

## **Durham's Independent Third Party Experts (team led by Mike Dacey of Geolnsight) Have Impact on NH Site Evaluation Committee Process as part of Durham's Goal of Protecting the Little Bay.**

This information was prepared at the request of Admin. Selig following Mike Dacey's attendance on June 7, 2017 at two technical sessions presented by Eversource representatives as part of the NH Site Evaluation Committee process. The technical sessions were part of the application process for the Seacoast Reliability Project (SRP). Per Mr. Selig's request, this overview addresses the following questions for Councilors and the community:

- What were the concerns presented in the Geolnsight/Woods Hole Group technical memo (the Memo)?
- What did Eversource do to respond to the concerns?
- How are Eversource's responses relevant?

### **I. Overview of key issues of the February 28, 2017 technical memo (the Memo) prepared by the Geolnsight/Woods Hole Group technical team to the New Hampshire Department of Environmental Services**

The focus of the Geolnsight/Woods Hole Group team Memo was on the Little Bay crossing and largely pertained to information presented in two documents: Modeling Sediment Dispersion from Cable Burial for SRP Little Bay, NH (Modeling Report) and Characterization of Sediment Quality Along Little Bay Crossing, Durham to Newington, NH (Sediment Quality Report). Other documents were reviewed that provided supporting or relevant information pertaining to the two primary reports. Please refer to the Memo for a more comprehensive list of concerns and detailed discussion.

#### ***Modeling Report***

-The potential effects of wind-driven currents on sediment suspension and transport were not considered. Under the certain conditions, wind driven currents are additive to tidal currents resulting in higher current velocities with higher sediment transport and dispersion potential.

-The model did not include a sensitivity analysis to verified how accurately the model assumptions depicted actual or extreme conditions that may be encountered during cable installation. Therefore, maximum sediment transport and dispersion patterns were not evaluated.

-Adequate documentation was not provided to justify the use of the two-dimensional BELLAMY model to depict Little Bay hydrodynamic conditions. Significant vertical stratification in Little Bay may result in higher current velocities at certain depths that are "averaged out" in a two-dimensional model, thus underrepresenting maximum sediment transport and dispersal patterns.

-The model appeared to have been run using neap tidal cycle current velocities, which are lower than spring tidal cycle velocities; therefore, maximum sediment transport and dispersion patterns were not evaluated.

-Vibracore sediment sampling did not penetrate to target depths in the deep channel area, apparently due to relatively cohesive silt and clay encountered. To achieve target depths,

jet plow operating pressures may be increased above pressures considered in the model potentially resulting in sediment transport and deposition beyond the modeled limits.

-Only one cable crossing was modeled and the cumulative effects of all three cable crossings were not modeled.

-Sediment resuspension at post cable installation and final deposition was not modeled. Channel areas are underlain by cohesive silt and clay sized sediments that will be dispersed by jet plowing. The re-deposited silt and clay particles will not be cohesive; therefore, they will be subject to erosion, resuspension, and transport during post-cable installation tidal cycles. The final depositional location of these sediments was not assessed; therefore, it is not known how this sediment will impact the Little Bay ecosystem.

### ***Sediment Quality Report***

-Appendix A of the Sediment Quality Report contains an “Ecological Risk Assessment” that does not follow standard and accepted framework for conducting such assessments. As a result, important potential contaminants and exposure pathways that may exist during the proposed work in Little Bay were not considered.

-The potential ecological impacts from sediments dispersing vertically into the water column and potentially dissolving in the water column were not considered, thereby missing a potentially significant exposure pathway.

-The USACE Regional Implementation Manual (RIM) and associated USACE technical publications or the equivalent should be referenced for assessing potential environmental impacts associated with the Little Bay crossing.

-The analysis of four-foot core intervals for various contaminants potentially underestimates contaminant concentrations dissolved or suspended in the water column during cable-laying operations. Because the majority of the sediment that will be suspended during jet plowing and hand jetting operations will be from the top one to two feet, the four-foot sample effectively dilutes the sample result.

- The list of contaminants analyzed is incomplete. The list excludes some contaminants (pesticides in particular) that are required by the RIM, and it excludes some other contaminants that are of particular concern for Little Bay, including nitrogen (total), herbicides, and bacteria.

- Potential impacts to oysters during various life cycle stages during cable installation activities were not considered.

-Potential ecological impacts to Little Bay during out-of-service cable removal, service life repair, end end-of life removal activities were not addressed.

-The water quality monitoring plan (the Monitoring Plan) presented in the Little Bay Environmental Monitoring Plan (Appendix D of SRP “Application for Water Quality Certification”) is inadequate because it is predicated on unsubstantiated assumptions, is too permissive in its definition of what conditions constitute a water quality violation, and does not provide a framework for real-time adaptive management of water quality during construction activities.

## **II. Eversource's Responses to Concerns**

Information presented by Eversource representatives during two technical sessions (1. Construction and Engineering and 2. Environmental) was not necessarily presented in manner that directly addressed each concern presented in the Geolnsight/Woods Hole Group Memo, although it was clear that some of their actions completed after receipt of the Memo were in response to the Memo and comments from other interested parties. The following new information was presented at the technical sessions. The relevance of the new information is presented in bold type.

### ***Construction and Engineering Technical Session***

-Eversource representatives state that the out-of-service cable were not oil filled; however, upon further questioning by other interested parties, the representatives stated that they would defer to the environmental panel regarding the composition of the out-of-service cables. Eversource representatives also stated that only out-of-service cable in the path of the new crossing would be removed and that removing sections would require bringing the cable to the surface and cutting it. According to Eversource, a survey is being conducted this year to determine the condition of the out-of-service cable.

**This information increases the concern presented in the Memo that neither the Modeling Report or Sedimentation Report addressed potential ecological impacts to Little Bay during cable removal operations. If it is determined that the cables are/were oil-filled the toxicity, distribution, and potential further release of such oil during cable removal operations must be identified and evaluated. In addition, sediment resuspension caused by cable removal activities must be incorporated into the Modeling Report.**

-Eversource representatives stated that a feasibility study for horizontal drilling of the entire cable crossing was included in a Power Point presentation prepared by Maher (?) and W.A Chester, LLC. Eversource stated that they opted not to select horizontal drilling due to concerns over drilling mud breakout into Little Bay and the large space requirement needed at the shoreward entrance and exit locations. Eversource did not consider the use of horizontal drilling through the tidal flat areas only. Eversource said they would make the Power Point presentation available.

**The validity of Eversource's decision not to utilize horizontal drilling should be further evaluated upon review of the forthcoming feasibility study Power Point presentation.**

-Pressures used during jet plowing were stated to be "infinitely adjustable."

**This statement elevates the concern in the Geolnsight/Woods Hole Group Memo that higher pressures would be needed to trench through cohesive silt and clay sediments, which would result in wider-spread sedimentation and sediment suspension in the water column that was not considered in the Modeling Report or Sediment Quality Report.**

### ***Environmental Technical Session***

The Environmental Technical Session was run by Sarah Allen and Ann Pembroke of Normandeau Associates, who started the session by announcing that due to a "code error" the modeling study is being redone and will be completed by July 1, 2017. The error was

that median tidal velocities were used for model input values. Despite claims that the results would not be significantly different because of the ephemeral nature of the sediment plume, this is a significant error.

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**The concern that neap tidal current velocities were used in the model was presented in the Memo and the acknowledgement of this error essentially nullified the findings and conclusions of the Modeling Report. The statement by the Normandeau team that the impact of the mistake would be inconsequential is premature and unsubstantiated. The progression of a sediment plume into ecologically sensitive areas could be devastating.**

-It was learned that hand jetting in the shallow mud flat areas will be replaced by water lifting.

**No additional information was provided regarding this technology. The revised Modeling Report should consider and incorporate this technology into the new model.**

-The locations of monitoring stations have not been determined but will be by July 1, 2017. Normandeau stated that they can consider incorporating a real-time response rather than the 48-hour notification that is currently in the monitoring plan. The monitoring plan only includes TSS.

**The Memo identified the lack of real-time response as a significant shortcoming of the monitoring plan. The details of changes to the monitoring plan should be reviewed when they are available.**

-Normandeau stated that additional sediment cores were collected. The cores will be tested for pesticides and total nitrogen. The samples selected for analysis will be composited from the top 2-feet of the core. It was also indicated that the new information would be incorporated into the ecological risk assessment and that GEI will “take into consideration” the potential impacts of contaminants in suspended sediments and dissolved in the water column.

**This information partially addresses concerns regarding the list of compounds analyzed and the need for a shorter sample interval presented in the Memo. However, it remains to be seen how the information is utilized in the revised ecological risk assessment and whether contaminants suspended or dissolved in the water column will be evaluated as an exposure pathway.**