

**ADDENDUM No. 2**

**Boiling Spring Lake Dams Construction / Reconstruction  
Project Number 35  
City of Boiling Spring Lakes, NC  
Addendum Date: February 14, 2023**

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**BID DUE DATE & TIME: March 3, 2023, 2:00 PM**

This Addendum Number TWO provides (I) updated Bid Documents to include the Build America, Buy America Act (BABAA) requirements in lieu of the American Iron and Steel (AIS) requirements and (II) answers to questions received from bidders on or before McGill Associates' close of business Thursday, February 2, 2023. The following changes and clarifications shall be made to the Contract Documents:

- I. Updated Bid Documents: The following documents are provided to include "Domestic Preference – The Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953." These documents supersede and supplement the corresponding sections in the previously issued Bid Documents:
  - a. C111 Ad for Bids for Const Contract 2018 RUS 1780-26
  - b. C200 Instructions to Bidders 2018 RUS 1780-26
  - c. C410 Bid Form for Const Contract 2018 RUS 1780-26
  - d. C520 Agreement between Owner and Contractor for Construction Contract (Stipulated Price) 2018 RUS 1780-26
  - e. C800 Supplementary Conditions 2018 rev1 RUS 1780-26
  - f. RUS-Bulletin-1780-26-Contractor's Certification of Compliance
  - g. RUS-Bulletin-1780-26-Manufacturer's Certification of Compliance
  
- II. Answers to questions received from bidders on or before McGill Associates' close of business Thursday, February 2, 2023
  - Q 1: Spec. 31233-3.11.F Table has requirements for both Standard Proctor & Modified Proctor for the four fill materials listed. Spec. 310513-2.3 list Core Fill Material requirements and 2.4.A states "Select Core Fill shall meet all the requirements of Core Fill".
    - a) Please confirm Standard Proctor is applicable for both materials (no modified proctor required)?
  
    - b) Please clarify if modified proctor is required for select common fill as detailed in

spec.312333 table referenced above?

A 1: Common Fill and Core Fill are to be compacted to 95% of ASTM D698 (Standard Proctor) maximum dry density.

Select Common Fill and Select Core Fill are to be compacted to 95% of ASTM D1557 (Modified Proctor) maximum dry density.

Q 2: Spec section 310513 Soils For Earthwork states under "Core Fill" bullet point F. that bentonite-augmented soil shall have a permeability of  $1e-06$ . We don't see a perm requirement for any of the other soil materials besides Core fill that has been augmented with bentonite. Under the same spec section 3.1 quality control lab test requirements states that each soil material shall have a perm 1 per every 10,000CY. Please provide clarification on what the permeability requirements are for each type of soil material.

A 2: Section 310513 Part 2.3F states that the Contractor may produce Core Fill by blending bentonite with borrow soils, though blending of bentonite soils is not required.

The results of permeability laboratory tests performed on soils used for Core Fill and Select Core Fill (test specimens of each compacted in accordance with their respective moisture and density requirements stated in Section 312323) shall indicate permeability values of  $1 \times 10^{-6}$  cm/s or lower.

Permeability requirements are not stated for all fill types, but permeability laboratory tests shall be performed as stated in the Specifications.

Q 3: Are prevailing wages or Davis-Bacon wages required for this project? If so, can the owner please provide the rates?

A 3: Prevailing wages or Davis-Bacon are not required for this project.

Q 4: Paragraph B under section 2.2 temporary facilities mentions office space for the owner. Please clarify if the contractor is to provide office space for the owner's field representatives. If office space is required, please clarify how much office is required and if any special equipment is required.

A 4: Separate mobile offices for Engineer/Owner and Contractor staff. The Engineer/Owner office should be a double-wide trailer with 4 dedicated offices, a bathroom, and a central conference room. Each work trailer should have a full-size refrigerator, coffee maker, and water cooler that is refilled regularly by the contractor.

Q 5: The provided bid form has a blank column for the contractor's takeoff quantities. Shall the contractor extend their unit cost against their estimated quantities or the owner's provided quantities?

A 5: Contractor's quantities. Refer to Article 3.01.C in Bid Form.

Q 6: Paragraph B under section 4.06 of the agreement between owner and contractor for construction contract states "contractor shall reimburse owner for the actual cost reasonably incurred by owner for engineering, construction observation, inspection, and administrative services needed after the time specified has expired." Can the owner

provide an estimated daily cost for these services or a maximum amount that would be charged per day?

A 6: The total amount would depend on the level of deficiency from substantial completion and cannot be quantified at this point. The Liquidated Damages have been developed to account for reasonable additional charges, Article 4.06 relates to items that cannot be estimated.

Q 7: Paragraph A.1.C under section 5.02 of the instruction to bidders for construction contract states “reports and drawings know to owner relating to Hazardous Environmental conditions that have been identified at or adjacent to the site”. If any material has been identified as hazardous, has it been identified in the geotechnical report? Or will it be issued in a separate report if it has been identified?

A 7: No hazardous materials are identified in the Geotechnical Data Report.

Q 8: Top of Rock per Geotech document is showing three different elevations. Calcirudite, Elevation of top of Calcarenite, and elevation of refusal or boring terminated all predominantly below elevation zero - The plan sheets show approximate rock elevation of zero and the specifications delineate to excavate down to top of rock or neat lines as shown. Please clarify which elevation we are to excavate down to?

A 8: Regarding Sanford Dam, the Contractor shall excavate to top or rock where required as shown on Sheets SD-B-01 and SD-B-02. “Approximate top of rock” is identified on the Drawings based on boring data presented in the Geotechnical Data Report, though the elevation of top of rock may vary some. Compensation for excavation of soil beyond the grades shown on the Drawings will be provided for Bid Item 12 (Common Excavation) in accordance with Section 013000 (Measurement and Payment).

Q 9: The specifications and bid items specify common fill and select common fill – both appear to be the same specification – please clarify as to how to separate these quantities?

A 9: See Section 312323 Part 3.11F for differences in compaction requirements for proposed fill materials.

See Sheet SD-B-09 for details about locations and elevation (EL 16.0) which define where Common Fill, Select Common Fill, Core Fill, and Select Core Fill are to be placed.

Q 10: The specifications and bid items specify core fill and select core fill – both appear to be the same specification – please clarify as to how to separate these quantities?

A 10: See Section 312323 Part 3.11F for differences in compaction requirements for proposed fill materials.

See Sheet SD-B-09 for details about locations and elevation (EL 16.0) which define where Common Fill, Select Common Fill, Core Fill, and Select Core Fill are to be placed.

Q 11: I am wondering about the source of the subcontractors that are HUB certified. Are the subs acquired through only the NCDOA counted towards the 10% participation goal, or are we allowed to utilize the firms on the NCDOT website as well?

A 11: NCDOA certification is required. Refer to the HUB website for list of contacts and contractors.

Q 12: Drawing SD-I-02 detail #3 "section at station 20+25", shows the Cutoff Wall tip at elevation -20. However, drawing SD-B-17 shows the Cutoff Wall tip at station 20+25 is elevation -40.

Please clarify TIP of Cutoff wall at station 20+25

A 12: Refer to Sheet SD-B-17 and the table in Detail 4 on Sheet SD-B-19 for correct Cutoff Wall geometry. Bottom of wall in Details 3 on Sheet SD-B-19 and in Details 2, 3, and 4 on Sheet SD-I-02 have been corrected. The corrected sheets have been appended to this addendum.

Q 13: Spec 315613. Section 1.6.K. The Strength criteria to be between 100psi and 500psi. However, on Par.5:It says that 90% of all of the test results across the site shall equal or exceed the specified strength. Thus, is it acceptable to exceed the upper limit of 500psi?

A 13: Section 315613 Part 1.6k-5 should state "Ninety (90) percent of all of the test results across the site shall be within the specified strength range." The corrected Section 315613 is attached to this addendum. - Schnabel

Q 14: Spec 315613. Section 1.6.G.4: The Contractor shall perform at least one full-depth core for every 50 linear feet of Cutoff Wall at a station defined by the Engineer. Drawing SD-B-17: It shows 6 different regions for the Cutoff Wall, excluding the Demonstrations section. Each section is distinguished by their top of wall and bottom of wall elevation. In the spirit of clarification, there will be 26 core locations after the Demonstration section, please define the quantity of core locations per area section. Since the core scope is priced per vertical feet and each section has unique vertical feet of Cutoff wall.

A 14: The Engineer will work with the Contractor to select the core locations based on encountered conditions and observations noted during construction. For estimating costs, the Contractor should assume even distribution of core holes along the length of the wall.

Q 15: Spec 315613. Section 1.6.I.2 - A falling head (slug) test shall be performed in at least half of the holes cored through the Cutoff Wall. The spec is using the words "at least". In the spirit of clarification, we will only price 14 Slug tests for the Production phase and 4 slug tests for the Demonstration section. Is this acceptable?

A 15: Yes, this is acceptable.

Q 16: Spec 315613. Section 1.4.O: A discrete element of the Cutoff Wall which is constructed using the Mix-in-Place Method and allowed to cure before constructing adjacent panel(s). We would like to price the Cutoff Wall using a fresh-to-fresh method when joining wall panels. Is this acceptable? Our technique has successfully been demonstrated in the installation of several cutoff walls for government dams in different states.

A 16: This requested change is acceptable pending the Contractor can demonstrate that the

quality of joints between discrete elements in the Demonstration Section satisfies specified requirements.

Q 17: Spec 315613. Section 3.1.B: Wall panels shall have a minimum length of 15 feet. We will like to install Wall elements of less than 15ft length. Is this acceptable? Our technique has successfully been demonstrated in the installation of several cutoff walls for government dams in different states.

A 17: This requested change is acceptable with the contingency that the Engineer may require the installation of additional core holes based on the number of additional joints and the quality of joints observed during construction. To clarify, a Wall Panel is the length of wall that is constructed between breaks in production, such as overnight construction shut down.

Q 18: Spec 315613. Section 2.2C and Spec 316616. Section 2.2C: Bentonite used as a component in binder slurry shall be hydrated for a minimum of 12 hours prior to use. Please clarify the reason of the above request. We kindly request to remove that requirement of minimum hydration time. Our technique has successfully been demonstrated in the installation of several cutoff walls for government dams in different states.

A 18: This requested change is acceptable pending the Contractor can demonstrate that the properties of the MIP Material produced in the Demonstration Section satisfy specified requirements.

Q 19: Spec 316616. Section 1.6.J.2: The Strength criteria to be 130psi. In the spirit of clarification, 130psi is the minimum strength criteria. It is acceptable to be above 130psi. Correct?

A 19: 130 psi is the required minimum strength.

Q 20: Drawing DS-B-20 Detail No.2 shows the MIP panel plan view detail. It seems that the MIP scope is just to add integrity to the dam. The permeability control aspect is going to be covered by the Cutoff wall spec 315613, not the MIP panels. Thus, is it acceptable for the MIP panels to be rectangular instead of the detailed showed in the drawing mentioned above.

A 20: The MIP Panels may be rectangular pending the Contractor satisfies the requirements for minimum effective width and length as shown in Detail 2 on Sheet SD-B-20.

Q 21: Addendum 1 notes that QA is the responsibility of the contractor and the specs. note that QC is the responsibility of the contractor. Can you help to clarify which is correct?

A 21: Quality Control is the responsibility of the Contractor. Quality Assurance will be performed by Schnabel.

Q 22: Bid Item 18 "Rock Foundation Preparation" has a bid quantity of 6,300 SY, however the footprint of the Sanford Dam is only ~ 1,479 SY. Where is the remainder of the rock preparation quantity occurring?

A 22: The area labeled "TOP OF ROCK" on Sheet SD-A-06 which spans between

approximate Stations 18+60 and 22+45 is the area which constitutes the quantity for Bid Item 18.

Q 23: Can the existing rip-rap scheduled to be removed, be re-used as permanent rip rap for slope and outlet bid items?

A 23: If the existing riprap meets the requirements of the Bid Documents, it can be re-used.

Q 24: What are the anticipated thickness of removal items shown on the demolition plans (i.e concrete, rip rap, etc.)

A 24: The available information on existing items are included in the Bid Documents, no additional information is available.

Q 25: Can you provide existing dam, headwall, MSE wall, and culvert as-builts for the four locations?

A 25: The available information on existing items are included in the Bid Documents, no additional information is available.

Q 26: At the prebid and in addenda 1 it was stated that the contractors were responsible for QA and the QC would be by Schnabel. However in 33000 3.20 QC and QA for concrete it states that the contractor shall perform QC on concrete, grout, and FF, and that the engineer will perform QA.

Can you confirm that we are to have an outside lab for concrete QC?

A 26: Quality Control is the responsibility of the Contractor. Quality Assurance will be performed by Schnabel.

Q 27: Is there a specific contact at Duke that can be provided for contact/questions?

A 27: Contact information for Utilities Relocation related coordination will be provided to the selected contractor once bidding is complete.

Q 28: Use of Onsite Soils- Spec section 310513 2.2.A soil materials state that we can use onsite excavated materials or imported materials. However, 2.2.G states that areas within the reservoirs upstream of each dam and downstream of north lake dam, pine lake dam, and upper lake dam shall not be used. Therefore, we want to confirm that soils excavated at Sanford within the dam footprint or down stream can be utilized if they meet the project specification requirements. And if so, what are the limits of the excavated soils at the dam before we enter into the region that would be considered "upstream"?

A 28: Only soils which are excavated to accomplish the Work as shown on the Drawings and which meet the requirements stated in Section 310513 may be reused. All additional earthfill soils must come from a borrow source which is outside the limits of the reservoirs, such that no existing soils on the bottoms of the reservoirs are moved.

Q 29: Cofferdams- Spec Section 015760 1.1.B states that used sheet piles shall not be used. Please reconsider this requirement as the price delta for new versus used is quite

significant and would burden the bid significantly.

A 29: Sheet piles shall be in like-new condition with no defects which affect the performance of interlocks and no rust which reduces the section of the piles. Pending Engineer inspection, select piles may be rejected during construction due to apparent interlock damage and/or section reduction.

Q 30: Bid item #15 (select common fill) for Sanford dam has an engineers estimated quantity of 50,800CY. This quantity appears to be substantially larger than what is depicted in the drawings. Please confirm accuracy of this quantity for reference.

A 30: The Estimated Quantity for Bid Item No. 15 (Select Common Fill) is adjusted to be 22,400 CY in the attached Bid Form.

Q 31: Spec 31 56 13 Section 1.6.F.4, During installation of the production Wall Panels, the Contractor shall collect at least one wet grab sample per shift per Wall Panel. The specs defines Wall Panel as an element allowed to cure before constructing an adjacent panel. Was the intention of the spec to test every cutoff wall element placed? Or just one cutoff wall element per shift?

In the spirit of clarification and proper pricing, can the paragraph be revised with - “ the Contractor shall collect at least one wet grab sample per shift per Cutoff wall heading”.

One Cutoffwall heading is one Equipment Rig that installs the cutoff wall elements.

A 31: Similar to the intent stated in the answer to Question 32 below, the intent is to collect one wet grab sample per shift per constructed discrete MIP wall element. If multiple elements are constructed in a shift, then one sample would be collected for each constructed element.

Q 32: Spec 31 66 16 1.6.F.4, During installation of the production DMM elements, the Contractor shall collect at least one wet grab sample per shift per MIP Panel. The spec define MIP Panel as group of DMM elements which has the geometry of the MIP panel.

In the spirit of clarification and proper pricing,

a) Was the intention of the spec to collect a wetgrab sample at every MIP panel? Or

b) Was the intention to collect one wetgrab per shift from an DMM element, regardless if it was part of the same MIP panel?

A 32: The intent is to collect one wet grab sample per shift per MIP Panel. For the example where a single-axis rig is used to construct the MIP Panels and the DMM elements of a particular panel are installed over two shifts, two wet grab samples (one from each shift) would be collected for the example MIP Panel.

Q 33: Sheet SD-B-01 – Stage I Grading Plan and Profile shows the over excavation required at the new spillway both in the plan view and the profile view – the adjacent plan view states to reconstruct from station 15+00 – 17+00 and only shows embankment elevations to match to existing contours; the profile view indicates over excavation required to elevation 21.00. Is the intent to over excavate the entire footprint of the

- existing dam to elevation 21.0 before placing the embankment shown in the sequencing of stage I? If so, please provide the plan view or additional cross sections to delineate the limits of over excavation required prior to the embankment as shown.
- A 33: Excavation for reconstruction of the existing Sanford Dam embankment shall be performed at the locations shown Sheet SD-B-01.
- Q 34: Paragraph 2.2.B of spec section 15760 "control of water" states "used sheet piles shall not be used." If the contractor has an inventory of lightly used sheets used from previous jobs, would this be acceptable?
- A 34: Sheet piles shall be in like-new condition with no defects which affect the performance of interlocks and no rust which reduces the section of the piles. Pending Engineer inspection, select piles may be rejected during construction due to apparent interlock damage and/or section reduction.
- Q 35: Please elaborate on the owner's definition of small business. It is understood if a company is listed as HUBZone it would count towards the minority goal. Outside of HUBzone, what other classifications count towards the goal? Would a company listed as DBE or WBE on NCDOT's site county towards the minority goal? What are the approved list or websites can be used to verify if a business is classified as a minority?
- A 35: NCDOA certification is required. Refer to the HUB website for list of contacts and contractors. .
- Q 36: The provided bid form seems to quantify mass concrete to only be pours 6 foot or greater in thickness. Per ACI 301, any dimension greater than 4 foot in thickness could be considered mass concrete. If the 4 foot thickness threshold is used, the mass concrete quantity on this project would increase massively. Please clarify the ACI threshold for mass concrete for this project.
- A 36: The only pours with thickness greater than four feet are for the 6-foot-thick inlet slabs for the Sanford Dam spillway detailed on Sheets SD-S-01 through SD-S-04.
- Q 37: Will the contractor be allowed to chemically treat (lime, flyash, cement) the existing soil for reuse as backfill around the new structures if the soil properties are out of a useable range?
- A 37: Chemically-treated soil will not be allowed for use as backfill around new structures.
- Q 38: Can the contractor assume material used to build temporary access for Sanford dam can reused for permanent portions of the work?
- A 38: Soils used for earthwork shall meet the requirements stated in Section 310513.
- Q 39: Specification 313363 "Rock Foundation Preparation" goes into detail listing the owners' expectations on how to prepare the rock foundation prior to placing the concrete leveling layer. Is there a minimum hardness or PSI for the rock layer required by the owner? If the layer is found to be too soft by definition, how shall the contractor be paid in order to get to a satisfactory rock layer?



A 39: It is expected that the strength of soils above rock will be noticeably different from the strength of the calcirudite rock that is at top of rock (results of UCS testing around 2,000 psi). Rock may be excavated at select locations only if the rock quality is expected to adversely affect performance. Compensation for rock excavation required by the Engineer will be provided for Bid Item 13 (Rock Excavation) in accordance with Section 013000 (Measurement and Payment).

Q 40: The supplementary conditions of the construction contract mentions the contractor must carry railroad protective liability insurance. Does the owner expect any other coordination between the contractor and the railroad? If flagging is required by the railroad, who will be required to pay the flagging services to the railroad?

A 40: No additional coordination is required.

Q 41: With regards to the coordination Paragraph 8.02 under the standard general conditions of the construction contract states if a utility contractor is not out of the way of the Boiling Springs Dam contractor within reasonable time, will the dam contractor be granted additional time and money due to the interference by the other contractor? Can the owner provide a utility relocation by others schedule?

A 41: Once a schedule is available, it will be provided.

Q 42: Paragraph 1.4 of specification section 011000 States salvaged materials shall be delivered to the North Carolina Department of Transportation. Can the owner please provide a specific delivery address for this material?

A 42: The delivery will be within the local NCDOT Jurisdiction. A specific delivery address will be provided once available.

Q 43: Paragraph 1.5 of specification section 011000 states Contractor shall have full use of Site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project. Can the owner please clarify if any other work is expected to be performed by others in or near any other the proposed project sites?

A 43: No other work is expected to be performed by others in or near proposed project sites at this time.

Q 44: Question on the prequalified bidders. In the ITB that was sent out it mentions 8 approved bidders, but the letter we received only had 6. With the numerous firms at the mandatory prebid sign in, do you have a list you can share who is specifically qualified?

A 44: Of the eight pre-qualified bidders, the following seven attended the mandatory pre-bid conference: Crowder, Kiewit, Phillips & Jordan, Sequoia Services, Morgan Co., Trader Const., Thalle.

Q 45: Please confirm that the "Bid Amount" on the bid form is the "Bid Unit Price" X the "Contractor Quantity" as interpreted by the Q&A responses in addenda 1.

A 45: Correct, refer to Article 3.01.C.

Q 46: If the "Contractor Quantity" is confirmed, per the M&P of items 12 through 47 are paid by unit price and measured in place. This will provide an avenue to unbalance the bids based on variances of contractor take off's. Typically when we see bid forms in this manner they are for lump sum bids and quantities are not utilized in the calculated total price of the bid. Please consider a change to either the bid form or the M&P.

A 46: Unbalanced bids are subject to disqualification per the Bid Documents. Article 3.01.C also includes constraints on payment for quantities measured in place to limit potential for benefiting from unbalanced bids.

Q 47: Specification section 315613- 1.6. I. 2. Falling Head Test (slug) test. Specification section c. requires the test to be performed for a period of 7 days. Experience notes that running a test for an extended period will present a number of technical issues. It is likely based on the required permeability the test hole will reach equilibrium of the local water level within 24-48 hrs. Once this equilibrium is achieved the water level within the test hole will likely fluctuate up and down (rising and falling) based on external water level rises, equipment operations and traffic (pressure on the work platform). Most importantly maintaining a water tight seal between the test hole and the overburden embankment, this will require a standpipe to be sealed into the top of the wall to maintain water tight conditions.

We request that a shorter test period would be more appropriate. Currently most Army Corp of Engineers (USACE) projects are requiring a 24 hr. test period, however we have seen many shorter test periods specified.

A 47: The water level within the Sanford Dam footprint is expected to be multiple feet below the top of Cutoff Wall during construction. The water level and the electronic pressure transducer / datalogger unit in the corehole shall be protected from disturbance during performance of slug testing, as indicated in Section 315613 Part 1.6I. The Contractor shall plan to perform the permeability testing as specified, though the Engineer may adjust testing requirements based on demonstration of the Contractor's means and methods and on the results of testing performed in the Demonstration Section.

Q 48: Specification section 315613- 1.6. I. 2. Falling Head Test (slug) test.

Specification section f. requires that permeability shall be calculated using the method presented in "Slug Test Analysis in Vertical Cutoff Walls I: Analysis Methods" (Choi and Daniels, 2006). However, this study presents two methods for evaluating hydraulic conductivity of a vertical cutoff wall, the "type curve method" and the "modified linear curve fitting method". Which of these two methods is the project specification referring to?

A 48: Either approach will be considered acceptable.

Q 49: Specification section 315613- 1.6. I. 2. Falling Head Test (slug) test.

Specification section f. requires that permeability shall be calculated using the method presented in "Slug Test Analysis in Vertical Cutoff Walls I: Analysis Methods" (Choi and Daniels, 2006) for a falling head test. However, the slug test configuration in vertical cutoff wall presented in this study depicts a rising head slug test with datum zero appearing to be the water table ("Lt indicates the distance from the water table to the top

of the well intake section”). This is in conflict with the statement in Specification section f. “Depth to water level at end of test shall be used for depth to static water level. Screen interval input shall be the interval between depth to water level at end of test and bottom of corehole.” Is figure 1(b) presented in the study to be interpreted as datum zero as top of cutoff wall, and length  $L_t$  as depth from top of cutoff wall to static water level at end of test (“water table”) for the purposes of a falling head test?

A 49: Yes to both questions.

Q 50: Specification section 315613- 1.6. I. 2. Falling Head Test (slug) test.

Specification section f. requires that permeability shall be calculated using the method presented in “Slug Test Analysis in Vertical Cutoff Walls I: Analysis Methods” (Choi and Daniels, 2006). The slug test configuration in vertical cutoff wall presented in this study depicts a filter pack installed within the corehole, with a casing installed full depth within the filter pack, and with a screened interval of casing for the length of the well intake section. Also, from the study, “the well intake section boundary condition adopted in this paper assumes no vertical flow through the bottom of the well intake section due to the existence of a bottom seal and does not model the domain below the well intake section”.

- a. Is the installation of casing, filter pack, and bottom seal within the corehole required for the permeability testing? If so , please provide details of the required well casing.
- b. Or is the calculation method presented in the study to be applied in a more general application for an uncased corehole with no filter media and no bottom seal? If so, would the radius of the well intake section ( $r_w$ ) and the inside radius of the well casing ( $r_c$ ) both be assumed equal to the radius of the uncased corehole, for the purpose of permeability calculations?

A 50: a. Installation of well / piezometer materials mentioned in the question are not required.

- b. Yes, the method in Choi and Daniels (2006) is to be applied generally assuming the screened length is the length below top of water level in the core hole at end of test. Yes,  $r_w$  will be considered equal to  $r_c$ .

Q 51: Specification section 315613- 1.6. I. 2. Falling Head Test (slug) test.

Specification section f. requires that permeability shall be calculated using the method presented in “Slug Test Analysis in Vertical Cutoff Walls I: Analysis Methods” (Choi and Daniels, 2006). Assuming calculation is to be by the “modified linear curve fitting method”, step 2 of this method requires determination of “the specific storage ( $S_s$ ) based on experience or laboratory oedometer tests in the appropriate stress range” to estimate “compressibility of the soil skeleton ... by employing other geotechnical experiments (e.g., consolidation tests) or engineering correlations.”

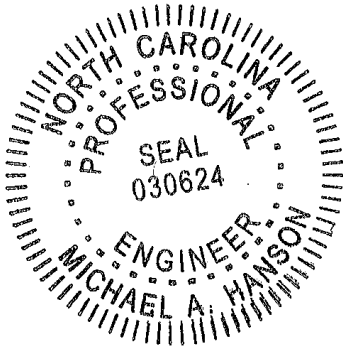
- a. Will the specific storage estimate be provided by the Engineer for purposes of permeability calculation?
- b. or Will the specific storage estimate need to be determined by the contractor by means to be approved in the Cutoff Wall Work Plan? For coreholes that penetrate

through multiple strata of varying subsurface material, how would that affect the estimate of the compressibility of the soil skeleton?

A 51: The Engineer and Contractor may agree upon a value of  $S_s$  for use in analyzing the results of slug testing.

This Addendum Number TWO is issued this 14 day of February 2023.

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