Zoar Levee and Diversion Dam, Dam Safety Modification Study
Community Advisory Committee
Meeting Summary
May 17, 2012
7:00-8:30 pm
Zoar School House

A regularly scheduled Zoar Levee & Diversion Dam, Dam Safety Modification Study, Community Advisory Committee (CAC) meeting was held at the Zoar school house on May 17, 2012. Those present included: Mayor Larry Bell (Zoar), Jon Elsasser (Zoar), Sandy Worley (Zoar), Judy Meiser (Zoar), Pat Ragan (Zoar), Chuck Knaack (Zoar), Steve Shonk (Zoar), Scott Gordon (Zoar), Holly Thouvenin (Zoar), Aaron Smith (USACE), Amy Frantz (USACE), Adam Kays (USACE), Rodney Cremeans (USACE), Gus Drum (USACE), Tom Leach (USACE), Nick Krupa (USACE), David Moore (Tetra Tech), Paul Nguyen (JFA), and Mike Lawrence (JFA).

Rodney Cremeans began the meeting by thanking everyone for attending and requesting that everyone fill in the sign-in sheet for the meeting minutes. Everyone then introduced themselves around the table.

Adam Kays, a Geotechnical Engineer, summarized the under-seepage beneath the levee on the ball field side and seepage through the limestone layer on the Rock Knoll side of the levee.

Adam Kays explained that there is an estimated 140 to 150 feet thick layer of glacial outwash that covers the Tuscarawas River valley that is capped below a thin layer of alluvium soils, or soils deposited by overbank flooding. The glacial outwash is made up of predominately sands and gravels which facilitates water traveling beneath, or seeping underneath, the levee. Adam Kays clarified that this only occurs when Dover Dam holds back water to reduce flooding down-steam on the Tuscarawas River.

A question asked about how deep a cut-off wall would have to go to stop the under seepage.

Adam Kays noted the depth of a cut-off wall would depend on the composition of the sand and gravel layer and wouldn't necessarily have to reach bed rock below the levee to provide some benefit.

Adam Kays stated on the Rock Knoll side of the levee a mass of rock composed of horizontal layers of sedimentary rock including limestone lies just beneath the top of the current levee. A void at the top of the limestone layer is one of the key features that are allowing water to seep through Dover Dam holds back water to reduce flooding down-steam on the Tuscarawas River. With the use of cameras, drilling crews observed the voids allowing water to seep through that section of the levee. That seepage resulted in significant boils in 2008 and precipitated the emergency installation of the gravel blanket on the Rock Knoll side of the levee.

Mayor Bell asked whether grouting that section might help to seal those cracks and fissures.

Adam Kays responded noting that various methods of grouting might help seal the cracks but grouting wasn't always the best method since parts of the limestone may be in-filled with clay particles that

would eventually erode causing more leakage in the future. Also since the grout is pumped in under pressure that process could fracture the nearby soil creating additional seepage paths.

Adam Kays further explained that a cut-off wall could be installed through the rock section as well as the glacial outwash.

Nick Krupa asked how solid/firm the material below the glacial outwash layer was.

Adam Kays responded that would have to do more investigations of that layer to determine the solidity of this underlying area.

Jon Elsasser asked how deep the main void above the limestone layer was under the levee on the Rock Knoll side of the levee.

Adam Kays conjectured that the void was about 30 feet below the top of the levee (a figure he later corrected to be only about 10 feet). The location and elevation of the boils inside the levee in 2008 are good indication of the depth of the limestone layer is in the Rock Knoll side.

Nick Krupa asked whether we knew where the entrance points were on the outside surface of the levee.

Adam Kays responded that the Corps is still speculating on the exact entrance points but that will be a topic of further study. He speculated that an entrance point may be near the diversion channel or Route 212 as it ascends the levee or near where the old railroad line was located before the levee was constructed.

Nick Krupa also noted that Holly Thouvenin had identified some small boils near her home on the opposite side of the levee (ball field side) during the 2008 event.

Adam Kays indicated that he had talked with Holly about the boils but hadn't seen them himself. The Corps would look into that situation during the study.

Rodney Cremeans indicated to the group that the District had received a draft of the Baseline Risk assessment from the Risk Management Center and that the Huntington District Project Delivery Team was conducting a full review (known as the District Quality Control (DQC) review) and there were a substantial number of comments being generated and that the District would discuss those comments with the Risk Management Center and eventually share the contents of the Baseline Risk Assessment when the quality control reviews were completed.

Aaron Smith asked if anyone had any changes to the minutes from the April 12, 2012 meeting.

With no comments made, Aaron Smith suggested that if anyone had comments on the minutes to email him with the suggested changes.

Aaron Smith spoke about studies being accomplished through a Consultant (Tetra Tech with assistance from Hardlines Design Company and Jack Faucett Associates) and by personnel with the Corps' Nashville District office. Representatives from both Tetra Tech and Jack Faucett were present at the CAC meeting.

Aaron Smith indicated that the consultants would have a letter from on Department of Army letter head (copies of the letter were passed out) explaining their presence in the Village, who they were and what they were doing and that they should have some form of identification with them. Any Corps employees working in and around the Village would have their official Department of Army government ID's with them.

Aaron Smith noted that if approached for entry on to your land, our consultants or employees will have copies of the signed rights of entry with them for your review. If landowners are approached by anyone not having the introductory letter or a government ID and a signed right-of-entry, the landowner should turn that person away and consider contacting the appropriate authorities.

Aaron Smith reminded everyone that no-one should ask permission to enter your home or any building on your property.

Aaron Smith reminded everyone that very minimal ground disturbance (post-hole sized holes) might need to be excavated to confirm the presence of certain soil types to indicate a possible wetland condition. However, none of these holes would be excavated in ornamental/vegetable gardens or landscape area, but in low wet spots. Every attempt to return the ground surface to its original appearance would also be made. The remainder of the work would be focused on pedestrian walk-over, taking notes and photographs. Some flagging tape may be used as part of wetland delineations, but that tape would be removed following completion of the survey. Residents may notice the flagging tape out for multiple days.

Aaron Smith briefly went over the purpose and goals of the historic property baseline study, including documenting all historic buildings and ruins and conducting extensive background research to develop probability models concerning archeological sites.

Aaron Smith noted that no more than 5 small test pits per parcel, similar to those used to survey for wetlands, may also be excavated as part of this work. The location of these pits will be coordinated with landowners. He assured the group that no artifacts would be collected and all attempts to return the ground condition to pre-excavation conditions would be made.

Aaron Smith also explained that elements of the historic survey would include investigations of the reported 5,000 to 7,000 acres of land owed and worked by the Zoarites so that a more accurate description of the present historic memorial boundary could be considered in the study.

Gus Drum gave a brief synopsis of the work to be accomplished for the "Other Social Effects" portion of the baseline conditions. That work includes a social profile of the community with emphasis on existing data sources and a small-group workshop delivery plan. The social profile includes information on demographics of the community, employment, community organizations, and community relationships and how the community works. The small group workshop delivery plan is essentially the game plan for holding a series of workshops in the community when the project alternatives have been formulated and to get community feedback on each of the alternatives. The delivery plan also includes any personal questions that would be asked of the community participants during the workshops – questions that would have to be approved beforehand by the Federal Office of Management and Budget (OMB).

Mayor Bell asked whether there would be opportunities to respond to the Corps on the alternatives beyond the OMB-approved questions being asked at the workshops.

Gus Drum replied yes that we would welcome any feedback on the project alternatives and that the OMB approval process only covered personal questions asked by the Corps or the Consultants during the workshop meetings.

Aaron Smith added that these workshops were focused on Other Social Effects only and we would still continue to run the CAC meetings and hold milestone public meetings.

Aaron Smith then explained the environmental baseline studies being done by the Corps' Nashville District. Those studies will focus on meeting requirements of the National Environmental Policy Act, the Clean water Act and the Endangered Species Act.

Aaron Smith also indicated that since the Corps cannot regulate itself under the Clean Water Act provisions, we would rely on the oversight of the Ohio Environmental Protection Agency (EPA) for water quality certification of any project alternative selected. These investigations would help the Corps to try to avoid impacting sensitive and regulated ecosystems during any construction activities and help to characterize the project area in the project EIS documents.

Aaron Smith explained that the selected consultants provided their Action Plan to the Corps and their Quality Control Plan for review and that the planned investigations had been coordinated with the Section 106 parties as well.

Aaron Smith handed out the expanded project schedule showing the integration of the Section 106 Consultation steps with the full project schedule.

Aaron Smith promised to email a larger format schedule to everyone by email, as print-outs were too small to read.

Adam Kays spoke further on the baseline condition studies regarding the depth of the main rock void below the boil locations. That difference was about 10 feet (see previous conversation on this item).

Adam Kays explained that on-going construction work near the pump station was the installation of a seepage-berm collection ditch and concrete weir for collecting and measuring water flow from the gravel blanket during high water event that results in seepage though the Rock Knoll. The estimated time for that construction was 30 days depending upon weather conditions. Although it the gravel blanket was successful intervening against catastrophic failure during the 2008 event, it also made monitoring continuing seepage at this location difficult. The collection ditch and weir should provide means to measure the volume of flow and/or the performance of the blanket in the future.

Nick Krupa gave an update on the proposed data-logger at the Diversion Dam. The data logger works to provide a system to alert his staff if a pool of water builds behind the Diversion Dam by flashy rain events so they can monitor its performance. The building housing the data-logger and other equipment would be located on a newly constructed concrete pad back by the tree-line and would provide

warnings of impounding water behind the dam to the area staff. The selected enclosure building is about 6'X8' in size with an architectural style that will blend into the local area.

Nick Krupa also noted that the electric controls for the dam intake and data logger were housed in the new building and were hooked up to commercial power.

John Elsasser asked if this work would include the installation of a rain gage on Goose Creek.

Aaron Smith explained that a rain gage would not provide any risk reduction to the project and thus we could not use Operations & Maintenance dollars to construct one. He explained that the data logger, like all Interim Risk Reduction Measures (IRRMs) had to be funded with Operations & Maintenance dollars.

Nick Krupa noted that the Corps is contracting Ohio Department of Natural Resources to assist in controlling groundhogs penetrating the embankments at dams and levees and hopefully that would be successful. Such burrowing had been seen at the diversion dam in the past.

Adam Kays then provided more detail about the Baseline Risk Assessment, which is completed by a Risk Cadre to identify the various failure modes and derive their estimated probabilities of failure.

Adam Kays explained that the goal of the Risk Cadre was to be consistent in their consideration of risk across the spectrum of Corps dams and levees.

Adam Kays explained how the risk probabilities were derived and how the Risk Cadre worked through each failure mode to reach a consensus on the risk levels.

Adam Kays explained that the Huntington District was now reviewing the documents and would provide comments back to the Risk Cadre on any changes to the documents.

Adam Kays indicated that the District had provided much of the information to the Risk Cadre and that deliberations were often intensive and based upon collected data and expert opinions.

Adam Kays explained that the more significant failure modes were described through the use of event trees showing each successive step of the anticipated failure as it occurred and where in the process intervention would be successful or not.

Adam Kays also explained that the economic consequences and loss of life consequences were include in the baseline risk assessment. The consequences are based upon daytime and nighttime populations in Zoar and the warning times given in the event of an impending failure of the levee or dam.

Mayor Bell asked whether the Risk Cadre was done with the process.

Adam Kays responded that after they addressed the District's comments and other review comments from additional reviews that they would be finished.

Adam Kays added that the Risk Cadre would be involved in evaluation of the alternatives with respect to their effectiveness in addressing the identified failure modes later in the study.

12) The meeting was adjourned around 8:30pm and the next meeting of the CAC was scheduled for June 14th at 7:00pm and if available the meeting would be held in the Zoar school house.

Prepared By:
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