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

# Proposed Scope of Work and Budget Estimate 2018 Monitoring Round Troy Mills Landfill Superfund Site Troy, New Hampshire NHDES No. 198405082 Project No. 104

NH Department of Environmental Services Hazardous Waste Remediation Bureau 29 Hazen Drive, PO Box 95 Concord, New Hampshire 03302-0095 Contact: Mr. Michael Summerlin, P.E. 603-271-3649 michael.summerlinjr@des.nh.gov

Prepared By: GZA GeoEnvironmental, Inc. 5 Commerce Park North Suite 201 Bedford, New Hampshire 03110 (603) 232-8765 Ms. Tanya P. Justham tanya.justham@gza.com

August 15, 2018



Proactive by Design

GEOTECHNICAL ENVIRONMENTAL ECOLOGICAL WATER CONSTRUCTION MANAGEMENT

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#### <u>Via Email</u>

August 15, 2018 File No. 04.P000130.19

Mr. Michael Summerlin, P.E. New Hampshire Department of Environmental Services Waste Management Division 29 Hazen Drive, P.O. Box 95 Concord, New Hampshire 03301-0095

Re: Proposed Scope of Work and Budget Estimate 2018 Monitoring Round Troy Mills Landfill Superfund Site Troy, New Hampshire NHDES No. 198405082, Project No. 104

Dear Michael:

As requested, GZA GeoEnvironmental, Inc. (GZA) has prepared this proposed Scope of Work to assist the New Hampshire Department of Environmental Service (NHDES) and the United States Environmental Protection Agency (EPA) with the 2018 on-site monitoring activities at the Troy Mills Landfill Superfund Site (Site) located in Troy, New Hampshire. The following Scope of Work has been developed based on our discussions with NHDES and our understanding of Site conditions. The work will be performed in general accordance with our 2015-2019 contract for *Site Investigations, Remediation Design and Implementation Oversight at Petroleum & Hazardous Waste Sites, and CERCLA and Brownfields Projects* as approved by the Governor and Council on August 26, 2015.

#### **SCOPE OF WORK**

The following briefly describes the proposed Scope of Work. Standard operating procedures (SOPs) for sampling, as well as the specific analyses being sampled for each media, will be presented in detail in the Sampling and Analysis Plan (SAP) to be prepared following approval of the Scope of Work.

#### TASK 1 – SAMPLING AND ANALYSIS PLAN DEVELOPMENT

GZA proposes to prepare an updated SAP for the Site, which will be consistent with NHDES' Hazardous Waste Remediation Bureau Master Quality Assurance Project Plan, approved November 2017, Revision #1, February 2018, EQA RFA# 18008. In addition, GZA will prepare a Site-specific Health and Safety Plan (HASP) for the protection of GZA field personnel, addressing potential risks of exposure and safety issues



associated with the proposed sampling tasks. GZA's Site-specific HASP will be consistent with the Occupational Safety and Health Administration standards including 29 CFR 1910 and 1926.

## TASK 2 – PER- AND POLYFLUOROALKYL SUBSTANCES SAMPLING ASSESSMENT

Prior to performing the Fall 2018 monitoring round, GZA proposes to perform an assessment of the sampling method effectiveness of collecting a per- and polyfluoroalkyl substances (PFAS) sample using the Teflon bladders and tubing installed at the Site. GZA will select one well with a recently-dedicated bladder pump and no history of detections of bis(2-ethylhexyl)phthalate (DEHP) on which to perform the assessment.

GZA proposes to remove the dedicated QED T-1250 bladder pump from the well, drain the pump and associated tubing, and rinse the exterior with PFAS-free deionized (DI) water. The pump, along with the dedicated fittings and sample tubing, will be inserted into a 2-inch diameter polyvinyl chloride (PVC) riser that is capped at the bottom. Prior to inserting the pump, the PVC riser will be cleaned, rinsed with PFAS-free DI water, and a rinsate sample of PFAS-free DI water collected from the riser. The PVC riser will be at least 3.5 feet in length to allow for the minimum 2-foot head required by the bladder pump for optimal operation. The pipe will be filled with PFAS-free DI water and approximately three pump and tubing volumes purged from the PVC riser through the bladder pump.

GZA will then drain the pump and riser and refill the PVC riser with fresh PFAS-free DI water. A water sample will be collected through the bladder pump and submitted to the Alpha Analytical (Alpha) of Westborough, Massachusetts along with a trip blank, field blank, and the PVC riser blank for analysis of PFAS.

After completion of sample collection, the dedicated bladder pump will be reinstalled in the monitoring well. If PFAS are not detected within the pump blank sample above the laboratory reporting limits, then PFAS samples will be collected from designated monitoring wells during the planned fall sampling round using existing pump infrastructure and low-flow/low-stress sampling methods. If PFAS are detected within the pump blank sample above the laboratory reporting limits, then GZA will implement the sampling procedure outlined in **Task 3**.

## TASK 3 – PFAS SAMPLING (CONTINGENCY)

If the currently installed pumps and tubing are determined to be inadequate for the collection of PFAS samples based on the results of **Task 2**, GZA will mobilize to the Site at least two weeks prior to the fall monitoring round and remove existing QED T1250 dedicated bladder pumps and dedicated bladder pump or peristaltic pump tubing from wells designated for PFAS sampling.

Using high-density polyethylene (HDPE) tubing, acetal thermoplastic foot valves, and surge blocks, GZA will purge three standing water volumes from each well or purge the well dry, whichever occurs first. Surging will be performed throughout the screened or saturated open borehole portion of the monitoring well during the well purge. Following the 3-well volume purge, or recharge of the groundwater in a monitoring well if it was purged dry, the surge block will be removed from the HDPE tubing and a groundwater sample will be collected through the tubing and foot valve. The groundwater sample will be submitted for laboratory analysis of PFAS to Maxxam Analytics (Maxxam) of Mississauga, Ontario, Canada.

After completion of sample collection, the dedicated sampling equipment will be reinstalled in the monitoring wells.



## TASK 4 – FALL 2018 MONITORING ROUND

## Comprehensive Water Level Gauging Round

GZA proposes to collect one comprehensive round of groundwater level measurements from each of the Site groundwater monitoring wells to estimate groundwater surface and hydraulic head equipotential contours, from which we will infer directions of groundwater flow beneath the Site and Site vicinity. Depth-to-water at the Site will be measured using an electronic water level indicator probe. Groundwater elevations will be calculated by subtracting the depth-to-groundwater from the reference elevation previously established for each well (top of PVC or casing).

## **Groundwater Sampling**

The 2018 monitoring at the Site will include the following in accordance with the May 2016 SAP and recommendations in the Spring 2016 Monitoring Round Data Report dated May 26, 2017:

- Groundwater samples will be collected at 32 wells;
- Leachate samples will be collected at two locations;
- Surface water samples will be collected at four locations;
- A sediment sample will be collected at one location; and
- Wetland soil samples will be collected at four locations.

GZA understands that, for the collected groundwater, sediment, and soil samples, the following analyses will be completed by NHDES' subcontract laboratory, Absolute Resource Associates (ARA) of Portsmouth, New Hampshire and by ARA's subcontract laboratory Maxxam (number of samples and analytical methods to be specified in the SAP):

#### ARA – Groundwater Analyses

- Volatile organic compounds (VOCs);
- Semi-VOCs (SVOCs);
- Total arsenic and manganese;
- 1,4-dioxane; and
- Hardness.

## ARA – Sediment Analyses

- VOCs;
- Percent solids;
- SVOCs;
- Arsenic and manganese; and
- Total organic carbon (TOC).



## ARA – Wetland Soil Analyses

- SVOCs;
- Arsenic and manganese; and
- TOC.

# Maxxam – Groundwater Analyses

• PFAS.

In addition, a sediment sample will be sent to Thielsch Engineering (Thielsch) of Cranston, Rhode Island for grain size distribution analysis. PFAS analyses will be performed on samples collected from a subset of the 32 wells, including TRY\_MW-701, TRY\_MW-602B, TRY\_MW-102, TRY\_MW-804, TRY\_MW-205, TRY\_MW-805, TRY\_MW-101S, TRY\_MW-A28, TRY\_MW-C6S, TRY\_M-7, and TRY\_MW-105S. GZA will coordinate sample courier services for samples going to ARA, Maxxam, and Thielsch.

## TASK 5.1 – DATA EVALUATION AND DATA REPORT PREPARATION

GZA will assess the water quality concentration data collected relative to regulatory action limits and historical concentration data collected at the Site. GZA will prepare an electronic (.pdf) copy of a *DRAFT* report summarizing: work performed; results of the water quality sampling and analyses; results of water level/hydraulic head measurements; observations; the updated conceptual Site model; trend analyses; and our conclusions. The *DRAFT* report will include updated summary tables for water level data and groundwater analytical results for samples collected during the monitoring round. Water quality data and water level data will be summarized as appropriate to the project objectives in figures and plots. GZA will submit the *DRAFT* report including a complete bookmarked electronic copy (.pdf), a Microsoft<sup>®</sup> Word version of the report text, and Microsoft<sup>®</sup> Excel<sup>®</sup> version of all tables to NHDES and EPA for review and comment.

## TASK 5.2 – FINALIZATION OF THE DATA REPORT

GZA anticipates receipt of comments from both NHDES and EPA. For the purposes of this proposal, GZA has included time required to address comments and finalize the report, including preparation of a bookmarked electronic (.pdf) copy of the final report.

# TASK 5.3 – UPLOAD OF DATA TO NHDES' ENIVORNMENTAL MONITORING DATABASE (EMD)

As requested by NHDES, GZA will upload the data results from ARA and Maxxam to NHDES' EMD for the existing wells. GZA has been provided a template and will enter appropriate information into the database.

# TASK 6 – PROJECT COORDINATION, MANAGEMENT, AND MEETINGS

GZA anticipates that this project will include coordination between GZA's Project Manager, NHDES, and EPA during the course of the project, and may include meeting(s) with NHDES and EPA to discuss findings, etc. Based on this, GZA has included time associated with overall project management and coordination, and limited time for the Project Manager to attend meeting(s) with NHDES and EPA.



#### SCHEDULE AND BUDGET ESTIMATE

GZA is prepared to initiate the proposed Scope of Work upon receipt of a Work Scope Authorization, and has tentatively scheduled the annual monitoring event to be performed during October 2018 with preliminary PFAS sampling performed during August 2018. We anticipate that a *DRAFT* data report will be completed for NHDES and EPA review within 60 days following the receipt of the data results from ARA and Maxxam.

Billings will be based on accrued time and expenses in accordance with our *Site Investigations, Remediation Design and Implementation Oversight at Petroleum & Hazardous Waste Sites, and CERCLA and Brownfields Projects* contract as approved by the Governor and Council on August 26, 2015. The budget estimate to complete the proposed work is \$88,665. Refer to the attached Work Scope Budget sheet for a breakdown of the cost estimate by task. This estimate is based on the anticipated Scope of Work outlined above, which represents our present judgment as to the level of effort requested. Actual charges may vary, either upward or downward, depending upon the execution of the work.

GZA greatly appreciates the opportunity to work on this important project. If you have any questions regarding the Scope of Work, please do not hesitate to contact Ms. Tanya Justham directly at (603) 232-8765.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Tanya P. Justham Project Manager

Steven R. Lamb, P.G., C.G.W.P. Principal

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Claire G. Lund, P.E. Consultant/Reviewer

TPJ/SRL/CGL:ttf \\GZABedford\RFPs\FY19\04.P000130.19\final 04.P000130.19 Troy Site Sampling Round 081518 REV.docx

Attachment: Work Scope Budget Sheet



WORK SCOPE BUDGET SHEET

WORK SCOPE BUDGET SHEET - Troy														
				Aills Land	fill									
NHDES No.:	198405082	Facility Name:	Superf	and Site		Maili	ng Address:			_				
UST Facility No.:		Owner:						29 Hazen Driv	/e	_		. 04.P000130.19		-
Date of Submittal:		Town:		١H				P.O. Box 95		_	GZA PM:	Tanya Justham		_
Env-Or 600 Phase Code:	RPI	Priority No.:						Concord, NH	03302-0095	_				
								1						
6	-10			4	Overa	all Breakdow	vn			Breakdo	own By Class			
Description By Task	Contractor	Description	Class Code	Units	Туре	Rate	Cost	Eng./Hydro. Services	Lab	Subsurface	Cont. Soil T&D	GW Treatment/ Product Recover	Other	Assumptions
		Preparation					2							
Task 1. SAP Development		Principal / QA	E	2.0	hrs.	\$200.00	\$400	\$400						
	GZA	Project Manager	Е	8.0	hrs.	\$120.00	\$960	\$960						
	GZA	Professional Level III	E	24.0	hrs.	\$103.00	\$2,472	\$2,472						
		Drafter	Е	2.0	hrs.	\$91.00	\$182	\$182						
					Tas	sk 1 Total:	\$4,014	\$4,014	\$0	\$0	\$0	\$0	\$0	
		Preparation and Field Work												
1		Project Manager (assumes PM second person on site)	Е	2.0	hrs.	\$120.00	\$240	\$240						PFAS sample sent to Alpha
		Professional Level III (assumes 2 people, 1 day, 8-hr day)	E	16.0	hrs.	\$103.00	\$1,648	\$1,648						
Task 2. PFAS Sampling Assessment		Professional Level I (sample delivery to EPA lab) 2.5 hrs trip	E	0.0	hrs.	\$85.00								
	074	Equipment Rental and Supplies		1.0	+ + + + + + + + + + + + + + + + + + +	<b>#126.50</b>	¢107	¢107						-
	GZA	Truck Rental (assumes 1 truck for 1 day)	E	1.0	day	\$126.50	\$127	\$127						
		QED MP10 Control Box Bottled nitrogen gas, regulator	E	1.0 1.0	day ea	\$82.50 \$49.50	\$83 \$50	\$83 \$50						
		PFAS-free DI water (purchased from ARA)	E	20.0	Liter	\$49.30	\$30	\$30						-
		Cooler ice (1 cooler, 2 bags/cooler)	E	2.0	ea	\$2.75	\$6	\$6						
		H&S (nitrile gloves)	E	1.0	ea	\$27.50	\$28	\$28						Assumes a trip blank, field blank, PVC riser blank, and bladder pump blank
	Alpha	Laboratory				+= / 10 0								
		PFAS samples (4 samples, 24-compound list)	т	4		\$268.80	\$1,075		\$1,075					
		r r AS samples (4 samples, 24-compound list)	L	<u> </u>	ea									
					Tas	sk 2 Total:	\$3,739	\$2,664	\$1,075	\$0	\$0	\$0	\$0	
		Preparation and Field Work		(────										Assumes 2 people 2 days to samples 11 wells, 1 trip blank, 1 dup,
Task 3. PFAS Sampling (Contingency)	GZA	Project Manager	Е	2.0	hrs.	\$120.00	\$240	\$240						Assumes 2 people 2 days to samples 11 wens, 1 trip blank, 1 dup 1 equip blank, 1 field blank. PFAS samples sent to ARA/Maxxam
		Professional Level III (assumes 2 people, 2 days, 9-hr days)	Е	34.0	hrs.	\$103.00	\$3,502	\$3,502						
		Equipment Rental and Supplies	L	54.0		\$105.00	\$5,502	\$5,502						
		Truck Rental (assumes 1 truck for 2 days)	Е	2.0	day	\$126.50	\$253	\$253						
		Waterra tubing (1/2-in OD HDPE; as 500 ft rolls)	E	1.0	ea	\$93.50	\$94	\$94						
		Generator (1,000 HP)	Е	2.0	day	\$58.30	\$117	\$117						
		Hydrolift	Е	2.0	day	\$77.00	\$154	\$154						
		Foot valves	E	11.0	ea	\$19.25	\$212	\$212						
		Surge blocks	E	11.0	ea	\$13.75	\$151	\$151						
		PFAS-free deionized water (for QC samples, purchased from ARA)	E	3.0	Liter	\$24.20	\$73	\$73						assumes decon and equipment blank for WLM Based on Holiday Inn Express rates (\$103.55 w/ tax), plus meals
		Cooler ice (2 coolers, 6 bags/cooler, 2 days)	E	24.0	ea	\$2.75 \$27.50	\$66 \$28	\$66 \$28						
		H&S (nitrile gloves) Lodging/Meals per person (sampling crew 1 night)	E	1.0 2.0	ea day	\$133.55	\$28	\$28						
		Lodging/Means per person (sampling crew 1 mgm)	Б	2.0		sk 3 Total:	\$5,155	\$5,155	\$0	\$0			\$0	
	<u>i</u>	Preparation and Field Work	† –	<u> </u>			40,100	<del>\$0,100</del>	φυ	φ0	φ0	φ <b>υ</b>	ψU	Includes water level round and groundwater monitoring round
Task 4. Fall 2018 Groundwater Monitoring Round		Administrator (Billing Coordinator)	Е	2.0	hrs.	58	\$116	\$116						32 gw wells via low flow (2 wells per day per person), two leachate, one floc, 4 SW samples, 4 soil samples, 1 sediment
		Project Manager (assumes 5 full days and 2 hrs per day for remaining)	Е	67.0	hrs.	\$120.00	\$8,040	\$8,040						
1 ask 7, 1 an 2016 Groundwater Monitoring Round	GZA	Professional Level III (assumes 1 day for WLs, 10 days sampling, 4 days		i										WL round assumes 2 people, 1 day; GW sampling assumes 2
		prep/mobe, 1 day demobe)	Е	180.0	hrs.	\$103.00	\$18,540	\$18,540						people, 9 days (12 hr days); 1 day surface water/leachate/sed/soil
	<b>  </b> '				$\square$							<u> </u>		sampling; 6 man days prep/mobe (10 hr days) & 2 man days
		Professional Level III (assumes 1 day for WLs, 10 days sampling, 2 days	Е	160.0	hrs.	\$103.00	\$16,480	\$16,480						
	11	prep/mobe, 1 day demobe)	1 ~	1		+	+ 10, 100	+ 10,.00						11



			Troy M	Iills Lan	dfill									
NHDES No.:	198405083	Eacility Name				Maili	ng Address:	NHDES						
UST Facility No.:	170405002	32 Facility Name: Superfun Owner:				Iviaiii	lig Address.	29 Hazen Drive	<u>,</u>	GZA Job No. 04.P000130.19 GZA PM: Tanya Justham				
Date of Submittal: 08/15/18 Owner: Town:			Troy N	MLI .				P.O. Box 95	·					-
-				NП				Concord, NH (	2202 0005	-	UZA FMI.	Taliya Justilalii		-
Env-Or 600 Phase Code: 1	KPI	Priority No.:						Concord, NH (	15302-0095	-				
		Overall B				wn			Breakdown By Class					
Description By Task	Contractor	Description	Class Code	Units	Туре	Rate	Cost	Eng./Hydro. Services	Lab	Subsurface	Cont. Soil T&D	GW Treatment/ Product Recover	Other	Assumptions
		Equipment Rental and Supplies		Î										
Task 4. Fall 2018 Groundwater Monitoring Round		Enterprise box truck rental	Е	3.0	week	\$392.76	\$1,178	\$1,178						
		Gator rental	E	2.0	week	\$713.69	\$1,427	\$1,427						
		Gator delivery fee (drop off/pickup)	E	1.0	nte	\$605.00	\$605	\$605						Based on Holiday Inn Express rates (\$103.55 w/ tax), plus n
		Truck Rental (assumes 2 trucks per day/11 work days)	E	22.0	day	\$115.00	\$2,530	\$2,530						
		Peri Geopump2 (1 pump /2 wk)	E	2.0	week	\$60.83	\$122	\$122						
	GZA	QED MP10 Control Box (2 controllers / 2 weeks)	E	4.0	week	\$247.50	\$990	\$990						
		Non-dedicated QED Sample Pro Bladder Pump (2 pumps / 2 weeks)	E	4.0	week	\$121.66	\$487	\$487						
		Teflon bladder kit (11 wells, plus 2 extras)	Е	13.0	ea	\$52.80	\$686	\$686						
		Bottled nitrogen gas, regulator	Е	10.0	ea	\$49.50	\$495	\$495						
		100 ft water Level meter (2 meters / 2 wk)	Е	4.0	week	\$40.81	\$163	\$163						
		In-Situ SmarTROLL (2 units / 2 wk)	E	4.0	week	\$276.65	\$1,107	\$1,107						
		Tablets for use with SmarTROLL (2 units / 2 wk)	E	4.0	week	\$100.00	\$400	\$400						
		Hach 2100Q Turbidity meter (2 units / 2 wk)	Е	4.0	week	\$64.68	\$259	\$259						
		Poly Tubing (100 ft roll, for equip connections)	Е	1.0	ea	\$23.10	\$23	\$23						
		Calibration solution set (assumes 1 set plus extra solutions)	Е	1.0	ea	\$247.50	\$248	\$248						
		Decon Solution (1 4-L Hexane; includes estimated shipping charge)	Е	1.0	ea	\$381.06	\$381	\$381						
		Decon Solution (2-Propanol, 1 case of 4 4-L bottles, includes est. shipping	) E	1.0	ea	\$650.41	\$650	\$650						
		Cooler ice and DI water (3 coolers a day, 6 bags/cooler for 10 days)	Е	180.0	ea	\$2.75	\$495	\$495						
		Misc. Equipment and Supplies (decon supplies, PPE, paper towels/trash bags, etc.)	Е	1.0	nte	\$500.00	\$500	\$500						
		Lodging/Meals per person (sampling crew 8 nights, field lead 3 nights) Waste Disposal	Е	19.0	day	\$133.55	\$2,537	\$2,537						
	NRC	Hexane decon disposal	Е	1.0	ls	\$729.77	\$730	\$730						
	Tuke		Ľ	1.0		sk 4 Total:	\$59,189	\$59,189	\$0	\$0	\$0	\$0	\$0	
		Principal	Е	2.0	hrs.	\$200.00	\$400	\$400	 	 	 		<u></u>	
Task 5.1. Data Evaluation and Data Report Preparation		Principal/QA Officer	E	2.0	hrs.	\$200.00	\$400	\$400						
		Project Manager	E	16.0	hrs.	\$120.00	\$1,920	\$1,920						—
	GZA	Professional Level III	E	70.0	hrs.	\$103.00	\$7,210	\$7,210						
	OLIT	Word Processing	E	8.0	hrs.	\$58.00	\$464	\$464						
		Drafter	Ē	8.0	hrs.	\$91.00	\$728	\$728						
						5.1 Total:	\$11,122	\$11,122	\$0	\$0	\$0	\$0	\$0	
	İ	Principal	Е	1.0	hrs.	\$200.00	\$200	\$200						
		Project Manager	Е	8.0	hrs.	\$120.00	\$960	\$960						
		Professional Level III	Е	8.0	hrs.	\$103.00	\$824	\$824						1
ask 5.2. Finalization of the Data Report	GZA	Word Processing	Е	6.0	hrs.	\$58.00	\$348	\$348						]
-		Drafter	Е	2.0	hrs.	\$91.00	\$182	\$182						]
		Expenses/Reproduction etc.	E	1.0		\$250.00	\$250	\$250						]
					Task	5.2 Total:	\$2,764	\$2,764	\$0	\$0	\$0	\$0	\$0	<u> </u>
Fask 5.3. Upload of Data to NHDES' EMD Database	GZA	Professional Level III	E	8.0	hrs.	\$103.00	\$824	\$824						
	UZA													4
						5.3 Total:	\$824	\$824	\$0		\$0		\$0	<u> </u>
ask 6. Project Coordination, Management &		Principal	E			\$200.00	\$800	\$800						4
ask 6. Project Coordination, Management &	GZA	Project Manager	E	16.0	hrs	\$120.00	\$1,920	\$1,920						11
leetings	OLIT	rojeet manager		10.0		k 6 Total:		\$2,720	\$0	\$0	\$0	\$0	\$0	1

Env-Or 600 Phase Code IRA - Initial Response Action FPR - Free Product Removal ISC - Initial Site Characterization SIR - Site Investigation/Reporting RAP - Remedial Action Plan RPI - Remedial Plan Implementation GMP - GW Monitoring/Permits

<u>Class Codes:</u> E = Eng./Hydrogeology Services L = Laboratory Services L = Laboratory Services X = Subsurface Explorations S = Cont. Soil Treatment/Disposal G = GW Treatment/Product Recovery O = Other

Comments:

