain special review. The Board is only reviewing the proposed increase in base flood elevations within unincorporated Larimer County per Subsection G.4 in Section 4.2.2 the County's Land Use Code.

Mr. Pizzi opened the discussion by providing a timeline for the floodplain mapping and topographic changes that had occurred between 1979 and the present. He described the iterative nature of the design and modeling process which started by comparing the proposed and existing conditions to ensure that no rise was produced by the design and then worked backward to the corrected effective model, at which point the rise (approximately 1.5 feet) between the existing and corrected effective conditions was discovered. Mr. Pizzi worked closely with CDOT to determine changes within the floodplain that are relevant to the rise. In 1987, CDOT performed a concrete overlay project along I-25 that increased the road profile by 0.8 feet. That increase occurred after the effective topography was completed in 1984. In November 2013, the surveyor from the Fort Collins developed more accurate datum conversions between NGVD29 and NAVD88, which also resulted in a 0.2 foot increase. Mr. Pizzi noted that applying that conversion seemed counter to FEMA policy because it is not a flooding source based conversion, but subsequent discussions determined that the more accurate datum conversion should be used and that was documented in the project. In December 2014, CDOT performed an asphalt inlay project which was permitted as a no-rise and thus did not contribute to the rise. Mr. Pizzi noted that while these records account for a substantial portion of the rise, about 0.8 feet have not been accounted for. Mr. Pizzi then opened the discussion for questions.

Mr. Koch asked about the City of Fort Collins involvement in the process. Ms. Hansen replied that the City had provided comments with one of the primary requests being additional information regarding the history on what may have caused the rise. Ms. Hansen noted that some rises are produced on private property within Fort Collins (no insurable structures) but are less significant than that shown in unincorporated Larimer County. Ms. Hansen noted that some technical comments have been made and still needed to be addressed in the modeling as well.

CDOT was asked why I-25 is not being raised to pass the 100-year flood. Ms. Paddock responded that the overtopping of I-25 by the 100-year flood is not being corrected by this project because it is an interim improvement.

Mr. Hunt clarified that the project itself is not causing a rise, but that the rise was discovered as a difference between the existing ground and what is shown in the corrected effective model. Therefore,

the Board is not deciding on whether to allow a rise as a result of the project but to ask whether the Board agrees with the information that is being sent to FEMA. Mr. Hunt noted that the issue of the rise is obscured by the RiskMAP/CHAMP effort, and what will ultimately end up being the effective floodplain mapping for this area will be different from the modeling provided here. Mr. Brown responded that Tetra Tech is coordinating with CHAMP so that the existing conditions model referenced in this study is also now CHAMP's existing conditions model. Mr. Brown noted that the CHAMP model will show the same rise as is shown here and would be an issue that they will handle as well.

Mr. Koch asked which properties would be affected by the rise caused by topographic differences between the existing and corrected effective conditions. Mr. Traff indicated that the Island Lake Marine and Sports structures in the southwest quadrant of I-25 and Kechter are affected by the rise. Mr. Brown added that there is also a small rise (near one hundredth of a foot) in the southeast corner limited to a short distance east of I-25 due to the change in flow distribution, but that does not affect insurable structures. Mr. Carlson mentioned that the Board allowed a variance for wet floodproofing of structures in that area and asked what the required elevation was for the floodproofing. Mr. Traff noted that no flood proofing certification could be located. However, the variance required the property owner to floodproof the structures to 18" above the FEMA defined base flood elevation.

Mr. Hunt clarified that the request of this petition is to update the floodplain mapping with more accurate information and did not see any problems with approving the petition.

Mr. Koch asked why the Island Lake Marina properties were not included in the model as obstructions. Mr. Pizzi responded that the structures are very small and the velocity is relatively low, and given the spacing of the cross-sections, the impact would be negligible.

Mr. Hunt asked whether the rise is due to backwater from the road, so that the corrected effective model produces less backwater than the existing model. Mr. Brown indicated that this was the case, and Mr. Pizzi clarified that another difference is that the effective model only has two flow paths whereas the corrected effective model has three. The effective model places a substantial amount of flow through the left flow path, whereas the corrected effective model better represents the flow distribution with the additional flow path.

Mr. Koch asked whether the City of Fort Collins had comments that could impact the water surface elevations that the Board should be aware of. Mr. Anderson responded that this is a possibility, but could not answer whether any potential changes could have a substantial impact.

Mr. Hunt moved to approve County's concurrence on the CLOMR application with the condition that any changes to the base flood elevations as a result of comments from the City of Fort Collins be reviewed by and gain concurrence from Larimer County. Mr. Koch seconded the motion. The motion passed 6-0.

Introductions

Mr. Traff gave an introduction to the project. The petition is filed on behalf of the City of Fort Collins to review a Letter of Map Revision (LOMR) within the Dry Creek floodplain due to drainage improvements north of Vine Drive between College Avenue and Timberline Road. The drainage improvements include the construction of the North East College Corridor Outfall (NECCO) detention pond and storm drain as well as the Lemay Overpass Crossing of Dry Creek. The NECCO detention pond was built west of Redwood Street and outlets into a storm drain referred to as the NECCO backbone. The NECCO backbone carries flows east into the NECCO swale which ultimately drains south into two 48-inch culverts under Vine. The Lemay Overpass Crossing was built to convey Dry Creek under the future alignment of Lemay Avenue north of Vine. An 8 x 14 feet concrete box culvert was installed northeast of the Vine and Lemay intersection to convey the base flood under the road without causing a rise in BFEs on surrounding property. Both the NECCO and Lemay overpass projects submitted CLOMRs prior to construction and are being included together in this application due to their proximity. Comparison of the as-built conditions with existing and effective models indicates that no rises have been produced on parcels within unincorporated Larimer County. The Flood Review Board is reviewing the map change due to drops of greater than 0.3' in accordance with Subsection G.4 in Section 4.2.2 of the County's Land Use Code.

Mr. Koch clarified that the Board is reviewing this application as a map change and not as a special review. Mr. Jacobsen provided a description of the project. The project collects water that would normally have gone into Dry Creek and outlet through the NECCO Backbone. The water ultimately discharges back into Dry Creek upstream of Vine. Outside of the detention pond at the upstream end there is no detention that is being accounted for in the model. Flows have been reduced from the effective condition.

Mr. Hunt asked what the changes are to the base flood elevations are for the as-built condition. Mr. Jacobsen and Ms. Michaelson confirmed that base flood elevations are decreasing relative to the existing condition. Mr. Koch made the observation that the floodplain expands just below the railroad property. Mr. Jacobsen replied that this expansion is on property incorporated by Fort Collins. Mr. Oberlander asked if there had been many changes to the project since submission of the CLOMR application. Ms. Michaelson responded that the only change to the project was the addition of the Lemay Overpass and box culvert under the overpass. The culvert was designed so that the overpass could be constructed without impacting the floodplain.

Mr. Koch asked whether the City of Fort Collins had any comments on this application. Ms. Hansen responded that a round of minor comments had been completed for the application.

Mr. Carlson moved to approve County's concurrence of the LOMR. Mr. Oberlander seconded the motion. The motion passed 6-0.

Xcel Utility Poles

Introductions

Mr. Traff gave an introduction to the project. The petition is filed on behalf of the Public Service Company of Colorado for a Floodplain Special Review for replacement and installation of overhead utility poles and electric lines within the Cache La Poudre flood hazard district. The project proposes to replace five utility poles, to remove one utility pole, and to install four new utility poles along CR 54E north of the Morning Fresh Dairy. The engineer has indicated that the project will not produce a rise in base flood elevations and has submitted a no-rise certification. The project is being reviewed as a Floodplain Special Review per Subsection D.21 in Section 4.2.2 of the County Land Use Code which requires Board review of all above and below ground utilities within the regulatory floodplain.

Mr. Olson provided additional details of the project. The purpose of the project is to accommodate additional loads put on by the Graves Dairy, Noosa Yogurt, and the City of Greeley's water treatment plant. The feeder will leave the Laporte substation and travel underground to the Little Bear Road. The line will then be built above ground from LCR 23E to Highway 287. The line will travel along on the north side of 287 until utilizing an existing crossing to cross to the south side of the highway between the river and the road and will connect to an existing pole. At that point, four additional poles will be installed and connect to another existing pole at the corner of LCR 54E and Highway 287. The line will then continue along CR 54E to the Graves Dairy. Mr. Southard commented that any effects to the floodplain from adding four new poles in area where the existing floodplain is over 1200 feet wide are minimal.

Dr. Thornton moved to recommend approval of the project as submitted. Mr. Hunt seconded the motion. The motion passed 6-0.

Poudre Valley Rural Electric Association (PVREA) Fiber Optic Line

Introductions

Mr. Hunt recused himself as a Board member for the review of this project as he has provided the scour analysis for the applicant.

This item was moved up from its position on the agenda due to absence of a member of the engineering firm for the Boxelder Wastewater Treatment Plant application.

Mr. Traff gave an introduction to the project. The petition is filed on behalf of the Poudre Valley Rural Electric Association for a Floodplain Special Review for the installation of a fiber optic utility line. Approximately nine miles of underground fiber optic cable (two, two-inch pipes within the same bore) is planned for construction along Highway 392 and County Road 1 north of Windsor. The line would begin at the PVREA Headquarters near the intersection of Highway 392 and CR 5 and be constructed via open trench for one mile before being bored parallel to Highway 392 within the Poudre River floodplain. The line would cross under 392 at the bridge over the Poudre River and continue parallel to 392 until reaching CR 1. The line would then cross under CR 1 and turn north along the road until leaving the regulatory floodplain. The line will be bored under the all regulatory floodplains. The project proposes a minimum boring depth of 10 feet under the Cache la Poudre River and a minimum depth of 3 feet for areas beyond the Poudre River. Larimer County did not received a scour analysis prior to the

Board meeting. However, a construction plan sheet was submitted on April 26th and Mr. Hunt has copies of the scour analysis for the Board to review today. A no-rise certification was submitted with the project. The project is being reviewed as a Floodplain Special Review per Subsection D.21 in Section 4.2.2 of the County Land Use Code which requires Board review of all above and below ground utilities within the regulatory floodplain.

Mr. Wilcox summarized the project. The project is an underground fiber optic line between PVREA substations, and is a part of a larger project including approximately 300 miles of fiber optic line. Mr. Shaw added that the line would be bored under the floodplain to minimize disturbance within the floodplain. Mr. Oberlander asked if any new structures or activities are proposed above grade, including vaults. Mr. Wilcox clarified that the vaults are not existing built will be built with the top of the vault at the existing grade.

The Board opened the discussion for questions. Mr. Carlson indicated that the fact that the project would not produce a rise is fairly clear, but there is some concern regarding scour that needs to be considered. Mr. Koch noted that in the report there are some areas reporting the project being built above the base flood elevation and asked for clarification. Mr. Wilcox answered that these areas are outside of the project limits and the floodplain on the west end of the project. Mr. Koch asked if all of the bore pits are proposed within disturbed areas, noting that there appear to be twelve pits shown in a figure on the report. Mr. Hunt asked how many total bore pits are planned. Mr. Wilcox stated that he could not give a solid number of pits due to the variability of site conditions, but stated that there will be as few as possible. Mr. Wilcox stated that the plan is for two bore pits, with one on the west end of the project and one on the east side of the project. Mr. Hunt clarified that the fiber optic line will be bored within floodplain with a minimum depth of 10 feet below the Poudre River channel and a minimum of three feet below grade outside of this area. Mr. Wilcox stated that when the project is completed, there will be no new development above the existing grade.

Mr. Koch asked if any coordination had been done with the Larimer County Natural Resources Department on this project, as the River Bluffs project is being completed in this area. Mr. Traff replied that he is not aware of any coordination at this point but will pass along the appropriate contact information to the applicant to ensure coordination is initiated between the two entities.

Mr. Hunt described the scour analysis performed for the project. Mr. Hunt evaluated scour risk for the exposure of the fiber optic line at the Cache La Poudre River. Mr. Hunt explained that long-term degradation and contraction scour associated with the bridge would act as the primary risks to the fiber optic line. To analyze long-term degradation, Mr. Hunt performed a site visit and obtained a time history of inspection measurements at the bridge from the Colorado Department of Transportation (CDOT). Mr. Hunt indicated that there was no trend in degradation of the river bed, but there was some evidence shoaling/aggradation at the bridge. In terms of contraction scour, Mr. Hunt found the scour mode to be live bed (using the RiskMAP model), and found that there is no contraction scour potential due to the fact that there is a split reach that flows parallel to the east in which exchange occurs between the main reach and the east reach (overtopping the lateral weir). There is so much flow

loss from the east reach between cross sections 221 and 219 that the actual discharge in the main channel is less at cross section 219 than it is at cross section 221. The main channel is also wider at 219 than at 220 or 221 so that contraction scour does not occur at this area. To allow for fluctuation in the river bed, long-term degradation is reported at three feet in the scour analysis and contraction scour zero feet. Mr. Hunt does not see any risk from scour to the fiber optic line.

Mr. Hunt noted that there is an overtop zone on Highway 392 west of WCR 13. He stated that if an overtopping of the road occurred, it would erode the highway embankment north of the highway. As long as the embankment is there, there would not be a threat to the line. However, in a worst case scenario the two ponds on each side of the road could connect and scour may be produced that impacts the line at a three foot depth. Mr. Carlson asked to what extent PVREA desires to protect the fiber optic line in regard to depth below grade. Mr. Wilcox replied that PVREA could place the line an additional three feet below existing grade, but there are maintenance concerns for depths beyond that. Mr. Carlson advised that PVREA place the line as deep as possible for protection of the line.

Dr. Thornton recommended approval of the application as written with the inclusion of Mr. Hunt's scour analysis. Mr. Carlson seconded the motion. The motion passed 5-0.

Boxelder Wastewater Treatment Plant

Introductions

Mr. Traff gave an introduction of the project. The petition is filed on behalf of the Boxelder Sanitation District for a Floodplain Special Review regarding expansion of a wastewater treatment plant within the Cache La Poudre River Growth Management Area 500-year floodplain. The project is located at the confluence of Boxelder Creek and the Cache la Poudre River and proposes to build improvements to the existing WWTP including an orbital ditch, clarifiers, and a UV disinfection facility. All improvements are proposed within the 500-year floodplain. The project is being reviewed as a Floodplain Special Review per Subsection F.6 in Section 4.2.2 of the County's Land Use Code which requires that reconstruction, repair, or enlargement of existing utility facilities be reviewed by the Board.

Mr. Zick provided some background on the project. The existing facility has served as the treatment plant site since 1968. The expansion is needed to meet more rigid treatment standards and provide more reliable service to customers.

Mr. Thornton asked if the City of Fort Collins' code categorizes wastewater treatment plants as an exempt critical facility in the same manner as Larimer County. If so, the Board could grant approval of the application on the condition that a variance be obtained from Fort Collins. Mr. Hunt clarified that the purpose of the Board's review is to determine if the expansion is consistent with the need to maintain or restore normal services to the public before, during, and after a flood event. This means that the application demonstrates that if a flood occurred, the service could be maintained or restored during a flood event. Mr. Hunt asked if Boxelder has an operational plan for the event of a flood. Mr. Zick confirmed that this plan exists and would be operational in the event of a flood.

Mr. Waddoups stated that all of Boxelder's structures are above the 500-year floodplain. Mr. Hunt asked for clarification on that statement. Mr. Waddoups clarified that the tops of the tubs and all other structures/facilities are above the 500-year floodplain, and the pumps are inside buildings which have finished floor elevations above the 500-year floodplain elevation. Mr. Zick added that the pumps are at the bottom of the tub, but the tops of the tubs are above the 500-year floodplain elevation. Mr. Hunt stated that the Board would view these facilities as floodproofed above the 500 year floodplain elevation, with freeboard. Mr. Hunt asked whether the plant could be operated remotely in case access is inhibited during a flood. Mr. Zick stated that it can be operated remotely. Mr. Hunt asked about the potential for raw sewage to enter the waterway in the event of a flood. Mr. Waddoups stated that the highest risk is not with the plant failing but with a manhole upstream being inundated which is what happened in the 2013 flood. Ms. Ervin-Blankenheim asked if upgrades had been done to the piping into the facility. Mr. Waddoups stated that some work had been done to the line coming into the plant.

Dr. Thornton move to recommend approval of the application with the condition that the applicant provide a revised map to the County showing the transformer/generator elevation above the 500-year flood elevation. Ms. Ervin-Blankenheim seconded the motion. The motion passed 5-0.

Mr. Carlson moved to approve the minutes from the January Flood Review Board meeting. Mr. Thornton seconded the motion. The motion passed 5-0.