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Subject **Weekly Monitoring Report – Diver Burial Activities**

Client Eversource Energy **Date** November 16, 2019

Project Independent Environmental Monitoring, Little Bay Submarine Cable Installation, Seacoast Reliability Project

Project No. E2X85301 **File** Daily Monitoring Report_SRP Little Bay IEM_Diver Burial Week 1 11-11 to 16-19

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Copies to Gregg Comstock, NH DES
 David Price, NH DES
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 Kurt Nelson, Eversource Energy

Weather Observations

Monday, November 11, 2019			Est. Tides: 5:35 a.m. Low; 11:45 a.m. High	
TIME	WIND (DIRECTION AND SPEED [KTS])	VISIBILITY (NM)	PRECIPITATION (PREV. 24H)	COMMENTS
07:00	5 NW gusts 6	>5 NM	-	37 °F; cloudy
13:00	5 NE gusts	>5 NM	-	39 °F; cloudy
16:00	9 E	>5 NM	-	41 °F; cloudy
Tuesday, November 12, 2019			Est. Tides: 6:19 a.m. Low; 12:40 p.m. High	
TIME	WIND (DIRECTION AND SPEED [KTS])	VISIBILITY (NM)	PRECIPITATION (PREV. 24H)	COMMENTS
07:00	3 NE gusts to 3	>5 NM	-	34 °F; cloudy
13:00	15 NW gusts to 25	>5 NM	-	32 °F; cloudy
16:00	17 NW gusts to 33	>5 NM		28 °F; cloudy
Wednesday, November 13, 2019				

No monitoring due to work cancelled for the day due to high winds, high waves and cold temperatures. Winds out of the NNW 25 gusting to 35.				
Thursday, November 14, 2019			Est. Tides: 7:25 a.m. Low; 1:40 p.m. High	
TIME	WIND (DIRECTION AND SPEED [KTS])	VISIBILITY (NM)	PRECIPITATION (PREV. 24H)	COMMENTS
07:00	1 NE	>5 NM	-	16 °F; Cloudy
13:00	10 SW gusts to 15	>5 NM	-	34 °F; Cloudy
16:00	8 SW gusts to 20	>5 NM	-	36 °F; Cloudy
Friday, November 15, 2019			Est. Tides: 8:15 a.m. Low; 2:25 p.m. High	
TIME	WIND (DIRECTION AND SPEED [KTS])	VISIBILITY (NM)	PRECIPITATION (PREV. 24H)	COMMENTS
07:00	5 SW	>5 NM	-	22 °F; clear
13:00	5 SW	>5 NM	-	42 °F; clear
16:00	5 SW	>5 NM	-	44 °F; clear
Saturday, November 16, 2019			Est. Tides: 8:54 a.m. Low; 3:15 p.m. High	
TIME	WIND (DIRECTION AND SPEED [KTS])	VISIBILITY (NM)	PRECIPITATION (PREV. 24H)	COMMENTS
07:00	10 N gusts to 15	>5 NM	-	25 °F; clear
13:00	10 N gusts to 20	>5 NM	-	36 °F; clear
16:00	10 N gusts to 25	>5 NM	-	36 °F; clear

Summary of Work Activities

Day/Date	Work Description
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<p>Monday, November 11, 2019</p>	<p>1000 diver start. Cable installation by diver burial (hand jetting) in the eastern side of the Little Bay channel outside of any turbidity barrier (curtain). 1400 diver stop. Divers completed 60' of burial on north cable (Phase 3).</p> <p>Water quality monitoring using one vessel from 0900 – 1400. Drone flying from eastern shore.</p> <p>0700 – 1100: Anchor removal by Barge 247 and crane. Use of tug and workboats to maneuver barge.</p>
<p>Tuesday, November 12, 2019</p>	<p>1029 diver start. Cable installation by diver burial (hand jetting) in the eastern side of the Little Bay channel outside of any turbidity barrier (curtain). Diver stop 1412. Divers completed 65' of burial on center cable (Phase 1).</p> <p>Water quality monitoring 1030 – 1415. Drone flying from 1000-1300.</p>
<p>Wednesday, November 13, 2019</p>	<p>No work due to weather.</p>
<p>Thursday, November 14, 2019</p>	<p>Cable installation by diver burial (hand jetting) in the eastern side of the Little Bay channel outside of any turbidity barrier (curtain) start at 0925 until 1440. Divers completed 90' of burial on south cable (Phase 2) and 30' on center cable (Phase 1).</p> <p>Cable installation by diver burial (hand jetting) in the western tidal flat inside the turbidity barrier start at 1100 and end at 1445 (35' completed).</p> <p>Water quality monitoring from 0730 – 1600 using two vessels on eastern and western stations. Drone flying 0830 – 1030 from eastern and western shores.</p>

<p>Friday, November 15, 2019</p>	<p>Cable installation by diver burial (hand jetting) on eastern side of the Little Bay channel outside of any turbidity barrier (curtain) start at 0800 and end 1510 (105' completed) and western tidal flat inside the turbidity barrier start at 1040 and end at 1620 (100' completed).</p> <p>Water quality monitoring 0700 – 1630 on eastern side and from 0930 to 1700 on western side – two vessels. Drone flying from eastern and western shores.</p>
<p>Saturday, November 16, 2019</p>	<p>Cable installation by diver burial (hand jetting) on eastern side of the Little Bay channel outside of any turbidity barrier (curtain) started at 0756 to 1445 and western tidal flat inside the turbidity barrier from 1145 to 1615.</p> <p>Water quality monitoring 0700 – 1530 on eastern side and from 0930 to 1700 on western side – two vessels. Drone flying from eastern shore 0900-1100 only.</p>

Summary of Observations

Item	Observations and Notes
1	<p>Diver burial (hand jetting) – Burial activity on eastern side in channel outside of turbidity barrier for two days. Burial activity on eastern and western sides for three days. No operations incidents to report or comment on.</p>
2	<p>Water quality monitoring – Weather monitored for 72 hours before scheduled diver burial water quality monitoring. Wednesday, November 13th was cancelled because the contractor cancelled work due to weather conditions. No exceedances reported throughout duration of the week except for one station (19A) at the surface.</p> <p>Most valuable visual references came from the drone imagery that detected a plume from the anchor removal on Monday (11-11-19) and the diver burial on the eastern shore. Drone imagery was used to guide the water quality monitoring team to run transects to “find” the plume with instruments. Water quality team did not detect elevated levels that could define a plume based on drone images. Any plume developed from hand jetting on the eastern channel edge quickly dissipated due to tidal forces.</p>

Item	Observations and Notes
3	Turbidity Barrier – The turbidity barrier on the western tidal flat appears to be structurally sound and placed appropriately to contain the diver burial activities. During diver burial, the barrier effectively contained the suspended sediment from hand jetting.

Turbidity Data Reports and Photographs

Turbidity (NTU) Reported and Observations

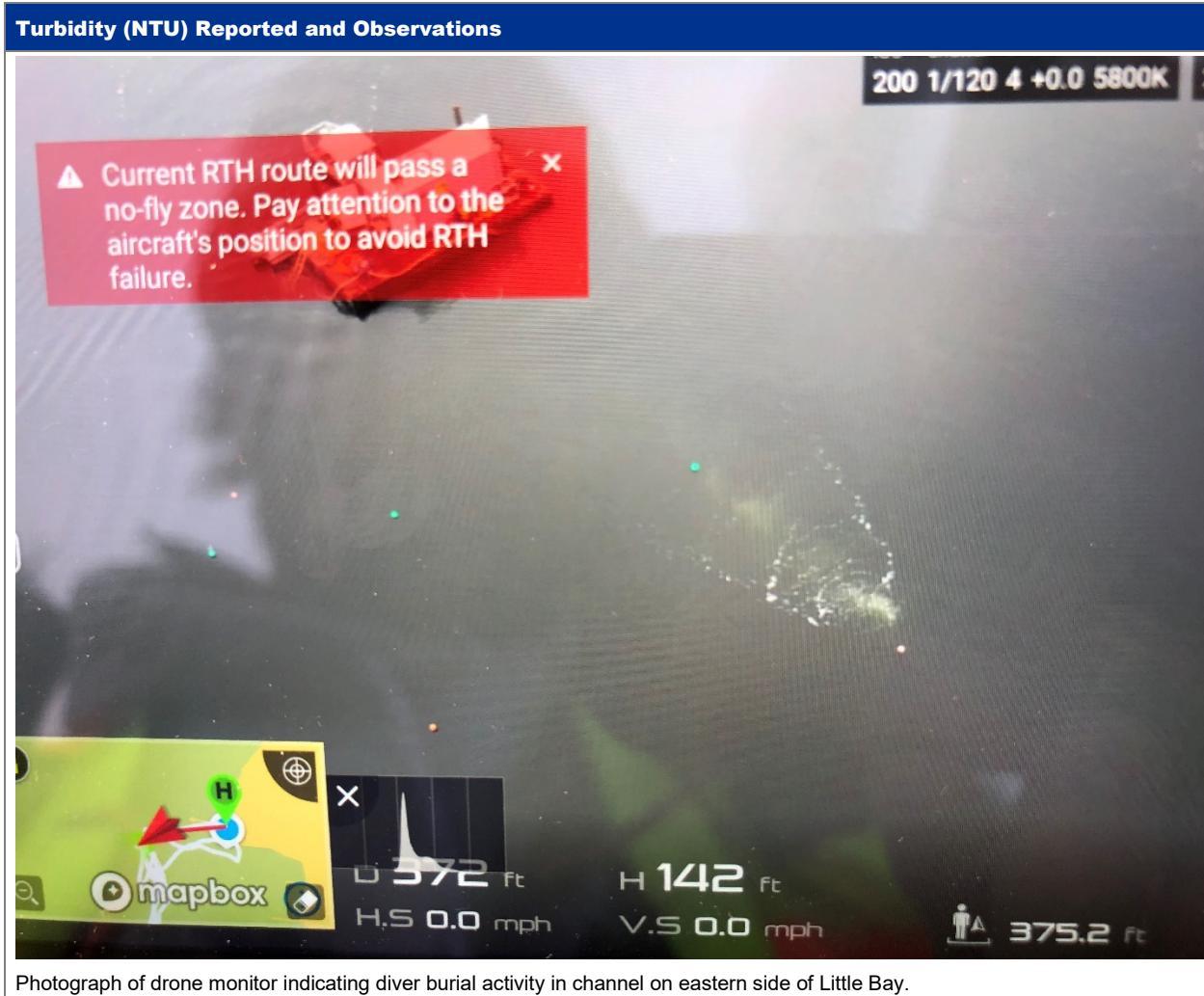
Boundary Station Action Levels (BSAL)

Tidal: BSAL = 15 NTU

Channel: BSAL = 15 NTU



Anchor removal on eastern tidal flat (11-11-19).



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November 11-16, 2019

Turbidity (NTU) Reported and Observations

Turbidity Monitoring Spreadsheet for SRP 2019 NEARFIELD STATION 19A HAND JETTING							Turbidity Monitoring Spreadsheet for SRP 2019 NEARFIELD STATION 19 REFERENCE				
Date	Turbidity (NTU)	Time	Depth (S, M, B)	JET PLOW AVERAGE	REFERENCE AVERAGE						
11/11/2019	3.8	10:45	S	8.45	8.50						
	4.3		B								
11/12/2019	3.6	12:10	S								
	3.8		B								
11/12/2019	3.6	13:11	S	Max	Max Time	Depth					
	4.5		B	19.5	10:38	S					
11/12/2019	4.4	14:45	S								
	4		B								
11/12/2019	2.6	10:45	S	Reference Max	Reference Max Time	Reference Depth					
	2.7		B	9.0	0:00	B					
11/12/2019	2.9	12:15	S								
	2.6		B								
11/12/2019	2.5	13:40	S								
	2.9		B								
11/14/2019	6.3	10:05	S								
	7.7		B								
11/14/2019	19.5	10:38	S								
	6.8		B								
11/14/2019	5	11:45	S								
	5.4		B								

Preliminary data results from Water Quality Team on 11-14-19. Note one reading of 19.5 NTU at 10:38 from surface measurement at Station 19A approximately 500' from activity. Additional readings from this or other stations did not result in exceedances at day.

Turbidity (NTU) Reported and Observations



Photograph taking from Durham landfall location looking toward Newington landing along SRP submarine cable alignment during low tide (0845) the morning of 11-16-19 indicating bottom disturbance from jet plow installation of the three cables. Evidence of diver burial (hand-jetting) results on the northern cable inside of the turbidity barrier (left side of the photo closest to small spud barge).

Turbidity (NTU) Reported and Observations



Diver burial in less than three feet of water within the turbidity barrier. Hand jet tool is “T” shaped with pressurized water out of both ends of the tool such that water shoots directly skyway (i.e., spouts) when held in certain positions at low water. Photograph taken by Durocher Marine from the diver barge located immediately adjacent to the turbidity curtain (11-15-19).

Summary of Work Stops, Modification and Other Operational changes requested by the IEM during Operations

Item	
1	IEM submitted an email to NH DES (on 11-12-19 at 0840) providing input related to Eversource’s request for extending work hours for diver burial regardless of time and tide. IEM suggested conditional approval for extending work hours to allow for daylight work hours as long as water quality monitoring proceeded and that operational corrective actions were taken if water quality exceedances were reported. NH DES issued conditional approval for hand jetting to proceed on 11-12-19.
2	No water quality exceedances of the BSAL were reported. Not work stops or modifications were requested by the IEM.

Item	
3	IEM requested that the water quality monitoring team provide summary water quality data throughout the day or at the end of the day. IEM is working with Eversource and Normandeau on a streamlined way for data reported to the IEM during the day.

Action Items

Item	
1	Daily diver burial on eastern and western sides of Little Bay scheduled for the foreseeable future. IEM expected to be monitoring activity until completion.

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my own inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate, and complete to the best of my knowledge and belief.

Signed: _____



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Dated: November 16, 2019