

An adjourned meeting of the Board of Supervisors of Albemarle County, Virginia, was held on November 5, 2010, at 10:30 a.m., Room 241, County Office Building, McIntire Road, Charlottesville, Virginia. The meeting was adjourned from November 3, 2010.

PRESENT: Mr. Kenneth C. Boyd, Ms. Ann Mallek, Mr. Dennis S. Rooker, Mr. Duane E. Snow, and Mr. Rodney S. Thomas.

ABSENT: Mr. Lindsay G. Dorrier, Jr.

OFFICERS PRESENT: County Executive, Robert W. Tucker, Jr., Assistant County Executive, Tom Foley, Assistant County Executive, Bryan Elliott, County Attorney, Larry W. Davis, and Senior Deputy Clerk, Meagan Hoy.

ALBEMARLE COUNTY SERVICE AUTHORITY MEMBERS PRESENT: Mr. Richard E. Carter, Mr. James Colbaugh, Mr. Bill Kittrell, Ms. Lizbeth Palmer, Mr. Clarence Roberts, and Mr. David Thomas.

ALSO PRESENT: Executive Director of Albemarle County Service Authority, Mr. Gary O'Connell, Executive Director of Rivanna Water and Sewer Authority, Mr. Tom Frederick.

Agenda Item No. 1. Call to Order.

Ms. Mallek, Chair, called the Board of Supervisors meeting to order at 10:35 a.m.

Mr. Roberts, Chairman, called the ACSA meeting to order at the same time.

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a. Introductions and Agenda Review

Mr. Roberts stated that he and Ms. Mallek developed the agenda for this meeting. The ASCA staff will discuss the current status of the Water Supply Plan, the Ragged Mountain Dam, the engineering and dam design status, as well as provide an overview of the ACSA budget processes, rates, and connection fees. Mr. Roberts added that ACSA staff would also discuss the sewer system repair, replacement and relocation program. The goal for this meeting is for each person to leave with the needed information regarding these issues.

Mr. O'Connell said that Mr. Frederick will be briefing the Boards on the current status of the Water Supply Plan, particularly updating on new items and actions since the September meeting of the four boards. Mr. Chris Webster, of Schnabel Engineering, will then brief the Boards on the Ragged Mountain earthen dam proposal and the design process.

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Agenda Item No. 2. Discussion: Water Supply Plan

Item No. 2a. Current Status.

Mr. Frederick said that there were some action items developed out of the September meeting that have been discussed by the Rivanna Board in two separate meetings. The first item was development of questions for DEQ and consideration of a possible meeting of the four Boards and that agency. He stated that on October 28<sup>th</sup> the RWSA sent a letter to Mr. Scott Cutlass, Director of the Office of Surface and Groundwater Supply Planning, which included questions received through RWSA Board members from the City of Charlottesville and the Albemarle County Service Authority. Mr. Frederick said that City Council asked about the minimum height possible for the first phase of a dam to meet water demand projections. City Council wanted to know if stream flows could be phased in instead of implementing the way the plan is set out. He added that they also wanted to know if DEQ would be satisfied with a plan that improves stream flows a little in the short run and allows for even greater flow in the long run.

Mr. Rooker asked what period of time the water demand projections were intended to cover. Mr. Frederick responded that the questions did not specify the period of time.

Ms. Mallek said that she believes they were trying to clarify what the letter meant also.

Mr. Rooker said that it is a strange question is there is no time period involved for projections. Mr. Frederick said that the question is written very generally and he would rather not speculate on any timeframe.

Mr. Frederick said that the final permit document had stream flows with multiple tiers in terms of what percentage of natural inflow had to be released, and they were fixed water storage quantities based on the premise behind the permit application that the Ragged Mountain Dam would have been built to 45 feet, now 42 feet, with 2.1 billion gallons of usable storage. He said that City Council wanted to know if percentages of the usable storage provided could be used instead of fixed numbers. Mr. Frederick said that it is important to know that using percentages rather than fixed usable storage volumes invoking the triggers means that the storage would change the stream flow releases and triggers.

Mr. Frederick stated that there was a question asked as to what future year the DEQ model would estimate that a 16.8 mgd supply would no longer satisfy the region's water requirements. He said that the model the DEQ has would run safe yield, but he is not aware of a DEQ model that projects water demand.

Mr. Frederick said that there was a question regarding the permit process itself that asked to what extent new information can be introduced and whether it would be subject to public notice, public comment, and opportunity for public hearing.

Mr. Frederick said that the ACSA had several questions also, including a desire to confirm the August 2 letter from Mr. Cutlass to Ms. Mallek and Mr. Norris regarding the DEQ's modeling work on a concept of 13 feet plus dredging. Mr. Frederick explained that the ACSA wanted confirmation as to whether the DEQ is saying that the 13 feet plus dredging will not meet the approved water demand projection, and confirmation as to whether it would or would not meet the stream flow requirements that are in the stated permit. Mr. Frederick said that the ACSA's second question to DEQ was whether or not the pool height of 30 feet in the initial phase was reasonable and acceptable, in the event of a phased approach.

Mr. Frederick also pointed out that the letter offers DEQ the alternative to answering the questions in written format or by attending a public meeting of the joint boards in which they could facilitate a discussion of the remaining issues. He does not know if DEQ will answer all the questions; he thinks that they may say some of the questions are local issues. He indicated that the RWSA has requested a response to the letter by November 22<sup>nd</sup>.

Mr. Colbaugh asked if the DEQ has ever facilitated a discussion as proposed. Mr. Frederick responded that it is not common, but he has been told that they have done it in situations when different local communities in a region are trying to work together but encounter difficulties.

Ms. Mallek commented that her understanding from the four Boards meeting is that the letter would be the contact with DEQ, and asked Mr. Frederick if he is aware of individual emissaries that have gone to Richmond to have private meetings with them, as there are rumors to this effect.

Mr. Rooker likened it to lobbying.

Mr. Boyd responded that it is not even lobbying, it is an attempt to undermine the interest of the community.

Mr. Frederick stated that DEQ's Director, Mr. Paylor met with Mr. Norris several weeks ago.

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Item No. 2b. Ragged Mountain Earthen Dam – Engineering/Design Status.

Mr. Frederick said that the second action item from the four Boards meeting was initiating final design on the earthen dam. The ACSA Board authorized payment of final design services for the earthen dam and immediately upon that decision the RWSA signed a contract with Schnabel Engineering to proceed. Mr. Frederick stated that they are in the final stages for working out a Memorandum of Understanding between the ACSA and RWSA on how the expenses will be reimbursed and some conditions upon which the ACSA Board, at their discretion, may stop the work if they find that is appropriate.

Mr. Roberts asked for a brief overview of the process by which the design work could be stopped. Mr. Frederick responded that there is a seven-day notice and Schnabel would have to stop work. He stated that ACSA is reimbursing RWSA for expenses 100% at this point until there is an agreement that involves the City, and Schnabel provides a monthly report to the ACSA Board.

Mr. Rooker asked about the dam expert panel.

Mr. Frederick explained that the panel will meet with Black & Veatch on November 22 and 23, 2010. The RWSA Board has decided to move its meeting time to 6:00 p.m. on November 23<sup>rd</sup> so as to accommodate the expert panel time in completing interviews and formulating recommendations, which they will provide directly to the Rivanna Board and the public. He noted that the panel has recently received a disc of technical information from Black & Veatch, which contains the work behind the report that the City released. Mr. Frederick stated that the first day would likely be the panel asking questions and getting to understand the substance behind the proposal, with some time set aside the second day for the panel to meet and formulate its recommendations. He added that the RWSA has left the specifics of the agenda up to the experts themselves, except for the stipulation that they must complete their recommendation by 6:00 p.m. on the second day.

Ms. Mallek clarified that their charge is to evaluate the proposal to build on top of the current dam as opposed to one in the new location, so they have information on the comparables. Mr. Frederick said that is correct.

Mr. Snow asked who serves on the expert panel. Mr. Frederick responded that the group includes Mr. Dan Johnson from Colorado, Mr. Paul Rizzo and Mr. Don Bruce, both from Pennsylvania. Mr. Frederick noted that Mr. Rizzo runs a firm that specializes in dam design, Mr. Johnson works for a multi-disciplinary firm that includes dam design, and Mr. Bruce is considered to be the world expert on grout curtains and treatment of foundations for design.

Mr. Roberts asked if the meeting would be open to the public. Mr. Frederick responded that the discussions between the panel and Black & Veatch would not be open to the public, as it would be much more constructive if the two technical groups can ask whatever questions they need in a very open fashion. He said that the presentation of the recommendations from the panel would be open to the public.

Mr. Rooker asked if the panel would be meeting with representatives of Schnabel. Mr. Frederick replied, "no". He added that the panel has already reviewed the preliminary design for the earthen dam that Schnabel proposed, which was done before the firm presented to the public their findings on the earthen dam, so the panel is already familiar with this project.

Mr. Rooker stated that, in its report, Black & Veatch draws a general conclusion, based upon what they admit is limited borings. Mr. Rooker asked how the panel draws a conclusion without any additional engineering work. He said that the conclusion that you could build on top of the existing dam had qualifiers, which pertained primarily to the additional physical work that would be needed. Mr. Rooker asked how is this panel able to overcome what appears to be limited ongoing information? He noted that Schnabel met with Board members approximately a year earlier and had developed a lot of historic information on the construction of the existing dam, including issues with that method of construction. At that time, the firm did not think that building on top of the existing dam would be a wise thing to do, and other people that Schnabel met with seemed to concur. He asked to what extent is all of that background information going to be made available to this panel of experts, which is expected to render some kind of opinion on the advisability or the possibility of building on top of the existing dam in a safe manner? Mr. Rooker also mentioned the issue of the need to build a concrete extension on the dam and surrounding capsule and the ability to bring in huge quantities of concrete versus using onsite materials for an earthen dam.

Mr. Rooker said that if the panel came back with the opinion that the existing dam could be built upon and be just as safe and long-lasting as an earthen dam, it should be considered. He wants to make certain that when they provide their opinion that is being paid for, they do it based upon full knowledge of all the base of information that has been developed.

Mr. Frederick replied that the specific items mentioned are all open on the table for discussion and will likely be asked by the expert panel, but this review is not the same type of review that the expert panel made on Schnabel's work. He explained that the RWSA was managing both contracts and required that Schnabel bring all of their work and technical details to a preliminary design level, and the expert panel had that information to review. Mr. Frederick stated that the panel's charge this time is to review the information Black & Veatch and the City wished to make available, and to have a meeting with Black & Veatch during which any question could be asked. He added that the expert panel may come back and say that they need more information in order to make a decision as to whether the earthen dam preliminary design is better than an alternative.

Mr. Rooker said that is the problem with this situation. He emphasized that one thing the panel needs to have is Schnabel and the historic information developed on how the dam was constructed. It seems to him that would be somewhat pertinent to drawing any kind of conclusion. Mr. Rooker expressed concern that a contract has been signed to design an earthen dam and there is a cost involved with that work going forward. He said that everyone assumes the November meeting will generate an opinion as to which dam is a better choice, but he is afraid that there is not enough information on the table for the panel to actually draw that conclusion. He is concerned that we will get "a maybe" based upon doing another six months of engineering work to determine x, y, and z, and then bringing everyone back in to look at the results of that work.

Mr. Boyd said he strongly agrees and he does not think there is going to be sufficient data on which the panel can base a decision, let alone verify the validity of the cost estimates. He added there is not enough information available to substantiate those numbers or the validity of the construction end. Unless they are going to give more data to the expert panel, his guess is that the expert panel is going to say that they need to do more study and that they do not have adequate information.

Mr. Carter added that the ACSA will have to determine whether to pull the plug on Schnabel.

Ms. Palmer mentioned that in the letter the City put out from Black & Veatch there was a list of items given to the firm that included all of that historic data, and Schnabel commented on Gannett Fleming's work originally. If the panel of dam experts gets that list then they do know what to ask for. She asked if that would be a basis to do some sort of comment on the historic information?

Mr. Colbaugh suggested having Schnabel on call during the meeting so that they can answer questions.

Mr. Frederick responded that has been arranged.

Mr. Rooker said that he hopes the panel meets with Schnabel and gets a full and complete report of information from Schnabel which should be entered into this report that they are going to generate.

Mr. Frederick stated that during the time of panel deliberations, Black & Veatch and Schnabel would be available at the discretion of the expert panel to answer any questions, but the expert panel is controlling those conversations however they deem fit in order to develop their recommendations, and FRWA is not specifying the specific agenda.

Ms. Mallek said that she would like to get information on the range of future costs because if there is more testing to be required, they should be able to predict the cost of any further variables beyond the preliminary estimate.

Mr. Frederick said that these are very renowned professionals and they have been encouraged to provide as much information as possible based on the information they review. He stated that RWSA has left them latitude in terms of how far they feel comfortable in going.

Mr. Roberts asked if Schnabel would be asked to comment on the results of the meeting and the report that will be submitted to the RWSA.

Mr. Frederick responded that the only days the participants could get together was the week of Thanksgiving, and that will push the expert panel to go through a lot of technical information and then try to formulate a recommendation. He said that the way it may work out would be that no one would have the information in advance of the 6:00 p.m. meeting, and it is uncertain as to when their report would be completed. Mr. Frederick stated that neither Black & Veatch nor Schnabel are being paid to comment on the report, but they have the right to do so if they wish.

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In terms of the request for proposals for dredging, Mr. Frederick reported that at their meeting last week the RWSA Board directed staff to start pursuing an RFP for dredging of the South Fork Reservoir, but no fixed scope of work has been provided. The Rivanna staff have recommended pursuing a turnkey type proposal for phase one dredging. He said that the RWSA Board members differ in opinion as to what the scope should be, so a loose directive to start pursuing a proposal has been given without a specific scope or specific budget. He believes that is an issue that will need to be revisited with the Rivanna Board. Mr. Frederick emphasized that it is impossible to do financial planning without those definitives, but the RWSA staff did discuss with the Board the two basic types of RFP – a conventional, with specific parameters including cost used for selection; and a PPEA arrangement, which could be developed in a more general scope with a statement of qualifications and a short list whereby a vendor presents a plan. He said that the staff would bring back the pros and cons of each approach to the RWSA Board for the meeting on November 23, and the Authority's legal counsel is currently assisting in that process.

Mr. Frederick said that the RWSA has made preliminary contact with HDR, the consultant who performed the dredging feasibility study, and they are available to assist in the writing of an RFP, if desired. He said that there has not been a specific scope developed with HDR yet, as that cannot really happen until the scope of dredging is established.

Ms. Mallek asked what the permitting requirements will be required for the dredging. Mr. Frederick explained that there would be a DEQ permit required, a Corp of Engineers permit, a County special use permit, erosion and sediment control provisions, and perhaps permits from VDOT for road access. He said that to some degree, the number and extent of permits could depend on the approach of the contractor. He added that DEQ will ensure that all requirements and regulations of the Commonwealth are enforced.

Mr. Rooker said that it seems contractors are being asked to provide a proposal without sufficient definition of scope. He asked if they did not have to make up their minds if they are going to do an RFP for dredging, even if there were two scopes? It seems to him that they need to have something concrete. He emphasized that there is time, effort and money being spent to run around and do things because the community cannot make a concrete decision.

Ms. Palmer stated that the concern she heard is that if only phase one was done, then there would be a less expensive per cubic yard cost that some people might extrapolate as the costs for phase two and phase three.

Mr. David Thomas commented that what he understood from the four Boards meeting is that, based on the feasibility study, the Mayor felt that the dredging broke down into two parts. Phase one would be based on the quality of the material, location and market, which would be somewhat revenue-neutral, with the per cubic feet being a low cost, if at all. Phases II and III would essentially involve removal of material that could not be used.

Mr. Frederick replied that he does not recall the exact substance of the discussion at the four Boards meeting but, HDR has not expressed an opinion that there is any revenue-neutral dredging. HDR provided ranges of cost and ranges of potential revenues and they indicated uncertainty in market forces around sales of materials. He added they have suggested to RWSA that in a really hot market where building is high, you can expect higher revenues for the material but you can also expect higher costs for the operation itself and they think there is going to be a net cost. Mr. Frederick stated that if you take it in a low market, where the cost of doing the operation and the revenue from the material lower, there is probably still also a net cost. He said that RWSA took the midpoint of their range for both costs and revenues and it came up with to a net cost of \$8.00 per cubic yard of material for part one dredging with sand recovery and \$32.00 per cubic yard for part two dredging of the area of the reservoir with the larger quantity of material. That is based on specific contact with property owners. Mr. Frederick emphasized that the estimates involve the motivations of the current property owners who would be needed in order to conduct the operation. Also, Schnabel had provide an estimate from the preliminary design of the Ragged Mountain Dam of \$4.00 per cubic yard based on the amount of storage.

Mr. Frederick emphasized that no consultant has confirmed that dredging would be cheaper than the new dam. Mr. Kerry Burch of HDR specifically stated that over the long term, dredging a little bit at a

time each year would not be cheaper and would actually be more expensive than the approach HDR recommended in their report.

Mr. Rooker pointed out that even if the entire reservoir were dredged, the quantity of water storage is less than one-sixth of the quantity obtained by raising the dam.

Mr. Frederick responded that the plan HDR recommended was based on the availability of property to move material to when it is dredged and leaving out wetland areas and some incidental areas. The net amount that could be dredged was 13% of the storage available from the proposed dam.

Mr. Boyd said that he could not support the initiative to start dredging, as it is a waste of time and resources for the RWSA.

Mr. Rooker commented that he thought it was clear in the four Board meeting that a bid be sought for phase one dredging, and when pressed the Mayor agreed it would not be revenue neutral. He said that there was general consensus about issuing an RFP for phase one dredging.

Mr. Cater stated that that was his understanding too, as City Council had approved the water report and the phase one dredging, but not anything further.

Mr. Frederick indicated that from the City's perspective, they are not limiting to phase one, which is why the RWSA Board last week could not agree on a scope to direct staff to pursue.

Mr. O'Connell added that it is still up for debate.

Mr. Rooker said that he does not understand how RFPs can be obtained without a defined scope, adding that he hopes that dredging proposals would require that the bidder could bond his work, as a dredging operation may go on for seven, ten, or more years and a lot of things can change from a cost standpoint.

Ms. Mallek asked who would be building the road between Rhea's Ford and the dewatering site, noting that the area contains a rock ledge, woods, and a neighborhood.

Mr. Frederick responded that it has not been determined yet, and an RFP could be developed similarly to a bid, whereby an engineer would design the particulars and the issuer specifies what is going to be built and what is included in the price. He said that it might be possible for the issuer to detail the scope of the work within some budget, but it is definitely too loose right now.

Mr. Rodney Thomas commented that the RFPs should be specified as it is too much of a smorgasbord when people are pricing their own particulars.

Mr. Rooker said that his concern is having staff spend a lot of time and effort chasing around something that does not provide any definitive results.

Mr. Frederick mentioned that if an engineer is hired to develop the specific scope of bid, decisions could be made as to who would build the road and there could also be public meetings to provide input into the process or offer objections. He emphasized that if it is left open to the contractor there is much less opportunity for that type of public involvement.

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Mr. O'Connell addressed the Board to discuss the cost-sharing agreement between the RWSA and ACSA. He said that it comes down to how much capacity each locality wants, which has been asked specifically to the City. They are also looking at the needs of the University for the future. He said that they have considered building on the agreement done in 2003 and there were some draft proposals done in 2008. The two main issues are needed capacity and what project is ultimately chosen.

Ms. Mallek commented that the allocation decision can be made before the final decision about what would be built, and this would actually make it a clean decision.

Mr. O'Connell responded that in theory that sounds good, but if the needed capacity for each locality is not adequate then it raises a whole series of issues. The 2003 agreement considered the capacity, how much the City and County would each get, what was needed for sedimentation for the future, maintenance and expansion. He emphasized that until the specifics were in place, there could not be an agreement.

Mr. Boyd asked if penalties could be imposed for underestimation of demand needs in the event the agreed-upon demand is exceeded.

Mr. O'Connell replied that it could be considered, but it would need to be looked at in the context of a series of alternatives.

Ms. Mallek noted that it could be reevaluated every five years or so, as the permit addresses a large capacity and it should be possible to figure out a general idea as to where the community will be in 10 or 20 years.

Mr. O'Connell mentioned that the wastewater cost allocation agreement is not finalized, and that project is under construction.

Ms. Mallek commented that the freshwater investment should be completely separated from the wastewater investment. Mr. O'Connell responded that it is separate.

Mr. O'Connell said that from the ACSA's standpoint, they want to present some options based on the 2003 agreement and the work that was done in 2008. They will be working with City staff to put that together to see if a cost allocation formula can be moved forward.

Mr. Boyd asked when that might be ready.

Mr. O'Connell stated that he hopes to have some information in the next few weeks, which may just be options. He added that it is just a lot more complicated than a percentage formula. He reminded the Board that the RWSA Board authorized a contract with Schnabel to move forward on the design, which is a six-month project that the ACSA Board has agreed to pay for. Mr. O'Connell said that it is hoped there will be a final design at the end of that timeframe, and by months three, four and five there should be much better cost estimates.

Mr. Webster next addressed the Boards. He said that the information on the existing dam was included as part of a preliminary design report provided in the spring, which had information and references to Gannett Fleming's work as well as other references that were obtained regarding the existing dam, all of which was made public and available to the City and other consultants.

Mr. Webster presented a drawing of the existing reservoir and planned expanded reservoir, which shows a 45-foot raise and a concrete dam. He explained that Schnabel considered whether it would be possible to excavate shallow rock onsite in the expanded footprint of a reservoir to use as aggregate for the concrete, in an effort to reduce costs and reduce impacts to the community. Mr. Webster reported that they instead found 40-50 feet of soil on average in most areas, and very little shallow rock, so they began to consider using the soil to build an earthen dam. He said that in working with RWSA along with input from the expert panel, it was determined it would be feasible and a preferred approach. Mr. Webster presented a drawing of a cross-section through the proposed earthen dam as viewed from one side, highlighting the different types of soil found onsite, including sandy soils that are good for stability and strength, red clay soils that could provide a clay core that would reduce the seepage through the dam, and intermediate silty soil in between serving as transition material. He noted that the drain for the dam would intercept water that would work its way through the clay and carry it on in a controlled fashion, as the key to a safe earthen dam design is controlling the water. Mr. Webster emphasized that the drain would go across the entire base of the downstream end of the dam, and the same is true of the vertical drain that would go across the entire length. He said that his firm was able to work with Mr. Bruce, who is the top guy in grouting, to develop the preliminary design and associated cost for the grout curtain.

Mr. Boyd asked if there was this level of detail available for the alternative proposal of building on top of the existing plan. Mr. Webster replied, "no". The Black & Veatch study done for the City was a feasibility study with limited test borings done. He said that there were borings done 20 feet below the foundation grade and he envisions that they would do additional underground investigations, as Schnabel just completed last month. He added they would need to do additional investigations to bring it up to the same level of effort of where they are now.

Mr. Boyd stated that the County is having to continuously defend the position of this dam, and the defense position should be that the new alternative does not have this same level of work done on it.

Mr. Webster then presented information from the engineered preliminary design drawings, noting an aerial view of the earthen dam and the footprint of a new earthen dam in relation to the existing dam. He said that the primary spillway, which would control water up to the 500-year flood, is by means of a tunnel, a design element incorporated with feedback from the expert panel. Mr. Webster stated that the design is safe, cost-effective and allows for work to be done during the winter. He pointed out the emergency spillway as a rock cut that permits water to work its way across so that it will not go across the earth section which would cause erosion and potential failure. He pointed out the surface of rock as defined by the test borings and the location of the tunnel constructed through the abutment, along with the riser structure, which is constructed with reinforced concrete. Mr. Webster stated that Schnabel has just been authorized to move forward with final design from the last ACSA Board meeting, and now the firm is doing the initial structural design of the riser along with the tunnel, as well as earthquake analysis, evaluation of settlement of the foundation, and anything else that can be moved forward with now that is not affected by a potential change in height of the reservoir.

Mr. Rodney Thomas asked how the dam is sealed. Mr. Webster replied that the term used is water stops, with the concrete constructed to a certain level and a rubberized membrane inserted in the concrete with the next lift of concrete cast against it. He said that all of this construction takes into account the wet conditions.

Ms. Mallek asked if the tunnel in the rock phase is cased or if they use the rock as the casing. Mr. Webster replied that it is a combination. The rock is of good integrity, but there are some areas of rock that are fractured and there are some areas they anticipate the contractor will find water. As the contractor advances this type of tunnel would involve more hand-type work with a liner advanced in the tunnel to help reinforce it.

Mr. Snow asked what the diameter of the tunnel is.

Mr. Webster presented information on the tunnel, noting that it is an arch shape that is nine feet high with the inside eight feet wide. He said that they are considering two sections of the tunnel, a 36 inch

diameter carrier pipe that allows water to be pumped back up, and a four foot trough that allows water to work its way down from the reservoir. Mr. Webster explained that there would be valves installed at various intervals within the riser structure, and at this point it is one-third the distance of the 42 foot raise. He added that valve heights can be changed if necessary, but Schnabel would want to know that before finalizing the design. Mr. Webster noted that the upper opening is at 686, with the lower one at 610, so the structure is approximately 76 feet high. He also presented information on the original 45-foot raise, noting the areas of excavation needed to build the new earthen dam. Mr. Webster pointed out the location of Camp Holiday Trails and Ednam near the site, stating that the water surface does extend beyond I-64 in one area.

Mr. Boyd asked what is planned for protection against spilling. Mr. Webster responded that Schnabel worked as a sub-consultant on the I-64 work, with Volkert Engineering being the primary consultant. One concept considered for spill protection was the continuity of trails around the expanded reservoir and incorporation of a berm to catch spills that would be installed beneath a floating bridge.

Mr. Frederick pointed out the location of the bridge in proximity to I-64.

Mr. Webster then provided a rendering of the location of the proposed earthen dam, which would be grass-covered, and the emergency spillway structure.

Ms. Mallek asked if there would be a "boulder canyon" further downstream from the tunnel drain and spillway drain where the water could further slow itself down. Mr. Webster replied that there would be a plunge pool surrounded by crushed stone that would allow water to cascade down, and debris could be collected from that area. He added that the earthen dam does meet the release requirements previously assigned during the permitting process.

Mr. Colbaugh asked what would happen to the emergency spillway if the dam were built at 13 feet.

Mr. Webster explained that in an earthen dam, it is wise to avoid having water cascading over a structure as the earth can erode. He said that this is why a separate spillway structure is recommended, and in an extreme flooding event water would work its way up and then down across the spillway structure, thereby protecting the dam. Mr. Webster stated that if the dam were constructed in phases it technically could be done but the emergency spillway would need a deeper notch, and the contractor would come back in and need to fill in the area with concrete back to the original grade. He emphasized that a lot of the costs are associated with the spillway structure.

Mr. Boyd asked if it would have the same impact if they built the 42 foot dam but only filled it to 30 feet. Mr. Webster replied that it is similar to a large bath tub that is only being partially filled. He added that if the dam were built to full height there would be a sufficient basin even if it were not totally filled.

Mr. Webster also said that part of the maintenance program involved with an earthen dam is to be able to get out and mow the grass and inspect it and part of a standard earthen dam design includes benches, but they are not intended to be recreational.

Ms. Mallek commented that this would also allow for tree removal, as tree roots can damage a dam's structure. She then thanked Mr. O'Connell for the provision of information prior to this meeting as it allowed the Board to have questions ready.

Mr. Snow asked what level of earthquake the dam is designed for. Mr. Webster responded that the earthquake analysis being considered is for a quake exceeding 7.0 magnitude over a 300-year period, and in the preliminary design modeling it was found that in this extreme type of quake the dam would remain intact and structurally stable, although it might settle slightly.

Mr. O'Connell commented that the ACSA Board has approved the financing for the North Fork Regional Pump Station and sewer lines, and the bond rate is 2.99% with the project coming in at 30% under construction engineer's estimates.

Mr. Boyd added that that is an opportunity cost that may be lost if this dam project is not moved along more quickly.

Noting the time, Ms. Mallek suggested that instead of rushing through the remaining agenda items, the Boards schedule another meeting in a couple of months.

Agenda Item No. 3. ACSA Budget.

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Agenda Item No. 4. ACSA Rates and Connection Fees

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Agenda Item No. 5. ACSA Sewer System Repair, Replacement and Rehabilitation.

Mr. O'Connell said that most of the information they provided is background information. He will be back before the Board early next year to do a quarterly report, and he will address some of the issues.

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Agenda Item No. 6. Adjourn to November 10, 2010, 3:30 p.m., Room 241.

At 12:06 p.m., Mr. Boyd **moved** to adjourn to November 10, 2010 at 3:30 p.m. in Room 241 of the County Building. Ms. Mallek **seconded** the motion. Roll was called and the motion carried by the following recorded vote:

AYES: Mr. Snow, Mr. Thomas, Mr. Boyd, Ms. Mallek and Mr. Rooker.

NAYS: None.

ABSENT: Mr. Dorrier.

The ACSA Board adjourned its meeting at the same time.

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Chairman

Approved by Board
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Date: 04/06/2011
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Initials: EWJ
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