DES Waste Management Division
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095

GROUNDWATER MANAGEMENT PERMIT
PERIODIC SUMMARY REPORT – 2016 to 2017
AND NOVEMBER 2017 PFAS SAMPLING RESULTS

ALLENSTOWN LANDFILL
161 Granite Street
Allenstown, New Hampshire 03275

NHDES Site No. 199012032
Existing Landfill or Landfill Closure
NHDES Project No. 2574

Prepared For:
Board of Selectmen
Town of Allenstown
16 School Street
Allenstown, New Hampshire 03275
(603) 485-4276, Ext. 112
Lt. Michael Stark, MPA
ta@allenstownnh.gov

Prepared By:
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18 Chenell Drive
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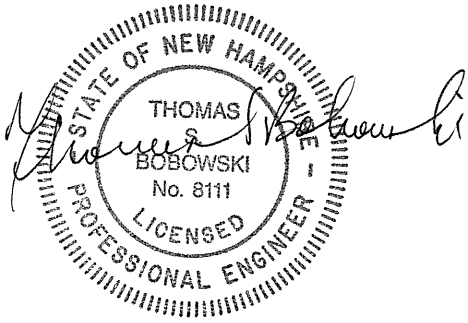

January 25, 2018
Nobis File No. 76400.01

Elizabeth Reese

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DN: C=US, E=ereese@nobiseng.com, O=Nobis Engineering, CN=Elizabeth Reese
Date: 2018.01.26 11:38:48-05'00'

Groundwater Monitoring Report Cover Sheet

Site Name: *Allenstown Landfill*

Town: *Allenstown*

Permit No.: *199012032-A-003*

Type of Submittal (Check all that apply)

- ☑ GMP Periodic Summary Report (*year*): 2016 to 2017
- ❑ Data Submittal (*month and year per Condition #7 of Permit*)

Check each box where the answer to any of the following questions is "YES"

Sampling Results

- ☑ During the most recent monitoring event, were any new compounds detected at any sampling point?
  Well/Compound: ***MW-4 Perfluorooctane Sulfonate (PFOS)***
- ❑ Are there any detections of contamination in drinking water that is untreated prior to use?
  Well/Compound:
  - □ Do compounds detected exceed AGQS?
- ❑ Was free product detected for the first time in any monitoring point?
  - □ Surface Water (*visible sheen*)
  - □ Groundwater (*1/8" or greater thickness*)
    Location/Thickness:

Contaminant Trends

- ❑ Do sampling results show an increasing concentration trend in any source area monitoring well?
  Well/Compound:
- ☑ Do sampling results indicate an AGQS violation in any of the GMZ boundary wells?
  Well/Compound: ***MW-5, manganese***

Recommendations

- ☑ Does the report include any recommendations requiring DES action? (*Do not check this box if the only recommendation is to continue with existing permit conditions.*) ***Modify GMP to delete portion of Map 106, Lot 18 since the GMZ is now all within Map 106, Lot 19 per 2017 lot line adjustment and quitclaim. Consider sampling requirements due to PFAS AGQS exceedance in MW-4. Change GMP Contact name to Interim Town Administrator Lt. Michael Stark.***

This form is to be completed for groundwater monitoring data submittals and periodic summary reports submitted to the New Hampshire Department of Environmental Services Waste Management Division.

Nobis
Engineering a Sustainable Future

January 25, 2018
File No. 76400.01

Groundwater Management Permit Coordinator
New Hampshire Department of Environmental Services
Waste Management Division
Site Remediation Programs
29 Hazen Drive - P.O. Box 95
Concord, New Hampshire 03302-0095

Re: **Groundwater Management Permit Periodic Summary Report – 2016 to 2017 and November 2017 PFAS Sampling Results**
Allenstown Landfill
161 Granite Street
Allenstown, New Hampshire 03275
NHDES No. 199012032
Existing Landfill or Landfill Closure
Project No. 2574

Dear Permit Coordinator:

On behalf of the Town of Allenstown (Town), Nobis Engineering, Inc. (Nobis) is pleased to provide this Groundwater Management Permit (GMP) Periodic Summary Report – 2016 to 2017. This report documents water quality monitoring at the above-referenced site as described in GMP GWP-199012032-A-003 issued by the New Hampshire Department of Environmental Services (NHDES) on June 15, 2016. The current GMP expires June 14, 2021.

We trust that this submittal will satisfy current NHDES requirements for the site. If you have any questions or comments regarding the attached, please do not hesitate to contact the undersigned.

Sincerely,
NOBIS ENGINEERING, INC.

Thomas S. Bobowski, P.E., P.G., C.G.
Associate / Sr. Project Manager
Attachments

c: File No. 76400.01 (w/attach.)
Lt. Michael Stark, MPA, Interim Town Administrator, Town of Allenstown, 16 School Street, Allenstown, NH 03275

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APPENDIX

1.0 INTRODUCTION

This report summarizes water quality monitoring performed at the Allenstown Landfill located at 161 Granite Street in Allenstown, New Hampshire. The monitoring was performed by Nobis Engineering, Inc. (Nobis) as described in New Hampshire Department of Environmental Services (NHDES) Groundwater Management Permit (GMP) GWP-199012032-A-003, issued on June 15, 2016. The GMP expires June 14, 2021.

The GMP establishes the following groundwater monitoring schedule for the site:

Monitoring Location	Frequency	Parameters
MW-1, MW-2, MW-3, MW-4, MW-5, and SW-1	November each year	specific conductance, pH, temperature, chloride, sulfate, nitrate, TKN, iron, manganese, and static water elevations (in monitor wells)
Site Water Supply Well: DW-1	November each year	specific conductance, pH, temperature, chloride, sulfate, nitrate, TKN, iron, and manganese
Site Water Supply Well: DW-1	November 2020	volatile organic compounds and drinking water metals

Note: "drinking water metals" comprise arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver; TKN is total Kjeldahl nitrogen, defined as the sum of organic nitrogen, ammonia, and ammonium.

Analytical results for volatile organic compounds (VOCs) are reported for the NHDES Waste Management Division Full List of Volatile Organics, with the exceptions noted under Note 6 of the February 28, 2009 revision. This report summarizes groundwater quality monitoring during 2016 and 2017. The November 2016 water quality data with laboratory reports were provided to NHDES in a Nobis GMP Data Submittal dated December 6, 2016. In addition, during the November 2017 sampling event Nobis collected groundwater samples from three locations and a quality control sample for analysis of nine Per- and Polyfluoroalkyl Substances (PFAS) as approved by NHDES on September 8, 2017.

A Locus Plan and Site Sketch with Groundwater Contours are included as Figures 1 and 2, respectively. A copy of the current GMP is included in Appendix B. This report is subject to the limitations in Appendix A.

2.0 GROUNDWATER LEVELS AND FLOW DIRECTION

Prior to sample collection, static groundwater levels in the site monitoring wells were measured using a Solinist™ electronic water level meter. During November 2016 and November 2017, water levels ranged from ±11.5 feet (MW-4, 2017) to ±22.2 feet (MW-1, 2016) below the well reference point (top of PVC). Groundwater elevations were calculated based on survey data collected by J.E. Belanger Land Surveying during their January 2005 survey. The groundwater elevations are summarized in Table 1. Based on the current data, groundwater is inferred to flow in a general northwesterly direction, consistent with historic groundwater flow assessments. The November 2017 groundwater elevation contours are shown on Figure 2.

Fluctuations in groundwater levels and flow directions will occur due to variations in precipitation, surface runoff, temperature, seasonal fluctuations, and other factors not encountered during this study. Local groundwater flow anomalies may also exist due to the influence of paved areas, underground utilities, and localized topography. To date, no subsurface features influencing local groundwater flow are identified or suspected.

3.0 SAMPLE COLLECTION AND ANALYSES

3.1 Field Screening

Groundwater, surface water and drinking water samples were collected on November 4, 2016 and November 20, 2017. Field screening results for pH and specific conductance are summarized in Table 2. The field screening procedures are outlined in Appendix C.

The pH of an aqueous solution is controlled by interrelated chemical reactions that produce or consume hydrogen. The pH of a solution is a measure of the effective hydrogen-ion concentration activity. Solutions having a pH less than 7.0 are described as acidic; solutions with a pH greater than 7.0 are described as basic or alkaline. The pH of the groundwater, surface water, and water supply samples during 2017 ranged from 5.9 to 6.7. The pH values are generally consistent with previous values measured at the landfill.

Specific conductance is a measure of the capacity of water to conduct an electrical current and is a function of the types and quantities of dissolved substances in water. As concentrations of dissolved ions increase, specific conductance of the water increases. The specific conductivity of the water samples during 2017 ranged from 92 microSiemens per centimeter (µS/cm) to 1,985 µS/cm. The specific conductance values measured are generally consistent with values previously measured at the landfill.

3.2 Laboratory Analysis of Groundwater Samples

Samples were submitted to Eastern Analytical, Inc. (EAI) of Concord, New Hampshire for laboratory analysis. The analytical results reported for groundwater samples were compared to Ambient Groundwater Quality Standards (AGQS)[1]. Secondary Maximum Contaminant Levels[2] (SMCLs) are aesthetic standards that apply to community and non-transient, non-community public water systems. The samples collected to monitor water quality at the site are not subject to compliance with SMCLs and are presented for reference only. Note that the PFAS laboratory analytical results are presented in Section 4.0. The analytical results for groundwater quality monitoring in 2017 indicated the following:

MW-1

Where detected, inorganic analytes were present at concentrations not exceeding their applicable AGQS. Drinking water metals and VOCs were not tested for in 2016 or 2017.

MW-2

Where detected, inorganic analytes were present at concentrations not exceeding their applicable AGQS. Drinking water metals and VOCs were not tested for in 2016 or 2017.

MW-3

A sample could not be collected during the November 2016 sampling round as the well was dry. Where detected, inorganic analytes were present at concentrations not exceeding their applicable AGQS in 2017. Drinking water metals and VOCs were not tested for in 2016 or 2017.

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1 Chapter Env-Or 600 “Contaminated Site Management”, revised June 1, 2015.

2 Secondary Maximum Contaminant Levels (SMCLs) referenced in Env-Dw 706 Regulated Secondary Maximum Contaminant Levels (SMCLs), prepared by the New Hampshire Department of Environmental Services, last revision February 1, 2015.

MW-4

Where detected, inorganic analytes were present at concentrations not exceeding their applicable AGQS in 2017. Drinking water metals and VOCs were not tested for in 2016 or 2017.

MW-5

Manganese was present in the samples collected in November 2016 (0.88 parts per million [ppm]) and November 2017 (1.2 ppm) at concentrations exceeding the AGQS of 0.84 ppm. Drinking water metals and VOCs were not tested for in 2016 or 2017.

The analytical results for 2016 and 2017 are summarized along with historical data in Table 2. The laboratory reports for November 2017 are included in Appendix D.

3.3 Laboratory Analysis of Surface Water Samples

Analytical results for surface water samples were compared to Env-Wq 1700 surface water standards[3] using the "Protection of Human Health Criteria - Water and Fish Ingestion" if established or the most conservative value for "Protection of Aquatic Life." During November 2016 and 2017, the inorganic analytes were not present at concentrations exceeding the applicable surface water standards. Drinking water metals and VOCs were not tested for in surface water samples in 2016 or 2017.

The analytical results for 2016 and 2017 are summarized along with historical data in Table 2. The laboratory reports for 2017 are included in Appendix D.

3.4 Laboratory Analysis of Water Supply Samples

The analytical results for water supply samples were compared to AGQS and SMCLs. The samples collected to monitor water quality at the site are not subject to compliance with SMCLs and are presented for reference only. The results indicated that, where detected, inorganic

[3] "Surface Water Quality Regulations", Chapter Env-Wq 1700 of the New Hampshire Code of Administrative Rules, most recently revised on December 1, 2016.

analyte concentrations did not exceed their applicable AGQS. Drinking water metals and VOCs were not tested for in surface water samples in 2016 or 2017.

The 2016 and 2017 analytical results are summarized along with historical data in Table 2. The laboratory reports for 2017 are included in Appendix D.

4.0 PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) IN SAMPLES

During the November 20, 2017 sampling event, Nobis collected groundwater samples from three locations and a quality control sample for analysis of nine Per- and Polyfluoroalkyl Substances (PFAS) as approved by email correspondence from NHDES on September 8, 2017 (Appendix B) as follows:

MW-4 – upgradient to most of site and on Town property (near site water supply well)
DW-1 – Water Supply Well (not used for consumption)
MW-5 – downgradient well (historically elevated manganese) / downgradient of most facility activity
Trip Blank for Quality Control

Samples for PFAS analyses were collected in accordance with NHDES protocols as described in Appendix C. All PFAS laboratory analyses were performed per Modified EPA Method 537 by Vista Analytical Laboratory of El Dorado Hills, CA as subcontracted by EAI. Refer to Table 3 for a summary of the groundwater PFAS analytical results subject to regulation.

Laboratory analysis for nine PFAS at monitoring wells MW-4 and MW-5 indicated that the two regulated compounds Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) were detected in the groundwater samples. PFOA was detected in MW-4 at 14.1 nanograms per liter (ng/L) or parts per trillion (ppt) and was detected in MW-5 at 9.82 ppt. PFOS was detected in MW-4 at 196 ppt and was detected in MW-5 at 7.47 ppt. The detected PFAS compounds in MW-5 are below the current AGQS of 70 ppt for PFOA and PFOS. In addition, the summation of PFOA and PFOS for MW-5 is 17.29 ppt, which is below the AGQS of 70 ppt for PFOA and PFOS combined. However, the detected PFOS concentration in MW-4 is above the current AGQS of 70 ppt for PFOS. Consequently, the summation of PFOA and PFOS for MW-4 at a concentration of 210.1 ppt is also above the AGQS of 70 ppt.

No PFAS compounds were detected in the DW-1 water supply well sample. No PFAS compounds were detected in the trip blank and laboratory quality control was adequate.

The locations and PFAS laboratory results for monitoring wells MW-4, MW-5 and water supply well DW-1 will be provided and uploaded to the NHDES Environmental Monitoring Database (EMD) as required separately from this PSR.

During early 2018, as a result of the November 2017 PFAS laboratory results, the Town of Allenstown conducted a survey to assess water well connections proximal to the landfill. The Town has confirmed that up to seven residential and commercial properties located within approximately 1,000± feet from the GMZ boundary currently have private water supply wells and are not connected to the available municipal water services.

The recent survey conducted by the Town and provided to Nobis indicated the following lots all located on Tax Map 106 with water supply wells proximal to the landfill: Lot 6, Lot 7, Lot 8, Lot 9, Lot 10, Lot 17 and Lot 18. It is noted that with the exception of the upgradient abutting Map 106 Lot 18 (Allenstown Aggregate), the nearest property northwest and downgradient from the landfill (Lot 9) is over 700± feet from where PFAS was detected in MW-4 above the AGQS (Appendix E Tax Map from May 2015 Site Investigation). The most downgradient monitoring well (MW-5) sampled at the landfill for PFAS and located at the GMZ boundary did not have regulated concentrations above the AGQS. In addition, the landfill site water supply well (DW-1) did not have PFAS detected above laboratory detection limits.

5.0 SITE CONCEPTUAL MODEL

5.1 Conceptual Hydrogeologic Model

The Allenstown Landfill is situated on an approximately 7.7-acre parcel. Municipal water service is available in the area. Several area residents and businesses continue to be supplied by private water supplies as does the subject site. A bedrock water supply well is located on the southwest-central portion of the property. The landfilled waste reportedly consists primarily of ash from on-site burning that occurred between the 1920s to the 1970s. The landfill accepted solid wastes such as household refuse, miscellaneous construction debris, yard waste, and metal debris. Non-

burnable items (refrigerators, stoves) were buried onsite. Waste burning was discontinued at the facility in the mid-1970s; brush is reportedly still burned. A solid waste transfer station has operated on the property since the mid-1970s. A salt storage shed, other smaller sheds, trailers and highway equipment storage and maintenance buildings are also located on the property.

Five overburden monitoring wells were installed as part of a Phase II Hydrogeologic Investigation[4]. The wells range in depth from ±13 feet to ±26 feet below site grade. Fill material was encountered at depths ranging from ±9 feet to ±19 feet. Materials underlying the waste fill comprised silt, sand, and gravel interpreted as outwash deposits. Auger refusal interpreted as bedrock was encountered in monitoring well MW-3 at a depth of ±13 feet. The general depth to groundwater across the site has ranged from ±6.4 feet to ±21.6 feet below the well reference point (top of PVC) since 2005. Groundwater beneath the site is interpreted to flow in a general northwesterly direction. The primary migration pathway and water bearing unit for the site groundwater is the stratified drift deposit (native material) underlying the fill on site. Single borehole permeability tests performed in monitoring wells MW-1 and MW-3 resulted in estimated hydraulic conductivity ranging from 24 feet per day to 45 feet per day. Using an estimated hydraulic gradient of 0.001 foot per foot, the transport velocity of groundwater across the site was calculated to range from ±0.59 feet per day (±220 feet per year) to ±1.7 feet per day (±600 feet per year) in the overburden aquifer.

The historical contaminants of concern present in overburden groundwater at concentrations that have exceeded AGQS during one or more sampling rounds since 2005 are manganese and sulfate. Since April 2010, manganese has been detected above the AGQS of 0.840 ppm in only one monitoring well location, MW-5. With the exception of one sampling round in April 2010 when manganese was detected at 0.010 ppm, manganese has not been present above laboratory detection limits in the site bedrock water supply well. Sulfate has not been detected above the AGQS of 500 ppm in any sampling location since April 2011. Sulfate has only been detected in the site bedrock water supply well at concentrations two orders of magnitude below the AGQS of 500 ppm.

Annual groundwater monitoring is currently performed at the site during the month of November as described in the GMP for the site. Based on observations made during an investigation during

[4] Phase II Hydrogeologic Investigation report prepared by Nobis Engineering, Inc. dated May 19, 2005.

2006 to determine the limits of waste beyond the boundaries of the property, the GMZ originally proposed was modified to include approximately ±1.37 acres of the Map 106, Lot 18 property. Potential overburden groundwater receptors include the property abutting the site to the northeast, east, southeast, and southwest identified on assessors' Map 106 as Lot 18 and properties identified to the north of Granite Street on assessors' Map 106 as Lot 12 and on assessors' Map 106 as Lot 11. Lot 18 is served by a bedrock water supply well and Lot 12 is served by municipal water. No known water supply wells exist on Lot 11.

5.2 Historical Groundwater Data Evaluation

The concentrations of sulfate in samples collected from MW-4 and MW-5 and the concentration of manganese in samples collected from MW-5 are plotted over time along with groundwater elevations in Chart 1. Sulfate at the MW-4 location appears to have a generally direct relationship to groundwater elevation. Concentrations increase with higher groundwater levels and decrease with lower levels. The statistical trend is towards decreasing sulfate concentrations and since November 2011 have been below the AGQS of 500 ppm. These observations suggest that groundwater in the MW-4 location is being impacted by buried waste materials present in the subsurface. Higher groundwater levels likely contact more buried material and result in higher concentrations.

Manganese and sulfate in the MW-5 location appear to have an an inconsistent relationship to groundwater elevation. Concentrations sometimes decrease with higher water levels and sometimes decrease with lower water levels. The statistical trend for both sulfate and manganese at MW-5 is towards decreasing concentrations. Sulfate concentrations at MW-5 have been below the AGQS of 500 ppm since April 2010. These observations suggest that groundwater in the MW-5 location is being impacted by contaminants migrating from an upgradient location.

The historical groundwater quality data is consistent with a stable water quality condition on this landfill property based on sampling conducted over 12 years. Annual GMP sampling will continue to be sufficient to document the continuation of these stable conditions.

5.3 Current Groundwater Management Zone and Ownership

The GMZ in the current GMP for the site is defined as the properties identified on Allenstown Assessors' Map 106 as Lots 19 and 18 as shown on Figure 2.

As required by Condition 14 of the GMP, the annual inquiry for whether new water supply wells have been installed on the property owned by Allenstown Aggregate, LLC (Map 106, Lot 18) was conducted on November 8, 2016 and provided in the December 6, 2016 Data Submittal. During 2017, the Town of Allenstown acquired the portion of the Map 106, Lot 18 property owned by Allenstown Aggregate, LLC within the GMZ. A boundary line adjustment was conducted and that parcel portion became part of Map 106 Lot 19 owned by the Town of Allenstown. The Recorded Quitclaim Deed (Merrimack County Book 3565 Page 1503) was recorded on August 4, 2017 and surveyed Lot Line Adjustment Plans by Holden Engineering & Surveying, Inc. (Holden) approved by the Town of Allenstown Planning Board on August 2, 2017 are provided in Appendix E. The total size of the new Map 106 Lot 19 has been calculated by Holden to be approximately 9.135± acres. Consequently, the annual inquiry was not performed and this GMP requirement should no longer be necessary as the lot portion within the GMZ has become part of Map 106 Lot 19.

Based on available data, the GMZ defined as Map 106 lot 19 appears to be appropriate as currently defined.

The following properties comprise the proposed Groundwater Management Zone:

Owner:	Town of Allenstown 16 School Street Allenstown, New Hampshire 03275 (603) 485-4276
Address:	161 Granite Street Allenstown, New Hampshire 03275
Tax Map and Lot	Map 106 / Lot 19
Deed Reference	Merrimack County 1812/560 and 1179/384-388
Updated Quitclaim Deed Reference	Merrimack County Book 3565/1503

No modifications to the GMZ are recommended.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Based on the water quality data collected during 2016 and 2017 as well as historical data, Nobis offers the following conclusions:

- Based on the current data, groundwater is inferred to flow in a general northwesterly direction, consistent with historic groundwater flow assessments.

- VOCs were not tested for during 2016 and 2017 but have not been historically detected above laboratory detection limits in groundwater samples collected from the five monitoring wells.

- Where detected in groundwater samples collected from monitoring wells MW-1, MW-2, MW-3 and MW-4, inorganic analytes were present at concentrations not exceeding the applicable AGQS.

- Manganese was present in the groundwater samples collected from MW-5 at concentrations exceeding the AGQS.

- During November 2016 and 2017, the inorganic analytes were not present at concentrations exceeding the applicable surface water standards.

- Where detected in DW-1 water supply samples, inorganic analyte concentrations did not exceed the applicable AGQS.

- The current contaminants of concern present in overburden groundwater at concentrations that have exceeded AGQS during one or more sampling rounds since 2005 are manganese and sulfate. Although manganese has historically been detected at concentrations above the AGQS of 0.84 ppm in MW-5, it has not been detected in the site bedrock water supply well except once in April 2010 at a very low concentration (0.01 ppm). Sulfate has been below the AGQS of 500 ppm since November 2011 in monitoring

wells and has only been detected in the site bedrock water supply well at concentrations two orders of magnitude below the AGQS.

- Manganese and sulfate in the MW-5 location appear to have an an inconsistent relationship to groundwater elevation. The statistical trend for both sulfate and manganese at MW-5 is towards decreasing concentrations. These observations suggest that groundwater in the MW-5 location is being impacted by contaminants migrating from an upgradient location.

- The historical groundwater quality data is consistent with a stable water quality condition on this landfill property based on sampling conducted over 12 years. Annual GMP sampling will be sufficient to document the continuation of these stable conditions.

- During November 2017, the Town of Allenstown complied with the request by NHDES to sample for Per- and Polyfluoroalkyl Substances (PFAS) at three locations as formally approved. PFAS was detected in the sample from upgradient site monitoring well MW-4 above the AGQS of 70 ppt. PFAS was not detected in downgradient overburden monitoring well MW-5 above AGQS. No PFAS was detected in the site water supply well DW-1 above laboratory detection limits.

- During early 2018, as a result of the November 2017 PFAS laboratory results, the Town of Allenstown conducted a survey to assess water well connections proximal to the landfill. The Town has confirmed that up to seven residential and commercial properties located within approximately 1,000± feet from the GMZ boundary currently have private water supply wells and are not connected to the available municipal water services. With the exception of the upgradient abutting Map 106 Lot 18 (Allenstown Aggregate), the nearest property northwest and downgradient from the landfill (Map 106 Lot 9) is over 700± feet from where PFAS was detected in overburden monitoring well MW-4 above the AGQS.

- A boundary line adjustment was conducted and the portion of the GMZ on Map 106 Lot 18 formerly owned by Allenstown Aggregate, LLC became part of Map 106 Lot 19 owned by the Town of Allenstown. Based on available data, the newly defined GMZ established appears to be appropriate as currently defined.

6.2 Recommendations

Based on the above conclusions, Nobis recommends the following:

- The Groundwater Management Permit (GMP) should be formally revised to reflect that the Groundwater Management Zone (GMZ) is now defined by the lot line adjustment for Map 106 Lot 19 which includes approximately 9.135± acres.

- Condition 14 of the GMP for an annual inquiry of the former property owner (Allenstown Aggregate, LLC) for the portion of Map 106 Lot 18 formerly in the GMZ should no longer be required.

- Sampling and reporting should continue as required in the June 15, 2016 GMP.

- The NHDES should change the Town of Allenstown contact name for the GMP from Shaun Mullholland to Interim Town Administrator Lt. Michael Stark with email address ta@allenstownnh.gov.

- The results of the PFAS sampling conducted in 2017 for the Allentown Landfill should be reviewed by NHDES. The Town of Allenstown is concurrently considering the most recently available data for potential future PFAS sampling.

TABLES

TABLE 1

SUMMARY OF WATER ELEVATION DATA

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

Location	Date	Reference Elevation (ft.)	Depth to Water (ft.)	Water Surface Elevation (ft.)
MW-1	3/3/2005	319.80	19.87	299.93
	3/25/2005		19.86	299.94
	4/26/2006		19.68	300.12
	11/27/2006		18.91	300.89
	4/17/2007		19.21	300.59
	11/20/2007		21.51	298.29
	4/17/2008		16.79	303.01
	11/11/2008		19.44	300.36
	4/23/2009		18.03	301.77
	11/10/2009		20.56	299.24
	4/30/2010		17.87	301.93
	11/10/2010		21.63	298.17
	4/19/2011		17.96	301.84
	11/15/2011		18.81	300.99
	4/13/2012		20.05	299.75
	11/26/2012		21.12	298.68
	4/24/2013		19.39	300.41
	11/5/2013		20.98	298.82
	11/18/2014		21.40	298.40
	11/30/2015		21.32	298.48
	11/4/2016		22.23	297.57
	11/20/2017		20.23	299.57
MW-2	3/3/2005	316.85	16.72	300.13
	3/25/2005		16.70	300.15
	4/26/2006		16.57	300.28
	11/27/2006		15.72	301.13
	4/17/2007		15.77	301.08
	11/20/2007		18.62	298.23
	4/17/2008		13.48	303.37
	11/11/2008		16.32	300.53
	4/23/2009		14.76	302.09
	11/10/2009		17.59	299.26
	4/30/2010		14.60	302.25
	11/10/2010		18.80	298.05
	4/19/2011		14.73	302.12
	11/15/2011		15.67	301.18
	4/13/2012		17.03	299.82
	11/26/2012		18.17	298.68
	4/24/2013		16.28	300.57
	11/5/2013		18.08	298.77
	11/18/2014		18.55	298.30
	11/30/2015		18.44	298.41
	11/4/2016		19.40	297.45
	11/20/2017		17.27	299.58
MW-3	3/3/2005	317.57	11.51	306.06
	3/25/2005		10.05	307.52
	4/26/2006		11.38	306.19
	11/27/2006		8.57	309.00
	4/17/2007		6.41	311.16
	11/20/2007		14.25	303.32
	4/17/2008		7.09	310.48
	11/11/2008		10.78	306.79
	4/23/2009		7.41	310.16
	11/10/2009		12.82	304.75
	4/30/2010		8.80	308.77
	11/10/2010		14.00	303.57
	4/19/2011		7.05	310.52
	11/15/2011		8.98	308.59
	4/13/2012		12.41	305.16
	11/26/2012		13.95	303.62
	4/24/2013		10.99	306.58
	11/5/2013		14.08	303.49
	11/18/2014		Dry (>14.68)	<302.89
	11/30/2015		14.25	303.32
	11/4/2016		Dry (>14.63)	<302.84
	11/20/2017		11.04	306.53

TABLE 1

SUMMARY OF WATER ELEVATION DATA

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

Location	Date	Reference Elevation (ft.)	Depth to Water (ft.)	Water Surface Elevation (ft.)
MW-4	3/3/2005	314.80	11.58	303.22
	3/25/2005		10.69	304.11
	4/26/2006		11.18	303.62
	11/27/2006		10.10	304.70
	4/17/2007		9.89	304.91
	11/20/2007		12.45	302.35
	4/17/2008		8.58	306.22
	11/11/2008		10.92	303.88
	4/23/2009		9.27	305.53
	11/10/2009		11.93	302.87
	4/30/2010		9.72	305.08
	11/10/2010		12.79	302.01
	4/19/2011		9.44	305.36
	11/15/2011		10.06	304.74
	4/13/2012		11.59	303.21
	11/26/2012		12.53	302.27
	4/24/2013		10.91	303.89
	11/5/2013		12.64	302.16
	11/18/2014		12.77	302.03
	11/30/2015		12.83	301.97
	11/4/2016		13.94	300.86
	11/20/2017		11.45	303.35
MW-5	3/3/2005	317.00	17.05	299.95
	3/25/2005		17.06	299.94
	4/26/2006		16.87	300.13
	11/27/2006		16.05	300.95
	4/17/2007		16.41	300.59
	11/20/2007		18.68	298.32
	4/17/2008		13.86	303.14
	11/11/2008		16.58	300.42
	4/23/2009		15.11	301.89
	11/10/2009		17.71	299.29
	4/30/2010		14.94	302.06
	11/10/2010		18.85	298.15
	4/19/2011		15.07	301.93
	11/15/2011		15.95	301.05
	4/13/2012		17.20	299.80
	11/26/2012		18.31	298.69
	4/24/2013		16.54	300.46
	11/5/2013		18.16	298.84
	11/18/2014		18.61	298.39
	11/30/2015		18.54	298.46
	11/4/2016		19.49	297.51
	11/20/2017		17.45	299.55
SW-1	4/18/2007	304.11	not recorded	
	11/20/2007		dry	
	4/18/2008		0.98	303.13
	11/11/2008		0.85	303.26
	4/23/2009		0.93	303.18
	11/10/2009		dry	
	4/30/2010		1.14	302.97
	11/10/2010		1.24	302.87
	4/19/2011		1.09	303.02
	11/15/2011		1.25	302.86
	4/13/2012		1.29	302.82
	11/26/2012		1.37	302.74
	4/24/2013		1.53	302.58
	11/5/2013		1.75	302.36
	11/18/2014		1.78	302.33
	11/30/2015		1.97	302.14
	11/4/2016		2.03	302.08
	11/20/2017		1.95	302.16

Notes:

1. All data were collected in the field by Nobis Engineering, Inc. Static water levels were measured using a Solinst electronic water level meter.

2. Reference elevations are the top of the PVC pipe and are based on NGVD of 1929. Elevations were determined by J.E. Belanger Land Surveying on January 11, 2005.

3. SW-1 elevations are measured from the top of a permanent marker, subject to field verification, located next to the sample location and are based on elevations determined by J.E. Belanger Land Surveying on May 2, 2007.

TABLE 2

SUMMARY OF METALS ANALYSES AND OTHER PARAMETERS

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

NHDES Standards		PARAMETERS																
					DRINKING WATER METALS													
		Temperature (°C)	pH	Specific Conductance (µS/cm)	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Iron	Manganese	Sulfate	Chloride	Nitrate	TKN
AGQS		NS	NS	NS	0.01	2	0.005	0.1	0.015	0.002	0.05	0.1	NS	0.84	500	NS	10	NS
SMCLs		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.1	0.3	0.05	250	250	NS	NS
Surface Water Standards		NS	NS	NS	$1.8x10^{-5}$	1	$2.1x10^{-4}$	0.1	$4.1x10^{-4}$	$5x10^{-5}$	0.17	0.105	0.3	0.05	NS	230	10	NS
Well	**Date**																	
MW-1	3/3/2005	7.7	6.2	1,080	<0.01	0.06	0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	<0.05	**0.98**	120	490	1.7	3.9
	3/25/2005	10.3	6.8	1,330			0.005						0.05	**1**	120	610		1.9
	4/26/2006	13.0	6.9	1,000									<0.05	**3.8**	430	480	0.7	1.8
	11/27/2006	14.0	6.5	1,110	0.004	0.078	0.005	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	**2.1**	340	530	3.9	1.1
	4/17/2007	8.9	6.5	1,410									<0.05	0.65	210	130	6.3	0.7
	11/20/2007	10.3	6.0	1,760									<0.05	0.69	240	550	0.9	<0.5
	4/17/2008	13.9	6.0	1,528									<0.05	0.12	380	260	<0.5	<0.5
	11/11/2008	11.9	6.4	3,344	0.005	0.059	0.001	0.003	<0.001	<0.0001	0.001	<0.001	<0.05	0.68	180	1200	2.3	<0.5
	4/23/2009	10.8	6.1	3,015									<0.05	0.47	320	540	0.7	<0.5
	11/10/2009	13.3	6.5	2,004									<0.05	**1.4**	330	550	0.9	0.8
	4/30/2010	10.4	6.4	1,221									<0.05	0.12	330	200	<0.5	<0.5
	11/10/2010	12.4	6.3	2,055	<0.001	0.027	0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	0.26	170	440	0.9	<0.5
	4/19/2011	9.6	6.4	2,558									<0.05	0.17	180	640	2.2	0.5
	11/15/2011	13.3	6.5	2,281									<0.05	0.056	140	380	8.4	<0.5
	4/13/2012	11.2	6.2	2,526									<0.05	0.025	110	780	1.8	<0.5
	11/26/2012	10.2	6.3	1,148									0.06	0.33	190	280	<0.5	<0.5
	4/24/2013	16.7	6.0	1,484									0.05	0.31	130	410	<0.5	0.7
	11/5/2013	10.7	6.0	1,038	<0.001	0.019	0.002	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	0.30	100	270	<0.5	0.7
	11/18/2014	8.5	5.8	1,439									<0.05	0.23	110	410	<0.5	<0.5
	11/30/2015	8.7	6.1	1,156									0.08	0.18	87	300	<0.5	<0.5
	11/4/2016	11.5	5.9	878									<0.05	0.18	66	280	0.5	<0.5
	11/20/2017	7.7	5.9	1,985									<0.05	0.27	85	520	1.1	0.9
MW-2	3/3/2005	5.1	6.9	150	<0.01	<0.05	<0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	<0.05	<0.03	41	5.7	0.7	1.1
	3/25/2005	8.1	7.7	120									<0.05	<0.05	51	5.5		0.6
	4/26/2006	10.6	7.6	170									<0.05	<0.005	52	3	1.1	<0.5
	11/27/2006	13.0	7.0	120	<0.001	0.041	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	86	4	0.6	<0.5
	4/17/2007	6.3	6.6	160									<0.05	<0.005	45	<1	<0.5	<0.5
	11/20/2007	11.2	6.6	340									<0.05	<0.005	58	6	1.4	<0.5
	4/17/2008	11.9	6.5	513									<0.05	<0.005	160	4	1.8	<0.5
	11/11/2008	9.8	6.8	246	<0.001	0.031	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	47	11	<0.5	<0.5
	4/23/2009	9.8	6.6	437									<0.05	<0.005	74	6	<0.5	<0.5
	11/10/2009	12.9	6.9	316									<0.05	<0.005	50	2	0.6	<0.5
	4/30/2010	10.4	6.8	401									<0.05	<0.005	96	2	0.5	<0.5
	11/10/2010	10.9	6.6	659	<0.001	0.064	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	140	6	3.2	<0.5
	4/19/2011	6.8	7.3	166									<0.05	<0.005	9	4	<0.5	<0.5
	11/15/2011	12.8	6.8	383									<0.05	<0.005	80	8	0.7	<0.5
	4/13/2012	10.8	6.7	342									<0.05	<0.005	73	3	0.8	<0.5
	11/26/2012	9.4	6.9	271									<0.05	<0.005	53	3	0.8	<0.5
	4/24/2013	16.5	6.7	518									<0.05	<0.005	110	3	0.9	<0.5
	11/5/2013	12.9	6.6	366	<0.001	0.041	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	36	7	<0.5	<0.5
	11/18/2014	9.5	6.4	529									<0.05	<0.005	85	31	4.2	<0.5
	11/30/2015	10.1	6.8	655									<0.05	<0.005	57	130	3.5	<0.5
	11/4/2016	12.4	6.6	426									<0.05	<0.005	120	29	1.6	<0.5
	11/20/2017	11.0	6.6	371									<0.05	<0.005	59	13	1.0	0.5

TABLE 2

SUMMARY OF METALS ANALYSES AND OTHER PARAMETERS

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

NHDES Standards		PARAMETERS																
					DRINKING WATER METALS													
		Temperature (°C)	pH	Specific Conductance (µS/cm)	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Iron	Manganese	Sulfate	Chloride	Nitrate	TKN
AGQS		NS	NS	NS	0.01	2	0.005	0.1	0.015	0.002	0.05	0.1	NS	0.84	500	NS	10	NS
SMCLs		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.1	0.3	0.05	250	250	NS	NS
Surface Water Standards		NS	NS	NS	$1.8x10^{-5}$	1	$2.1x10^{-4}$	0.1	$4.1x10^{-4}$	$5x10^{-5}$	0.17	0.105	0.3	0.05	NS	230	10	NS
MW-3	3/3/2005	4.5	6.3	150	<0.01	0.06	<0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	0.25	**3.4**	57	10	2.4	0.4
	3/25/2005	6.6	7.6	120									0.11	**1.6**	54	10		0.6
	4/26/2006	10.5	6.1	300									<0.05	0.024	97	23	4.1	<0.5
	11/27/2006	12.2	6.3	110	<0.001	0.061	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	0.010	10	9	3.7	<0.5
	4/17/2007	5.0	5.9	380									<0.05	0.008	130	18	3.0	<0.5
	11/20/2007	dry - no sample collected																
	4/17/2008	12.1	5.7	571									<0.05	<0.005	230	19	4.3	<0.5
	11/11/2008	9.2	6.0	460	<0.001	0.047	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	130	12	4.2	<0.5
	4/23/2009	9.4	6.0	404									<0.05	<0.005	110	6	3.8	<0.5
	11/10/2009	13.9	6.1	346									<0.05	<0.005	94	5	3.7	<0.5
	4/30/2010	11.1	6.1	294									<0.05	<0.005	100	4	3.1	<0.5
	11/10/2010	11.9	6.2	414	<0.001	0.028	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.005	97	7	5.4	<0.5
	4/19/2011	7.0	6.3	470									<0.05	<0.005	52	4	2.8	<0.5
	11/15/2011	12.2	6.0	402									<0.05	<0.005	78	19	4.9	<0.5
	4/13/2012	12.6	6.1	567									<0.05	<0.005	92	75	2.5	<0.5
	11/26/2012	10.1	6.3	477									<0.05	<0.005	410	72	2.4	0.6
	4/24/2013	16.3	6.0	405									<0.05	<0.005	71	35	3.4	<0.5
	11/5/2013	13.2	5.8	413	<0.001	0.036	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.05	0.007	83	40	2.3	0.5
	11/18/2014	dry - no sample collected																
	11/30/2015	7.4	6.4	231									<0.05	<0.005	57	5	2.8	0.7
	11/4/2016	dry - no sample collected																
	11/20/2017	11.1	6.0	220									<0.05	<0.005	44	3	2.3	<0.5
MW-4	3/3/2005	3.9	6.3	710	<0.01	<0.05	<0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	6.3	0.59	280	120	<0.1	2.4
	3/25/2005	6.4	6.7	1,090									13	**1**	**580**	310		1.9
	4/26/2006	9.7	6.7	1,490									8.7	0.77	39	110	<0.5	1.2
	11/27/2006	13.0	6.4	380	0.005	0.054	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	5.3	0.68	**800**	29	<0.5	1.3
	4/17/2007	4.9	6.3	1,310									4.4	0.45	320	190	<0.5	0.6
	11/20/2007	12.3	6.2	880									6.6	0.50	**510**	78	<0.5	1.4
	4/17/2008	10.6	6.0	1,324									2.9	0.40	**670**	84	<0.5	1.0
	11/11/2008	11.4	6.2	1,191	0.001	0.025	<0.001	0.002	<0.001	<0.0001	<0.001	<0.001	1.4	0.37	380	59	<0.5	1.0
	4/23/2009	8.8	6.1	2,049									2.1	0.50	**590**	150	<0.5	<0.5
	11/10/2009	13.5	6.3	1,124									5.8	0.48	**510**	45	<0.5	1.2
	4/30/2010	9.7	6.3	1,732									11	0.45	**650**	540	<0.5	1.0
	11/10/2010	12.4	5.9	1,785	<0.001	0.044	<0.001	0.002	<0.001	<0.0001	<0.001	<0.001	7.3	0.53	**620**	200	<0.5	0.9
	4/19/2011	6.6	6.3	2,370									1.8	0.30	**610**	270	<0.5	0.8
	11/15/2011	13.4	6.2	1,703									5.5	0.48	460	160	<0.5	1.5
	4/13/2012	9.5	6.2	1,187									3.8	0.27	370	54	<0.5	0.8
	11/26/2012	10.4	6.2	920									3.7	0.26	310	82	<0.5	1.2
	4/24/2013	15.2	6.0	1,946									0.84	0.36	280	440	<0.5	1.2
	11/5/2013	11.2	6.1	734	<0.001	0.022	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	7.1	0.19	130	100	<0.5	1.3
	11/18/2014	9.7	6.0	501									7.2	0.19	130	19	<0.5	0.7
	11/30/2015	9.2	6.5	707									5.3	0.19	270	19	<0.5	0.6
	11/4/2016	12.3	6.3	358									6.2	0.15	160	12	<0.5	<0.5
	11/20/2017	8.8	6.2	1,249									3.0	0.17	420	64	<0.5	1.2

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SUMMARY OF METALS ANALYSES AND OTHER PARAMETERS

Allenstown Landfill
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NHDES Standards		PARAMETERS																
					DRINKING WATER METALS													
		Temperature (°C)	pH	Specific Conductance (µS/cm)	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Iron	Manganese	Sulfate	Chloride	Nitrate	TKN
AGQS		NS	NS	NS	0.01	2	0.005	0.1	0.015	0.002	0.05	0.1	NS	0.84	500	NS	10	NS
SMCLs		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.1	0.3	0.05	250	250	NS	NS
Surface Water Standards		NS	NS	NS	$1.8x10^{-5}$	1	$2.1x10^{-4}$	0.1	$4.1x10^{-4}$	$5x10^{-5}$	0.17	0.105	0.3	0.05	NS	230	10	NS
MW-5	3/3/2005	7.2	6.9	820														
	3/25/2005	11.0	7.3	1,050														
	4/26/2006	11.1	6.9	1,410									0.86	**3.1**	**830**	20	<0.5	0.5
	11/27/2006	13.4	6.5	1,600	0.001	0.035	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	0.40	**7.8**	**810**	79	<0.5	2.8
	4/17/2007	8.2	6.6	1,470									2.80	**6.2**	**780**	51	<0.5	2.6
	11/20/2007	10.5	5.7	1,900									3.20	**4.9**	370	540	<0.5	2.2
	4/17/2008	12.3	5.9	392									<0.05	0.015	98	39	1.9	<0.5
	11/11/2008	9.0	6.8	1,422	<0.001	0.017	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	2.70	**2.6**	**620**	17	<0.5	1.4
	4/23/2009	11.6	6.5	1,176									2.60	**1.7**	400	30	<0.5	0.8
	11/10/2009	11.1	6.9	1,329									3.4	**2.6**	**630**	36	<0.5	1.2
	4/30/2010	12.5	6.8	782									2.3	**1.4**	310	15	<0.5	0.6
	11/10/2010	10.9	6.8	2,137	0.002	0.032	<0.001	<0.001	<0.001	<0.0001	0.002	<0.001	3.2	**2.0**	240	430	<0.5	1.9
	4/19/2011	9.8	6.5	1,048									2.1	**2.7**	170	58	0.9	0.5
	11/15/2011	12.7	6.8	1,376									6.1	**2.5**	420	44	0.7	2.0
	4/13/2012	11.6	6.7	1,198									4.6	**1.4**	410	29	<0.5	1.6
	11/26/2012	10.3	6.7	1,597									4.6	**2.5**	480	310	<0.5	1.5
	4/24/2013	18.1	6.5	1,274									2.4	**3.0**	490	48	<0.5	1.7
	11/5/2013	10.1	6.7	839	0.003	0.012	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	1.7	**1.1**	210	110	<0.5	1.0
	11/18/2014	8.3	6.3	1,137									2.7	**1.5**	200	170	<0.5	1.0
	11/30/2015	10.0	6.5	2,280									0.39	**1.7**	130	690	<0.5	0.6
	11/4/2016	12.5	6.4	1,510									<0.05	**0.88**	92	510	0.6	<0.5
	11/20/2017	8.8	6.6	1,831									<0.05	**1.2**	160	390	0.6	1.1
DW-1	3/3/2005	8.1	7.4	50	<0.01	<0.05	<0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	0.28	<0.03	6.3	2.1	<0.1	<0.3
	3/25/2005	8.0	8.9	60	<0.01	<0.05	<0.005	<0.05	<0.01	<0.0009	<0.05	<0.007	0.46	<0.05	6.1	3.3		<0.3
	4/26/2006	11.1	8.0	30									0.63	<0.005	7	2	<0.5	<0.5
	11/27/2006	inadvertently omitted			0.002	0.002	<0.001	<0.001	0.002	<0.0001	<0.001	<0.001	0.81	<0.005	7	2	<0.5	<0.5
	4/17/2007	8.6	6.7	50									0.38	<0.005	7	2	<0.5	<0.5
	11/20/2007	12.3	6.8	60									1.4	<0.005	7	3	<0.5	<0.5
	4/17/2008	13.7	6.3	71									0.63	<0.005	7	2	<0.5	<0.5
	11/11/2008	12.0	6.6	71	0.002	0.002	<0.001	<0.001	0.002	<0.0001	<0.001	<0.001	1.3	<0.005	7	3	<0.5	<0.5
	4/23/2009	9.5	6.5	80									1.3	<0.005	7	2	<0.5	<0.5
	11/10/2009	11.4	7.0	87									0.7	<0.005	7	3	<0.5	<0.5
	4/30/2010	7.6	7.5	92									1.4	0.010	6	2	<0.5	<0.5
	11/10/2010	14.2	6.7	103	0.001	0.002	<0.001	<0.001	0.001	<0.0001	<0.001	<0.001	0.98	<0.005	8	3	<0.5	<0.5
	4/19/2011	8.1	6.6	86									1.6	<0.005	7	3	<0.5	<0.5
	11/15/2011	13.7	6.7	129									1.6	<0.005	7	4	<0.5	<0.5
	4/13/2012	5.0	6.6	75									0.49	<0.005	8	3	<0.5	<0.5
	11/26/2012	4.9	7.0	68	<0.001	0.002	<0.001	<0.001	0.001	<0.0001	<0.001	<0.001	0.25	<0.005	8	3	<0.5	<0.5
	4/24/2013	12.1	6.7	84									0.99	<0.005	6	3	<0.5	<0.5
	11/5/2013	10.3	6.5	88	0.001	0.002	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	0.29	<0.005	6	3	<0.5	<0.5
	11/18/2014	10.6	7.1	77									0.68	<0.005	6	3	<0.5	<0.5
	11/30/2015	12.5	6.7	74	0.002	0.002	<0.001	<0.001	0.002	<0.0001	<0.001	<0.001	1.5	<0.005	6	3	<0.5	<0.5
	11/4/2016	13.3	6.8	356									<0.05	0.009	9	100	0.9	<0.5
	11/20/2017	14.9	6.7	92									1.9	<0.005	6	4	<0.5	0.7

TABLE 2

SUMMARY OF METALS ANALYSES AND OTHER PARAMETERS

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

NHDES Standards		PARAMETERS																
					DRINKING WATER METALS													
		Temperature (°C)	pH	Specific Conductance (µS/cm)	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Iron	Manganese	Sulfate	Chloride	Nitrate	TKN
AGQS		NS	NS	NS	0.01	2	0.005	0.1	0.015	0.002	0.05	0.1	NS	0.84	500	NS	10	NS
SMCLs		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.1	0.3	0.05	250	250	NS	NS
Surface Water Standards		NS	NS	NS	$1.8x10^{-5}$	1	$2.1x10^{-4}$	0.1	$4.1x10^{-4}$	$5x10^{-5}$	0.17	0.105	0.3	0.05	NS	230	10	NS
SW-1	4/18/2007	7.2	6.7	390									0.13	0.03	140	5	1.3	<0.5
	11/20/2007	dry - no sample collected																
	4/17/2008	18.7	6.6	334									<0.05	0.008	140	9	<0.5	<0.5
	11/11/2008	6.3	6.9	112	0.003	0.007	<0.001	<0.001	0.001	<0.0001	<0.001	<0.001	**0.73**	**0.42**	6	8	<0.5	<0.5
	4/23/2009	13.0	6.8	344									**0.40**	**0.059**	110	10	<0.5	<0.5
	11/10/2009	dry - no sample collected																
	4/30/2010	11.5	7.1	193									**0.31**	**0.061**	38	9	<0.5	<0.5
	11/10/2010	10.3	6.6	258	0.001	0.011	<0.001	<0.001	0.001	<0.0001	<0.001	<0.001	0.09	0.017	47	18	<0.5	<0.5
	4/19/2011	8.2	6.9	287									<0.05	<0.005	67	10	<0.5	<0.5
	11/15/2011	12.8	6.8	226									0.19	0.040	39	27	<0.5	<0.5
	4/13/2012	7.7	7.5	228									0.17	0.039	38	21	<0.5	<0.5
	11/26/2012	2.4	6.9	314									**0.48**	**0.068**	69	41	<0.5	<0.5
	4/24/2013	20.8	7.2	185									0.06	0.009	33	14	<0.5	<0.5
	11/5/2013	6.2	7.1	246	<0.001	0.009	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	0.24	0.043	45	23	<0.5	<0.5
	11/18/2014	4.0	6.8	236									**0.68**	**0.062**	55	23	<0.5	0.6
	11/30/2015	1.3	7.1	200									<0.05	<0.005	57	13	<0.5	<0.5
	11/4/2016	9.8	6.4	149									0.16	0.007	53	13	<0.5	0.9
	11/20/2017	3.1	7.0	178									0.12	0.008	44	7	<0.5	<0.5

Notes

1. All concentrations are reported in parts per million (ppm). Values in **Bold** exceed the applicable standard. Where no value is presented the parameter was not analyzed.
2. "<" indicates the parameter was not detected above the indicated detection limit.
3. "NS" indicates no standard is established.
4. Sampling was performed by Nobis Engineering, Inc. on the dates indicated.
5. March 2005 analyses performed by Resource Laboratories, LLC of Portsmouth, N.H.; all other analyses performed by Eastern Analytical, Inc. of Concord, N.H.
6. Drinking Water Metals are defined in the Safe Drinking Water Act of 1974, amended 1986 and 1996.
7. Ambient Groundwater Quality Standards (AGQS) reference the New Hampshire Code of Administrative Rules, Chapter Env-Or 600, Table 600-1, effective June 1, 2015.
8. Secondary Maximum Contaminant Levels (SMCL) are referenced in Env-Dw 706 Regulated Secondary Maximum Contaminant Levels, effective February 1, 2015. SMCL represent aesthetic standards for community and non-transient non-community. SMCLs are included for reference only.
9. Surface water standards are referenced in Table 1703.1 of Chapter Env-Wq 1700 Surface Water Quality Regulations effective December 1, 2016. Where no standard is established for these criteria, the most conservative Protection of Aquatic Life standard is listed. The standard for dissolved chromium is established by the current USEPA Maximum Contaminant Limit (MCL).

TABLE 3
SUMMARY OF GROUNDWATER PFAS ANALYTICAL RESULTS

Allenstown Landfill
161 Granite Street
Allenstown, New Hampshire
NHDES Site No. 199012032 / NHDES Project No. 2574

Perfluoroalkyl Substance (PFAS)		Perfluorooctanoic Acid (PFOA)	Perfluorooctane Sulfonate (PFOS)	Total (PFOA + PFOS)
AGQS:		70	70	70
Location	Date			
MW-4	11/20/2017	14.1	**196**	**210.1**
MW-5	11/20/2017	9.82	7.47	17.29
DW-1	11/20/2017	<4.43	<4.43	<8.86
Trip Blank	11/20/2017	<4.67	<4.67	<9.34

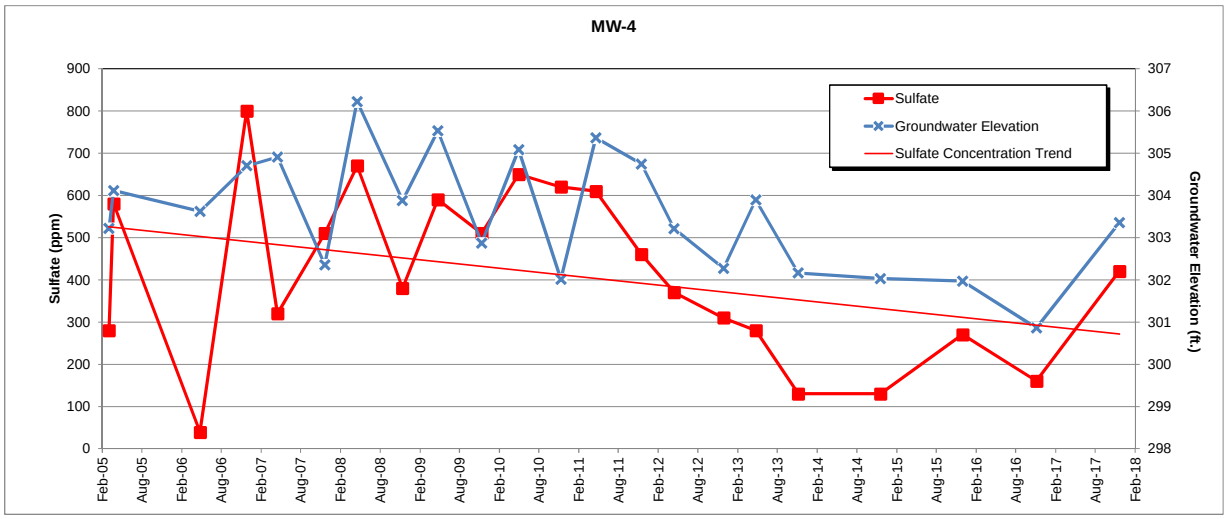
Notes:
1. All concentrations reported in nanograms per liter (ng/L), equivalent to parts per trillion (ppt).
2. **Bold** indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS) established in 2016.
3. NS = Not Sampled.
4. Seven other PFAS compounds were tested for that have no established AQGS.
5. November 20, 2017 samples were collected by Nobis Engineering, Inc.
6. All PFAS laboratory analyses were performed per Modified EPA Method 537 by Vista Analytical Laboratory of El Dorado Hills, CA as subcontracted by Eastern Analytical, Inc.

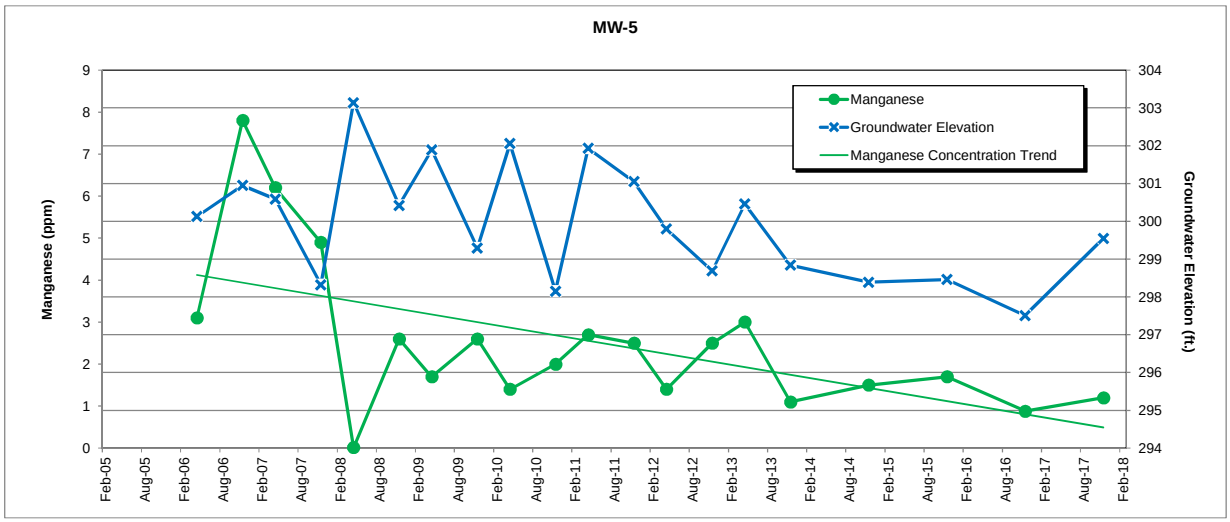
CHARTS

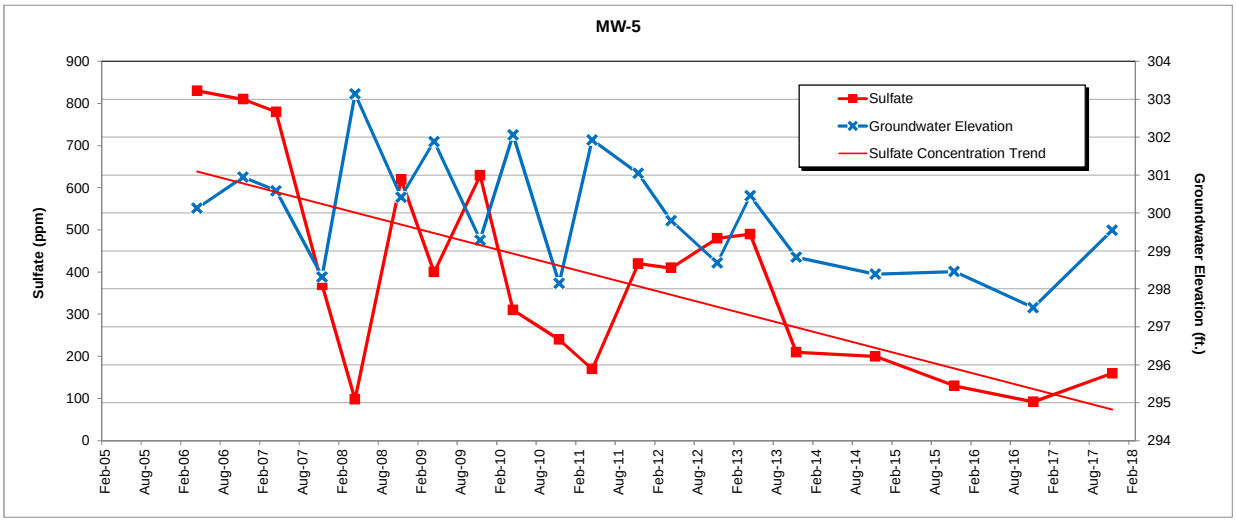
CHART 1

INORGANIC ANALYTES AND GROUNDWATER ELEVATIONS OVER TIME

Allenstown Landfill
161 Granite Street, Allenstown, NH
NHDES No. 199012032 / Project No. 2574

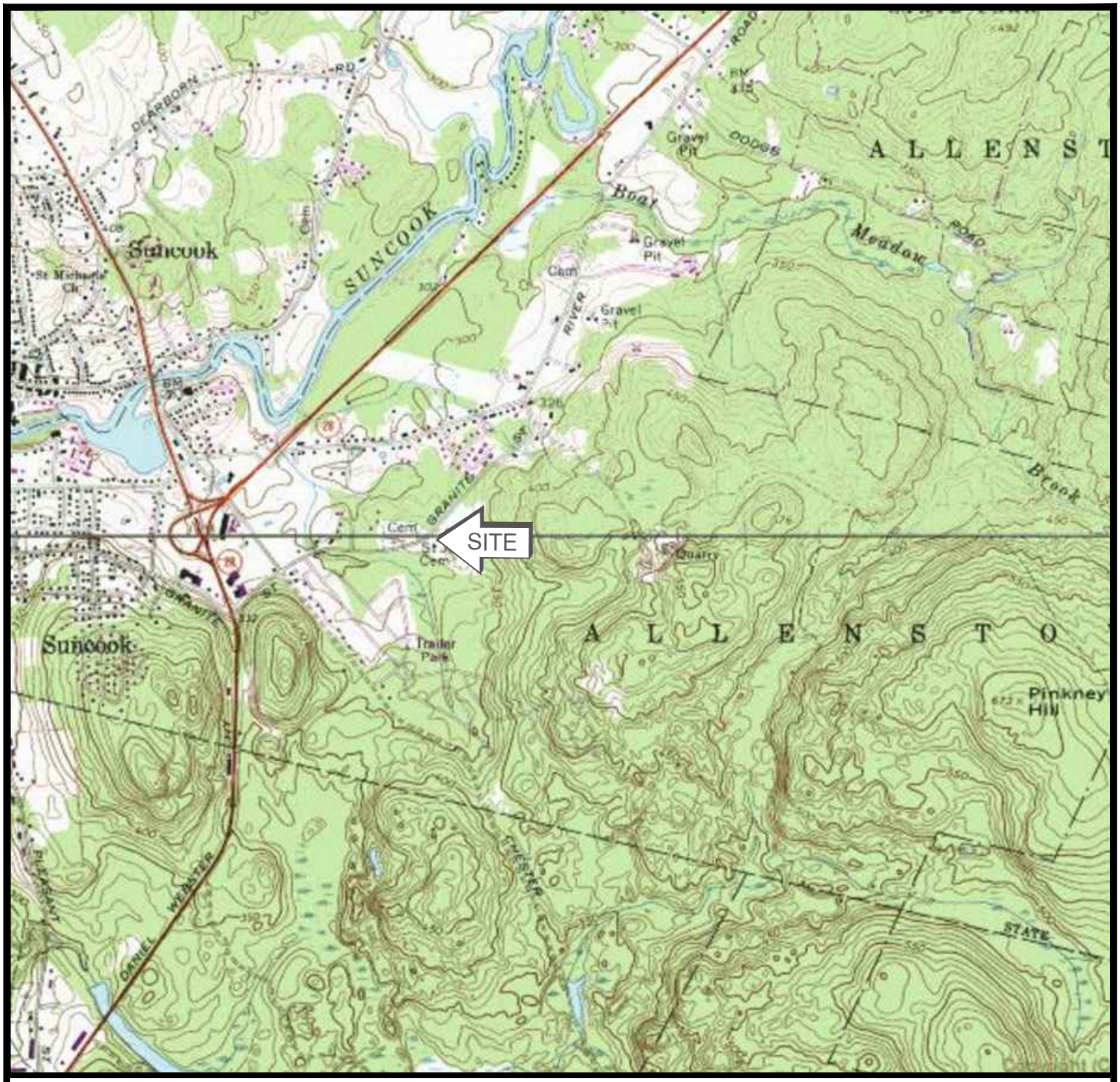






Refer to Tables 1 and 2 for groundwater elevation and inorganic analyte concentration data.

FIGURES



NORTH

USGS TOPOGRAPHIC MAP

SUNCOOK, NH
1985

MANCHESTER NORTH, NH
1985

APPROXIMATE SCALE
1 INCH = 2,000 FEET

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QUADRANGLE LOCATION

FIGURE 1

LOCUS PLAN

ALLENSTOWN LANDFILL
161 GRANITE STREET
ALLENSTOWN, NEW HAMPSHIRE

PROJECT 76400.01 | JANUARY 2018

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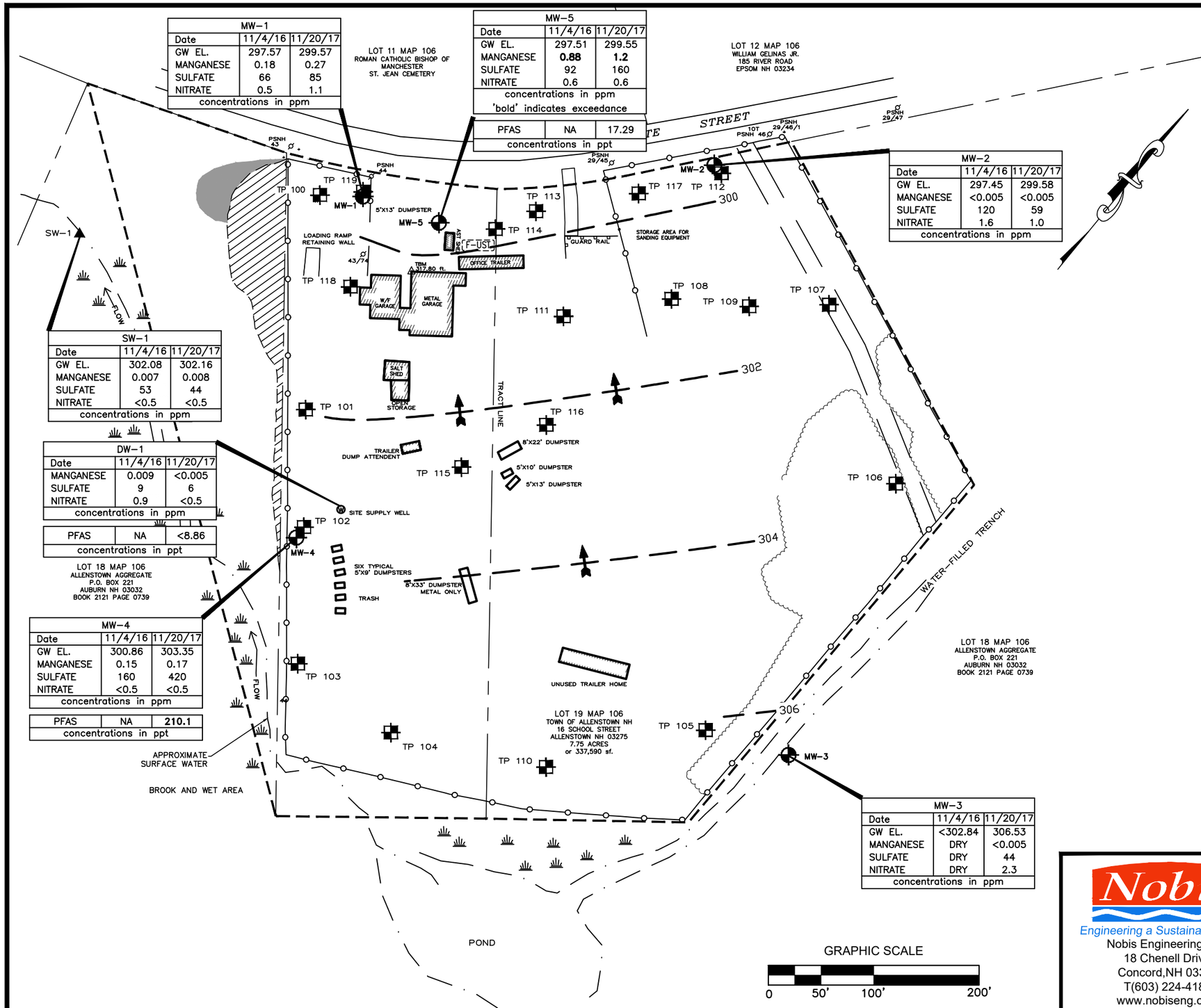

NOTES

1. THIS SITE SKETCH WAS DEVELOPED FROM A SITE PLAN PREPARED BY J.E. BELANGER LAND SURVEYING PLLC AND TOWN OF ALLENSTOWN ASSESSORS' MAPS. THE SURVEY IS REFERENCED TO NGVD 1929; A TEMPORARY BENCHMARK IS ESTABLISHED AT THE NORTHWEST CORNER OF THE METAL GARAGE, AS SHOWN.

2. LOCATIONS AND SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY.

3. GROUNDWATER MONITORING WELLS WERE INSTALLED ON FEBRUARY 14 AND 15, 2005 BY GREAT WORKS TEST BORING UNDER THE OBSERVATION OF NOBIS ENGINEERING, INC.

4. HAND AUGER EXPLORATION LOCATIONS AND SLOPE LIMITS ARE BASED ON GPS DATA COLLECTED BY NOBIS ENGINEERING ON JULY 11, 2006 USING A TRIMBLE PATHFINDER RECEIVER.

5. GROUNDWATER CONTOURS ARE INFERRED BASED ON DATA FROM MONITORING WELLS AND INTERPRETED USING THE NATURAL NEIGHBOR METHOD IN SURFER VERSION 10 SOFTWARE. OTHER INTERPRETATIONS ARE POSSIBLE.

6. LOT LINE ADJUSTMENT ON AUGUST 2, 2017 ADDED PORTION OF MAP 106 LOT 18 TO MAP 106 LOT 19 WITH ENTIRE LOT BEING 9.135 ACRES.

7. "PFAS" MEANS TOTAL PFOA AND PFOS IN PARTS PER TRILLION (PPT).

LEGEND

- GROUNDWATER MANAGEMENT ZONE
- PROPERTY LINE
- TREELINE
- FENCE
- WATER COURSE
- WET AREA
- F-UST — FORMER UST (APPROXIMATE)
- UTILITY POLE
- W — WELL
- MW-1 — MONITORING WELL
- HA-4 — HAND AUGER EXPLORATION
- SW-1 — SURFACE WATER MONITORING LOCATION
- TP-100 — TEST PIT LOCATION
- SLOPE / LIMIT OF WASTE OUTSIDE LOT 19
- LIMIT OF WASTE BEYOND SLOPE
- 300 — GROUNDWATER CONTOUR (11/20/17)
- GROUNDWATER FLOW DIRECTION

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FIGURE 2

SITE SKETCH WITH GROUNDWATER DATA
ALLENSTOWN LANDFILL
161 GRANITE STREET
ALLENSTOWN, NEW HAMPSHIRE

DRAWN BY:	NZ/TH	APPROVED BY:	TB
PROJECT:	76400.01		JANUARY 2018

J:\76400 Allenstown LF\Allenstown LF\dwg\76400-Site.dwg

APPENDICES

APPENDIX A

APPENDIX A

LIMITATIONS

1) These services were performed in accordance with generally accepted practices of other consultants undertaking similar assessments at the same time and in the same geographical area. The results of this assessment are based on our professional judgment and are not scientific certainties. No other warranty, express or implied, is made.

2) The observations and conclusions presented in this report were made solely on the basis of conditions described in the report and not on scientific tasks or procedures beyond the scope of described services or the budgetary and time constraints imposed by the client. The work described in this report was performed in accordance with the terms and conditions of our contract. No other warranty, express or implied, is made.

3) Water level readings have been made in the monitoring wells at the times and under the conditions stated in this report. Fluctuations in groundwater levels will occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.

4) Except as noted within the text of the report, no quantitative laboratory testing was performed as part of this assessment. Where such analyses have been conducted by an outside laboratory, an independent evaluation of the reliability of these data was not conducted.

5) Chemical analyses have been performed for specific parameters during this site assessment, as described in the text of the report. Additional chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site.

6) This report has been prepared for the exclusive use of the Town of Allenstown, New Hampshire and the New Hamsphire Department of Environmental Services, in accordance with generally accepted hydrogeologic practices. No other warranty, express or implied, is made.

APPENDIX B

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

EMAIL ONLY

June 15, 2016

Shaun Mulholland, Town Administrator
Board of Selectmen
Town of Allenstown
16 School Street
Allenstown, NH 03275

Subject: **Allenstown** – Town of Allenstown Landfill, 152 Granite Street
DES Site **#199012032**, Project #2574

Groundwater Management Permit Renewal Application and Periodic Summary Report (Application/Report), prepared by Nobis Engineering, Inc., dated January 28, 2016

Dear Mr. Mulholland:

Please find enclosed Groundwater Management Permit Number **GWP-199012032-A-003**, approved by the Department of Environmental Services (Department). This permit is issued for a period of 5 years to monitor groundwater quality at the Allenstown Landfill site, and is a renewal of the permit which expired on April 20, 2016.

A recommendation was made in the Application/Summary Report to reduce sampling from annual to biennial permit monitoring. At this time, this request is not accepted by the Department, based on the following site-specific considerations:

- The prior (March 2014) permit revision reduced the sampling frequency to annually from the previous twice-yearly sampling program; thus, the site has only been in annual sampling for two years; and,

- The site has not been formally closed with an engineered cap as it has been accepted as a "Brady Bill" (RSA 149-M:9, XIII) Town. As such, the landfill is considered an inactive facility, but has not completed final closure. To maintain this status under the requirements of the Brady Bill, the facility must continue to show that it is having no adverse impact through active groundwater monitoring.

Additionally, please note that Special Permit Condition #14 remains in effect. This permit condition is required because even though municipal water is available on Granite Street at Map 106, Lot 18, connection to the municipal water supply is not mandatory upon site development. Therefore, please include reference to Special Permit Condition #14 in future annual (data and/or summary) reports as required in the permit condition.

The documentation of the site review and the letter sent provided in the subject Application/Report is acceptable to the Department for purposes of current compliance with the intent of the Special Condition. If a response is received by the Town, it is requested that documentation of the response be provided to the Department for our files.

All monitoring summaries and all required sampling results shall be submitted to the Groundwater Management Permits Coordinator at the address below. All correspondence must contain a cover letter that clearly shows the Department identification number for the site (DES #199012032).

Should you have any questions, please contact me at the Waste Management Division.

Sincerely,

Peter L. Beblowski, C.P.G.
Hazardous Waste Remediation Bureau
Groundwater Remediation & Permitting
Tel: (603) 271-2999
Fax: (603) 271-2181
Email: peter.beblowski@des.nh.gov

ec: Pamela Hoyt-Denison, PE, Waste Division Administrator
Paul Rydel, PG, HWRB-GR&P, Supervisor
Thomas Bobowski, PE, Nobis Engineering, Inc.
Attention Health Officer, Town of Allenstown

The

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

hereby issues

GROUNDWATER MANAGEMENT PERMIT NO. GWP-199012032-A-003

to the permittee

TOWN OF ALLENSTOWN

to monitor the groundwater quality at the

ALLENSTOWN LANDFILL
(165 Granite Street)

in ALLENSTOWN, N.H.

via the groundwater monitoring system comprised of

5 monitoring wells, 1 surface water sampling location and 1 water supply well

as depicted on the Site Plan entitled

"Figure 2 – Site Sketch with Groundwater Data"

dated January 2016, prepared by Nobis Engineering, Inc.

TO: BOARD OF SELECTMEN
TOWN OF ALLENSTOWN
16 SCHOOL STREET
ALLENSTOWN, NH 03275

Date of Issuance: June 15, 2016
Date of Expiration: June 14, 2021

Pursuant to authority in N.H. RSA 485-C:6-a, the New Hampshire Department of Environmental Services (Department), hereby grants this permit to monitor groundwater at the above described location for five years subject to the following conditions:

(continued)

STANDARD MANAGEMENT PERMIT CONDITIONS

1. The permittee shall not violate Ambient Groundwater Quality Standards adopted by the Department (N.H. Admin. Rules Env-Or 600) in groundwater outside the boundaries of the Groundwater Management Zone, as shown on the referenced site plan.

2. The permittee shall not cause groundwater degradation that results in a violation of surface water quality standards (N.H. Admin. Rules Env-Ws 1700) in any surface water body.

3. The permittee shall allow any authorized staff of the Department, or its agent, to enter the property covered by this permit for the purpose of collecting information, examining records, collecting samples, or undertaking other action associated with this permit.

4. The permittee shall apply for renewal of this permit prior to its expiration date but no more than 90 days prior to expiration.

5. This permit is transferable only upon written request to, and approval of, the Department. Compliance with the existing Permit shall be established prior to permit transfer. Transfer requests shall include the name and address of the person to whom the permit transfer is requested, signature of the current and future permittee, and a summary of all monitoring results to date.

6. The Department reserves the right, under N.H. Admin. Rules Env-Or 600, to require additional hydrogeologic studies and/or remedial measures if the Department receives information indicating the need for such work.

7. The permittee shall maintain a water quality monitoring program and submit monitoring results to the Department's Waste Management Division no later than 45 days after sampling. Samples shall be taken from monitoring wells and surface water sampling points as shown and labeled on the referenced site plan and other sampling points listed on the following table in accordance with the schedule outlined herein:

Monitoring Locations	**Sampling Frequency**	**Parameters**
MW-1, MW-2, MW-3, MW-4, MW-5, SW-1	November each year	Specific Conductance @ 25^{o} C, pH, Temperature, Chloride, Sulfate, Nitrate, TKN, Iron, Manganese, and Static Water Elevation (in monitor wells)
Site Supply Well: DW-1	November each year	Specific Conductance @ 25^{o} C. pH, Temperature, Chloride, Sulfate, Nitrate, TKN, Iron, and Manganese.
DW-1	November 2020	NHDES Waste Management Division Full List of Analytes for Volatile Organics, and Drinking Water Metals.

Sampling shall be performed in accordance with the documents listed in Env-Or 610.02 (e). Samples shall be analyzed by a laboratory certified by the U.S. Environmental Protection Agency or the New Hampshire Department of Environmental Services pursuant to Env-C 300.

(continued)

All overburden groundwater samples collected for metal analyses (iron, manganese, and Drinking Water Metals) shall be analyzed for dissolved metals; and thus must be field filtered (with a 0.45-micron filter) and acidified after filtration in the field. Surface water samples and samples collected from bedrock or water supply wells shall be analyzed for total metals, and shall not be filtered. As referred to herein, the term "Drinking Water Metals" refers to arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

Summaries of water quality shall be submitted biennially in even numbered years to the Department's Waste Management Division, with the next summary due in January 2018, using a format acceptable to the Department. The Biennial Summary Report shall include the information listed in Env-Or 607.04 (a), as applicable.

The Biennial Summary Report shall be prepared and stamped by a professional engineer or professional geologist licensed in the State of New Hampshire.

8. Issuance of this permit is based on the Groundwater Management Permit Application dated January 28, 2016, and the historical documents found in the Department file DES #199012032. The Department may require additional hydrogeologic studies and/or remedial measures if invalid or inaccurate data are submitted.

9. Within 30 days of discovery of a violation of an ambient groundwater quality standard at or beyond the Groundwater Management Zone boundary, the permittee shall notify the Department in writing. Within 60 days of discovery, the permittee shall submit recommendations to correct the violation. The Department shall approve the recommendations if the Department determines that they will correct the violation.

10. All monitoring wells at the site shall be properly maintained and secured from unauthorized access or surface water infiltration

ADDITIONAL CONDITION FOR LANDFILLS

11. The permittee shall maintain an adequate cover over the waste mass to prevent direct contact with potential receptors at the surface and to control movement of the waste material by wind or water.

SPECIAL CONDITIONS FOR THIS PERMIT

12. Recorded property within the Groundwater Management Zone includes the lots, or portions thereof, as listed and described in the following table:

Tax Map / Lot No.	**Property Address**	**Owner Name and Address**	**Deed Reference (Book / Page)**
Map 106/ Lot 19	Allenstown Landfill 161 Granite Street Allenstown, NH 03275	Town of Allenstown 16 School Street Allenstown, NH 03275	Book1812/ Page 560 & Book 1179/ Page 384-388
Map 106/ Lot 18*****	Allenstown Aggregate 169 Granite Street Allenstown, NH 03275	Allenstown Aggregate, LLC PO Box 221 Auburn, NH 03032	Book 2698/ Page 0280

*****Portion of the Allenstown Aggregate property included as part of the GMZ is described as follows:

Commencing at an iron pipe at the southwest corner of Town of Allenstown Map 106, Lot 19, said point being 629.37 feet S38o 19' 46" E of the northwest corner of Tax Map 106, Lot 19; thence S 70o 03' 28'' W at a distance of 199.86 feet to an iron pin (#5 rebar) on to Map 106, Lot 18; thence S 53o 38' 51'' E at a distance of 717.92 feet to an iron pipe as the point of origin as the southeast boundary point of the Town of Allenstown Map 106, Lot 19.

13. The permittee shall update ownership information required by Env-Or 607.03(a)(20) for all properties within the Groundwater Management Zone prior to renewal of the permit or upon a recommendation for site closure.

14. UNDEVELOPED LOTS WITHIN THE GROUNDWATER MANAGEMENT ZONE
Consistent with Env-Or 607.06(d), for each undeveloped lot, or portion thereof, which is within the Groundwater Management Zone and lacks access to a public water supply, the permittee shall contact the property owner annually to determine if a water supply well has been installed. **The results of these inquiries shall be reported to the Department Annually**. Upon discovery of a new drinking water supply well within the Groundwater Management Zone, the permittee shall provide written notification to the Department and, to ensure compliance with Env-Or 607.06(a), submit a contingency plan to provide potable drinking water in the event the well is or becomes contaminated above the ambient groundwater quality standards. The potable water supply shall meet applicable federal and state water quality criteria. This plan shall be submitted to the Department for approval within 15 days of the date of discovery.

The permittee shall sample the new supply well within 30 days of discovery. The well shall be sampled for all the analytical parameters included in Standard Condition # 7, unless otherwise specified in writing by the Department. The permittee shall forward all analytical results to the Department's Waste Management Division, the Department's Environmental Health Program, and the owner of the drinking water supply well within 7 days of receipt of the results.

If the results for the new well meet the ambient groundwater quality standards, the permittee shall continue to sample the new wells annually as part of the permit.

If the results for the new well indicate a violation of the ambient groundwater quality standards, the permittee shall notify the owner immediately and conduct confirmatory sampling within 14 days of receiving the original results.

Upon confirmation of a violation of the ambient groundwater quality standards in a new drinking water well, the permittee shall immediately implement the contingency plan to provide a potable drinking water supply that meets applicable federal and state water quality criteria.

John M. Regan, P.G., Administrator
Hazardous Waste Remediation Bureau
Waste Management Division

Any person aggrieved by any terms or conditions of this permit may appeal to the N.H. Waste Management Council ("Council") by filing an appeal that meets the requirements specified in RSA 21-O:14 and the rules adopted by the Council, Env-WMC 200. The appeal must be filed **directly with the Council within 30 days** of the date of this decision and must set forth fully **every ground** upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at http://nhec.nh.gov/ (or more directly at http://nhec.nh.gov/waste/index.htm). Copies of the rules also are available from the DES Public Information Center at (603) 271-2975.

GWP-199012032-A-003

Tom Bobowski

From: Beblowski, Peter <Peter.Beblowski@des.nh.gov>
Sent: Friday, September 08, 2017 9:09 AM
To: Tom Bobowski
Cc: Shaun Mulholland (smulholland@allenstownnh.gov)
Subject: RE: ALLENSTOWN - Allenstown Landfill, 161 Granite Street, NHDES 199012032, PFAS Sampling - November 2017

Tom,
It was good talking with you yesterday. The NH DES concurs with the proposed plan (below) to sample monitoring wells MW-4, MW-5 and the on-site water supply well DW-1 for PFAS, during the November 2017 permit monitoring at the Allenstown Landfill. Technical information regarding PFAS may be found at the following NHDES website: **https://www.des.nh.gov/organization/commissioner/pfas.htm**
This email will be placed in the Department's electronic file as documentation of this correspondence. Should you have any questions about this email or PFAS sampling, please feel free to contact me at the Waste Management Division.
Peter

Peter Beblowski, C.P.G.
NHDES - WMD HWRB
Groundwater Remediation & Permitting
PO Box 95, 29 Hazen Drive
Concord, NH 03302-0095
Phone: (603) 271-2999 (w voicemail)
email: Peter.Beblowski@des.nh.gov

From: Tom Bobowski [mailto:TBobowski@nobiseng.com]
Sent: Thursday, September 7, 2017 3:32 PM
To: Beblowski, Peter
Cc: Shaun Mulholland (smulholland@allenstownnh.gov)
Subject: RE: ALLENSTOWN - Allenstown Landfill, 161 Granite Street, NHDES 199012032, PFAS Sampling - November 2017

Peter – as we just discussed, I erroneously referred to **MW-1** when I meant to say ***MW-4*** as the upgradient well and what we propose to sample. I apologize for that error.

I understand you will likely respond in the next few days on the proposed approach. Thanks for giving me a call. Have great evening!

Tom

From: Tom Bobowski
Sent: Thursday, September 07, 2017 3:17 PM
To: 'Beblowski, Peter' <Peter.Beblowski@des.nh.gov>
Cc: Shaun Mulholland (smulholland@allenstownnh.gov) <smulholland@allenstownnh.gov>
Subject: ALLENSTOWN - Allenstown Landfill, 161 Granite Street, NHDES 199012032, PFAS Sampling - November 2017

Dear Peter – as we discussed today, the Town of Allenstown is authorizing Nobis to collect the additional samples at the Allenstown Landfill requested in the May 18, 2017 letter sent by email from NHDES for Per- and Polyfluoroalkyl Substances (PFAS). This is in addition to the required November 2017 Groundwater Management Permit (GMP) sampling work planned. The GMP requires sampling for inorganics primarily (Manganese is the only AGQS exceedance) since volatile organic compounds (VOCs) have historically not been detected on-site as shown on Table 3. Based on Nobis' review of the site conditions and to meet the intent of screening for these PFAS compounds, Nobis recommends the following three sample locations be tested in November 2017.

MW-1 – upgradient to most of site and on Town property (near site water supply well)
DW-1 – Water Supply Well (not used for consumption)
MW-5 - downgradient well (historically elevated manganese) and downgradient of most facility activity
Trip Blank for Quality Control

For convenience, I have attached the most recent Figure 2 showing groundwater contours and the most recent VOC data (Table 3).

We would follow NHDES protocols referenced in the May 18, 2017 letter including uploading the PFAS data to the NHDES Environmental Monitoring Database (EMD), as required.

Please confirm if this sampling program is acceptable so we can work towards getting our contract in place with the Town of Allenstown.

Thanks!

Thomas S. Bobowski, PE, PG, CG
Corporate Health & Safety Officer
Associate / Sr. Project Manager
TBobowski@nobiseng.com

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301

Main: (603) 224-4182
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Cell: (603) 731-7993

Client-Focused, Employee-Owned
www.nobiseng.com

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APPENDIX C

FIELD PROCEDURES

Groundwater Sample Collection Procedures

Static water levels were measured in each well prior to sample collection using a Solinst electronic water level indicator. The wells were purged of at least three times the standing volume of water in the wells using a pre-cleaned high density polyethylene (HDPE) disposable bailer. After purging the wells, groundwater samples were collected using the same dedicated bailer. Separate bailers were used for each well to limit the potential for cross-contamination. The first bailer volume was observed for the possible presence of a floating product layer. The samples were placed in appropriate sample containers supplied by the laboratory and placed in an ice-filled cooler for delivery to the laboratory under chain-of custody control. Samples collected for dissolved metals analyses are filtered in the field to <0.45 microns at the time of sample collection. Surface water samples for metals analyses are not field filtered.

Supply Well Sample Collection Procedures

Water supply samples were collected from a faucet prior to any treatment or filtration. Water from the well was allowed to flow for sufficient time to purge the holding tank and supply lines of any standing water (about 10 minutes) and to ensure a representative sample was obtained. The samples were collected in appropriate sample containers supplied by the laboratory and placed in an ice-filled cooler for delivery to the laboratory. Supply well samples for metals analyses are not field filtered.

PerFluorinated Compound (PFC) Sample Collection Guidance

The purpose of this document is to provide guidance on groundwater sampling protocols when collecting a sample(s) for PFCs. Detection of these compounds at very low levels can be influenced by materials that are present at the sampling site, materials used by the sampling agent, or sample container handling practices.

The following table provides a summary of items that are likely to contain PFCs (i.e. prohibited items) and therefore should not be used by the sampling agent at the sampling site.

Category	Prohibited Items	Allowable Items
Pumps and Tubing	Teflon® and other fluoropolymer containing materials	High-density polyethylene (HDPE), low density polyethylene (LDPE) , or silicone tubing, peristaltic pump or stainless steel submersible pump
Decontamination	Decon 90	Alconox® or Liquinox®, potable water followed by deionized rinse.
Sample Storage and Preservation	LDPE or glass bottles, PTFE-or Teflon®-lined caps, chemical ice packs	Laboratory-provided sample container -*preferred*; or, HDPE or polypropylene bottles, regular ice
Field Documentation	Waterproof/treated paper or field books, plastic clipboards, non-Sharpie® markers, Post-It® and other adhesive paper products	Plain Paper, metal clipboard, Sharpies®, pens
Clothing	Clothing or boots made of or with Gore-Tex™ or other synthetic water resistant and/or stain resistant materials, Tyvek® material	Synthetic or cotton material, previously laundered clothing (preferably previously washed greater than six times) without the use of fabric softeners
Personal Care Products (for day of sample collection)	Cosmetics, moisturizers, hand cream and other related products	Suncreens: Alba Organics Natural Yes to Cucumbers Aubrey Organics Jason Natural Sun Block Kiss My Face Baby-safe sunscreens ('free' or 'natural) Insect Repellents: Jason Natural Quit Bugging Me Repel Lemon Eucalyptus Herbal Armor California Baby Natural Bug Spray BabyGanics Sunscreen and Insect Repellents: Avon Skin So Soft Bug Guard-SPF 30
Food and Beverage	Pre-packaged food, fast food wrappers or containers	Bottled water or hydration drinks

For samples collected from monitoring wells

- When feasible, use single-use, disposable polyethylene or silicone materials (tubing, bailers, etc.) for monitoring well purging and sampling equipment.
- When reuse of materials or sampling equipment across multiple sampling locations is necessary, follow project decontamination protocols with allowed materials identified in the table above, and incorporate collection of equipment rinseate blanks into sampling program, as appropriate.
- When using positive displacement/submersible pump sampling equipment, familiarize yourself with the sampling pump/accessory equipment specifications to confirm that device components are not made of nor contain Teflon® or PTFE.

For samples collected during production well pumping tests

- If feasible, do not use Teflon® tape or pipe thread paste on pipe fittings or sampling tap threads on the pump discharge pipe.
- As with all other sample parameters, the sample for PFCs should be collected at the last hour (or hours) of the pumping portion of the testing program.
- Discharge water should be purged through the sampling tap on the discharge pipe for a minimum of 20 minutes prior to collection of samples.

For samples collected from active production wells

- If feasible, avoid contact with any Teflon® tape or pipe thread paste on pipe fittings or sampling tap threads on the water supply discharge pipe.
- The sample for PFCs should be collected while the production well pump is operating, and, preferably, has been operating for at least one hour.
- Discharge water should be purged through the sampling tap on the discharge pipe for a minimum of 20 minutes prior to collection of samples.

Sample collection method/sequence

- Using new nitrile gloves collect the sample for PFCs ***first***, prior to collecting samples for any other parameters into any other containers; this avoids contact with any other type of sample container, bottles or package materials.
- As with all other samples, do not place the sample bottle cap on any surface when collecting the sample, and avoid all contact with the inside of the sample bottle or its cap.
- When sample is collected and capped, place the sample bottle(s) in an individual sealed plastic bag (e.g. Ziploc®) separate from all other sample parameter bottles, and place in shipping container packed only with ice.

APPENDIX D

Eastern Analytical, Inc.
professional laboratory and drilling services

Tom Bobowski
Nobis Engineering
18 Chenell Drive
Concord , NH 03301

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 176189
Client Identification: Allenstown Landfill | 76400.01
Date Received: 11/20/2017

Dear Mr. Bobowski :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:
Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director | 12.13.17 Date | 22 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **176189**

Client: **Nobis Engineering**

Client Designation: **Allenstown Landfill | 76400.01**

Temperature upon receipt (°C): 2.6 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
176189.01	DW-1	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.02	MW-5	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.03	MW-1	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.04	MW-4	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.05	MW-2	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.06	MW-3	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.07	SW-1	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy
176189.08	Trip Blank	11/20/17	11/20/17	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitability, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **176189**

Client: **Nobis Engineering**

Client Designation: **Allenstown Landfill | 76400.01**

Sample ID:	DW-1	MW-5	MW-1	MW-4					
Lab Sample ID:	176189.01	176189.02	176189.03	176189.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/20/17	11/20/17	11/20/17	11/20/17		Analysis			
Date Received:	11/20/17	11/20/17	11/20/17	11/20/17	**Units**	**Date**	**Time**	**Method**	**Analyst**
Sulfate	**6**	**160**	**85**	**420**	mg/L	11/28/17	11:21	300.0	KD
Chloride	**4**	**390**	**520**	**64**	mg/L	11/21/17	15:51	4500CIE-97	KD
Nitrate-N	< 0.5	**0.6**	**1.1**	< 0.5	mg/L	11/21/17	15:51	353.2	KD
TKN	**0.7**	**1.1**	**0.9**	**1.2**	mg/L	12/01/17	13:12	4500N_{org}C/N	SEL

Sample ID:	MW-2	MW-3	SW-1					
Lab Sample ID:	176189.05	176189.06	176189.07					
Matrix:	aqueous	aqueous	aqueous					
Date Sampled:	11/20/17	11/20/17	11/20/17	Analysis				
Date Received:	11/20/17	11/20/17	11/20/17	**Units**	**Date**	**Time**	**Method**	**Analyst**
Sulfate	**59**	**44**	**44**	mg/L	11/28/17	12:18	300.0	KD
Chloride	**13**	**3**	**7**	mg/L	11/21/17	15:57	4500CIE-97	KD
Nitrate-N	**1.0**	**2.3**	< 0.5	mg/L	11/21/17	15:57	353.2	KD
TKN	**0.5**	< 0.5	< 0.5	mg/L	12/01/17	13:34	4500N_{org}C/N	SEL

MW-5 and MW-4: Sulfate was analyzed on 11/30/2017.

LABORATORY REPORT

EAI ID#: **176189**

Client: **Nobis Engineering**

Client Designation: **Allenstown Landfill | 76400.01**

Sample ID:	DW-1	SW-1					
Lab Sample ID:	176189.01	176189.07					
Matrix:	aqueous	aqueous					
Date Sampled:	11/20/17	11/20/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/20/17	11/20/17					
Iron	**1.9**	**0.12**	AqTot	mg/L	11/21/17	200.8	DS
Manganese	< 0.005	**0.008**	AqTot	mg/L	11/21/17	200.8	DS

LABORATORY REPORT

EAI ID#: **176189**

Client: **Nobis Engineering**

Client Designation: **Allenstown Landfill | 76400.01**

Sample ID:	MW-5	MW-1	MW-4	MW-2					
Lab Sample ID:	176189.02	176189.03	176189.04	176189.05					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	11/20/17	11/20/17	11/20/17	11/20/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**
Date Received:	11/20/17	11/20/17	11/20/17	11/20/17					
Iron	< 0.05	< 0.05	**3.0**	< 0.05	AqDis	mg/L	11/21/17	200.8	DS
Manganese	**1.2**	**0.27**	**0.17**	< 0.005	AqDis	mg/L	11/21/17	200.8	DS

Sample ID:	MW-3							
Lab Sample ID:	176189.06							
Matrix:	aqueous							
Date Sampled:	11/20/17	**Analytical Matrix**	**Units**	**Date of Analysis**	**Method**	**Analyst**		
Date Received:	11/20/17							
Iron	< 0.05	AqDis	mg/L	11/21/17	200.8	DS		
Manganese	< 0.005	AqDis	mg/L	11/21/17	200.8	DS		

December 11, 2017

Vista Work Order No. 1701776

Ms. Jennifer Laramie
Eastern Analytical, Inc.
25 Chennell Drive
Concord, NH 03301

Dear Ms. Laramie,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on November 22, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name '176189 NH 30'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Karen J. Volpendesta for

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1701776
Case Narrative

Sample Condition on Receipt:

Four aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537

Samples "MW-5" and "MW-4" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701776-01	DW-1	20-Nov-17 10:20	22-Nov-17 10:10	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701776-02	MW-5	20-Nov-17 11:20	22-Nov-17 10:10	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701776-03	MW-4	20-Nov-17 12:45	22-Nov-17 10:10	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701776-04	Trip Blank	20-Nov-17 08:00	22-Nov-17 10:10	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	B7L0002-BLK1	Column:	BEH C18
Project:	176189 NH 30						

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFPeA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFBS	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFHxA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFHpA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFHxS	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFOA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFOS	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
PFNA	ND	4.00		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.0	60 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C3-PFPeA	IS	87.5	60 - 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C3-PFBS	IS	99.3	60 - 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C2-PFHxA	IS	94.8	70 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C4-PFHpA	IS	88.8	60 - 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
18O2-PFHxS	IS	103	60 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C2-PFOA	IS	87.8	60 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C8-PFOS	IS	96.2	60 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1
13C5-PFNA	IS	83.1	50 - 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:47	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Eastern Analytical, Inc.
Project: 176189 NH 30
Matrix: Aqueous

Laboratory Data

Lab Sample: B7L0002-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	93.1	80.0	116	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFPeA	95.4	80.0	119	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFBS	85.2	80.0	107	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFHxA	94.6	80.0	118	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFHpA	81.9	80.0	102	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFHxS	91.8	80.0	115	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFOA	82.8	80.0	103	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFOS	78.7	80.0	98.4	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
PFNA	98.4	80.0	123	70-130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.1	60- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C3-PFPeA	IS	89.8	60- 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C3-PFBS	IS	113	60- 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C2-PFHxA	IS	96.5	70- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C4-PFHpA	IS	97.5	60- 150		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
18O2-PFHxS	IS	87.8	60- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C2-PFOA	IS	78.1	60- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C8-PFOS	IS	117	60- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1
13C5-PFNA	IS	86.5	50- 130		B7L0002	04-Dec-17	0.125 L	08-Dec-17 13:24	1

Sample ID: DW-1

Modified EPA Method 537

Client Data

Name: Eastern Analytical, Inc.
Project: 176189 NH 30
Matrix: Aqueous
Date Collected: 20-Nov-17 10:20

Laboratory Data

Lab Sample: 1701776-01
Date Received: 22-Nov-17 10:10
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFPeA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFBS	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFHxA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFHpA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFHxS	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFOA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFOS	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
PFNA	ND	4.43		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.1	60 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C3-PFPeA	IS	97.0	60 - 150		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C3-PFBS	IS	126	60 - 150		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C2-PFHxA	IS	98.8	70 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C4-PFHpA	IS	104	60 - 150		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
18O2-PFHxS	IS	90.1	60 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C2-PFOA	IS	77.4	60 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C8-PFOS	IS	96.5	60 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1
13C5-PFNA	IS	80.7	50 - 130		B7L0002	04-Dec-17	0.113 L	08-Dec-17 15:05	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-5

Modified EPA Method 537

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701776-02	Column:	BEH C18
Project:	176189 NH 30	Date Collected:	20-Nov-17 11:20	Date Received:	22-Nov-17 10:10		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	9.11	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFPeA	19.4	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFBS	13.7	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFHxA	22.9	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFHpA	8.04	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFHxS	18.8	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFOA	9.82	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFOS	7.47	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
PFNA	ND	4.37		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.2	60 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C3-PFPeA	IS	93.4	60 - 150		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C3-PFBS	IS	109	60 - 150		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C2-PFHxA	IS	96.7	70 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C4-PFHpA	IS	99.3	60 - 150		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
18O2-PFHxS	IS	105	60 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C2-PFOA	IS	96.9	60 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C8-PFOS	IS	97.0	60 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1
13C5-PFNA	IS	95.8	50 - 130		B7L0002	04-Dec-17	0.114 L	08-Dec-17 15:16	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-4

Modified EPA Method 537

Client Data

Name: Eastern Analytical, Inc.
Project: 176189 NH 30
Matrix: Aqueous
Date Collected: 20-Nov-17 12:45

Laboratory Data

Lab Sample: 1701776-03
Date Received: 22-Nov-17 10:10
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	7.48	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFPeA	9.37	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFBS	14.8	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFHxA	14.2	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFHpA	6.89	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFHxS	113	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFOA	14.1	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFOS	196	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
PFNA	ND	4.36		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.7	60 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C3-PFPeA	IS	90.2	60 - 150		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C3-PFBS	IS	106	60 - 150		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C2-PFHxA	IS	84.6	70 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C4-PFHpA	IS	92.4	60 - 150		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
18O2-PFHxS	IS	95.3	60 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C2-PFOA	IS	91.0	60 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C8-PFOS	IS	94.8	60 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1
13C5-PFNA	IS	83.4	50 - 130		B7L0002	04-Dec-17	0.115 L	08-Dec-17 15:27	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: Trip Blank

Modified EPA Method 537

Client Data				Laboratory Data			
Name:	Eastern Analytical, Inc.	Matrix:	Aqueous	Lab Sample:	1701776-04	Column:	BEH C18
Project:	176189 NH 30	Date Collected:	20-Nov-17 08:00	Date Received:	22-Nov-17 10:10		

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFPeA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFBS	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFHxA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFHpA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFHxS	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFOA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFOS	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
PFNA	ND	4.67		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.9	60 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C3-PFPeA	IS	87.5	60 - 150		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C3-PFBS	IS	101	60 - 150		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C2-PFHxA	IS	89.3	70 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C4-PFHpA	IS	94.9	60 - 150		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
18O2-PFHxS	IS	85.1	60 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C2-PFOA	IS	91.0	60 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C8-PFOS	IS	100	60 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1
13C5-PFNA	IS	81.5	50 - 130		B7L0002	04-Dec-17	0.107 L	08-Dec-17 15:39	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

EAI ID# **176189**

1701776 0.0°C

Sample ID	Date Sampled	Matrix	aParameters	Sample Notes
DW-1	11/20/2017 10:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (9 Compounds)	
MW-5	11/20/2017 11:20	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (9 Compounds)	
MW-4	11/20/2017 12:45	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (9 Compounds)	
Trip Blank	11/20/2017 8:00	aqueous	Subcontract - Perfluorinated Compounds EPA Method 537 (9 Compounds)	

EAI ID# 176189 **Project State: NH**

Project ID: 30

Company Vista Analytical Laboratory
Address 1104 Windfield Way
Address El Dorado Hills, CA 95762
Account #
Phone # (916) 673-1520
Fax Number

Results Needed by: Preferred date
QC Deliverables
☒ A ☐ A+ ☐ B ☐ B+ ☐ C ☐ P

Notes about project:
Email pdf of results and invoice to customerservice@eailabs.com.

PO #: 47235 **EAI ID# 176189**

Please call prior to analyzing, if RUSH surcharges will be applied.

Samples Collected by:

Relinquished by	Date/Time	Received by
UPS	11/22/17 1036	
Relinquished by	**Date/Time**	**Received by**

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701776 **TAT** 14

Samples Arrival:	**Date/Time** 11/22/17 1010	**Initials:** JBB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 11/23/17 0822	**Initials:** JBB MWS	**Location:** WR-2 **Shelf/Rack:** A4

Delivered By:	FedEx	(UPS)	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 0.0 (uncorrected)	**Time:** 1023	**Thermometer ID: DT-3**
Temp °C: 0.0 (corrected)	**Probe used: Yes☑ No☐**	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill Trk # 1ZX465990198517414	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?					✓		
Preservation Documented:	$Na_2S_2O_3$	(Trizma)	(None)		(Yes)	No	NA
Shipping Container	(Vista)	Client	(Retain)	Return		Dispose	

Comments:

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

176189

22

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE / TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE / TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 BTEX; 524.2 MTBE ONLY; 524.2 VTICs; 8260 624 1, 4 DIOXANE; 8021 BTEX HALOS; 8015 GRO MAVPH	SVOC: 8270 625 ABN SVTICs EDB DBCP A BN PAH; TPH8100 LI L2; 8015 DRO MAEPH; PEST 608 PCB 608 PEST 8081 PCB 8082; OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW); TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.; Br, Cl, F, SO_4, NO_2, NO_3, NO_2; BOD CBOD T. ALK.; NH_3 TKN T. PHOS. O. PHOS.; pH T. RES. CHLORINE; COD PHENOLS TOC DOC; TOTAL CYANIDE TOTAL SULFIDE; REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM; ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER: PFAS - 9 Compounds	# OF CONTAINERS	NOTES MEOH VIAL #
DW-1	11/20/17 / 1020	DW	G					X		X	X	5
MW-5	11/20/17 / 1120	GW	G				X			X	X	5
MW-1	11/20/17 / 1210	GW	G				X			X		3
MW-4	11/20/17 / 1245	GW	G				X			X	X	5
MW-2	11/20/17 / 1330	GW	G				X			X		3
MW-3	11/20/17 / 1400	GW	G				X			X		3
SW-1	11/20/17 / 1430	SW	G					X		X		3
Trip Blank	11/20/17 / 0800	TB	G								X	2
MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH							N	N		S		

PROJECT MANAGER: Tom Bobowski
COMPANY: Nobis Engineering Inc.
ADDRESS: 18 Chenell Dr.
CITY: Concord **STATE:** NH **ZIP:** 03301
PHONE: (603-224-4182 **EXT.:**
FAX:
E-MAIL: TBobowski@nobiseng.com
SITE NAME: Allenstown Landfill
PROJECT #: 76400.01
STATE: (NH) MA ME VT **OTHER:**
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: **PO #:**

DATE NEEDED: Standard TAT

QA/QC REPORTING LEVEL
A B C
OR
PRESUMPTIVE CERTAINTY

REPORTING OPTIONS
PRELIMS: YES OR NO

ELECTRONIC OPTIONS
(E-MAIL) (PDF) EQUIS EXCEL

TEMP. 2.6 °C
ICE? (YES) NO

SAMPLER(S): Catherine Jones			
RELINQUISHED BY: Catherine Jones	DATE: 11/20/17	TIME: 1511	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

METALS: 8 RCRA 13 PP (Fe, Mn) Pb, Cu
OTHER METALS:
SAMPLES FIELD FILTERED? ☒ YES ☐ NO
NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)
Only Dissolved and Total (Fe) ~~metals~~ Containers field filtered.

SITE HISTORY:
SUSPECTED CONTAMINATION:
FIELD READINGS:

Eastern Analytical, Inc.
professional laboratory and drilling services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | E-MAIL: CUSTOMERSERVICE@EASTERNANALYTICAL.COM | WWW.EASTERNANALYTICAL.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

APPENDIX E

201700014467 Recorded in Merrimack County, NH In the Records of Kathi L. Guay,CPO, Register
BK: 3565 PG: 1503, 8/4/2017 9:59 AM RECORDING $18.00 SURCHARGE $2.00

GRANTEE

B
49
18
2 00

THIS IS A TRANSFER TO THE TOWN OF ALLENSTOWN, NH AND IS THEREFORE EXEMPT FROM THE NEW HAMPSHIRE REAL ESTATE TRANSFER TAX PURSUANT TO RSA 78-B:2, I AND FROM THE L-CHIP FEE PURSUANT TO RSA 478:17-g, II (a)

QUITCLAIM DEED

KNOW ALL MEN BY THESE PRESENTS, that **ALLENSTOWN AGGREGATE, LLC**, a New Hampshire limited liability company, having a principal place of business at 169 Granite Street, Allenstown, New Hampshire 03275, for consideration paid, grants to the **TOWN OF ALLENSTOWN, NEW HAMPSHIRE**, a municipal corporation, having a principal place of business at 16 School Street, Allenstown, New Hampshire 03275, with QUITCLAIM COVENANTS, the following described premises:

A certain triangular parcel of land situate on the southerly side of Granite Street, in the Town of Allenstown, County of Merrimack and State of New Hampshire, depicted as Parcel "A" being a portion of Map 106 Lot 18 to be added to Map 106 Lot 19, containing 59,682 square feet or 1.370 acres", all as shown on a plan of land entitled "Lot Line Adjustment Plan Boundary Survey, Map 106, Lot 18 & Map 106, Lot 19, Allenstown Aggregate, LLC & Town of Allenstown, Allenstown, Merrimack County, New Hampshire," dated 01-25-17, revised through 05-01-17, prepared by Holden Engineering & Surveying, Inc., and recorded in the Merrimack County Registry of Deeds as Plan No. _____ (the "Plan), being more particularly bounded and described as follows: 20170001446C

Beginning at a point on the southerly sideline of Granite Street at the northwesterly corner of Map 106, Lot 19 (which point is N 26° 27' 22" E a distance of 6.68 feet from a 1 inch iron rod found) as shown on said plan; thence running S 23° 49' 59" E a distance of 629.37 feet along the "Former Lot Line" to a 2 ½ inch iron pipe found at Map 106, Lot 18; thence turning and running N 39° 09' 03" W a distance of 717.92 feet along the "Proposed Lot Line" to a 5/8 inch rebar with cap at the sideline of Granite Street; thence turning and running N 84° 33' 17" E a distance of 199.86 feet to the point and place of beginning.

201700014467 Recorded in Merrimack County, NH In the Records of Kathi L. Guay,CPO, Register
BK: 3565 PG: 1504, 8/4/2017 9:59 AM RECORDING $18.00 SURCHARGE $2.00

Said parcel is conveyed subject to any and all notes, conditions, setback requirements and other matter as shown and noted on the Plan.

EXCEPTING and RESERVING to Grantor, its successors and assigns, a sixty (60) foot wide right of access over and across a portion of the premises herein conveyed for the purpose ingress and egress to and from the public highway known as Granite Street to Map 106 Lot 18, as shown and noted on the Plan.

Grantee shall not place any trees, buildings, or other structures or obstructions within the area of the easement without first obtaining the Grantor's written authorization.

The Easement herein conveyed, together with the obligations undertaken by the Grantee, by recording of this Deed, shall be binding upon the Grantor and Grantee and their heirs, successors and assigns.

Grantor makes no representation or assurance that the access easement will constitute a legal access for New Hampshire Department of Transportation permitting purposes, or that it complies with State or local wetland and buffer ordinances, or any other law or regulation applicable to same.

Meaning and intending to describe and convey a portion of the premises conveyed to Allenstown Aggregate, LLC by deed of Tamchar, Inc. and recorded in the Merrimack County Registry of Deeds at Book 2698, Page 280.

This conveyance is in accordance with the terms of the Settlement Agreement in the matter of Town of Allenstown v. Allenstown Aggregate, LLC, Merrimack County Superior Court Docket No. 217-2013-CV-00564; and Town of Allenstown Planning Board v. Allenstown Aggregate, LLC, Merrimack County Superior Court Docket No. 217-2014-00339. See also Notice of Settlement dated March 3, 2015 and recorded in the Merrimack County Registry of Deeds at Book 3470, Page 2474.

EXECUTED this 2 day of August, 2017.

ALLENSTOWN AGGREGATE, LLC

Witness

By: ERNEST J. THIBEAULT III
Its duly authorized MANAGER

201700014467 Recorded in Merrimack County, NH In the Records of Kathi L. Guay,CPO, Register
BK: 3565 PG: 1505, 8/4/2017 9:59 AM RECORDING $18.00 SURCHARGE $2.00

STATE OF NEW HAMPSHIRE
COUNTY OF MERRIMACK, ss.

On this 2 day of August, 2017, before me, personally appeared Ernest J. Thibeault, duly authorized Manager of Allenstown Aggregate, LLC, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes therein contained on behalf of company.

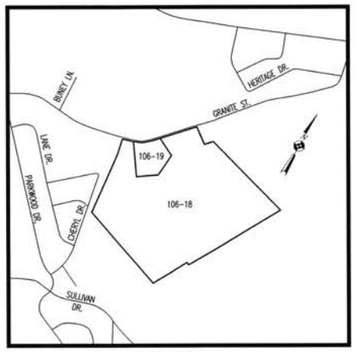
(Affix Notarial Seal)

KYLA JULES DUTIL
STATE OF
- MY -
COMMISSION
EXPIRES
MAY 1,
2018
NEW HAMPSHIRE
NOTARY PUBLIC

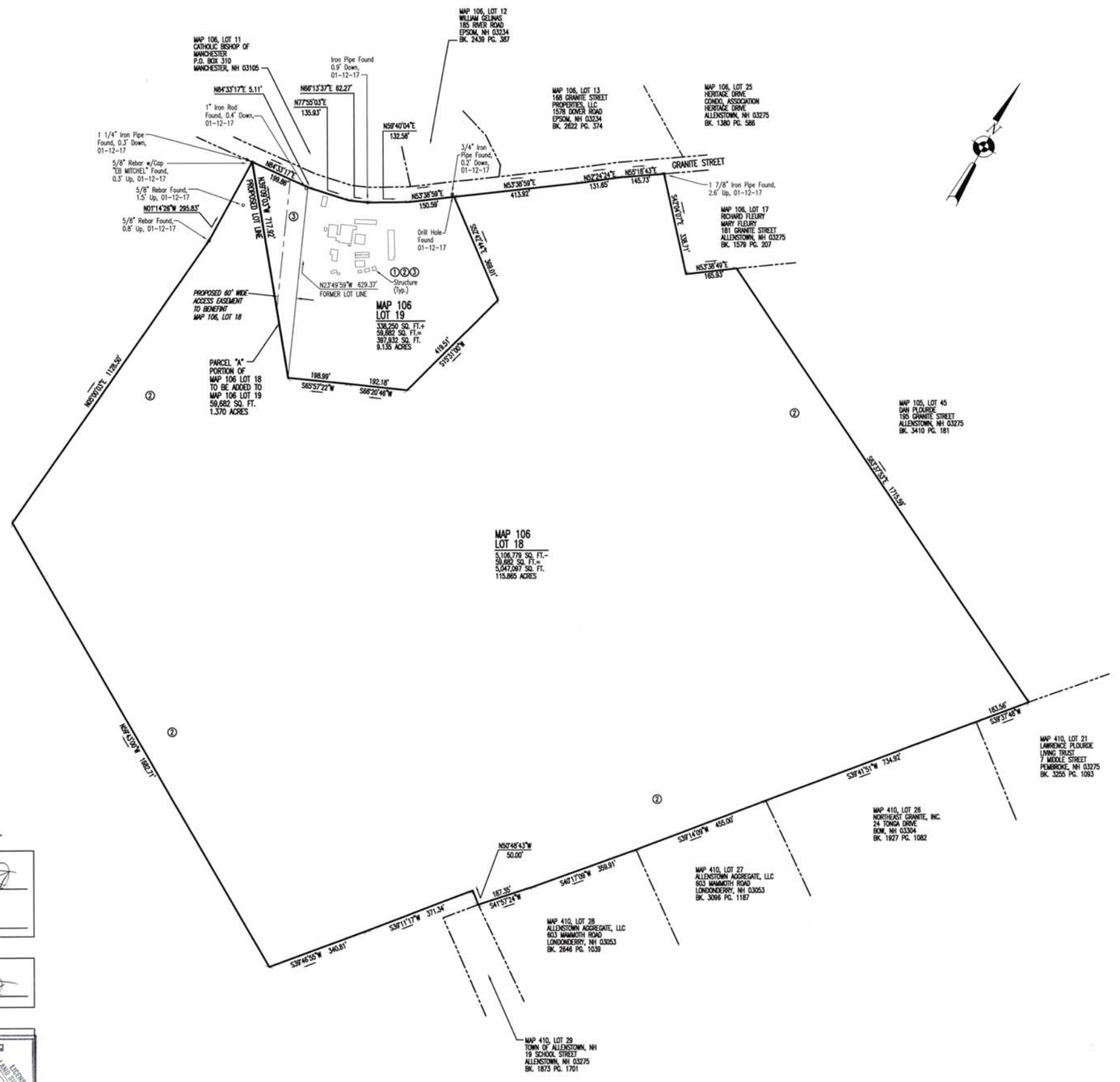
Notary Public/Justice of the Peace
Printed Name: KYLA DUTIL
My Commission expires: 5-1-2018

S:\AA-AL\Allenstown, Town of\Allenstown Aggregate\Post Settlement\2017 05 02 Quitclaim Deed (Holden Plan).docx

FOR USE BY COUNTY REGISTRY OF DEEDS



LOCATION MAP
NOT TO SCALE



PLAN REFERENCES:

1. "SUBDIVISION PLAN TAX MAP 1 LOT 2, GRANITE STREET EXT, ALLENSTOWN, NH" PREPARED BY ERIC C. MITCHELL & ASSOCIATES, INC. SCALE 1" = 100' DATED MAY 16, 1988.RECORDED IN THE MERRIMACK COUNTY REGISTRY OF DEEDS AS PLAN NO. 10429
2. "SUBDIVISION PLAN OF LAND TAX MAP 1, LOT 2, GRANITE STREET, ALLENSTOWN, NH" PREPARED BY ERIC C. MITCHELL & ASSOCIATES, INC. SCALE 1" = 200' DATED NOVEMBER 20, 1998.RECORDED IN THE MERRIMACK COUNTY REGISTRY OF DEEDS AS PLAN NO. 14719
3. "GROUNDWATER MANAGEMENT PLAN TAX MAP 106 LOTS 19 & 19" PREPARED BY J.E. BELANGER LAND SURVEYING, PLLC. SCALE 1" = 40' DATED MAY 2, 2007. NOT RECORDED

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO ADJUST THE LOT LINE BETWEEN MAP 106 LOTS 18 AND 19
2. REFERENCE SUBJECT PARCEL AS LOTS 18 & 19 ON THE TOWN OF ALLENSTOWN, NH TAX MAP 106.
3. OWNERS OF RECORD: (LOT 18) ALLENSTOWN AGGREGATE, LLC
   603 MAMMOTH ROAD
   LONDONDERRY, NH 03053
   BOOK 2698, PAGE 280

   (LOT 19) TOWN OF ALLENSTOWN
   16 SCHOOL STREET
   ALLENSTOWN, NH 03275
   BOOK 1812, PAGE 560 & BOOK 1179, PAGES 383 & 386
4. STREET ADDRESS – EXISTING PARCELS: 161 & 169 GRANITE STREET
   ALLENSTOWN, NH 03275
5. EXISTING AREA #18 = 5,106,779 SF. 117.236 ACRES
   #19 = 338,250 SF. 7.765 ACRES
6. REQUIREMENTS PER THE TOWN OF ALLENSTOWN ZONING REGULATIONS
   ZONE (OSF-OPN SPACE/FRM) OPEN SPACE AND FARMING ZONE
   MINIMUM LOT SIZE = NO REQUIREMENT
   MINIMUM FRONTAGE= NO REQUIREMENT
   FRONT SETBACK = 20 FEET
   SIDE AND REAR SETBACK = 30 FEET
   MAXIMUM IMPERVIOUS COVER = NO REQUIREMENT
7. LOT CALCULATIONS
   PROPOSED LOT 18
   5,106,779 SQUARE FEET –
   59,682 SQUARE FEET(PARCEL A)=
   5,047,097 SQUARE FEET OR 115.865 ACRES (AFTER LOT LINE ADJUSTMENT)

   PROPOSED LOT 19
   338,250 SQUARE FEET +
   59,682 SQUARE FEET (PARCEL A) =
   397,932 SQUARE FEET OR 9.135 ACRES (AFTER LOT LINE ADJUSTMENT)
8. EASEMENTS:
   THERE IS AN ACCESS EASEMENT ON LOT 19–LOCATION UNKNOWN.
9. THIS LOT LINE ADJUSTMENT DOES NOT REQUIRE ZONING VARIANCES AND/OR SPECIAL EXCEPTIONS.
10. A PORTION OF THIS PROPERTY IS LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA, PER FLOOD INSURANCE RATE MAP #3301 3C0568E & 3301 3C0685E DATED 4/19/10.
11. THIS PLAN WAS PREPARED BASED ON A GROUND SURVEY BY THIS OFFICE ON JANUARY 12, 2017.
12. HORIZONTAL DATUM: THE BEARINGS SHOWN ON THIS PLAN ARE BASED ON A COMPASS BEARING TAKEN ON JANUARY 12, 2017.
13. CALL 1-888-DIG-SAFE TO LOCATE ALL UNDERGROUND UTILITY PRIOR TO CONSTRUCTION.

DATE: 8/2/17
OWNERS SIGNATURE: _____
DATE: _____
OWNERS SIGNATURE: _____

DATE: 8/2/17
OWNERS SIGNATURE: _____

I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND HAS A MAX. ERROR OF CLOSURE OF 1:10,000 ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY.

STATE OF NEW HAMPSHIRE — No. 596 — PETER — LAND SURVEYOR — SIGNATURE

LOT LINE ADJUSTMENT PLAN
BOUNDARY SURVEY

MAP 106, LOT 18 & MAP 106, LOT 19
ALLENSTOWN AGGREGATE, LLC & TOWN OF ALLENSTOWN

ALLENSTOWN, MERRIMACK COUNTY, NEW HAMPSHIRE
01-25-17

Revision Date	Revision Description
02-15-17	ADD 10' WIDE PROPOSED RIGHT OF ACCESS EASEMENT
02-21-17	REVISE TITLE BLOCK
04-06-17	REMOVE 10' WIDE RIGHT OF ACCESS EASEMENT, ADD 60' WIDE ACCESS EASEMENT
05-01-17	REVISE 60' WIDE ACCESS EASEMENT

SCALE: 1" = 200'
200 0 200 400 600

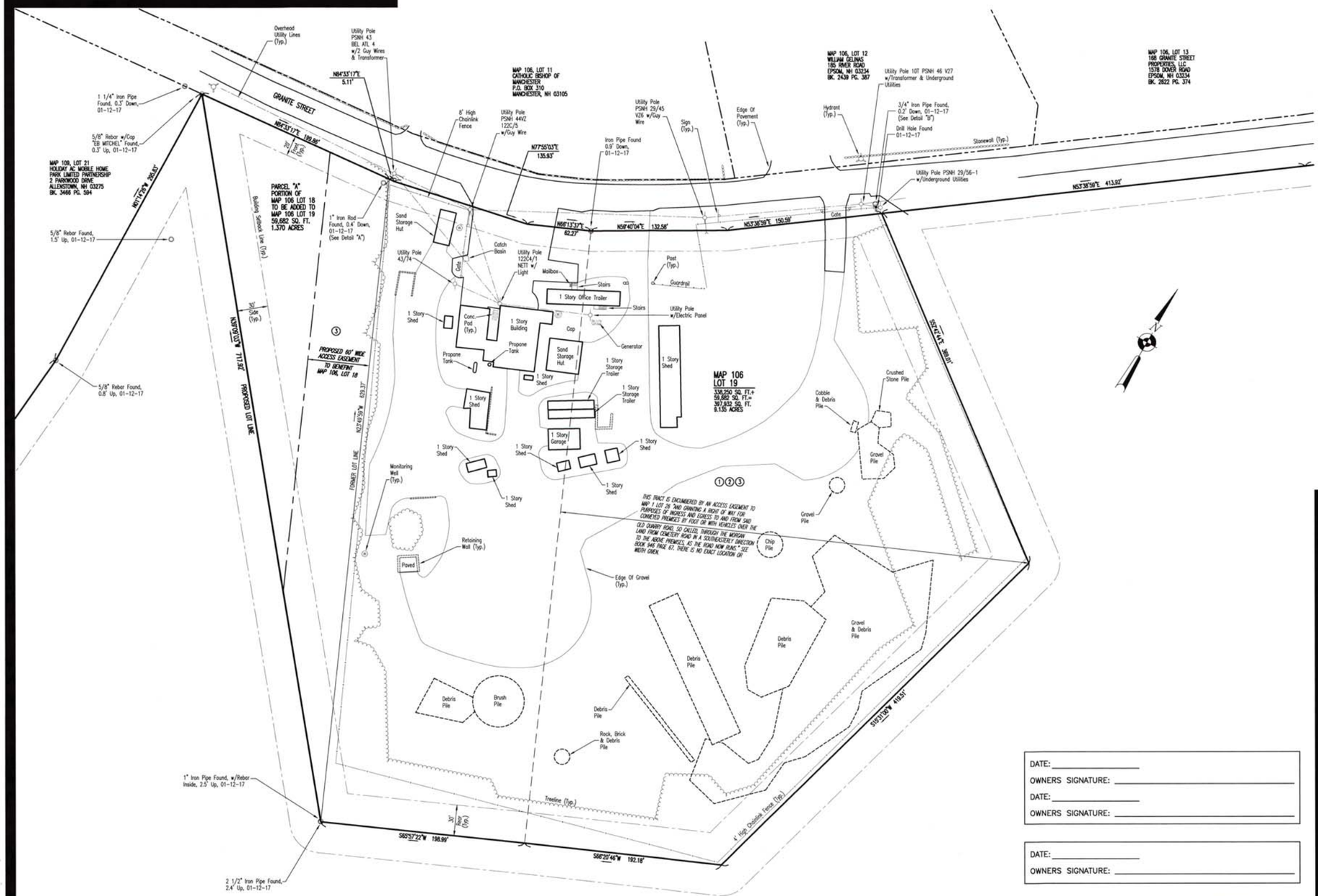
Scale: 1"=200'
Dr. By: DS Ck By: DJ
H.E.S. Job No. 1620533
Field Book No. 1260
Field Book Page No. 46
Sheet No. 1 of 2

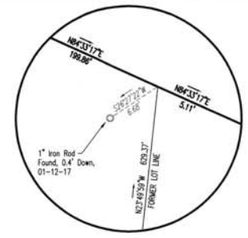
HOLDEN ENGINEERING & SURVEYING, inc.
56 Old Suncook Road
Concord, NH 03302
(603) 225-6449
9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

APPROVED: TOWN OF ALLENSTOWN PLANNING BOARD
Michael A. O'Meara — CHAIRMAN/VICE CHAIRMAN
8/02/2017 — DATE

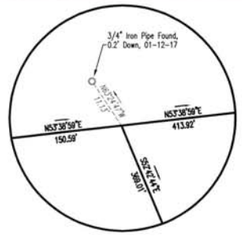
200-SCALE

FOR USE BY COUNTY REGISTRY OF DEEDS





DETAIL "A"
NOT TO SCALE



DETAIL "B"
NOT TO SCALE

DATE: _____
OWNERS SIGNATURE: _____
DATE: _____
OWNERS SIGNATURE: _____

DATE: _____
OWNERS SIGNATURE: _____

I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY AND HAS A MAX. ERROR OF CLOSURE OF 1:10,000 ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY.

STATE OF NEW HAMPSHIRE — No. 596 — PETER D. HOLDEN — LICENSED LAND SURVEYOR

LOT LINE ADJUSTMENT PLAN
BOUNDARY SURVEY

MAP 106, LOT 18 & MAP 106, LOT 19
ALLENSTOWN AGGREGATE, LLC & TOWN OF ALLENSTOWN

ALLENSTOWN, MERRIMACK COUNTY, NEW HAMPSHIRE
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SCALE: 1" = 50'
50 0 50 100 150

Scale: 1"=50'
Dr. By: DS Ck By: DJ
H.E.S. Job No. 1620533
Field Book No. 1260
Field Book Page No. 46
Sheet No. 2 of 2

HOLDEN ENGINEERING & SURVEYING, inc.

56 Old Suncook Road
Concord, NH 03302
(603) 225-6649

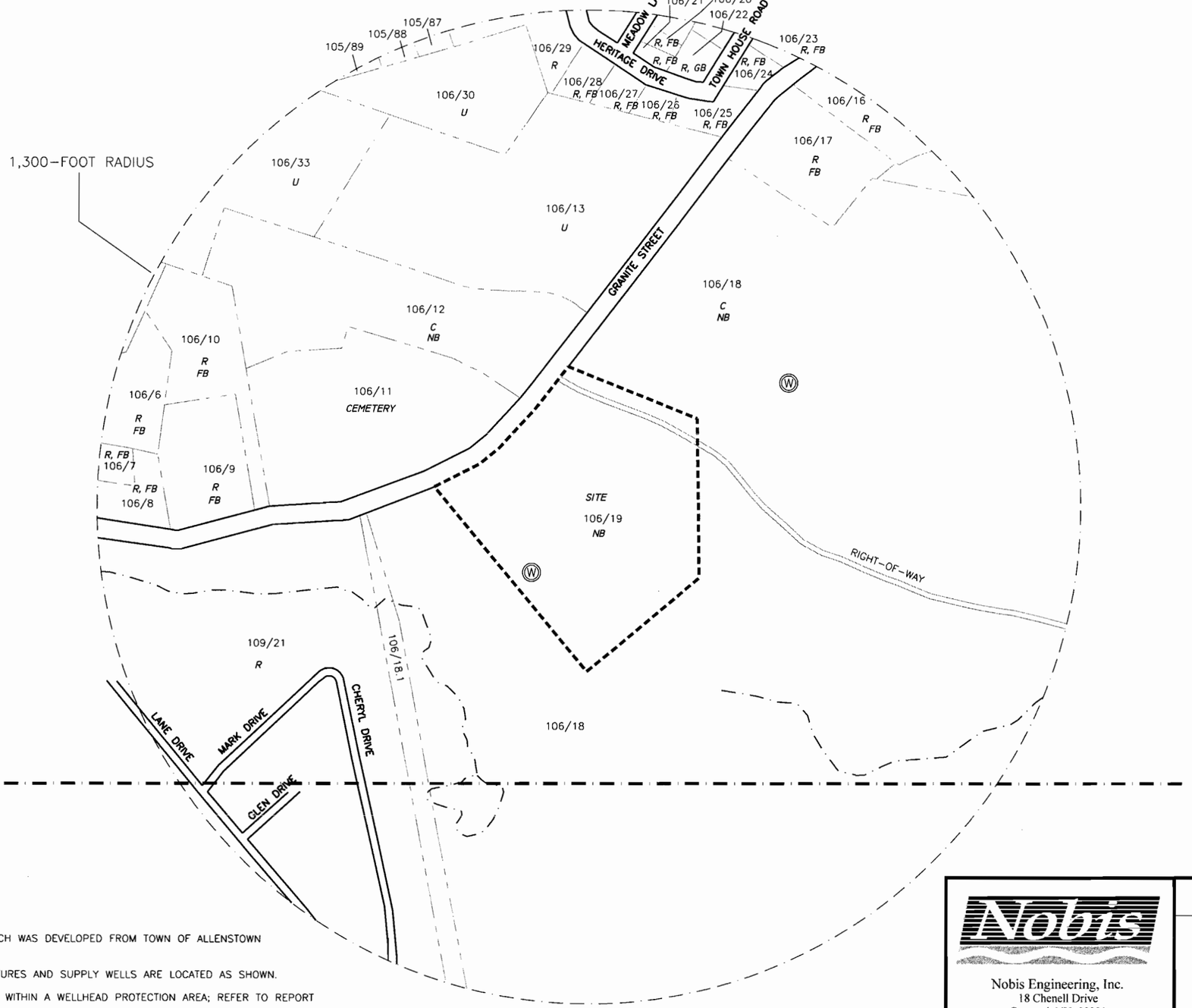
9 Constitution Drive
Bedford, NH 03110
(603) 472-2078

APPROVED: TOWN OF ALLENSTOWN PLANNING BOARD

Michael A. O'Mara — CHAIRMAN/VICE CHAIRMAN

2/02/2017 — DATE

050-SCALE



LEGEND

- SITE BOUNDARY AND PROPOSED GMZ
- PROPERTY BOUNDARIES
- TAX MAP BOUNDARY
- (W) APPROXIMATE LOCATION OF KNOWN WATER SUPPLY WELL
- 1/3 MAP NUMBER/LOT NUMBER
- *R* RESIDENTIAL PROPERTY
- *C* COMMERCIAL PROPERTY
- *U* UNDEVELOPED PROPERTY
- *NB* NO BASEMENT
- *FB* FULL BASEMENT
- WATER COURSE

APPROXIMATE SCALE

0' 150' 300' 600'

NOTES

1. THIS SITE AREA SKETCH WAS DEVELOPED FROM TOWN OF ALLENSTOWN ASSESSORS' TAX MAPS.
2. SURFACE WATER FEATURES AND SUPPLY WELLS ARE LOCATED AS SHOWN.
3. THE SITE IS LOCATED WITHIN A WELLHEAD PROTECTION AREA; REFER TO REPORT TEXT.

Nobis Engineering, Inc.
18 Chenell Drive
Concord, NH 03301
Tel (603) 224-4182
Fax (603) 224-2507
www.nobisengineering.com

FIGURE 2

SITE AREA SKETCH

ALLENSTOWN LANDFILL
165 GRANITE STREET
ALLENSTOWN, NEW HAMPSHIRE

PROJECT 76400 | MAY 2005

M:\Job File Storage\76400 Allenstown LF\Allenstown CAD\dwg\SIR_txmp.dwg