January 30, 2015

Mr. Lance Norris
Public Works Director
Public Works
Town of Chapel Hill
6850 Millhouse Road
Chapel Hill, NC 27516-8173
lnorris@townofchapelhill.org

Re: Responses to Friends of Bolin Creek December 26, 2014 Letter
828 Martin Luther King Jr Blvd, Chapel Hill NC
Site ID # NONCD0001486
Falcon Project Number: E13047

Dear Mr. Norris:

Falcon Engineering, Inc. (Falcon) is in receipt of the December 26, 2014 letter from Ms. Julie McClintock with the Friends of Bolin Creek addressed to you. This letter provides comments on the Phase I Remedial Investigation Work Plan (Work Plan) dated November 10, 2014 prepared by Falcon for the Town of Chapel Hill, which is voluntarily investigating the environmental impacts of coal ash detected at the police building site referenced above. As a point of clarification this Work Plan was revised and submitted on December 17, 2014 following NC DENR's December 3, 2014 comments. This revised Work Plan was approved by NC DENR on December 18, 2014.

Falcon staff has reviewed the comments and provides the following information in response.

Comment 1:
"The Town should continue to sample groundwater from MW-1 as requested by DENR in its September 19th letter. The most recent results from this well showed violations of the North Carolina 2L groundwater standards for arsenic, barium, chromium, and lead. However, Falcon Engineering's October 3, 2014 response for the Town to DENR's September 19, 2014 comments asserts without support that "MW-3 and MW-4 provide more adequate evaluation of groundwater impacts." The validity of MW-1's results have not been called into question by the Town, Falcon, or DENR, and they show significant levels of coal ash contamination of groundwater. The Town, via Falcon, provided inaccurate and misleading responses to DENR's Site Evaluation Questionnaire (#5) when it stated there is no impact to groundwater. First, the Town inappropriately relied on filtered samples, as DENR pointed out in its September 19 comments, and it ignored the earlier results showing serious groundwater contamination. Second, the Town ignored the MW-1 results, even though there is no exception in the 2L groundwater rules for unpermitted groundwater pollution on the property."

Response to Comment 1:
The Work Plan specifically includes additional sampling of MW-1. MW-1 is located within the limits of historical fill materials which provide direct interaction with these materials and the groundwater being sampled. As a result, the groundwater is more directly impacted by these materials and does not provide an accurate reflection of how groundwater that leaves this site will potentially impact off-site receptors, such as Bolin Creek or downstream wells.

MW-3 and MW-4 are both adjacent to and down gradient of these historical fill materials and therefore provide a more adequate evaluation of groundwater impacts for potential off-site receptors.

Falcon's response to NC DENR's Site Evaluation Questionnaire (#5) was not intended to mislead in anyway. As these efforts are intended to establish a level of risk for this site, MW-3 and MW-4, as discussed previously, provide a better representation of potential off-site impacts and therefore were referenced when answering this question.

Filtered samples analyzed for MW-3 and MW-4 were collected at the request of NC DENR due to known turbidity issues within these wells. Turbidity has been well documented to create an artificial bias on lab analysis for metals. Therefore, these filtered samples were collected and analyzed to confirm the presence of this bias.

Comment 2:
"The Work Plan proposes to replace two existing groundwater monitoring wells, MW-3 and MW-4, which the Work Plan states are exhibiting high turbidity. To our knowledge, no concerns about turbidity were raised in the March 2014 Site Characterization report that presented results from MW-3 and MW-4. The validity of those groundwater monitoring data was not questioned by the Town or its environmental consultant, Falcon Engineering, in that report. Thus, we question the need to replace MW-3 and MW-4."

Response to Comment 2:
Turbidity has been observed and documented within these wells from the initial sample collections provided in the cited report above. Appendix B of the March 2014 Site Characterization report specifically documents the clarity of the samples collected via bailing tubes. The attached May 28, 2014 letter from NC DENR provided their direction that this turbidity resulted in unreliable samples and supplemental sampling was needed. Accordingly, additional wells are being installed to provide a more reliable sampling result.

Comment 3:
"Regardless, additional monitoring wells are needed. The Town should install more monitoring wells in order to sample groundwater from more locations on the site. In order to document the extent of groundwater contamination and adequately evaluate the site, we request that the Town install additional monitoring wells on the eastern portion of the property and several monitoring wells along the southern border of the property between the Bolin Creek Trail and Bolin Creek. This is important in order to ascertain the extent of groundwater contamination in the vicinity of Bolin Creek that may be flowing into the creek."

Response to Comment 3:
This site is being studied to assist NC DENR in determining the level of risk posed by the historical fill materials on the property. NC DENR may determine that additional monitoring wells will be needed based upon the sampling completed under the current Work Plan. If so Falcon Engineering will work with the Town of Chapel Hill to install these additional wells.

Comment 4
"We also request that the Town begin sampling the sediments in Bolin Creek at and downstream of the Police Station property. Duke University studies have found that coal ash pollutants tend to accumulate in the sediments of nearby water bodies, and in this case the contaminated groundwater at the site appears to flow to Bolin Creek. The Town has tested the surface water column but not the sediments. We requested sediment testing in our May 20, 2014 letter and petition to the Town Council and reiterate it here. Upstream samples should be taken above Pathway Drive in Carrboro, where the Creek is not on the 303(d) impaired list."

Response to Comment 4:

NC DENR and Falcon Engineering staff jointly inspected Bolin Creek regarding this specific issue. From these observations it appears that the geomorphology of the creek in the vicinity of the Police Station does not lend itself to appreciable sediment deposition. Specifically, the exposed rock bed and frequent high flow rates make it difficult to determine the source(s) of any sediment that may collect at any given location. As the site investigation proceeds, we will continue to undertake whatever sampling is recommended by NC DENR.

Comment 5:

"Sampling of both the monitoring wells and creek sediments should test for boron – a pollutant frequently associated with coal ash -- in addition to the full range of constituents analyzed in the July 2013 Site Assessment report (see p. 20 of that report), which included dangerous substances like thallium that were not sampled in the more recent testing."

Response to Comment 5:

Although not requested by NC DENR, the analytical method for determining the presence of Boron (EPA 6010C) was run for all lab analyses completed at the Police Station property. Boron was not detected within these samples. Analysis for Thallium was not requested by NC DENR or included in more recent testing as there is no groundwater standard established by NC DENR for this compound.

Comment 6:

"The Town has inaccurately and misleadingly responded to the Site Conditions Questionnaire (#4) with respect to Bolin Creek. The Questionnaire asks whether the creek is known to be impacted. The Town's July 2013 Site Assessment report (p.21) found exceedences of water quality standards for iron and manganese, and stated, "Surface water sampled from Bolin Creek exhibited results indicative of environmental contamination above established action levels." But the Town does not acknowledge this finding in its response to the Questionnaire. Instead, the Town cites only its March 2014 testing to claim there is no impact to the creek; even then, the March 2014 testing showed barium in the surface waters."

Response to Comment 6:

The July 2013 report, referenced above, provided a set of preliminary findings based upon very limited sampling. The purpose of this initial investigative effort was to gather preliminary data to determine the nature of further investigations needed at the property. Specifically, the finding cited above was based upon a single surface water sample and did not include upstream and downstream samples in making this determination. In addition, this finding was not accurately reported, as Table 1 of that report provided the NC DENR groundwater standards as a basis for determining regulatory compliance rather than the NC DENR surface water standards. This is not an appropriate comparison and a corrected table has been provided within Appendix C for clarity and reference. As shown within this revised table, all compounds detected were below all applicable surface water standards. In addition, the March 2014 testing shows barium present at levels below these same referenced standards and present in identical concentrations in samples collected upstream and downstream from the site. This result indicates that the detected concentration is not a result of the fill materials located on the Police Station property.

The July 2013 report also provides a preliminary finding that groundwater has been impacted on the property. As discussed previously, this was in reference to the sampling collected from MW-1 and MW-2 both located directly within the historical fill materials. As a result of this preliminary information, additional down gradient monitoring wells were installed, and are currently being re-installed, to accurately determine if groundwater has been impacted that would pose any risk to human health or the environment.

We appreciate the opportunity to provide these responses to the questions/comments provided. It is important to note that this site remains in a stable condition and the Town continues to maintain adequate site controls to ensure that it does not pose a risk to human health or the environment.

Sincerely,
FALCON ENGINEERING, INC.

Josh Dunbar, PE
Director of Design Services

Enclosures

ATTACHMENT A | DECEMBER 26, 2014 FRIENDS OF BOLIN CREEK LETTER

Friends of Bolin Creek
P.O. Box 234
Carrboro, NC 27510
December 26, 2014

Mr. Lance Norris, Public Works Director
Town of Chapel Hill
405 Martin Luther King Jr. Blvd.
Chapel Hill, NC 27514
lnorris@townofchapelhill.org

Dear Mr. Norris:

We have reviewed the Town of Chapel Hill ("Town") and Falcon Engineering's Phase I Remedial Investigation Work Plan (the "Work Plan"), as well as DENR's comments on the plan in a December 3, 2014 email exchange requesting a revised Work Plan. We offer the following comments for the Town's forthcoming revision to the Work Plan:

1. The Town should continue to sample groundwater from MW-1 as requested by DENR in its September 19th letter. The most recent results from this well showed violations of the North Carolina 2L groundwater standards for arsenic, barium, chromium, and lead. However, Falcon Engineering's October 3, 2014 response for the Town to DENR's September 19, 2014 comments asserts without support that "MW-3 and MW-4 provide more adequate evaluation of groundwater impacts." The validity of MW-1's results have not been called into question by the Town, Falcon, or DENR, and they show significant levels of coal ash contamination of groundwater. The Town, via Falcon, provided inaccurate and misleading responses to DENR's Site Evaluation Questionnaire (#5) when it stated there is no impact to groundwater. First, the Town inappropriately relied on filtered samples, as DENR pointed out in its September 19 comments, and it ignored the earlier results showing serious groundwater contamination. Second, the Town ignored the MW-1 results, even though there is no exception in the 2L groundwater rules for unpermitted groundwater pollution on the property.

2. The Work Plan proposes to replace two existing groundwater monitoring wells, MW-3 and MW-4, which the Work Plan states are exhibiting high turbidity. To our knowledge, no concerns about turbidity were raised in the March 2014 Site Characterization report that presented results from MW-3 and MW-4. The validity of those groundwater monitoring data was not questioned by the Town or its environmental consultant, Falcon Engineering, in that report. Thus, we question the need to replace MW-3 and MW-4.

3. Regardless, additional monitoring wells are needed. The Town should install more monitoring wells in order to sample groundwater from more locations on the site. In order to document the extent of groundwater contamination and adequately evaluate the

site, we request that the Town install additional monitoring wells on the eastern portion of the property and several monitoring wells along the southern border of the property between the Bolin Creek Trail and Bolin Creek. This is important in order to ascertain the extent of groundwater contamination in the vicinity of Bolin Creek that may be flowing into the creek.

4. We also request that the Town begin sampling the sediments in Bolin Creek at and downstream of the Police Station property. Duke University studies have found that coal ash pollutants tend to accumulate in the sediments of nearby water bodies, and in this case the contaminated groundwater at the site appears to flow to Bolin Creek. The Town has tested the surface water column but not the sediments. We requested sediment testing in our May 20, 2014 letter and petition to the Town Council and reiterate it here. Upstream samples should be taken above Pathway Drive in Carrboro, where the Creek is not on the 303(d) impaired list.

5. Sampling of both the monitoring wells and creek sediments should test for boron – a pollutant frequently associated with coal ash -- in addition to the full range of constituents analyzed in the July 2013 Site Assessment report (see p. 20 of that report), which included dangerous substances like thallium that were not sampled in the more recent testing.

6. The Town has inaccurately and misleadingly responded to the Site Conditions Questionnaire (#4) with respect to Bolin Creek. The Questionnaire asks whether the creek is known to be impacted. The Town's July 2013 Site Assessment report (p.21) found exceedences of water quality standards for iron and manganese, and stated, "Surface water sampled from Bolin Creek exhibited results indicative of environmental contamination above established action levels." But the Town does not acknowledge this finding in its response to the Questionnaire. Instead, the Town cites only its March 2014 testing to claim there is no impact to the creek; even then, the March 2014 testing showed barium in the surface waters.

Thank you for your attention to the serious contamination the Town has documented thus far at the Police Station property, and for your consideration of these comments in order to ensure a thorough understanding of the extent of the pollution and need to clean it up.

Sincerely,

Julie McClintock
President, Friends of Bolin Creek

cc: Ms. Amy Axon, Division of Waste Management, NC DENR
Qu Qi, Central Unit Regional Supervisor at DENR
Friends of Bolin Creek Board members

ATTACHMENT B | MAY 28, 2014 NC DENR LETTER

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

Via e-mail

May 28, 2014

Mr. Mark Kleinschmidt
Mayor and Town Council
405 Martin Luther King Jr, Boulevard
Chapel Hill, NC 27514

Subject: Chapel Hill Police Department Property
NONCD0001846

Dear Mr. Kleinschmidt:

Thank you for providing our agency a copy of the public petition to the Town of Chapel Hill in regard to the subject property located at 828 Martin Luther King Jr. Boulevard, Chapel Hill, North Carolina. Our office wishes to provide clarification on several points mentioned in the petition regarding the Department of Environment and Natural Resources' (DENR) oversight and review process. It appears that the DENR's position was misconstrued; we request that this letter be entered into the record with the petition letter.

1) After the Town of Chapel Hill submitted sampling results indicating that a release of hazardous substances has occurred at the site, the Inactive Hazardous Site Branch in DENR's Division of Waste Management sent a letter of Regulatory Requirements to the town's representative (a copy is attached). The site has now been catalogued in our site inventory. Reports and records are available online using ID Number NCNON0001486. To access our file records go to: http://portal.ncdenr.org/wcb/wm/ihshome . Click on the link called "Superfund Section File Access" on the left side of the page.

2) The site is still in the early stages of investigation. Groundwater data needs to be confirmed. All of the groundwater samples having elevated metals also had high turbidity values. Turbid samples result in falsely elevated laboratory results that are not indicative of true dissolved metals concentrations in the groundwater. We recommend that all existing monitoring wells be resampled using methods to obtain lower turbidity samples. Monitoring Well 4 (MW-4) in particular should be redeveloped and then sampled using a low-flow groundwater pump. Turbidity readings should be collected. Further, it would be best to wait up to the full allowed 24-hour limit before sample collection after development and purging to allow the wells to clarify.

3) Depending on the degree of hazards present, immediate response actions may be necessary to abate current exposure to contamination. The town should complete the Site Condition Questionnaire (attached) also found at the above identified web site and send it to our office. At higher risk sites, the Division of Waste Management will directly oversee and approve testing and contaminant abatement work conducted by responsible parties or property owners. At sites the Division determines are not the highest risk, the Division recommends that the responsible party enter into our privatized oversight program to help expedite approval of voluntary party contaminant cleanup actions. This program is called the Registered Environmental Consultant (REC) Program. The REC Program was established to remove a bottleneck for approval caused by limited state staff available for oversight of cleanup actions. The technical requirements for assessment and remediation are the same for both REC and state staff oversight and approval of work.

4) When the site investigation is complete, the town will be required to propose a remediation plan considering all the available data and risks if the site is determined to be a high risk case or if the Town volunteers to conduct contaminant remediation. However, it is premature to speculate about the proper final remedy at this stage. The final remedy decision will depend on site contaminants, geologic conditions, and the results of a risk evaluation. Remedies can include one or more actions, ranging from excavation and off-site disposal of contaminated materials, to remediation of contaminated groundwater, or to limited engineering controls and land use restrictions, among others.

5) The size of a site is not a factor in deciding if investigation and remediation are needed. Remedies are designed to address impacts to human health and to the environment. The size of a waste disposal area is but one of many factors taken into consideration when determining what type of remedy is appropriate and protective for a site.

I hope this letter provides clarification on the current status of the site, and DENR's procedures in dealing with this type of site. Please do not hesitate to contact me at 919-707-8213 or qu.qi@ncdenr.gov if you have any questions.

Sincerely,

Qu Qi, PG, Central Region Unit Supervisor
Division of Waste Management, NCDENR

enclosures

ec: Friends of Bolin Creek
Julie McClintock
Jason Damweber
Josh Dunbar

ATTACHMENT C | JUNE 20, 2013 BOLIN CREEK SURFACE WATER SAMPLE RESULTS

Compound	Units	Bolin Creek	15A NCAC 2B Surface Water Standards		
			Human Health	Water Supply	Freshwater Aquatic Life
Aluminum	ug/L	290	NA	NA	NA
Antimony	ug/L	ND	NA	NA	NA
Arsenic	ug/L	0.9	10	10	50
Barium	ug/L	27	NA	1000	NA
Beryllium	ug/L	ND	NA	NA	6.5
Cadmium	ug/L	ND	NA	NA	2
Calcium	ug/L	16000	NA	NA	NA
Chromium	ug/L	ND	NA	NA	50
Cobalt	ug/L	0.37	NA	NA	NA
Copper	ug/L	2.6	NA	NA	7
Iron	ug/L	860	NA	NA	1000
Lead	ug/L	0.5	NA	NA	25
Magnesium	ug/L	5300	NA	NA	NA
Manganese	ug/L	100	NA	200	NA
Mercury	ug/L	ND	NA	NA	0.012
Nickel	ug/L	1.2	NA	25	88
Potassium	ug/L	2300	NA	NA	NA
Selenium	ug/L	ND	NA	NA	5
Silver	ug/L	ND	NA	NA	0.06
Sodium	ug/L	7800	NA	NA	NA
Thallium	ug/L	ND	NA	NA	NA
Vanadium	ug/L	ND	NA	NA	NA
Zinc	ug/L	45	NA	NA	50
ND= Not Detected					
NA = No applicable standard					