From:	Ross Tompkins
To:	ntorrey@selcnc.org; mkimball@selcnc.org; mcclintock.julie@gmail.com
Cc:	Maurice Jones; John Richardson; Vencelin Harris; Laura Selmer
Subject:	Follow-Up Letter from Town Manager on Police Station Property
Date:	Monday, June 24, 2019 1:43:50 PM
Attachments:	Town Manager Letter - Written Responses to Questions - 2019.06.24.pdf

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Mr. Torrey, Ms. Kimball and Ms. McClintock:

Please see the attached letter from Maurice Jones, which he asked me to email to you on his behalf.

Ross

Ross Tompkins
Assistant to the Town Manager
Manager's Office
Town of Chapel Hill
405 Martin Luther King Jr Blvd
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June 24, 2019

VIA E-MAIL

Mr. Nick Torrey and Ms. Megan Kimball
Southern Environmental Law Center
601 W. Rosemary Street, Suite 220
Chapel Hill, NC 27516
ntorrey@selcnc.org
mkimball@selcnc.org

Ms. Julie McClintock
Friends of Bolin Creek
PO Box 234
Carrboro, NC 27510
mcclintock.julie@gmail.com

Mr. Torrey, Ms. Kimball and Ms. McClintock:

As you know, in December of 2018 I received your letter which included a series of questions regarding possible solutions for the coal ash contamination at the Chapel Hill Police Station property. This letter followed our initial meeting in November, and the conversation has of course continued with two additional meetings since that time. We have found these meetings helpful and productive and I hope the same is true for you all. More recently, you asked about getting a written response to your questions and we have provided our responses below (see blue text). A copy of your original letter is also attached.

Thank you for considering this information. I hope it is helpful to you and I look forward to our continued work together on this important project.

All the best,

Maurice Jones

Maurice Jones
Town Manager

Enclosed:

1. Responses to December 2018 Letter
2. Copy of December 2018 Letter

Attachment 1 - Responses to December 2018 Letter
Responses provided by Town Staff and Project Consultants
June 21, 2019

1. **Answer key questions on site hydrology and sampling**:

   - **Is ash in contact with groundwater?** In order to determine the long-term risk of continued pollution, the Town needs to know whether the ash is in contact with the groundwater, as monitoring well boring logs indicate. See page 3 of SELC's May 9, 2017 letter for a more detailed discussion of this issue. https://www.townofchapelhill.org/home/showdocument?id=35649

     Response: Based upon information from previous reports, we do not believe that Coal Combustion Products (CCPs) are in contact with groundwater. This is based upon descriptions of the soil borings performed in the CCP placement area by Falcon Engineering (such as depth and thickness of CCP and other materials encountered in each boring) in comparison to groundwater elevations measured by Hart & Hickman (H&H) in October 2016 and February 2019. A summary of that evaluation is provided in the table below. In the table, the Falcon Engineering (Falcon) report table with boring descriptions (in blue and green color) was amended with groundwater elevation data collected by H&H (in white columns) to evaluate if there is evidence that CCP is in contact with the water table. As indicated in the table, based upon the Falcon boring descriptions and groundwater elevation data, no CCP appears to have been placed below the water table. The depth between the anticipated bottom of the ash and the water table ranges from approximately 3 ft to greater than approximately 30 ft. Groundwater elevations were higher in March 2019 which is expected given the large amount of rainfall that occurred in 2018 and early 2019. We recognize that the driller's log for MW-1 indicates CCP to a depth of 40 ft. As explained in our response to previous comments on this issue dated April 6, 2017, this is inconsistent with data from borings GP-1 and GP-2 which are located in proximity to MW-1. In addition, as discussed in the previous responses, the driller's logs are often not correct with regard to lithology. Nevertheless, the Town is evaluating potential alternatives to further evaluate the relationship between CCPs and groundwater.

Geoprobe Location ID	Approx Ground Elevation (ft msl)	Final Boring Depth (ft bgs)	Depths Ash Present (ft bgs)	Approx. Elevation of Bottom of Ash (ft msl)	Appox. Groundwater Elevation - Nov 2016 (ft msl)	Approx. Distance Between Bottom of Ash and Groundwater (ft)	Appox. Groundwater Elevation - Feb 2019 (ft msl)	Approx. Distance Between Bottom of Ash and Groundwater (ft)	Soil Sampling Depth (ft bgs)	Notes
GP-1	345	14	9 - 12	333	313	20	323	10	8 - 12	Refusal at 14 ft bgs into weathered rock
GP-2	347	35	5 - 30	317	311	6	314	3	26 - 28	Refusal at 35 ft bgs
GP-3	339	17	10 - 16	323	310	13	312	11	10 - 12	Refusal at 17 ft bgs due to possible landfill debris
GP-4	347	20	3 - 16	331	311	20	313	18	10 - 12	Into native soils at 17 ft bgs
GP-5-A		8	4 - 8						No Samples	Refusal from wood debris at 8 ft bgs
GP-5	347	12	4 - 8	339	308	31	312	27	Sampled 4 - 6	Refusal at 12 ft bgs
GP-6	344	26	11 - 23	321	306	15	306	15	9 - 11	Into native soils at 24 ft bgs
GP-7	343	20	3 - 14	329	307	22	307	22	10 - 12	Into native soils at 16 ft bgs
GP-8	341	17	5 - 15	326	306	20	307	19	11 - 15	Into native soils at 16 ft bgs
GP-9		8	-						No Samples	Into native soils at 4 ft bgs / No ash observed
GP-10		8	-						No Samples	Into native soils at 1 ft bgs / No ash observed
GP-11	351	9	3 - 9	342	330	12	331	11	4 - 6	Refusal at 9 ft bgs
GP-12	362	12	2 - 10	352	330	22	333	19	2 - 4	Into native soils at 11 ft bgs

- **Is groundwater contamination stable, or is the plume migrating?** The Phase II remedial investigation activities included the installation of three permanent shallow monitoring wells (Phase II Report page 13). These wells should be sampled quarterly, on an ongoing basis, to understand how concentrations may be changing over time. For all the effort to install these wells, they have only been sampled once.

  Response: Re-sampling of all of the site monitor wells was conducted in April 2019, and the results have been posted to the Town's website. Results of analysis of the samples collected from the downgradient and cross-gradient wells (MW-3A, MW-4A, MW-6, and MW-7) indicate concentrations generally similar to or lower than those detected previously in November 2016. As such, there is no indication that the groundwater impacts are migrating. The Town will evaluate potential periodic sampling of the wells to further establish concentrations over time in the wells, although we believe that quarterly sampling is too frequent given the lack of evidence of groundwater impact migration.

- **What is the extent of the impacts to Bolin Creek?** More extensive surface water and sediment sampling in the creek, over a longer period of time, is needed. If metals are accumulating in the creek, they would tend to be associated with the fine-grained fractions of the sediment. Due to large amounts of gravel and sand in the creek, sediment samples should be properly sieved to remove such larger media, which can significantly bias reported concentrations.

  Response: Sampling of surface water and sediment was conducted again in April 2019, including collection of samples from additional locations downstream of the site. The results have been posted to the Town's website. The results of analysis of the April 2019 samples indicate that concentrations in surface water and sediment are generally similar to those detected in October 2016, that there is no significant impact to Bolin Creek, and that metals are not

accumulating in the sediment. Sediment sampling was performed in accordance with EPA Region 4 Science and Ecosystem Support Division (SESD) protocols. Sediment samples were collected from areas where finer grained sediment accumulation was noted in the creek and consisted of the sand, silt, and clay-sized particles. No gravel or larger sized particles were included in the samples submitted for laboratory analysis. The Town will evaluate potential periodic sampling of the surface water and sediment to further establish concentrations over time.

2. **Perform the following risk analyses**:

- Health risk assessment on the elevated part of the property.

  Response: The Town has contracted with Duncklee & Dunham to perform a risk assessment that is using soil, groundwater, sediment, and surface water analytical data collected across the entire property, including the 'elevated' part. The risk assessment includes calculations to evaluate hazards to on-site workers in the 'elevated' area. The results have been posted to the Town's website. As a precautionary step, six indoor air samples were collected from interior working spaces in the police station in April 2019 and analyzed for radon gas. Radon gas was not detected above actionable screening levels in any of the samples. There are no plans to collect additional samples from around the police station unless there is a change in land use or if a new exposure of coal ash is found. We can update our site reconnaissance of the elevated area to ensure there are no new exposures of coal ash in the area. Otherwise, the scope of the current risk assessment should be sufficient.

- Health risk assessment for current users of the police station.

  Response: As referenced above, indoor air samples have been collected from the police station. The samples did not detect radon gas above actionable levels. The results have been posted to the Town's website. Other contaminants of concern do not have volatile properties. There is no groundwater usage by users at the police station. Users of the police station do not utilize the portion of the property where the coal ash is exposed along the embankment. There is no child day care or outdoor playground at the police station. We believe the potential exposure pathways for users of the police station are being adequately addressed by the current risk assessment plan.

- Ecological risk analysis.

  Response: The Town has hired Duncklee & Dunham to perform human health and ecological risk assessments associated with the site, and the Town believes a partial risk assessment report will be completed in third quarter 2019, with the full risk assessment completed following the implementation of interim measures later in 2019.

3. **Conduct environmental justice analysis**:

   - What are the impacts to the communities that may use the site or live near the site?

     Response: From a risk assessment perspective, the use of the site by recreators and trespassers is being included in our evaluation. This includes recreators in and along the creek, and the greenway trail. The ecological risk assessment will also include the area in and along Bolin Creek. The Town is not aware of an environmental justice issue or any concerns of this nature having been raised by the local communities in the area of the police station property.

   - What are the impacts to the communities that may receive any removed ash?

     Response: The Town has hired Duncklee & Dunham to perform an environmental justice analysis for the site, and environmental justice will be considered as part of the potential remedial alternatives evaluation.

4. **Conduct floodplain analysis**:

   - What impact, if any, did flooding this fall have on the site?

     Response: A comparison of soil, groundwater, sediment, and surface water data collected in October 2016 to data collected in April 2019 does not indicate that environmental conditions at the site changed significantly as a result of flooding in 2018.

   - Is it structurally sound to construct a retaining wall in a floodplain?

     Response: The Town has not decided to construct a retaining wall in the floodplain of Bolin Creek. Construction of a retaining wall was considered in the preliminary evaluation of remedial options that Hart & Hickman completed in August 2018 (see response to comment #5 below regarding the purpose of the remedial evaluation). The plan conceptually considered the construction of a retaining wall along the edge of the floodplain and not within the floodplain. The primary structural concern for such a retaining wall is the potential suitability of the underlying floodplain soil to support a wall. The Town recognizes that structural conditions for a retaining wall would have to be more fully evaluated in the future as part of the remedial alternatives evaluation.

   - Is it legally permissible to construct a retaining wall in a floodplain?

     Response: It is generally difficult to permit a structure in the regulatory floodway of a surface water body. It may be possible to permit a structure in a floodplain.

Potential regulatory issues such as permitting will be considered as part of the remedial alternatives for the site.

5. **Examine a range of remedial options**: The Town staff and its consultants have presented two options: completely removing all coal ash from the site (an estimated 91,000 tons of ash and another 28,500 tons of cover soil) or leaving the ash in place with a retaining wall while removing only the ash deposited along the greenway (about 1,000 tons). This approach overlooks a multitude of options in between that could be more protective of public health and the environment than the retaining wall proposal if the ash is not in contact with groundwater. In order to make an informed decision, the Council should have information about the full range of remedial options. In particular, the Council should evaluate at least the following scenarios:

    - Remove the ash along the greenway and from the embankment. In particular, this option could remove a large amount of the source of possible contamination and reduce the structural risk of leaving this coal ash embankment on the edge of the flood-plain.

    - Use the existing cover soil as fill to replace removed CCP. This option has the potential to eliminate 28,500 tons of soil from being removed. The cover soil has considerably lower concentrations of metals (approximately an order of magnitude lower metals concentrations). Use the cover soil as back fill as needed.

    - Reuse removed ash from the embankment and greenway in synthetically-lined structural fill on site to level the upland area and provide a synthetic cap for underlying ash (assuming it is not in contact with groundwater).

    - Reuse removed ash as lined structural fill in other municipal projects.

    - Remove ash to Brickhaven coal ash disposal area in Chatham County, operated by Charah, Inc.

    - Evaluate other available options for recycling the ash.

    - If ash will be left in place (assuming it is not in contact with groundwater), evaluate use of synthetic cap.

    Response: The purpose of the August 20, 2018 Remedial Alternatives Evaluation was to perform a preliminary review of a reasonable low disturbance option and the full removal option to provide a range of reasonable expected costs for Town planning purposes. The August 20, 2018 Remedial Alternatives Evaluation was not intended to evaluate a complete list of potential remedial alternatives which may be considered

for the entire site. The Town expects to more fully evaluate a range of remedial alternatives once a decision has been made about the future home for the police station. With regard to the options noted above, we offer the following comments:

- The Town expects that partial CCP removal along the embankment will be considered in future remedial evaluations.

- It may be difficult to re-use the cover soil over the CCP on-site because it contains elevated levels of arsenic and other metals (albeit at lower concentrations than the CCP). To re-use the cover soil without permitting, it would have to qualify as beneficial fill in accordance with North Carolina rules and would have to be "uncontaminated". Based upon the presence of elevated metals levels, it may not be able to use the cover soil and beneficial fill.

- Use of a synthetic liner is a potential alternative to consider, although the future use of the upland portions of the site will have to be considered in such an evaluation.

- Although possible, the potential to use CCP in other municipal projects would depend upon the type of projects planned as well as the timing of any CCP removal in relation to timing of the other municipal projects and the need for structural fill at those locations.

- We contacted both Charah and Duke Energy about potential use of Charah's Brickhaven coal ash disposal facility. Charah indicated they are only permitted to accept coal ash from Duke Energy facilities and, for an expected volume of 60,000 cubic yards of CCPs, they would not be willing to revise their permit. Duke Energy confirmed that Charah is not permitted to accept coal ash from non-Duke Energy facilities.

- We also contacted SEFA which operates coal ash recycling facilities in South Carolina which process CCP for use in cement products (referenced in comment below with regard to Duke Weatherspoon plant). SEFA indicated that because the source, type, and condition of CCP is not known, testing would have to be performed to determine the suitability of the material for supplementary use in concrete. But, SEFA indicated that they believed the best opportunity for reuse of the material is for

structural fill (like highway projects) and not as supplementary material in concrete. SEFA indicated that because of the backlog of opportunities to work with electric utilities on legacy coal ash facilities, SEFA would likely not able to assist with non-utility coal ash projects.

6. **Perform cost analysis**: The cost analysis provided to the Town in August 2018 is limited to two options and does not completely account for the costs and benefits of either option over the lifetime of the site. Additionally, it is based solely upon estimates provided by potential contractors. This is problematic because a potential contractor may have incentive to inflate the estimate so that its later bid for the project seems more reasonable—in some localities, a contractor that participated in scope drafting or cost estimating would prohibited from submitting a bid due to conflict of interest. To confirm the estimate is not inflated, the Town should look at a variety of sources for cost information, including past contracts for similar services and other municipalities' contracts for similar services.

Response: As noted above, the August 20, 2018 Remedial Alternatives Evaluation was intended to be a preliminary evaluation of costs for a reasonable low disturbance option and the full removal option, and was not intended to be a detailed evaluation of all remedial options and their associated costs. However, based upon Hart & Hickman's extensive experience with remediation of sites in North Carolina and the Southeast United States, the costs provided in the August 2018 valuation are consistent with costs for similar projects. As noted above, the Town expects to more fully evaluate a range of remedial alternatives (and costs for those alternatives) at the appropriate time in the future.

The Town should consider performing another cost analysis for all options (not just the two extremes) that includes the following information:

- *Excavation, transportation, and disposal costs.*
    - Has Chapel Hill excavated, transported, and disposed of ash or something similar (like soil) in the past? How much did it cost per ton? Where was it disposed?

      Response: The Town does not have a recent, similar example.

    - Have other municipalities excavated, transported, or disposed of ash or soil in the past? How much did it cost per ton? Would they share their contract with the Town?

      Response: We have not heard directly from other municipalities about recent, similar examples. This is something we could do in the future. We understand that the cost per ton is market dependent and can vary

on a number of factors. Our risk consultant, Duncklee & Dunham, has shared with us that the cost per ton provided by our environmental engineering consultant, Hart & Hickman, is generally consistent with their understanding of the market for a project like ours.

- How does UNC Chapel Hill dispose of its coal ash from the cogeneration facility? How much does it cost per ton? Would they share their contract with the Town?

  Response: We respectfully request that you ask UNC this question directly.

- In addition to Rougemont and Uwharrie, which landfills will accept coal ash and contaminated soil? How far away are they? What are their disposal costs?

  Response: The closest facilities that may accept the CCPs and impacted soil are the Person Co. landfill in Rougemont (about 45 miles), the Waste Management Great Oaks Landfill in Randleman (about 70 miles), the Republic Services Uwharrie landfill in Mt Gilead (about 90 miles), and the Waste Industries Sampson Co. landfill in Roseboro (about 90 miles). Disposal fees at these facilities are typically similar (approximately $40 to $45/ton), although pricing depends upon the amount to be disposed and timing of when the disposal will occur. Some facilities may not have capacity to accept large volumes and therefore, multiple facilities may have to be used for large volume disposal. Transportation costs are dependent upon the distance to the facility and fuel costs at the time.

- How much of the transportation and disposal costs could be eliminated or offset if ash is used as lined structural fill on-site? Off-site? Or recycled some other way (e.g. cement manufacturing, as is being done in South Carolina using ash from Duke Energy's Weatherspoon coal ash site in Lumberton, NC)?

  Response: As noted above, a range of remedial alternatives will be evaluated in the future which may include reuse of CCPs on-site and off-site, or possibly for recycling. Other than potential re-use of smaller volumes of coal ash on-site, based upon the lack of space on-site, we do not believe it would be practical to remove all of the CCPs from the site and then replace the CCPs at the site in a liner. To reuse large volumes of CCPs on-site, the CCPs would have to be excavated from the site, transported to some location for temporary storage, and then transported back to the site. Use of CCPs off-site will likely be highly dependent

upon the timing of the remedial activities, which is not known at this time. Therefore, although off-site reuse is possible, it will be difficult to count on off-site reuse until the timing of the remedial actions are more fully understood.

- *Import, place, and compact backfill costs*. How much of the backfill costs could be eliminated if ash is used as lined structural fill on-site?

  Response: See response to previous comment above.

- *Retaining wall costs*. If embankment ash will be left in place, what are the full costs of a retaining wall engineered to withstand 500 year flood? A structural engineer should be consulted.

  Response: As noted above, a structural engineering evaluation will be conducted for a retaining wall, if such an alternative is selected for further evaluation.

- *Maintenance and monitoring costs*.

  - For remedial options that leave ash in place, how much will it cost to monitor the contamination for the life of the site?

  - For remedial options that require technological controls, such as a synthetic cap or retaining wall, how much will it cost to maintain those controls for the life of the site?

  Response: Potential maintenance and monitoring costs will be considered as part of the potential remedial alternatives for the site.

- *Timing*.

  - What would the cost of each remedial option be if the project were phased over two or more years to spread the costs?

  - What is the present value of future cleanup actions?

  Response: Potential phasing of remedial alternatives and the cost implications of phasing will be considered at the appropriate time in the remedial alternatives evaluation process. Present value of the remedial action costs may be considered if appropriate, but a present value calculation assumes that the Town will set aside money for the remedy and earn interest on that money, which may or may not be the case.

- *Tax exclusions*. What is the potential benefit for a developer/tax loss to the Town and County if the property is remediated by a private developer under the

Brownfields Program?

Response: The benefit to a potential developer largely depends on the use determined for the site, the potential density of development, and the improvements made to the property. Because the property is currently owned by the Town, there are no property taxes paid to the Town or County. The North Carolina Brownfields program offers the following exclusion rates:

- 1st year = 90%
- 2nd year = 75%
- 3rd year = 50%
- 4th year = 30%
- 5th year = 10%

A developer would assume the responsibility for remediating the property in accordance with the standards of the North Carolina Brownfields Program, overseen by the North Carolina Department of Environmental Quality (NCDEQ). If a developer were to assume this responsibility, they would pay all remediation costs and the Town and County would receive full tax payments after year 6. The Council has not yet determined whether they wish to sell the property.

7. **Re-evaluate the property valuation**: There are a few issues with the January 2018 appraisal that the Council should look into. Based on these issues, the Council may consider getting a second appraisal. Specifically:

   - *Cost of remediation.* In determining a property valuation of $0, the January 2018 appraisal assumes cleanup costs of $10 million, which may be grossly inflated. What is a more realistic estimate that could be used for the appraisal? Additionally, what if the Town remediated under the Inactive Hazardous Sites Branch's Voluntary Cleanup Program, which has a cleanup cap of $5 million?

     Response: Until a future use of the site and a final remediation plan is determined, the full cost of remediation remains unknown.

   - *Tax value.* Orange County's online records reflect a tax value of $3,488,000, but the tax value used by the appraiser was only $218,000. Which is correct? http://web.co.orange.nc.us/realestatedata/Summary.asp?AccountNumber=51579

     Response: The tax value when the property was appraised was $218,000 (a copy of the tax card showing this value is in the taxes and assessment section of the report). Subsequently, Orange County changed the value to $3,488,000. After discussing this value with the County, we learned that they were unaware of the

contamination. The value of $3.4 million was based on an assumption of uncontaminated land and did not include existing development on the property. In June, the County reevaluated their assessment and determined the property's value to be $958,600, broken down as follows:

Land = $697,600

Building = $256,000

Yard Items (Paving & Storage Bldg.) = $5,000

According to the Orange County Tax Office, the land valuation takes into account that a portion of the land is located in a flood plain, and after that deduction, all component values have been reduced 75% to estimate the effect of the contamination (and unknown total cost of remediation) on the marketability and market value of the property.

The property is not currently subject to tax collection because it is publicly owned.

- *Comparables*. Were the comparables sufficient?

  Response: Comparables of this type in Chapel Hill are rare. The appraiser used the best available.

- *Future value with deed restrictions*. The appraisal only lists the values "with" and "without" contamination. What would be the future value of the property if partially remediated with deed restrictions?

  Response: The value could be different if the site were partially remediated but is difficult to determine at this time. The concern with this would be the potential for future liability on the purchaser. The value would also depend on the nature of the deed restrictions and prohibited or limited use types.

8. **Identify potentially responsible parties**:

   - Can the Town identify any responsible parties (people who deposited, contracted or arranged for deposits, or accepted deposits of the ash at the site)?

     Response: With further investigation, the Town may be able to do so. The priority thus far has been to investigate the environmental conditions on and near the property, assess the risks posed by those conditions, and to identify and evaluate remedial options, some of which have already been implemented.

   - From a legal standpoint, is it possible to recover some remediation costs from

those responsible parties?

Response: That may be possible. The federal Comprehensive Environmental Recovery and Liability Act, commonly referred to as the Superfund Law, includes a cause of action to any party that voluntarily incurs "response costs" (i.e., costs incurred in response to a release or threatened release of hazardous substances), from any "potentially responsible party." The Town has engaged outside environmental counsel to advise on this subject.

Attachment 2 - Copy of December 2018 Letter

SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 919-967-1450 | 601 WEST ROSEMARY STREET, SUITE 220 CHAPEL HILL, NC 27516-2356 | Facsimile 919-929-9421

December 19, 2018

VIA E-MAIL

Mr. Maurice Jones
Town Manager
Town of Chapel Hill
Town Hall, Third Floor
405 Martin Luther King Jr. Blvd
Chapel Hill, NC 27514
manager@townofchapelhill.org

Re: Information Needed to Evaluate Solutions for Coal Ash Contamination at the Chapel Hill Police Station

Mr. Jones:

As we discussed in our November meeting about coal ash issues at the Chapel Hill Police Station, please find below a list of the information gaps and steps needed to develop a solid range of options for the public and Town Council to consider.

In November, we also discussed the timing of the review by advisory boards and the public. We recommend that the Town obtain and disclose the information listed below before the advisory boards and public meet—this way, the boards and the public will have the information needed to make a decision.

Please contact Megan Kimball at (919) 967-1450 or mkimball@selcnc.org if you have any questions.

Thank you for your consideration,

Julie McClintock
Friends of Bolin Creek

Nick Torrey and Megan Kimball
Attorneys, Southern Environmental Law Center

Information Needed to Evaluate Solutions for Coal Ash Contamination at the Chapel Hill Police Station

1. **Answer key questions on site hydrology and sampling**:

   - **Is ash in contact with groundwater?** In order to determine the long-term risk of continued pollution, the Town needs to know whether the ash is in contact with the groundwater, as monitoring well boring logs indicate. See page 3 of SELC's May 9, 2017 letter for a more detailed discussion of this issue. https://www.townofchapelhill.org/home/showdocument?id=35649

   - **Is groundwater contamination stable, or is the plume migrating?** The Phase II remedial investigation activities included the installation of three permanent shallow monitoring wells (Phase II Report page 13). These wells should be sampled quarterly, on an ongoing basis, to understand how concentrations may be changing over time. For all the effort to install these wells, they have only been sampled once.

   - **What is the extent of the impacts to Bolin Creek?** More extensive surface water and sediment sampling in the creek, over a longer period of time, is needed. If metals are accumulating in the creek, they would tend to be associated with the fine-grained fractions of the sediment. Due to large amounts of gravel and sand in the creek, sediment samples should be properly sieved to remove such larger media, which can significantly bias reported concentrations.

2. **Perform the following risk analyses**:

   - Health risk assessment on the elevated part of the property.
   - Health risk assessment for current users of the police station.
   - Ecological risk analysis.

3. **Conduct environmental justice analysis**:

   - What are the impacts to the communities that may use the site or live near the site?
   - What are the impacts to the communities that may receive any removed ash?

4. **Conduct floodplain analysis**:

   - What impact, if any, did flooding this fall have on the site?

- Is it structurally sound to construct a retaining wall in a floodplain?
- Is it legally permissible to construct a retaining wall in a floodplain?

5. **Examine a range of remedial options**: The Town staff and its consultants have presented two options: completely removing all coal ash from the site (an estimated 91,000 tons of ash and another 28,500 tons of cover soil) or leaving the ash in place with a retaining wall while removing only the ash deposited along the greenway (about 1,000 tons). This approach overlooks a multitude of options in between that could be more protective of public health and the environment than the retaining wall proposal if the ash is not in contact with groundwater. In order to make an informed decision, the Council should have information about the full range of remedial options. In particular, the Council should evaluate at least the following scenarios:

   - Remove the ash along the greenway and from the embankment. In particular, this option could remove a large amount of the source of possible contamination and reduce the structural risk of leaving this coal ash embankment on the edge of the flood-plain.
   - Use the existing cover soil as fill to replace removed CCP. This option has the potential to eliminate 28,500 tons of soil from being removed. The cover soil has considerably lower concentrations of metals (approximately an order of magnitude lower metals concentrations). Use the cover soil as back fill as needed.
   - Reuse removed ash from the embankment and greenway in synthetically-lined structural fill on site to level the upland area and provide a synthetic cap for underlying ash (assuming it is not in contact with groundwater).
   - Reuse removed ash as lined structural fill in other municipal projects.
   - Remove ash to Brickhaven coal ash disposal area in Chatham County, operated by Charah, Inc.
   - Evaluate other available options for recycling the ash.
   - If ash will be left in place (assuming it is not in contact with groundwater), evaluate use of synthetic cap.

6. **Perform cost analysis**: The cost analysis provided to the Town in August 2018 is limited to two options and does not completely account for the costs and benefits of either option over the lifetime of the site. Additionally, it is based solely upon estimates provided by

potential contractors. This is problematic because a potential contractor may have incentive to inflate the estimate so that its later bid for the project seems more reasonable—in some localities, a contractor that participated in scope drafting or cost estimating would prohibited from submitting a bid due to conflict of interest. To confirm the estimate is not inflated, the Town should look at a variety of sources for cost information, including past contracts for similar services and other municipalities' contracts for similar services.

The Town should consider performing another cost analysis for all options (not just the two extremes) that includes the following information:

- *Excavation, transportation, and disposal costs.*
    - Has Chapel Hill excavated, transported, and disposed of ash or something similar (like soil) in the past? How much did it cost per ton? Where was it disposed?
    - Have other municipalities excavated, transported, or disposed of ash or soil in the past? How much did it cost per ton? Would they share their contract with the Town?
    - How does UNC Chapel Hill dispose of its coal ash from the cogeneration facility? How much does it cost per ton? Would they share their contract with the Town?
    - In addition to Rougemont and Uwharrie, which landfills will accept coal ash and contaminated soil? How far away are they? What are their disposal costs?
    - How much of the transportation and disposal costs could be eliminated or offset if ash is used as lined structural fill on-site? Off-site? Or recycled some other way (e.g. cement manufacturing, as is being done in South Carolina using ash from Duke Energy's Weatherspoon coal ash site in Lumberton, NC)?
- *Import, place, and compact backfill costs.* How much of the backfill costs could be eliminated if ash is used as lined structural fill on-site?
- *Retaining wall costs.* If embankment ash will be left in place, what are the full costs of a retaining wall engineered to withstand 500 year flood? A structural engineer should be consulted.

- *Maintenance and monitoring costs.*
    - For remedial options that leave ash in place, how much will it cost to monitor the contamination for the life of the site?
    - For remedial options that require technological controls, such as a synthetic cap or retaining wall, how much will it cost to maintain those controls for the life of the site?
- *Timing.*
    - What would the cost of each remedial option be if the project were phased over two or more years to spread the costs?
    - What is the present value of future cleanup actions?
- *Tax exclusions.* What is the potential benefit for a developer/tax loss to the Town and County if the property is remediated by a private developer under the Brownfields Program?

7. **Re-evaluate the property valuation**: There are a few issues with the January 2018 appraisal that the Council should look into. Based on these issues, the Council may consider getting a second appraisal. Specifically:
    - *Cost of remediation.* In determining a property valuation of $0, the January 2018 appraisal assumes cleanup costs of $10 million, which may be grossly inflated. What is a more realistic estimate that could be used for the appraisal? Additionally, what if the Town remediated under the Inactive Hazardous Sites Branch's Voluntary Cleanup Program, which has a cleanup cap of $5 million?
    - *Tax value.* Orange County's online records reflect a tax value of $3,488,000, but the tax value used by the appraiser was only $218,000. Which is correct? http://web.co.orange.nc.us/realestatedata/Summary.asp?AccountNumber=51579
    - *Comparables.* Were the comparables sufficient?
    - *Future value with deed restrictions.* The appraisal only lists the values "with" and "without" contamination. What would be the future value of the property if partially remediated with deed restrictions?
8. **Identify potentially responsible parties**:
    - Can the Town identify any responsible parties (people who deposited, contracted or arranged for deposits, or accepted deposits of the ash at the site)?

- From a legal standpoint, is it possible to recover some remediation costs from those responsible parties?