Northern Utilities, Inc. – NEW HAMPSHIRE DIVISION

ENVIRONMENTAL RESPONSE COST ANNUAL AUDIT FILLING

INDEX

Schedule 1
Site Specific Expenses

NORTHERN UTILITIES, INC.- NEW HAMPSHIRE DIVISION
REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022-2023 ENVIRONMENTAL RESPONSE COSTS
SITE SPECIFIC EXPENSES

SCHEDULE 1
PAGE 1 OF 1

Line	Description	Total	11/14-10/15	11/15-10/16	11/16-10/17	11/17-10/18	11/18-10/19	11/19-10/20	11/20-10/21	11/21-10/22	11/22-10/23	11/23-10/24	11/24-10/25	11/25-10/26	11/26-10/27	11/27-10/28	11/28-10/29	11/29-10/30
	ENVIRONMENTAL RESPONSE COST (ERC)																	
1	July 14 - June 15 Expenses Amortization (1/7)	$ 112,198		$ 16,028	$ 16,028	$ 16,028	$ 16,028	$ 16,028	$ 16,028	$ 16,028								
2	July 15 - June 16 Expenses Amortization (1/7)	$ 2,179,885			$ 311,412	$ 311,412	$ 311,412	$ 311,412	$ 311,412	$ 311,412	$ 311,412							
3	July 16 - June 17 Expenses Amortization (1/7)	$ 54,154				$7,736	$7,736	$7,736	$7,736	$7,736	$7,736	$7,736						
4	July 17 - June 18 Expenses Amortization (1/7)	$ 283,143					$40,449	$40,449	$40,449	$40,449	$40,449	$40,449	$40,449					
5	July 18 - June 19 Expenses Amortization (1/7)	$ 203,357						$ 29,051	$ 29,051	$ 29,051	$ 29,051	$ 29,051	$ 29,051	$ 29,051				
6	July 19 - June 20 Expenses Amortization (1/7)	$ 77,165							$ 11,024	$ 11,024	$ 11,024	$ 11,024	$ 11,024	$ 11,024	$ 11,024			
7	July 20 - June 21 Expenses Amortization (1/7)	$ 118,256								$ 16,894	$ 16,894	$ 16,894	$ 16,894	$ 16,894	$ 16,894	$ 16,894		
8	July 21 - June 22 Expenses Amortization (1/7)	$ 48,434									$ 6,919	$ 6,919	$ 6,919	$ 6,919	$ 6,919	$ 6,919	$ 6,919	
9	July 22 - June 23 Expenses Amortization (1/7)	$ 33,800										$ 4,829	$4,829	$4,829	$4,829	$4,829	$4,829	$4,829
10	Subtotal (Line 1 through Line 9)		$ -	$ 16,028	$ 327,440	$ 335,177	$ 375,626	$ 404,677	$ 415,700	$ 432,594	$ 423,485	$ 116,901	$ 109,165	$ 68,716	$ 39,665	$ 28,641	$ 11,748	$ 4,829
11	Add: Excess amortization from prior years (from schedule 5, Line 9)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Less: Excess amortization to be deferred (from schedule 5, Line 8)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	Total Environmental Response cost to be recovered (ERC)	$ -	$ -	$ 16,028	$ 327,440	$ 335,177	$ 375,626	$ 404,677	$ 415,700	$ 432,594	$ 423,485	$ 116,901	$ 109,165	$ 68,716	$ 39,665	$ 28,641	$ 11,748	$ 4,829
14	July 2014 - June 2015 Unamortized beginning balance			$ 112,198	$ 96,170	$ 80,141	$ 64,113	$ 48,085	$ 32,057	$ 16,028								
15	July 2015 - June 2016 Unamortized beginning balance				$ 2,179,885	$ 1,868,473	$ 1,557,061	$ 1,245,649	$ 934,236	$ 622,824	$ 311,412							
16	July 2016 - June 2017 Unamortized beginning balance					$ 54,154	$ 46,418	$ 38,681	$ 30,945	$ 23,209	$ 15,473	$ 7,736						
17	July 2017 - June 2018 Unamortized beginning balance						$ 283,143	$ 242,694	$ 202,245	$ 161,796	$ 121,347	$ 80,898	$ 40,449					
18	July 2018 - June 2019 Unamortized beginning balance							$ 203,357	$ 174,306	$ 145,255	$ 116,204	$ 87,153	$ 58,102	$ 29,051				
19	July 2019 - June 2020 Unamortized beginning balance								$ 77,165	$ 66,141	$ 55,118	$ 44,094	$ 33,071	$ 22,047	$ 11,024			
20	July 2020 - June 2021 Unamortized beginning balance									$ 118,256	$ 101,362	$ 84,468	$ 67,575	$ 50,681	$ 33,787	$ 16,894		
21	July 2021 - June 2022 Unamortized beginning balance										$ 48,434	$ 41,515	$ 34,596	$ 27,677	$ 20,757	$ 13,838	$ 6,919	
22	July 2022 - June 2023 Unamortized beginning balance											$ 33,800	$ 28,971	$ 24,143	$ 19,314	$ 14,486	$ 9,657	$ 4,829
23	Total Unamortized beginning balance		$ 374,077	$ 415,344	$ 2,508,270	$ 2,164,053	$ 2,041,089	$ 1,815,204	$ 1,456,794	$ 1,153,509	$ 769,349	$ 379,664	$ 262,763	$ 153,598	$ 84,882	$ 45,217	$ 16,576	$ 4,829
24	INSURANCE/3RD PARTY EXPENSES (IE) Expenses (from schedule 2)																	
25	INSURANCE/3RD PARTY RECOVERIES (IR)																	
26	UNDER/OVER Recovery from previous year																	
27	**Total of Lines 23 through 25**		$ 374,077	$ 415,344	$ 2,508,270	$ 2,164,053	$ 2,041,089	$ 1,815,204	$ 1,456,794	$ 1,153,509	$ 769,349	$ 379,664	$ 262,763	$ 153,598	$ 84,882	$ 45,217	$ 16,576	$ 4,829

Schedule 2
Cost Summary

Schedule 2
Page 1 of 1

Remediation Adjustment Clause Compliance Filing
2022 - 2023 Environmental Response Costs
Summary

LINE NO.	DESCRIPTION	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	100% RECOVERABLE EXPENSE	INSURANCE & 3RD PARTY EXPENSE	INSURANCE & THIRD PARTY RECOVERIES
1	Portsmouth Gas Works	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	Exeter Gas Works	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	Rochester Gas Works	$ -	$ -	$ 16,276.90	$ 17,522.63	$ 33,799.53	$ -	$ -
4	Dover Gas Works	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	Somerworth Gas Works	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTALS	**$ -**	**$ -**	**$ 16,276.90**	**$ 17,522.63**	**$ 33,799.53**	**$ -**	**$ -**

Schedule 3
Invoice Lists

Schedule 3A

REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022 - 2023 Environmental Response Costs
Site 11
Exeter Gas Works

LINE	VENDOR NAME	INVOICE NO.	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	TOTAL
	None						$ -
							$ -
							$ -
TOTAL			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022 - 2023 Environmental Response Costs
Site 13
Rochester Gas Works

Schedule 3B

LINE	VENDOR NAME	INVOICE NO.	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	TOTAL
1	AECOM		$ -	$ -	$ 5,339.16		$ 5,339.16
2	AECOM		$ -	$ -	$ 4,955.85	$ -	$ 4,955.85
3	AECOM		$ -	$ -	$ 741.31	$ -	$ 741.31
4	AECOM		$ -	$ -	$ 1,362.20	$ -	$ 1,362.20
5	AECOM		$ -	$ -	$ 3,878.38	$ -	$ 3,878.38
6	ASPLUNDH		$ -	$ -	$ -	$ 14,315.60	$ 14,315.60
7	ASPLUNDH		$ -	$ -	$ -	$ 2,987.60	$ 2,987.60
8	CITY OF ROCHESTER		$ -	$ -	$ -	$ 22.14	$ 22.14
9	CITY OF ROCHESTER		$ -	$ -	$ -	$ 61.27	$ 61.27
10	TREASURER STATE OF NH		$ -	$ -	$ -	$ 136.02	$ 136.02
11	**TOTAL**		**$ -**	**$ -**	**$ 16,276.90**	**$ 17,522.63**	**$ 33,799.53**

Attachment 3B

Rochester Invoices

Check Payment to:	ACH Payment to:	Wire Transfer Payment to:
AECOM Inc.	AECOM Inc.	AECOM Inc.
An AECOM Company	An AECOM Company	An AECOM Company
1178 Paysphere Circle	Bank of America	Bank of America
Chicago, IL 60674	Account Number 5800937020	New York, NY 10001
	ABA Number 071000039	Account Number 5800937020
		ABA Number 026009593
		SWIFT CODE BOFAUS3N

AECOM

250 Apollo Drive, Chelmsford, MA 01824
Tel: 978-905-2100
Fax:978-905-2101

RECEIVED SEP 26, 2022

Federal Tax ID No. 06-0852759

ATTN : MURPHY THOMAS
UNITIL SERVICES CORPORATON
6 LIBERTY LANE W
HAMPTON, NH 03842
United States

Invoice Date: 26-SEP-22
Invoice Number: 2000672890

Agreement Number: EM13046004
Agreement Description: TAR 01/12/21

Payment Term: 30 DAYS

Please reference Invoice Number and Project Number with Remittance

Project Number : **60139734**
Bill Through Date : 28-MAY-22 - 26-AUG-22
Project Name : **UNITIL PHYTOREMEDIATION PROGRAM**

Task Number : 1500 **Task Name : 2022 GW Supp Install**

Labor Bill Rate

Employee Name/Title	Title/Expenditure	Date	Hours	Bill Rate	Billed Amt
Chan, Nicholas (Nick)	P08	24-JUN-22	8.00	66.95	535.60
Howe, Charles S	P16	29-JUL-22	8.00	139.05	1,112.40
Hunt, Audrey Clarke	P11	24-JUN-22	5.00	95.28	476.40
Hunt, Audrey Clarke	P11	24-JUN-22	3.00	95.28	285.84
Hunt, Audrey Clarke	P11	29-JUL-22	8.00	95.28	762.24
McCarthy, Ryan S	P18	03-JUN-22	0.50	175.10	87.55
McCarthy, Ryan S	P18	17-JUN-22	0.50	175.10	87.55
McCarthy, Ryan S	P18	24-JUN-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	01-JUL-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	15-JUL-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	22-JUL-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	29-JUL-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	26-AUG-22	1.00	175.10	175.10
Meyler, Mary E (Mary)	P11	26-AUG-22	1.00	128.75	128.75
Total Labor Bill Rate			**40.00**		**4,526.93**

RECEIVED
SEP 26 2022
Accounts Payable

Reimbursable

Expenditure Type	Employee/Vendor Name	Date	Inv Number	Raw Cost	Multiplier	Billed Amt
Field Supplies	Hunt, Audrey Clarke	24-JUN-22	EXP8338771	12.88	1.0500	13.52
Field Supplies	PALMS ENVIRONMENTAL LLC	29-JUL-22	40933	56.32	1.0500	59.14
Lunch	Howe, Charles S	28-JUL-22	RCLEXP8453302	19.48	1.0800	21.04
Mileage	Chan, Nicholas (Nick)	24-JUN-22	EXP8400251	84.70	1.0800	91.48
Mileage	Hunt, Audrey Clarke	24-JUN-22	EXP8413497	93.60	1.0800	101.09
Mileage	Hunt, Audrey Clarke	27-JUL-22	EXP8466673	105.00	1.0800	113.40
Miscellaneous - Allowable	Hunt, Audrey Clarke	24-JUN-22	EXP8338771	33.12	1.0500	34.78
Rent - Equipment	Cleary, Maryanne V	02-JUN-22	RCLSMEXP851902	31.88	1.0800	34.43
Repairs & Maintenance	Cleary, Maryanne V	18-MAY-22	EXP8360308	313.00	1.0800	338.04
Vehicle License & Misc.	Chan, Nicholas (Nick)	24-JUN-22	EXP8400251	4.92	1.0800	5.31
Total Reimbursable				**754.90**		**812.23**

Task Total : 2022 GW Supp Install **5,339.16**

Project Total : UNITIL PHYTOREMEDIATION PROGRAM **5,339.16**

Invoice Summaries

Total Current Amount :	5,339.16
Retention Amount :	0.00
Pre-Tax Amount :	5,339.16
Tax Amount :	0.00

PO 78165 30.50.00.00.182.29.00

Invoice Summaries

Total Invoice Amount : 5,339.16

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billings	5,339.16	361,060.37	366,399.53	382,678.59	16,279.06
Tax	0.00	0.00	0.00		
Billing Total :	5,339.16	361,060.37	366,399.53		

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	13-AUG-22 - 19-AUG-22
Organization	:	41.ACM.USWES1.5803
Assignment Category	:	V - PT Variable
Employee Category	:	Non Exempt
Employee Name	:	McCabe, Mark M
Employee Number	:	648678
Draft Number	:	118

				SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type		13-AUG	14-AUG	15-AUG	16-AUG	17-AUG	18-AUG	19-AUG	Total
60139734 UNITIL ROCHESTER PHYTO	1400 2021 Phyto	Regular Hrs		0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00
			Total :	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00

McCabe, Mark M
Employee Signature

Approver For Employee Signature

Humphries, William P (Will)
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	18-JUN-22 - 24-JUN-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Chan, Nicholas (Nick)
Employee Number	:	725473
Draft Number	:	118

				SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type		18-JUN	19-JUN	20-JUN	21-JUN	22-JUN	23-JUN	24-JUN	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00
			Total :	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00

Chan, Nicholas (Nick)		McCarthy, Ryan S
Employee Signature	Approver For Employee Signature	Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	23-JUL-22 - 29-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Howe, Charles S
Employee Number	:	647557
Draft Number	:	118

Project	Task	Type	SAT 23-JUL	SUN 24-JUL	MON 25-JUL	TUE 26-JUL	WED 27-JUL	THUR 28-JUL	FRI 29-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1400 2021 Phyto	Regular Hrs	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00
		Total :	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00

Howe, Charles S
Employee Signature

Approver For Employee Signature

McCarthy, Ryan S
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	18-JUN-22 - 24-JUN-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	118

Project	Task	Type	SAT 18-JUN	SUN 19-JUN	MON 20-JUN	TUE 21-JUN	WED 22-JUN	THUR 23-JUN	FRI 24-JUN	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	OT Straight Time Hrs	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	5.00
Total Overtime Hours:	3.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	23-JUL-22 - 29-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	118

Project	Task	Type		SAT 23-JUL	SUN 24-JUL	MON 25-JUL	TUE 26-JUL	WED 27-JUL	THUR 28-JUL	FRI 29-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00
			Total :	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

Labor Correction Form

Employee
RYAN MCCARTHY
648137
Ryan.McCarthy@aecom.com

Non-Exempt
Exempt
Environment
Business Line
Northeast
Employee's Region

Manager
Barry Baker
691500
barry.baker@aecom.com

Transfer Reason
wrong unitil project

Week 06-03-2022

Pay Type	Project	05-28-2022 Saturday	05-29-2022 Sunday	05-30-2022 Monday	05-31-2022 Tuesday	06-01-2022 Wednesday	06-02-2022 Thursday	06-03-2022 Friday	Total
Adj REG	60139733 4008 |	0	-0.5	0	0	0	0	0	-0.5
Adj REG	60139734 1500 |	0	0.5	0	0	0	0	0	0.5
	Total	0	0	0	0	0	0	0	0

MCCARTHY, RYAN S
Approved by Initiator on 06-28-2022 03:34

Barry Baker
Approved by Manager on 06-30-2022 05:37

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	11-JUN-22 - 17-JUN-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type	SAT 11-JUN	SUN 12-JUN	MON 13-JUN	TUE 14-JUN	WED 15-JUN	THUR 16-JUN	FRI 17-JUN	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.50
		Total :	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	18-JUN-22 - 24-JUN-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

				SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type		18-JUN	19-JUN	20-JUN	21-JUN	22-JUN	23-JUN	24-JUN	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.50	0.00	0.50	0.00	1.00
			Total :	0.00	0.00	0.00	0.50	0.00	0.50	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	25-JUN-22 - 01-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type		SAT 25-JUN	SUN 26-JUN	MON 27-JUN	TUE 28-JUN	WED 29-JUN	THUR 30-JUN	FRI 01-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.50	0.00	0.00	0.50	1.00
			Total :	0.00	0.00	0.00	0.50	0.00	0.00	0.50	1.00

McCarthy, Ryan S		Tammi, Carl E
Employee Signature	Approver For Employee Signature	Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	09-JUL-22 - 15-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type	SAT 09-JUL	SUN 10-JUL	MON 11-JUL	TUE 12-JUL	WED 13-JUL	THUR 14-JUL	FRI 15-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
		Total :	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	16-JUL-22 - 22-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type	SAT 16-JUL	SUN 17-JUL	MON 18-JUL	TUE 19-JUL	WED 20-JUL	THUR 21-JUL	FRI 22-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.50	0.00	0.50	0.00	0.00	1.00
		Total :	0.00	0.00	0.50	0.00	0.50	0.00	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	23-JUL-22 - 29-JUL-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type		SAT 23-JUL	SUN 24-JUL	MON 25-JUL	TUE 26-JUL	WED 27-JUL	THUR 28-JUL	FRI 29-JUL	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
			Total :	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	20-AUG-22 - 26-AUG-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	118

Project	Task	Type		SAT 20-AUG	SUN 21-AUG	MON 22-AUG	TUE 23-AUG	WED 24-AUG	THUR 25-AUG	FRI 26-AUG	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.50	0.50	0.00	0.00	0.00	1.00
			Total :	0.00	0.00	0.50	0.50	0.00	0.00	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	20-AUG-22 - 26-AUG-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	F - PT Fixed - 20 Hrs
Employee Category	:	Exempt
Employee Name	:	Meyler, Mary E (Mary)
Employee Number	:	647206
Draft Number	:	118

Project	Task	Type		SAT 20-AUG	SUN 21-AUG	MON 22-AUG	TUE 23-AUG	WED 24-AUG	THUR 25-AUG	FRI 26-AUG	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
			Total :	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00

Meyler, Mary E (Mary)
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Imagine it. Delivered.

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

September 23, 2022

AECOM Reference
60139734-Inv. 121

RECEIVED SEP 26

Mr. Thomas Murphy
Unitil Services Corp.
6 Liberty Lane W
Hampton, NH 03842-1720

Invoice for Activities Related to 2022 Phytoremediation Program
Petrolane/ Northern Utilities, Inc. Site (DES #198712002, Project #432)
32 Gonic Road, Rochester, NH
Period Ending August 26, 2022

Dear Mr. Murphy,

Enclosed for your information is an invoice and Progress Report for professional environmental consulting services related to the 2022 Phytoremediation Program. Elements of the Phytoremediation Program include continued groundwater suppression maintenance and evaluation activities at the former manufactured gas plant located at the above referenced property.

Project Budget Information

This invoice is for $5,339.16. The total authorized budget for this project for the 2022 calendar year is $22,600. As part of the scope of work, AECOM will perform six limited and two full irrigation events at the Site during the 2022 growing seasons (April – October). AECOM will also perform Site inspections on a bi-monthly basis for the calendar year. This project was originally proposed on a time and materials basis to be billed on a monthly basis.

Work Performed

The following section briefly describes work and charges for this invoicing period for each task:

Task 1500 2021 Continued Groundwater Suppression Evaluation Activities

During this invoicing period, costs incurred were labor and expenses related to June/ July/ August Site inspections and irrigation events. As detailed in Table 1 and the attached invoice, costs associated with these tasks was $5,339.16.

If you have any questions regarding this invoice, please do not hesitate to call me at 603-770-4945. It has been a pleasure assisting you with this important project, and we look forward to providing additional service in the future.

Yours sincerely,

Ryan McCarthy, MS
Project Manager
AECOM
E: ryan.mccarthy@aecom.com

Table 1 Invoice Summary
2022 Phytoremediation Program
June-August 2022 Billing Period

Task		Authorized Budget	Previously Invoiced	Current Invoice	Total Invoiced	Remaining Budget
1500	Continued Groundwater Suppression Installation Activities 2022	$ 22,600.00	$ 6,498.02	$ 5,339.16	$ 11,837.18	$ 10,762.82
Total		**$22,600.00**	**$6,498.02**	**$5,339.16**	**$11,837.18**	**$10,762.82**

2022 Phyto Funding $22,600

Check Payment to:	ACH Payment to:	Wire Transfer Payment to:
AECOM Inc.	AECOM Inc.	AECOM Inc.
An AECOM Company	An AECOM Company	An AECOM Company
1178 Paysphere Circle	Bank of America	Bank of America
Chicago, IL 60674	Account Number 5800937020	New York, NY 10001
	ABA Number 071000039	Account Number 5800937020
		ABA Number 026009593
		SWIFT CODE BOFAUS3N

AECOM

250 Apollo Drive, Chelmsford, MA 01824
Tel: 978-905-2100
Fax:978-905-2101

Federal Tax ID No. 06-0852759

ATTN : MURPHY THOMAS
UNITIL SERVICES CORPORATON
6 LIBERTY LANE W
HAMPTON, NH 03842
United States

RECEIVED DEC 01, 2022

Invoice Date: 30-NOV-22
Invoice Number: 2008895279

Agreement Number: EM13046094
Agreement Description: TAR 01/12/21

Payment Term: 30 DAYS

Please reference Invoice Number and Project Number with Remittance

Project Number : 60139734 **Project Name** : UNITIL PHYTOREMEDIATION PROGRAM
Bill Through Date : 27-AUG-22 - 04-NOV-22

Task Number : 1500 **Task Name : 2022 GW Supp Install**

Labor Bill Rate

Employee Name/Title	Title/Expenditure	Date	Hours	Bill Rate	Billed Amt
Hunt, Audrey Clarke	P07	02-SEP-22	8.00	95.28	762.24
Hunt, Audrey Clarke	P11	04-NOV-22	8.00	95.28	762.24
Kirkwood, Gemma	P14	16-SEP-22	4.00	118.45	473.80
Kirkwood, Gemma	P14	23-SEP-22	2.50	118.45	296.13
McCabe, Mark M	P21	19-AUG-22	2.00	215.00	430.00
McCabe, Mark M	P21	02-SEP-22	4.00	215.00	860.00
McCarthy, Ryan S	P18	02-SEP-22	2.00	175.10	350.20
McCarthy, Ryan S	P18	23-SEP-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	30-SEP-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	07-OCT-22	0.50	175.10	87.55
McCarthy, Ryan S	P18	04-NOV-22	1.00	175.10	175.10
Millard, Joshua C (Josh)	P16	16-SEP-22	1.50	139.05	208.58
Total Labor Bill Rate			35.50		4,756.04

Reimbursable

Expenditure Type	Employee/Vendor Name	Date	Inv Number	Raw Cost	Multiplier	Billed Amt
Field Supplies	Hunt, Audrey Clarke	26-JUL-22	EXP8596823	5.99	1.0500	6.29
Field Supplies	Hunt, Audrey Clarke	01-SEP-22	RCLEXP8562010	12.59	1.0500	13.22
Field Supplies	PALMS ENVIRONMENTAL LLC	07-SEP-22	41203	42.50	1.0500	44.63
Mileage	Hunt, Audrey Clarke	01-SEP-22	EXP8531564	93.75	1.0500	98.44
Miscellaneous - Allowable	Hunt, Audrey Clarke	27-JUL-22	EXP8596823	19.91	1.0500	20.91
Miscellaneous - Allowable	Hunt, Audrey Clarke	01-SEP-22	RCLEXP8562010	15.54	1.0500	16.32
Total Reimbursable				190.28		199.81

Task Total : 2022 GW Supp Install 4,955.85

Project Total : UNITIL PHYTOREMEDIATION PROGRAM 4,955.85

Invoice Summaries

Total Current Amount :	4,955.85
Retention Amount :	0.00
Pre-Tax Amount :	4,955.85
Tax Amount :	0.00
Total Invoice Amount :	4,955.85

PO 78165

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billings	4,955.85	366,399.53	371,355.38	382,678.59	11,323.21
Tax	0.00	0.00	0.00		

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billing Total :	4,955.85	366,399.53	371,355.38		

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	27-AUG-22 - 02-SEP-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708666
Draft Number	:	119

Project	Task	Type	SAT 27-AUG	SUN 28-AUG	MON 29-AUG	TUE 30-AUG	WED 31-AUG	THUR 01-SEP	FRI 02-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00
		Total :	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	29-OCT-22 - 04-NOV-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	706866
Draft Number	:	119

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	29-OCT	30-OCT	31-OCT	01-NOV	02-NOV	03-NOV	04-NOV	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	10-SEP-22 - 16-SEP-22
Organization	:	41.ACM.USWES1.5803
Assignment Category	:	P - PT Fixed - 30 Hrs
Employee Category	:	Exempt
Employee Name	:	Kirkwood, Gemma
Employee Number	:	648442
Draft Number	:	119

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	10-SEP	11-SEP	12-SEP	13-SEP	14-SEP	15-SEP	16-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	1.25	0.25	2.50	0.00	4.00
		Total :	0.00	0.00	0.00	1.25	0.25	2.50	0.00	4.00

Kirkwood, Gemma
Employee Signature

Approver For Employee Signature

Kebel, Julie A
Approver Signature

Total Regular Hours:	4.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	17-SEP-22 - 23-SEP-22
Organization	:	41.ACM.USWES1.5803
Assignment Category	:	P - PT Fixed - 30 Hrs
Employee Category	:	Exempt
Employee Name	:	Kirkwood, Gemma
Employee Number	:	648442
Draft Number	:	119

Project	Task	Type	SAT 17-SEP	SUN 18-SEP	MON 19-SEP	TUE 20-SEP	WED 21-SEP	THUR 22-SEP	FRI 23-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	2.50	0.00	0.00	0.00	0.00	2.50
		Total :	0.00	0.00	2.50	0.00	0.00	0.00	0.00	2.50

Kirkwood, Gemma
Employee Signature

Approver For Employee Signature

Kebel, Julie A
Approver Signature

Total Regular Hours:	2.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	13-AUG-22 - 19-AUG-22
Organization	:	41.ACM.USWES1.5803
Assignment Category	:	V - PT Variable
Employee Category	:	Non Exempt
Employee Name	:	McCabe, Mark M
Employee Number	:	648678
Draft Number	:	119

Project	Task	Type	SAT 13-AUG	SUN 14-AUG	MON 15-AUG	TUE 16-AUG	WED 17-AUG	THUR 18-AUG	FRI 19-AUG	Total
60139734 UNITIL ROCHESTER PHYTO	1400 2021 Phyto	Regular Hrs	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00
		Total :	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00

McCabe, Mark M
Employee Signature

Approver For Employee Signature

Humphries, William P (Will)
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	27-AUG-22 - 02-SEP-22
Organization	:	41.ACM.USWES1.5803
Assignment Category	:	V - PT Variable
Employee Category	:	Non Exempt
Employee Name	:	McCabe, Mark M
Employee Number	:	648678
Draft Number	:	119

Project	Task	Type		SAT 27-AUG	SUN 28-AUG	MON 29-AUG	TUE 30-AUG	WED 31-AUG	THUR 01-SEP	FRI 02-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00
			Total :	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00

McCabe, Mark M
Employee Signature

Approver For Employee Signature

Humphries, William P (Will)
Approver Signature

Total Regular Hours:	4.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	27-AUG-22 - 02-SEP-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	119

Project	Task	Type		SAT 27-AUG	SUN 28-AUG	MON 29-AUG	TUE 30-AUG	WED 31-AUG	THUR 01-SEP	FRI 02-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.50	0.00	0.00	1.50	2.00
			Total :	0.00	0.00	0.00	0.50	0.00	0.00	1.50	2.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	17-SEP-22 - 23-SEP-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	119

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	17-SEP	18-SEP	19-SEP	20-SEP	21-SEP	22-SEP	23-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00
		Total :	0.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	24-SEP-22 - 30-SEP-22
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	119

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	24-SEP	25-SEP	26-SEP	27-SEP	28-SEP	29-SEP	30-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	01-OCT-22 - 07-OCT-22
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	119

Project	Task	Type		SAT 01-OCT	SUN 02-OCT	MON 03-OCT	TUE 04-OCT	WED 05-OCT	THUR 06-OCT	FRI 07-OCT	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
			Total :	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	29-OCT-22 - 04-NOV-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	119

Project	Task	Type	SAT 29-OCT	SUN 30-OCT	MON 31-OCT	TUE 01-NOV	WED 02-NOV	THUR 03-NOV	FRI 04-NOV	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.50	0.00	0.50	1.00
		Total :	0.00	0.00	0.00	0.00	0.50	0.00	0.50	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	10-SEP-22 - 16-SEP-22
Organization	:	41.ACM.USWES1.F457
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Millard, Joshua C (Josh)
Employee Number	:	648692
Draft Number	:	119

Project	Task	Type		SAT 10-SEP	SUN 11-SEP	MON 12-SEP	TUE 13-SEP	WED 14-SEP	THUR 15-SEP	FRI 16-SEP	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	1.00	0.50	0.00	1.50
			Total :	0.00	0.00	0.00	0.00	1.00	0.50	0.00	1.50

Millard, Joshua C (Josh)
Employee Signature

Approver For Employee Signature

Colon, Michelle G (Michelle)
Approver Signature

Total Regular Hours:	1.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Expense Report EXP8596823

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	26-JUL-22 - 27-JUL-22
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	13-OCT-2022
Report Currency	USD
Project	60139734
Task	1500
Draft Number	119

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
26-JUL-2022	Field Supplies	5.99	USD	5.99	CHARLES STREET SUPPLY	copy of keys for brockton	41.ACM.US_ME.7965
27-JUL-2022	Miscellaneous - Allowable	19.91	USD	19.91	MY CIELO TAQUERIA	lunch during july rochester inspection	41.ACM.US_ME.7965
			Total:	25.90			

Charles Street Supply Co.
54 Charles Street
Boston, MA 02114
(617) 367-9046

Cash Customer
#5

Transaction Type: Sale
Transaction: 37048
Date Sold: July 26, 2022
Time: 06:30 PM
Clerk: jgurnon

14-Locks And Keys
Key You Pay $5.64
K1 Qty 2EA
Retail Price $2.82 EA

Subtotal:	$5.64
Tax:	$0.35
Total Amount:	$5.99
Payment Card VI 2023:	$5.99

Thank you for shopping local!

Number of Items: 2

ARD#: XXXXXXXXXXXX2023
********6886
***4729
: 012572 AMT: $5.99
: Sale
orizing Network: Visa
y Method: Chip Read
A0000000031010
0080008000
E800
: Issuer
5E0300
: HUNT/AUDREY
Card USD $5.99

Charles Street Supply Co.
54 Charles Street
Boston, MA 02114
(617) 367-9046

Cash Customer
#5

Transaction Type: Sale
Transaction: 37047
Date Sold: July 26, 2022
Time: 06:30 PM
Clerk: jgurnon

14-Locks And Keys
Key You Pay $5.64
K1 Qty 2EA
Retail Price $2.82 EA

Subtotal:	$5.64
Tax:	$0.35
Total Amount:	$5.99
Payment Card VI 2023:	$5.99

Thank you for shopping local!

Number of Items: 2

BK CARD#: XXXXXXXXXXXX2023
MID: ********6886
TID: ***4729
AUTH: 068373 AMT: $5.99
TYPE: Sale
Authorizing Network: Visa
Entry Method: Chip Read
AID: A0000000031010
TVR: 0080008000
TSI: E800
MODE: Issuer
CVM: 5E0300
Name: HUNT/AUDREY
Bank Card USD $5.99

My Cielo Taqueria
667 COLUMBUS AVE
ROCHESTER, NH 038673495
6032637769

To Go
Audrey

Cashier: Abigail
27-Jul-2022 2:17:44P

Transaction 200008

1	To Go	$0.50
1	Burrito	$12.99
	Chicken	$0.00
	No Sour Cream	$0.00
	Add Guacamole	$2.50
	NO DAIRY	

Subtotal		$15.99
Sales Tax	8.5%	$1.22
Total		$17.31
Tip		$2.60
CREDIT CARD SALE		$19.91

VISA 2023

27-Jul-2022 2:19:44P
$19.91 | Method: EMV
VISA CREDIT XXXXXXXXXXXX2023
AUDREY HUNT
Reference ID: 220800536767 | Auth ID:
027197
MID: *********1448
AID: A0000000031010
SIGNATURE_VERIFIED

Get 16 points towards perks

when you text this code to 73752.

rift riffs raps

Expires 09/26/2022

AECOM Expense Report EXP8531564

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	18-AUG-22 - 02-SEP-22
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	06-SEP-2022
Report Currency	USD
Project	60139734
Task	1600
Draft Number	119

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Mileage Expense

Start Date	End Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Trip Distance	Mileage Rate	Justification	Expenditure Organization
01-SEP-2022	01-SEP-2022	Mileage	93.75	USD	93.75	150	.625	Rochester phyto inspection	41.ACM.US_ME.7965

Total: 93.75

≡ 14 | Logged In As KRISHNANV

Payments Search   Search Expense Reports | **Expense Report**

Details for Line 15

Back   Step 15 of 16   Next   Return

Expense Type TRA-Mileage
Start Date 01-Sep-2022
End Date 01-Sep-2022
Number Of Days 1
Trip Distance 150 Miles
Vehicle Type Car
Distance Rate 0.625
Reimbursable Amount 93.75 USD

Justification Rochester phyto inspection
☐ Original Receipt Missing
Attachments +

Additional Information

Country
City
Reference Number
Location From Boston, MA
Location To Rochester, NH
License Plate Number
Expense Group

Privacy Statement

Confirmation

Expense report number EXP8552010 was previously submitted for approval.

Expense Report EXP8552010

Submission Instructions

PROCESS CHANGE: Please read carefully.
To complete the expense report submission process, you must:
**Create electronic file(s) for all itemized receipts and documentation. Be sure to include AMEX corporate card receipts
**Click the Submit Receipts link below to open the webpage to submit your documentation. Attach electronic file(s) and send per the instructions on the webpage.
**DO NOT mail anything into AP. You are responsible for maintaining your original documentation.

Once receipts are submitted, your expense report will be audited and then your manager (or specified approver) will be notified that their approval is needed for the expense report. Upon their approval, you will receive email notification. The expense report will be processed and paid only after this approval has taken place, and the receipt documentation has been received and reviewed by Accounts Payable.

If your manager does not take action within 7 days, the expense report will be escalated to their manager for approval. To check report status, or view the current approver for your expense report, please visit the Track Submitted Expense Reports section under your Expenses Homepage.

Submit Receipts

General Information

Employee Name	Hurt, Audrey Claire (708888)	Original Receipts Status	Received
Expense Dates	17-AUG-2022 - 12-SEP-2022	Report Submit Date	14-SEP-2022
Cost Center (DEPT)	7065	Report Total	282.54 USD
Detailed Business Purpose	PCard Expenses	Reimbursement Amount	0.00 USD

MarkView Attachments

MarkView	Type	Description	Category	Last Updated By	Last Updated	Delete
	Expense Report Receipts	EXP8552010	MarkView Document	MVIMAGE	14-Sep-2022	

AECOM TECH CORP
Signature
I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and are in accordance with AECOM travel & expense policies.

Expense Lines | Expense Allocations | Weekly Summary | Approval Notes [2] | Approvers

Project Allocations

Expand All | Collapse All

Focus Line	Payment Method	Date	Expense Type	Receipt Amount	Reimbursable Amount (USD)	Merchant	Location	Justification	Project	Task	Project Expenditure Organization
All					282.54						
1	Credit Card	17-Aug-2022	MISC-Field Supplies	212.45 USD	212.45	BCY BACKCOUNTRY.COM		chest waders needed for habitat surveys	60688450	180b	41.ACM.US_ME.7065
2	Credit Card	29-Aug-2022	MISC-Miscellaneous - Allowable	17.62 USD	17.62	TST LAS OLAS - EXETER		Exeter GW sampling lunch	60138733 UNITIL EXETER GW	4010	41.ACM.US_ME.7065

Ap

AECOM

Check Payment to:	ACH Payment to:	Wire Transfer Payment to:
AECOM Inc.	AECOM Inc.	AECOM Inc.
An AECOM Company	An AECOM Company	An AECOM Company
1178 Paysphere Circle	Bank of America	Bank of America
Chicago, IL 60674	Account Number 5800937020	New York, NY 10001
	ABA Number 071000039	Account Number 5800937020
		ABA Number 026009593
		SWIFT CODE BOFAUS3N

250 Apollo Drive, Chelmsford, MA 01824
Tel: 978-905-2100
Fax:978-905-2101

Federal Tax ID No. 06-0852759

ATTN : MURPHY THOMAS
UNITIL SERVICES CORPORATON
6 LIBERTY LANE W
HAMPTON, NH 03842
United States

RECEIVED JAN 11, 2023

Invoice Date: 05-JAN-23
Invoice Number: 2000708173

Agreement Number: EM13046004
Agreement Description: TAR 01/12/21

Payment Term: 30 DAYS

Please reference Invoice Number and Project Number with Remittance

Project Number : 60139734
Bill Through Date : 05-NOV-22 - 23-DEC-22

Project Name : UNITIL PHYTOREMEDIATION PROGRAM

Task Number : 1500

Task Name : 2022 GW Supp Install

Labor Bill Rate

Employee Name/Title	Title/Expenditure	Date	Hours	Bill Rate	Billed Amt
McCarthy, Ryan S	P18	11-NOV-22	0.50	175.10	87.55
McCarthy, Ryan S	P18	02-DEC-22	1.00	175.10	175.10
McCarthy, Ryan S	P18	09-DEC-22	0.50	175.10	87.55
McCarthy, Ryan S	P18	16-DEC-22	0.50	175.10	87.55
Total Labor Bill Rate			2.50		437.75

Reimbursable

Expenditure Type	Employee/Vendor Name	Date	Inv Number	Raw Cost	Multiplier	Billed Amt
Miscellaneous - Allowable	Hunt, Audrey Clarke	04-NOV-22	EXP8657088	17.31	1.0500	18.18
Outside Contractors	Hunt, Audrey Clarke	13-DEC-22	EXP8736051	239.00	1.0500	250.95
Rent - Other	Cleary, Maryanne V	02-JUN-22	EXP8439287	31.88	1.0800	34.43
Total Reimbursable				288.19		303.56

Task Total : 2022 GW Supp Install 741.31

RECEIVED
JAN 11 2023
Accounts Payable

Project Total : UNITIL PHYTOREMEDIATION PROGRAM 741.31

Invoice Summaries

Total Current Amount :	741.31
Retention Amount :	0.00
Pre-Tax Amount :	741.31
Tax Amount :	0.00
Total Invoice Amount :	741.31

CML

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billings	741.31	371,355.38	372,096.69	382,678.59	10,581.90
Tax	0.00	0.00	0.00		
Billing Total :	741.31	371,355.38	372,096.69		

PO 78165 30 40 00 00 182 29 00

Table 1 Invoice Summary
2022 Phytoremediation Program
November-December 2022 Billing Period

Task		Authorized Budget	Previously Invoiced	Current Invoice	Total Invoiced	Remaining Budget
1500	Continued Groundwater Suppression Installation Activities 2022	$ 22,600.00	$ 16,793.03	$ 741.31	$ 17,534.34	$ 5,065.66
Total		$22,600.00	$16,793.03	$741.31	$17,534.34	$5,065.66

2022 Phyto Funding $22,600

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	05-NOV-22 - 11-NOV-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	120

Project	Task	Type	SAT 05-NOV	SUN 06-NOV	MON 07-NOV	TUE 08-NOV	WED 09-NOV	THUR 10-NOV	FRI 11-NOV	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	26-NOV-22 - 02-DEC-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	120

				SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type		26-NOV	27-NOV	28-NOV	29-NOV	30-NOV	01-DEC	02-DEC	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs		0.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00
			Total :	0.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	03-DEC-22 - 09-DEC-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	120

Project	Task	Type	SAT 03-DEC	SUN 04-DEC	MON 05-DEC	TUE 06-DEC	WED 07-DEC	THUR 08-DEC	FRI 09-DEC	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	10-DEC-22 - 16-DEC-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	848137
Draft Number	:	120

Project	Task	Type	SAT 10-DEC	SUN 11-DEC	MON 12-DEC	TUE 13-DEC	WED 14-DEC	THUR 15-DEC	FRI 16-DEC	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Regular Hrs	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50
		Total :	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Expense Report EXP8657088

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	04-NOV-22 - 04-NOV-22
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	15-NOV-2022
Report Currency	USD
Project	60139734
Task	1500
Draft Number	120

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
04-NOV-2022	Miscellaneous - Allowable	17.31	USD	17.31	MY CIELO TAQUERIA	Rochester site inspection lunch	41.ACM.US_ME.7965
			Total:	17.31			

My Cielo Taqueria
667 COLUMBUS AVE
ROCHESTER, NH 038673495
6032637769

To Go
Adry NO SALSA NEEDED
Cashier: Vini
04-Nov-2022 11:20:05A
Transaction 200000

1	To Go	$0.50
1	Burrito	$12.99
		Chicken $0.00
		No Sour Cream $0.00
		Add Guacamole $2.50
		no sour cream and no cheese

Subtotal		$15.99
Sales Tax	8.5%	$1.32
Total		$17.31
CREDIT CARD SALE VISA 4647		$17.31

Retain this copy for statement validation

04-Nov-2022 11:21:12A
$17.31 | Method: EMV
VISA CREDIT XXXXXXXXXXXX4647
AUDREY HUNT
Reference ID: 230800629808 | Auth ID:
013491
MID: ***********1448
AID: A0000000031010
SIGNATURE_VERIFIED

THANK YOU, SEE YOU SOON!❤

Order A6SYX5R9ENAFR
Payment KB89XY1C31HBW

Clover Privacy Policy
https://clover.com/privacy

AECOM Expense Report EXP8738051

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	13-DEC-22 - 13-DEC-22
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	22-DEC-2022
Report Currency	USD
Project	60139734
Task	1500
Draft Number	120

ACM Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
13-DEC-2022	Outside Contractors	239.00	USD	239.00	A-D ARCHAMBAULT PLUMBING	A-D Archembault Plumbing disassembled backflow preventer & winterized shed for shut down of Rochester Unitil site for the winter.	41.ACM.US_ME.7965

Total: 239.00

From: ClearentGateway@clearent.com
Sent: Tuesday, December 13, 2022 10:56 AM
To: Hunt, Audrey
Subject: Your receipt from A-D Archambault Plumbing & Heating Inc

This Message Is From an External Sender
This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Report Suspicious

Here is your receipt from A-D Archambault Plumbing & Heating Inc.

A-D Archambault Plumbing & Heating Inc

603-335-1800

Terminal:	A-D Archambault Plumbing & Heating Inc
Transaction ID:	321927664
Transaction Date:	12/13/2022 10:54 AM (EST)
Transaction Type:	SALE, APPROVED
Card Number:	**** **** **** 4647
Card Type:	VISA
AUTH:	099840
Entry Mode:	Manual Entry
MID:	********5954
TID:	55275823
Invoice:	5056
Order ID:	321927664
Comments:	Winterize Backflow / 32 Gonic Road, Rochester, NH
Amount:	239.00 USD
Total:	239.00 USD

AECOM Expense Report EXP8439287

AECOM

Employee Name	Cleary, Maryanne V
Expense Date Range	02-JUN-22 - 02-JUN-22
Cost Center	5803
Approver	Roberts, Lauren L
Report Submit Date	22-NOV-2022
Report Currency	USD
Project	60139734
Task	1500
Draft Number	120

ACM Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
02-JUN-2022	Rent - Other	31.88	USD	31.88	PALMS ENVIRONMENTAL	equipment rental invoice #40207	41.ACM.US_ME.7965
			Total:	31.88			

PAID
06/02/2022

INVOICE

DATE	INVOICE #
12/3/2020	36406

BILL TO:
AECOM
PO Box 5604
Glen Allen, VA 23058-5604

SHIP TO:
Customer P/U
Attn: Alek Marinkovic
Cell 857-205-7465
aleksandar.marinkovic@urs.com

P.O. NUMBER	TERMS	SHIP DATE	SHIP VIA	PROJECT #	JOB NAME
	Net 30	11/25/2020	Cust PU		BPDA

RENTAL DAYS / QTY	DESCRIPTION	COST	EXTENSION
1	Rental charges for Heron Oil/Water, S/N-6277, from 11/25/20 to 11/25/20 at $30.00/ONE RATE DAILY for 1 day.	30.00	30.00T
	Tax Exempt per customer.		
	Sales Tax	6.25%	1.88

TOTAL AMOUNT DUE **$31.88**

PALMS Environmental... working hard EVERYDAY to earn your business!

Thank you for renting with PALMS Environmental, LLC where you will find friendly and personalized service since 1990.

PALMS Environmental, LLC

165A New Boston Street
Woburn, MA 01801

AECOM Imagine it. Delivered.

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

January 3, 2023

AECOM Reference
60139734-Inv. 123

Mr. Thomas Murphy
Unitil Services Corp.
6 Liberty Lane W
Hampton, NH 03842-1720

RECEIVED JAN 11, 2023

Invoice for Activities Related to 2022 Phytoremediation Program
Petrolane/ Northern Utilities, Inc. Site (DES #198712002, Project #432)
32 Gonic Road, Rochester, NH
Period Ending December 23, 2022

Dear Mr. Murphy,

Enclosed for your information is an invoice and Progress Report for professional environmental consulting services related to the 2022 Phytoremediation Program. Elements of the Phytoremediation Program include continued groundwater suppression maintenance and evaluation activities at the former manufactured gas plant located at the above referenced property.

Project Budget Information

This invoice is for $741.31. The total authorized budget for this project for the 2022 calendar year is $22,600. As part of the scope of work, AECOM will perform six limited and two full irrigation events at the Site during the 2022 growing seasons (April – October). AECOM will also perform Site inspections on a bi-monthly basis for the calendar year. This project was originally proposed on a time and materials basis to be billed on a monthly basis.

Work Performed

The following section briefly describes work and charges for this invoicing period for each task:

Task 1500 2022 Continued Groundwater Suppression Evaluation Activities

During this invoicing period, costs incurred were labor and expenses related to November/ December Site activities, as well as a lagging equipment rental charge from the summer. As detailed in Table 1 and the attached invoice, costs associated with these tasks was $741.31.

If you have any questions regarding this invoice, please do not hesitate to call me at 603-770-4945. It has been a pleasure assisting you with this important project, and we look forward to providing additional service in the future.

Yours sincerely,

Ryan McCarthy, MS
Project Manager
AECOM
E: ryan.mccarthy@aecom.com

IMPORTANT REMITTANCE INFORMATION

Please include the AECOM invoice number when sending payment

INVOICE NUMBER: 2000708173
Invoice Date: 05-JAN-23
Invoice Due Date: 04-FEB-23
Amount Due: $741.31 USD
Project Number: 60139734

To process your payment timely and ensure credit is given, please include the AECOM invoice number when sending payment. Including this invoice number will allow AECOM to promptly apply your payment without delay or additional information requests placed upon your organization.

Failure to reference the AECOM invoice number when sending payment may result in delay of your account being credited.

To expedite payment processing, AECOM is asking its clients to submit payments electronically by ACH (Automated Clearing House) if possible.

ACH payments provide an alternative to paper checks, affording you the following advantages:

- Certainty of delivery
- Reduced operating costs through the elimination of paper check mailing

Regards,

AECOM Cash Application Department
CashAppsRemittance@aecom.com

AECOM Imagine it. Delivered.

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

AP

March 28, 2023

AECOM Reference
60139734-Inv. 124

Mr. Thomas Murphy
Unitil Services Corp.
6 Liberty Lane W
Hampton, NH 03842-1720

RECEIVED MAR 30, 2023

Invoice for Activities Related to 2022 Phytoremediation Program
Petrolane/ Northern Utilities, Inc. Site (DES #198712002, Project #432)
32 Gonic Road, Rochester, NH
Period Ending March 24, 2023

Dear Mr. Murphy,

Enclosed for your information is an invoice and Progress Report for professional environmental consulting services related to the 2023 Phytoremediation Program. Elements of the Phytoremediation Program include continued groundwater suppression maintenance and evaluation activities at the former manufactured gas plant located at the above referenced property.

Project Budget Information

This invoice is for $1,362.20. The total authorized budget for this project for the 2023 calendar year is $22,200. As part of the scope of work, AECOM will perform six limited Site inspections on a bi-monthly basis for the calendar year. This project was originally proposed on a time and materials basis to be billed on a monthly basis.

Work Performed

The following section briefly describes work and charges for this invoicing period for each task:

Task 1600 2023 Continued Groundwater Suppression Evaluation Activities

During this invoicing period, costs incurred were labor related to the revision/ updating of the Site-specific Health and Safety Plan (HASP) for the 2023 field season. Additionally, limited field preparation activities also are included. As detailed in Table 1 and the attached invoice, costs associated with these tasks was $1,362.20.

If you have any questions regarding this invoice, please do not hesitate to call me at 603-770-4945. It has been a pleasure assisting you with this important project, and we look forward to providing additional service in the future.

Yours sincerely,

Ryan McCarthy, MS
Project Manager
AECOM
E: ryan.mccarthy@aecom.com

RECEIVED
MAR 30 2023
Accounts Payable

IMPORTANT REMITTANCE INFORMATION

Please include the AECOM invoice number when sending payment

INVOICE NUMBER: 2000738805
Invoice Date: 30-MAR-23
Invoice Due Date: 29-APR-23
Amount Due: $1,362.20 USD
Project Number: 60139734

To process your payment timely and ensure credit is given, please include the AECOM invoice number when sending payment. Including this invoice number will allow AECOM to promptly apply your payment without delay or additional information requests placed upon your organization.

Failure to reference the AECOM invoice number when sending payment may result in delay of your account being credited.

To expedite payment processing, AECOM is asking its clients to submit payments electronically by ACH (Automated Clearing House) if possible.

ACH payments provide an alternative to paper checks, affording you the following advantages:

- Certainty of delivery
- Reduced operating costs through the elimination of paper check mailing

Regards,

AECOM Cash Application Department
CashAppsRemittance@aecom.com

Check Payment to:	ACH Payment to:	Wire Transfer Payment to:
AECOM Inc. An AECOM Company 1178 Paysphere Circle Chicago, IL 60674	AECOM Inc. An AECOM Company Bank of America Account Number 5800937020 ABA Number 071000039	AECOM Inc. An AECOM Company Bank of America New York, NY 10001 Account Number 5800937020 ABA Number 026009593 SWIFT CODE BOFAUS3N

AECOM

250 Apollo Drive, Chelmsford, MA 01824
Tel: 978-905-2100
Fax:978-905-2101

Federal Tax ID No. 06-0852759

ATTN : MURPHY THOMAS
UNITIL SERVICES CORPORATON
6 LIBERTY LANE W
HAMPTON, NH 03842
United States

RECEIVED MAR 30 2023

Invoice Date: 30-MAR-23
Invoice Number: 2000738805

Agreement Number: EM13046004
Agreement Description: TAR 01/12/21

Payment Term: 30 DAYS

Please reference Invoice Number and Project Number with Remittance

Project Number : 60139734
Bill Through Date : 24-DEC-22 - 24-MAR-23

Project Name : UNITIL PHYTOREMEDIATION PROGRAM

Task Number : 1600

Task Name : 2023 GW Supp Inspect

Labor Bill Rate

Employee Name/Title	Title/Expenditure	Date	Hours	Bill Rate	Billed Amt
Hunt, Audrey Clarke	P11	17-FEB-23	2.00	95.28	190.56
Hunt, Audrey Clarke	P11	24-FEB-23	0.50	95.28	47.64
Hunt, Audrey Clarke	P11	10-MAR-23	1.50	95.28	142.92
McCarthy, Ryan S	P18	17-FEB-23	0.50	175.10	87.55
McCarthy, Ryan S	P18	24-FEB-23	2.00	175.10	350.20
McCarthy, Ryan S	P18	17-MAR-23	1.00	175.10	175.10
Meyler, Mary E (Mary)	P11	03-FEB-23	1.00	128.75	128.75
Wray, Dale W (Pete)	P17	17-FEB-23	1.50	159.65	239.48
Total Labor Bill Rate			10.00		1,362.20

Task Total : 2023 GW Supp Inspect 1,362.20

Project Total : UNITIL PHYTOREMEDIATION PROGRAM 1,362.20

Invoice Summaries

Total Current Amount :	1,362.20
Retention Amount :	0.00
Pre-Tax Amount :	1,362.20
Tax Amount :	0.00
Total Invoice Amount :	1,362.20

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billings	1,362.20	372,096.69	373,458.89	402,878.59	29,419.70
Tax	0.00	0.00	0.00		
Billing Total :	1,362.20	372,096.69	373,458.89		

PO 80303 30.40.00.00.182.29.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	11-FEB-23 - 17-FEB-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	121

Project	Task	Type	SAT 11-FEB	SUN 12-FEB	MON 13-FEB	TUE 14-FEB	WED 15-FEB	THUR 16-FEB	FRI 17-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00
		Total :	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	24-DEC-22 - 30-DEC-22
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	121

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	24-DEC	25-DEC	26-DEC	27-DEC	28-DEC	29-DEC	30-DEC	Total
60139734 UNITIL ROCHESTER PHYTO	1500 2022 GW Supp Install	Adj Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50

McCarthy, Ryan S		Tammi, Carl E
Employee Signature	Approver For Employee Signature	Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	04-MAR-23 - 10-MAR-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	121

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	04-MAR	05-MAR	06-MAR	07-MAR	08-MAR	09-MAR	10-MAR	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	1.50	0.00	0.00	1.50
		Total :	0.00	0.00	0.00	0.00	1.50	0.00	0.00	1.50

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	1.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	18-FEB-23 - 24-FEB-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	121

Project	Task	Type	SAT 18-FEB	SUN 19-FEB	MON 20-FEB	TUE 21-FEB	WED 22-FEB	THUR 23-FEB	FRI 24-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50
		Total :	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50

Hunt, Audrey Clarke		Keough Jr, Thomas J
Employee Signature	Approver For Employee Signature	Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	11-FEB-23 - 17-FEB-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	121

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	11-FEB	12-FEB	13-FEB	14-FEB	15-FEB	16-FEB	17-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.50
		Total :	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	18-FEB-23 - 24-FEB-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	121

			SAT	SUN	MON	TUE	WED	THUR	FRI	
Project	Task	Type	18-FEB	19-FEB	20-FEB	21-FEB	22-FEB	23-FEB	24-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	1.00	1.00	2.00
		Total :	0.00	0.00	0.00	0.00	0.00	1.00	1.00	2.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	11-MAR-23 - 17-MAR-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	121

Project	Task	Type	SAT 11-MAR	SUN 12-MAR	MON 13-MAR	TUE 14-MAR	WED 15-MAR	THUR 16-MAR	FRI 17-MAR	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.50	0.00	0.00	0.00	0.50	1.00
		Total :	0.00	0.00	0.50	0.00	0.00	0.00	0.50	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	28-JAN-23 - 03-FEB-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Meyler, Mary E (Mary)
Employee Number	:	647206
Draft Number	:	121

Project	Task	Type		SAT 28-JAN	SUN 29-JAN	MON 30-JAN	TUE 31-JAN	WED 01-FEB	THUR 02-FEB	FRI 03-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs		0.00	0.00	0.00	0.00	0.75	0.25	0.00	1.00
			Total :	0.00	0.00	0.00	0.00	0.75	0.25	0.00	1.00

Meyler, Mary E (Mary)
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	11-FEB-23 - 17-FEB-23
Organization	:	41.ACM.USATL1.1583
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Wray, Dale W (Pete)
Employee Number	:	695026
Draft Number	:	121

Project	Task	Type	SAT 11-FEB	SUN 12-FEB	MON 13-FEB	TUE 14-FEB	WED 15-FEB	THUR 16-FEB	FRI 17-FEB	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	1.50	0.00	0.00	1.50
		Total :	0.00	0.00	0.00	0.00	1.50	0.00	0.00	1.50

Wray, Dale W (Pete)
Employee Signature

Approver For Employee Signature

Indorato, Anthony (Tony)
Approver Signature

Total Regular Hours:	1.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AP

AECOM

Check Payment to:	ACH Payment to:	Wire Transfer Payment to:
AECOM Inc.	AECOM Inc.	AECOM Inc.
An AECOM Company	An AECOM Company	An AECOM Company
1178 Paysphere Circle	Bank of America	Bank of America
Chicago, IL 60674	Account Number 5800937020	New York, NY 10001
	ABA Number 071000039	Account Number 5800937020
		ABA Number 026009593
		SWIFT CODE BOFAUS3N

250 Apollo Drive, Chelmsford, MA 01824
Tel: 978-905-2100
Fax:978-905-2101

Federal Tax ID No. 06-0852759

ATTN : MURPHY THOMAS
UNITIL SERVICES CORPORATON
6 LIBERTY LANE W
HAMPTON, NH 03842
United States

RECEIVED JUN 05 2023

Invoice Date: 01-JUN-23
Invoice Number: 2008761855

Agreement Number: EM13046864
Agreement Description: Conversion - TAR 01/12/21

Payment Term: 30 DAYS

Please reference Invoice Number and Project Number with Remittance

Project Number : 60139734
Bill Through Date : 25-MAR-23 - 26-MAY-23

Project Name : UNITIL PHYTOREMEDIATION PROGRAM

Task Number : 1600

Task Name : 2023 GW Supp Inspect

Labor Bill Rate

Employee Name/Title	Title/Expenditure	Date	Hours	Bill Rate	Billed Amt
Hunt, Audrey Clarke	P11	14-APR-23	8.00	95.28	762.24
Hunt, Audrey Clarke	P11	05-MAY-23	8.00	95.28	762.24
McCarthy, Ryan S	P18	07-APR-23	0.50	175.10	87.55
McCarthy, Ryan S	P18	14-APR-23	2.00	175.10	350.20
McCarthy, Ryan S	P18	05-MAY-23	2.00	175.10	350.20
McCarthy, Ryan S	P18	12-MAY-23	1.00	175.10	175.10
McCarthy, Ryan S	P18	19-MAY-23	1.00	175.10	175.10
McCarthy, Ryan S	P18	26-MAY-23	0.50	175.10	87.55
McKenna, James Walter (Walter)	P08	05-MAY-23	8.00	65.00	520.00
McKenna, James Walter (Walter)	P08	12-MAY-23	1.50	65.00	97.50
Total Labor Bill Rate			32.50		3,367.68

RECEIVED
JUN 05 2023
ACCOUNTS PAYABLE

Reimbursable

Expenditure Type	Employee/Vendor Name	Date	Inv Number	Raw Cost	Multiplier	Billed Amt
Field Supplies	Hunt, Audrey Clarke	26-APR-23	EXP8958997	58.44	1.0500	61.36
Field Supplies	Hunt, Audrey Clarke	12-MAY-23	EXP8966305	58.44	1.0500	61.36
Lunch	Hunt, Audrey Clarke	12-APR-23	EXP8910601	16.78	1.0500	17.62
Lunch	Hunt, Audrey Clarke	04-MAY-23	EXP8946896	36.36	1.0500	38.18
Mileage	Hunt, Audrey Clarke	12-APR-23	EXP8910601	108.08	1.0500	113.48
Mileage	Hunt, Audrey Clarke	04-MAY-23	EXP8946896	110.04	1.0500	115.54
Mileage	McKenna, James Walter (Walter)	04-MAY-23	EXP8953208	98.25	1.0500	103.16
Total Reimbursable				486.39		510.70

Task Total : 2023 GW Supp Inspect 3,878.38

Project Total : UNITIL PHYTOREMEDIATION PROGRAM 3,878.38

Invoice Summaries

Total Current Amount :	3,878.38
Retention Amount :	0.00
Pre-Tax Amount :	3,878.38
Tax Amount :	0.00
Total Invoice Amount :	3,878.38

PO 80303 30.40.00.00.182.29.00

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billings	3,878.38	373,458.89	377,337.27	402,878.59	25,541.32
Tax	0.00	0.00	0.00		

Table 1 Invoice Summary
2022 Phytoremediation Program
Apr - May 2023 Billing Period

Task		Authorized Budget	Previously Invoiced	Current Invoice	Total Invoiced	Remaining Budget
1600	Continued Groundwater Suppression Installation Activities 2023	$ 22,200.00	$ 1,362.20	$ 3,878.38	$ 5,240.58	$ 16,959.42
Total		$22,200.00	$1,362.20	$3,878.38	$5,240.58	$16,959.42

2023 Phyto Funding $22,200

Billing Summaries

Billing Summary	Current	Prior	Total	Limit	Remain
Billing Total :	3,878.38	373,458.89	377,337.27		

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	08-APR-23 - 14-APR-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708866
Draft Number	:	122

Project	Task	Type	SAT 08-APR	SUN 09-APR	MON 10-APR	TUE 11-APR	WED 12-APR	THUR 13-APR	FRI 14-APR	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00
		Total :	0.00	0.00	0.00	0.00	8.00	0.00	0.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	29-APR-23 - 05-MAY-23
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	Hunt, Audrey Clarke
Employee Number	:	708666
Draft Number	:	122

Project	Task	Type	SAT 29-APR	SUN 30-APR	MON 01-MAY	TUE 02-MAY	WED 03-MAY	THUR 04-MAY	FRI 05-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00
		Total :	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00

Hunt, Audrey Clarke
Employee Signature

Approver For Employee Signature

Keough Jr, Thomas J
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	01-APR-23 - 07-APR-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	122

Project	Task	Type	SAT 01-APR	SUN 02-APR	MON 03-APR	TUE 04-APR	WED 05-APR	THUR 06-APR	FRI 07-APR	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	08-APR-23 - 14-APR-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	122

Project	Task	Type	SAT 08-APR	SUN 09-APR	MON 10-APR	TUE 11-APR	WED 12-APR	THUR 13-APR	FRI 14-APR	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.50	0.50	1.00	0.00	0.00	2.00
		Total :	0.00	0.00	0.50	0.50	1.00	0.00	0.00	2.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	29-APR-23 - 05-MAY-23
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	122

Project	Task	Type	SAT 29-APR	SUN 30-APR	MON 01-MAY	TUE 02-MAY	WED 03-MAY	THUR 04-MAY	FRI 05-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.50	1.00	0.50	2.00
		Total :	0.00	0.00	0.00	0.00	0.50	1.00	0.50	2.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	2.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	06-MAY-23 - 12-MAY-23
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	122

Project	Task	Type	SAT 06-MAY	SUN 07-MAY	MON 08-MAY	TUE 09-MAY	WED 10-MAY	THUR 11-MAY	FRI 12-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.50	0.50	0.00	1.00
		Total :	0.00	0.00	0.00	0.00	0.50	0.50	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	13-MAY-23 - 19-MAY-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	648137
Draft Number	:	122

Project	Task	Type	SAT 13-MAY	SUN 14-MAY	MON 15-MAY	TUE 16-MAY	WED 17-MAY	THUR 18-MAY	FRI 19-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
		Total :	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00

McCarthy, Ryan S
Employee Signature

Approver For Employee Signature

Tammi, Carl E
Approver Signature

Total Regular Hours:	1.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	20-MAY-23 - 26-MAY-23
Organization	:	41.ACM.US_ME.7985
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McCarthy, Ryan S
Employee Number	:	848137
Draft Number	:	122

Project	Task	Type	SAT 20-MAY	SUN 21-MAY	MON 22-MAY	TUE 23-MAY	WED 24-MAY	THUR 25-MAY	FRI 26-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50

McCarthy, Ryan S

Employee Signature

Approver For Employee Signature

Tammi, Carl E

Approver Signature

Total Regular Hours:	0.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	29-APR-23 - 05-MAY-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McKenna, James Walter (Walter)
Employee Number	:	721461
Draft Number	:	122

Project	Task	Type	SAT 29-APR	SUN 30-APR	MON 01-MAY	TUE 02-MAY	WED 03-MAY	THUR 04-MAY	FRI 05-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00
		Total :	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00

McKenna, James Walter (Walter)
Employee Signature

Approver For Employee Signature

McCarthy, Ryan S
Approver Signature

Total Regular Hours:	8.00
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Technology Corporation
Employee Timesheet

Timecard Period	:	06-MAY-23 - 12-MAY-23
Organization	:	41.ACM.US_ME.7965
Assignment Category	:	A - Full Time
Employee Category	:	Exempt
Employee Name	:	McKenna, James Walter (Walter)
Employee Number	:	721461
Draft Number	:	122

Project	Task	Type	SAT 06-MAY	SUN 07-MAY	MON 08-MAY	TUE 09-MAY	WED 10-MAY	THUR 11-MAY	FRI 12-MAY	Total
60139734 UNITIL ROCHESTER PHYTO	1600 2023 GW Supp Inspect	Regular Hrs	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
		Total :	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50

McKenna, James Walter (Walter)
Employee Signature

Approver For Employee Signature

McCarthy, Ryan S
Approver Signature

Total Regular Hours:	1.50
Total Overtime Hours:	0.00
Total Non-Worked Hours:	0.00

AECOM Expense Report EXP8958997

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	26-APR-23 - 26-APR-23
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	12-MAY-2023
Report Currency	USD
Project	60139734
Task	1600
Draft Number	122

ACM Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
26-APR-2023	Field Supplies	58.44	USD	58.44	PALMS ENVIRONMENTAL	oil/water levels for Rochester gauging event	41.ACM.US_ME.7965
			Total:	58.44			

PALMS
Environmental & Safety
Rentals ○ Sales ○ Service

INVOICE

DATE	INVOICE #
4/19/2023	42761

BILL TO:
AECOM P.O. Box 5604 Glen Allen, VA 23058-5604

SHIP TO:
Customer P/U Attn: Audrey Hunt Chelmsford MA Office

P.O. NUMBER	TERMS	SHIP DATE
60139734	Net 30	4/12/2023

SHIP VIA	PROJECT #	JOB NAME
Cust PU		

RENTAL DAYS / QTY	DESCRIPTION	COST	EXTENSION
1	Rental charges for Solinst Water Level, S/N-502495 MICRO, from 4/12/23 to 4/12/23 at $25.00/ONE RATE DAILY for 1 day.	25.00	25.00T
	Sales Tax	6.25%	1.56

PALMS ENVIRONMENTAL
165A NEW BOSTON ST
WOBURN, MA 01801
CREDIT CARD
VISA SALE
SALE AMOUNT $58.44
CUSTOMER COPY

TOTAL AMOUNT DUE $26.56

PALMS Environmental... working hard EVERYDAY to earn your business!

Thank you for renting with PALMS Environmental, LLC where you will find friendly and personalized service since 1998.

PALMS Environmental, LLC
165A New Boston Street
Woburn, MA 01801
781-944-4769 / palmsenv@yahoo.com

INVOICE

DATE	INVOICE #
6/28/2022	40667

BILL TO:
AECOM PO Box 5604 Glen Allen, VA 23058-5604

SHIP TO:
Customer P/U Attn: Audrey Hunt Chelmsford MA Office

P.O. NUMBER	TERMS	SHIP DATE	SHIP VIA	PROJECT #	JOB NAME
60139734	Net 30	6/24/2022	Cust PU		

RENTAL DAYS / QTY	DESCRIPTION	COST	EXTENSION
1	Rental charges for Heron Oil/Water, S/N-6276, from 6/24/22 to 6/24/22 at $30.00/ONE RATE DAILY for 1 day.	30.00	30.00T
	Sales Tax	6.25%	1.88

TOTAL AMOUNT DUE **$31.88**

PALMS Environmental... working hard EVERYDAY to earn your business!

Thank you for renting with PALMS Environmental, LLC where you will find friendly and personalized service since 1999.

PALMS Environmental, LLC

165A New Boston Street
Woburn, MA 01801
781-944-4709 / palmsenv@yahoo.com

AECOM Expense Report EXP8966305

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	12-MAY-23 - 12-MAY-23
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	17-MAY-2023
Report Currency	USD
Project	60139734
Task	1600
Draft Number	122

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
12-MAY-2023	Field Supplies	58.44	USD	58.44	PALMS ENVIRONMENTAL	Rochester water level meters	41.ACM.US_ME.7965
			Total:	58.44			

INVOICE

DATE	INVOICE #
5/10/2023	42953

BILL TO:
AECOM
PO Box 5604
Glen Allen, VA 23058-5604

SHIP TO:
Customer P/U
Attn: Audrey Hunt
Chelmsford MA Office

P.O. NUMBER	TERMS	SHIP DATE	SHIP VIA	PROJECT #	JOB NAME
60139734	Net 30	5/4/2023	Cust PU		

RENTAL DAYS / QTY	DESCRIPTION	COST	EXTENSION
1	Rental charges for Solinst Water Level, S/N-529297, MICRO, from 5/4/23 to 5/4/23 at $25.00/ONE RATE DAILY for 1 day.	25.00	25.00T
1	Rental charges for Heron Oil/Water, S/N-7063, from 5/4/23 to 5/4/23 at $30.00/ONE RATE DAILY for 1 day.	30.00	30.00T
	Sales Tax	6.25%	3.44

PALMS ENVIRONMENTAL
165A NEW BOSTON ST
WOBURN, MA 01801
05/12/2023 08:55:16
CREDIT CARD
VISA SALE
Card # XXXXXXXXXXXX4617
SEQ #: 1
Batch #: 594
INVOICE 1
Approval Code: 013425
Entry Method: Manual
Mode: Online
Tax Amount: $3.44
Cust Code: 002
Avs Code: NNN
SALE AMOUNT $58.44
CUSTOMER COPY

TOTAL AMOUNT DUE $58.44

PALMS Environmental... working hard EVERYDAY to earn your business!

Thank you for renting with PALMS Environmental, LLC where you will find friendly and personalized service since 1999.

PALMS Environmental, LLC

165A New Boston Street
Woburn, MA 01801
781-944-4709 / palmsenv@yahoo.com

AECOM Expense Report EXP8910801

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	11-APR-23 - 13-APR-23
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	13-APR-2023
Report Currency	USD
Project	60139734
Task	1600
Draft Number	122

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
12-APR-2023	Lunch	16.78	USD	16.78		Rochester phyto inspection - lunch	41.ACM.US_ME.7965

Mileage Expense

Start Date	End Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Trip Distance	Mileage Rate	Justification	Expenditure Organization
12-APR-2023	12-APR-2023	Mileage	108.08	USD	108.08	165	.655	April phyto inspection	41.ACM.US_ME.7965

Total: 124.86

My Cielo Taqueria
66/ COLUMBUS AVE
ROCHESTER, NH 038673495
6032637769

To Go
Audrey

Cashier: Chapparrito
12-Apr-2023 12:30:08P

Transaction 288883

1	To Go	$0.50
1	Burrito Bowl	$12.99
	Chicken	$0.00
	No Cheese	$0.00
	No Sour Cream	$0.00
Subtotal		$13.49
Sales Tax	8.5%	$1.10
Total		$14.59
Tip		$2.19
CREDIT CARD SALE VISA 6643		$16.78

Retain this copy for statement validation

12-Apr-2023 12:31:08P
$16.78 | Method: EMV
VISA CREDIT XXXXXXXXXXXX6643
AUDREY C HUNT
Reference ID: 310200760096 | Auth ID: 112113
MID: ************1448
AID: A0000000031010
SIGNATURE_VERIFIED

THANK YOU, SEE YOU SOON!

Get 14 points towards perks

when you text this code to 73752:

cows flew ridge

Expires 05/07/2023

How are we doing?
Text "ljk6jk" to 73752
to send us your feedback

Clover ID: FSF02VNBP3EQ2
Payment HKYV11GD0E8AY

Clover Privacy Policy
https://clover.com/privacy

AECOM Expense Report EXP8946896

AECOM

Employee Name	Hunt, Audrey Clarke
Expense Date Range	02-MAY-23 - 11-MAY-23
Cost Center	7965
Approver	Keough Jr, Thomas J
Report Submit Date	12-MAY-2023
Report Currency	USD
Project	60139734
Task	1600
Draft Number	122

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Supplier Expenses

Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Merchant	Justification	Expenditure Organization
04-MAY-2023	Lunch	36.36	USD	36.36	MY CIELO TAQUERIA	Walter McKenna and my lunch during Rochester field work.	41.ACM.US_ME.7965

Mileage Expense

Start Date	End Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Trip Distance	Mileage Rate	Justification	Expenditure Organization
04-MAY-2023	04-MAY-2023	Mileage	110.04	USD	110.04	168	.655	Rochester May inspection and gauging. Stop at Palms env in Woburn for equipment pick up and drop off.	41.ACM.US_ME.7965

Total: 146.40

My Cielo Taqueria
[illegible] COLUMBUS AVE
ROCHESTER, NH [illegible]
[illegible]

ORDER: 7 - Main Dining Room
Dine In

Cashier: [illegible]
04-May-2023 11:[illegible] AM

Transaction [illegible]

1	Burrito Bowl	$12.[illegible]
		Chicken $0.00
		No Cheese $0.00
		No Sour Cream $0.00
1	Burrito Bowl	$12.[illegible]
		Chicken $0.00
1	Sprite	$2.00
Subtotal	4	$27.[illegible]
Total Taxes		$[illegible]
Total		$30.[illegible]
CREDIT CARD AUTH		$30.[illegible]
MASTERCARD [illegible]		
Tip		6.00
Total		36.36

AUDREY HUNT

I agree to pay the above amount per the cardholder and/or merchant agreement

Tip	Amount	Total
15%	$4.54	$[illegible]
20%	$6.07	$[illegible]
25%	$7.59	$[illegible]
30%	$[illegible].11	$[illegible]

04-May-2023 12:[illegible] PM
$30.[illegible] | Method: EMV
Mastercard XXXXXXXXXXXX[illegible]
AUDREY HUNT
Reference ID: [illegible] | Auth ID:
[illegible]
MID: [illegible]
AID: [illegible]
SIGNATURE VERIFIED

THANK YOU, SEE YOU SOON!

How are we doing?
Text "[illegible]" to [illegible]
to send us your feedback

AECOM Expense Report EXP8953208

AECOM

Employee Name	McKenna, James Walter (Walter)
Expense Date Range	04-MAY-23 - 04-MAY-23
Cost Center	7965
Approver	McCarthy, Ryan S
Report Submit Date	09-MAY-2023
Report Currency	USD
Project	60139734
Task	1600
Draft Number	122

ACM
Signature

☑ I certify the claimed business expenses contained herein are bona fide and proper business expenses incurred on behalf of AECOM, and is in accordance with AECOM travel & expense policies.

Mileage Expense

Start Date	End Date	Expense Type	Receipt Amount	Receipt Currency	Reimbursable Amount	Trip Distance	Mileage Rate	Justification	Expenditure Organization
04-MAY-2023	04-MAY-2023	Mileage	98.25	USD	98.25	150	.655	Trip to Rochester Unitil site (roundtrip).	41.ACM.US_ME.7965

Total: 98.25

AECOM Imagine it. Delivered

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

May 31, 2023

AECOM Reference
60139734-Inv. 124

RECEIVED JUN 05 2023

Mr. Thomas Murphy
Unitil Services Corp.
6 Liberty Lane W
Hampton, NH 03842-1720

Invoice for Activities Related to 2022 Phytoremediation Program
Petrolane/ Northern Utilities, Inc. Site (DES #198712002, Project #432)
32 Gonic Road, Rochester, NH
Period Ending May 26, 2023

Dear Mr. Murphy,

Enclosed for your information is an invoice and Progress Report for professional environmental consulting services related to the 2023 Phytoremediation Program. Elements of the Phytoremediation Program include continued groundwater suppression maintenance and evaluation activities at the former manufactured gas plant located at the above referenced property.

Project Budget Information

This invoice is for $3,878.38. The total authorized budget for this project for the 2023 calendar year is $22,200. As part of the scope of work, AECOM will perform six limited Site inspections on a bi-monthly basis for the calendar year. This project was originally proposed on a time and materials basis to be billed on a monthly basis.

Work Performed

The following section briefly describes work and charges for this invoicing period for each task:

Task 1600 2023 Continued Groundwater Suppression Evaluation Activities

During this invoicing period, costs incurred were labor related the April and May site inspections/ well gauging activities. Additionally, limited field expenses are also included. As detailed in Table 1 and the attached invoice, costs associated with these tasks was $3,878.38.

If you have any questions regarding this invoice, please do not hesitate to call me at 603-770-4945. It has been a pleasure assisting you with this important project, and we look forward to providing additional service in the future.

Yours sincerely,

Ryan McCarthy, MS
Project Manager
AECOM
E: ryan.mccarthy@aecom.com

Req 247635

ASPLUNDH

Invoice

Week Ending	Invoice Date	Invoice Number
09/24/2022	09/30/2022	74X60622
Customer #:	**Contract #**	**P.O. #**
025830	10002722	78520

ASPLUNDH TREE EXPERT, LLC
708 BLAIR MILL ROAD
WILLOW GROVE, PA 19090

Crew #: 028401 PRESCOTT,ERIC M
Ref #: 12530826

REMIT TO: P.O. BOX 827464
Philadelphia, PA 19182-7464

BC: 31 DIV: TREE TRIMMING DIVISION
Component #: 2825830 Project # 13947

Req #:
Tracking:
Location:
Control: 65034613

BILL TO: UNITIL ENERGY SYSTEMS INC
CHRIS MOULTROUP
1 MCGUIRE ST
CONCORD, NH 03301-0000

Description	Quantity	Unit	Unit Price	Total
SKID STEER MOWER	50.000	HR	[illegible]	[illegible]
PICKUP	40.000	HR	[illegible]	[illegible]
SPLIT DUMP	10.000	HR	[illegible]	$179.20
FOREMAN - ST	50.000	HR	[illegible]	[illegible]
TRIMMER/GROUNDMAN - ST	90.000	HR	[illegible]	[illegible]
TOTAL UNITS	240.000			$14,315.60

SUBTOTAL $14,315.60

INVOICE COMMENT:
[illegible]

BILL AS STRAIGHT [illegible]

[illegible]

RECEIVED
OCT 20 2022
Accounts Payable

30.40.00.00.182.29.00

Please call Megan Cargill at 877-526-1993 with any billing questions.
EOE-AA: M/F/V/D
Process Date: 9/28/2022 12:30:02PM

Invoice Total **$14,315.60**

Company:	Asplundh Tree Expert, LLC	Customer:	CONCORD ELECTRIC CO	Cust Crew #:		Foreperson:	PRESCOTT,ERIC M	State:	NH
Co. Crew #:	07R401	Customer #:	025530	Type of Crew:	Tree	GF:	TREAMER,JAKE	County:	
Contract #:	2825330 C	Cust. Contact:	CHRIS MOULTROUP	Type of Work:	ATE - TREE TRIMMING	Supervisor:	POWERS JR,PETER	City:	
Type of Billing:	UNIT	1 MCGUIRE ST		P.O. #:	78520	Manager:	GUADAGNO,RALPH	District:	
Project #:	13547	CONCORD NH 03301		Requisition #:		Work Location:			

[illegible]

Timesheet #: 65034613
Week Ending: 09/24/2022
Status: Final

Labor

Last 4	Empl Name	Code	Pay Rate	ST	OT	DT	Sun	Mon	Tue	Wed	Thur	Fri	Sat	Total
3959	ROY, JESSE				10.00			2.00	2.00	2.00	2.00	2.00		10.00
3959	ROY, JESSE			40.00				8.00	8.00	8.00	8.00	8.00		40.00
3612	ROY, JOHN				10.00			2.00	2.00	2.00	2.00	2.00		10.00
3612	ROY, JOHN			40.00				8.00	8.00	5.00	8.00	8.00		40.00
0266	TILLBERG, TYLER			40.00				10.00	10.00	10.00	10.00			40.00
	Total			**120.00**	**20.00**			**30.00**	**30.00**	**30.00**	**30.00**	**20.00**		**140.00**

Equipment

Equip #	Equipment Description	Code	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0387550	RAYCO FM200			10.00	10.00	10.00	10.00	10.00		50.00
1150556	KAUFMAN HDELUXE			10.00						10.00
1307513	RAYCO C200			10.00	10.00	10.00	10.00	10.00		50.00
7236583	FORD F250				10.00	10.00	10.00	10.00		40.00
7341523	FORD F550			10.00						10.00
	Total			**40.00**	**30.00**	**30.00**	**30.00**	**30.00**		**160.00**

Chemicals / Materials

Expenses

Units

Unit Description	Code	UOM	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
SKID STEER MOWER	130	HR		10.0000	10.0000	10.0000	10.0000	10.0000		50.0000
PICKUP	604	HR			10.0000	10.0000	10.0000	10.0000		40.0000
SPLIT DUMP	770	HR		10.0000						10.0000
FOREMAN - ST	5 ST	HR		10.0000	10.0000	10.0000	10.0000	10.0000		50.0000
TRIMMER/GROUNDMAN - ST	1 ST	HR		20.0000	20.0000	20.0000	20.0000	10.0000		90.0000

Activity

Locations

Remarks

CONSTRUCTION

BILL AS STRAIGHT TIME

NON CONSOLIDATED BILLING

Req 247637

ASPLUNDH

Invoice

Week Ending	Invoice Date	Invoice Number
10/01/2022	10/07/2022	75N09822

Customer #:	Contract #	P.O. #
025830	10002722	78520

Crew #: **028401** PRESCOTT,ERIC M
Ref #: **12546535**

ASPLUNDH TREE EXPERT, LLC
708 BLAIR MILL ROAD
WILLOW GROVE, PA 19090

REMIT TO: P.O. BOX 827464
Philadelphia, PA 19182-7464

BC: **31** DIV: **TREE TRIMMING DIVISION**
Component #: **2825830** Project # **13947**

Req #:
Tracking:
Location:
Control: **65034629**

BILL TO: **UNITIL ENERGY SYSTEMS INC**
CHRIS MOULTROUP
1 MCGUIRE ST
CONCORD, NH 03301-0000

Description	Quantity	Unit	Unit Price	Total
SKID STEER MOWER	10.000	HR	$168.00	$1,680.00
SPLIT DUMP	10.000	HR	$17.92	$179.20
FOREMAN - ST	10.000	HR	$43.72	$437.20
TRIMMER/GROUNDMAN - ST	20.000	HR	$34.56	$691.20
TOTAL UNITS	50.000			$2,987.60

SUBTOTAL $2,987.60

INVOICE COMMENT:
CONSTRUCTION

BILL AS STRAIGHT TIME

NON CONSOLIDATED BILLING

RECEIVED
OCT 20 2022
Accounts Payable

30.40.00.00.182.29.00

Please call Megan Cargill at 877-526-1993 with any billing questions.
EOE-AA: M/F/V/D
Process Date: 10/4/2022 6:00:02PM

Invoice Total **$2,987.60**

Company:	Asplundh Tree Expert, LLC	Customer:	CONCORD ELECTRIC CO	Cust Crew #:		Foreperson:	PRESCOTT, ERIC M	State:	NH	[illegible]
Co. Crew #:	028401	Customer #:	025830	Type of Crew:	Tree	GF:	TREAMER, JAKE	County:		[illegible]
Contract #:	2825830 C	Cust. Contact:	CHRIS MOULTROUP	Type of Work:	AFE - TREE TRIMMING	Supervisor:	POWERS JR, PETER	City:		Timesheet # 65034629
Type of Billing:	UNIT		1 MCGUIRE ST	P.O. #:	28520	Manager:	GUADAGNO, RALPH	District:		Week Ending: 10/01/2022
Project #:	13947		CONCORD NH 03301	Requisition #:		Work Location:				Status: [illegible]

Labor

Last 4	Empl Name	Code	Pay Rate	ST	OT	DT	Sun	Mon	Tue	Wed	Thur	Fri	Sat	Total
3959	ROY, JESSE			8.00	2.00			10.00						10.00
3612	ROY, JOHN			8.00	2.00			10.00						10.00
0266	TILLBERG, TYLER			8.00	2.00			10.00						10.00
	Total			24.00	6.00			30.00						30.00

Equipment

Equip #	Equipment Description	Code	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0387550	RAYCO FM200			10.00						10.00
1150556	KAUFMAN HDELUXE			10.00						10.00
1307513	RAYCO C200			10.00						10.00
7341523	FORD F650			10.00						10.00
	Total			40.00						40.00

Chemicals / Materials

Expenses

Units

Unit Description	Code	UOM	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
SKID STEER MOWER	130	HR		10.0000						10.0000
SPLIT DUMP	770	HR		10.0000						10.0000
FOREMAN - ST	F-ST	HR		10.0000						10.0000
TRIMMER/GROUNDMAN - ST	T-ST	HR		20.0000						20.0000

Activity

Locations

Remarks

CONSTRUCTION

BILL AS STRAIGHT TIME

NON CONSOLIDATED BILLING

Timesheet #: 65034629 Date Generated: 10/4/2022 9:22:56 AM

Page 1 of 1

City of Rochester
209 Chestnut Hill Rd.
Rochester, NH 03867

WATER & SEWER BILL
Customer Copy
Keep this portion for your records

CUSTOMER NAME	SERVICE LOCATION
NORTHERN UTILITIES INC	770 COLUMBUS

BILL NUMBER	BILL DATE	ACCOUNT #	DUE DATE
14129769	07/22/2022	152340	08/26/2022

CHARGE DESCRIPTION	READ CODE	PREVIOUS READ DATE	CURRENT READ DATE	PREVIOUS READING	CURRENT READING	USAGE	CHARGE AMOUNT
COMM WATER	A	10/04/2021	07/01/2022	178	180	2	$22.14

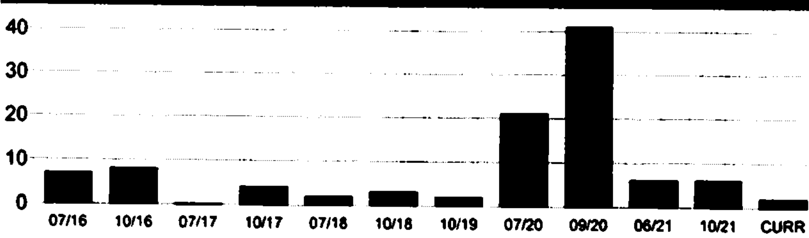
RECEIVED
AUG 02 2022
Accounts Payable

RECEIVED
JUL 27 2022
Accounts Payable

100 CU FT. = 748 Gallons
Rate per 100 cubic feet

Interest accrues daily from the past due date at the rate of 8% interest per annum computed to the payment date.

CONSUMPTION HISTORY



HTTPS://WWW.ROCHESTERNH.NET/SITES/G/FILES/VYHLIF1131/F/UPLOADS/2021_CCR_ROCHESTER_2001010_FINAL-COMBINED_0.PDF

READ CODE		
A = Actual	Total Current Billing	$22.14
E = Estimate	Previous Balance	$30.00
F = Final	Adjustments	$0.00
	Less Payments Received	$30.00
	Total Amount Due	**$22.14**

DETACH AND RETURN THE PORTION BELOW WITH YOUR PAYMENT

Promptly Send Payment To:

City of Rochester
P.O. Box 981096
Boston MA 02298-1096

Please Note Address Change Below:

Name:____________________
Street:____________________
City:____________________
State::________ Zip:________

WATER & SEWER BILL

Remittance Copy
Return this portion with your payment

Account Number:	152340
Bill Number:	14129769
Pay By:	08/26/2022
Total Due:	**22.14**

Service Location
770 COLUMBUS

NORTHERN UTILITIES INC
% UNITIL ACCOUNTS PAYABLE
6 LIBERTY LANE WEST
HAMPTON, NH 03842-1704

Please write your Account Number on your check and enclose this portion of bill with your payment.
Make checks payable to: City of Rochester

92096042023014129769700000022145

City of Rochester

209 Chestnut Hill Rd.
Rochester, NH 03867

WATER & SEWER BILL

Customer Copy
Keep this portion for your records

7 8 5 6 0

CUSTOMER NAME	SERVICE LOCATION
NORTHERN UTILITIES INC	770 COLUMBUS

BILL NUMBER	BILL DATE	ACCOUNT #	DUE DATE
14137796	10/26/2022	152340	11/28/2022

CHARGE DESCRIPTION	READ CODE	PREVIOUS READ DATE	CURRENT READ DATE	PREVIOUS READING	CURRENT READING	USAGE	CHARGE AMOUNT
COMM WATER	A	07/01/2022	10/21/2022	180	185	5	$31.27
TURN OFF			10/25/2022				$30.00

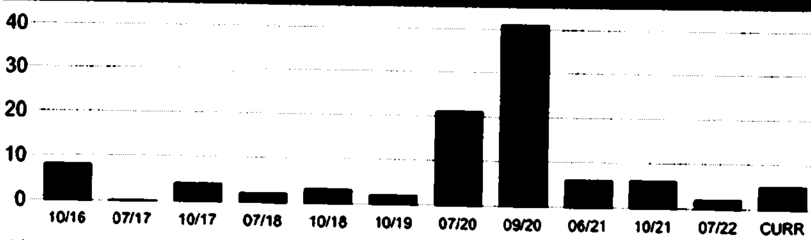
RECEIVED
NOV 8 2022
Accounts Payable

ok [illegible]
11/2/22

100 CU FT. = 748 Gallons
Rate per 100 cubic feet

Interest accrues daily from the past due date at the rate of 8% interest per annum computed to the payment date.

CONSUMPTION HISTORY



READ CODE		
A = Actual	Total Current Billing	$61.27
E = Estimate	Previous Balance	$22.14
F = Final	Adjustments	$0.00
	Less Payments Received	$22.14
	Total Amount Due	$61.27

PAYMENTS ONLINE AT WWW.ROCHESTERNH.GOV
WATER $6.41 PER UNIT, MIN. $24.35; SEWER $8.17 PER UNIT, MIN. $37.74
IN TAX OFFICE PAYMENTS WITH CREDIT CARD=2.79% SURCHARGE

DETACH AND RETURN THE PORTION BELOW WITH YOUR PAYMENT

Promptly Send Payment To:

City of Rochester
P.O. Box 981096
Boston MA 02298-1096

Please Note Address Change Below:

Name:______________________________

Street:______________________________

City:______________________________

State::________ Zip:________

WATER & SEWER BILL

Remittance Copy
Return this portion with your payment

Account Number:	**152340**
Bill Number:	**14137796**
Pay By:	**11/28/2022**
Total Due:	**61.27**

Service Location
770 COLUMBUS

NORTHERN UTILITIES INC
% UNITIL ACCOUNTS PAYABLE
6 LIBERTY LANE WEST
HAMPTON, NH 03842-1704

Please write your Account Number on your check and enclose this portion of bill with your payment.
Make checks payable to: City of Rochester

92096042023014137796000000061275

* Check Request *

INVOICE

AP

Department of Environmental Services
Waste Management Division
Hazardous Waste Remediation Bureau

248146

UNITIL SERVICE CORP.
6 LIBERTY LANE W
HAMPTON NH 03842-1720

Attn: THOMAS MURPHY

RECEIVED OCT 31 2022

Site Name: PETROLANE/NORTHERN UTILITIES SITE
Town: ROCHESTER
DES Site#: 198712002 - 2Q22 ← Line memo
DES Project #: 432

Transactions

Billing Period: 04/01/2022 to 06/30/2022

Description	Amount
Personnel	$136.02
See Attached Cost Recovery Detail	

Make Checks Payable to: Treasurer, State of New Hampshire & forward to:

N.H. Department of Environmental Services
HWRB ← vendor
P.O. Box 95, 29 Hazen Drive
Concord, NH 03302-0095

Please put Site Number 198712002 on the check.

Previous Balance:	**$0.00**
Payments Received From 07/01/2022 To 09/30/2022:	**$0.00**
Adjustments:	**$0.00**
Expenses Incurred From 04/01/2022 To 06/30/2022:	**$136.02**
Current Balance Due:	**$136.02** OK

INVOICE DATE: 10/27/2022

DUE DATE: 12/26/2022

Your invoice may have a credit balance related to fees which are non-refundable. The credit will be applied to off set costs associated with future review and work performed by Department staff.

Questions should be addressed to: Dawn Calley-Murdough
Email: Dawn.E.CalleyMurdough@des.nh.gov Phone: (603) 271-2981

See other side for Terms and Conditions.

accounting: 30.40.00.00.182.29.00
approval: T. Murphy

This invoice provides the addressee the opportunity to settle claims by the Department of Environmental Services ("DES") for costs recovered by the State pursuant to RSA 147-A:9, II and RSA 147-B:10, I, II and III(a), as specified in the invoice. The invoice includes, but is not limited to, all DES staff costs associated with oversight, review or management of any hazardous waste response or remedial action at or for the benefit of the above captioned site for the time period specified. Non staff costs for this time period, such as DES contractor costs which have not yet been billed, may be included in a later invoice. Costs associated with the remediation of petroleum spills are not included in this invoice and are dealt with through a separate program.

To encourage settlement, certain reductions have been made in the costs presented in this invoice, and the amount billed does not reflect all of the costs that could be sought if the State were to file a cost recovery action in Superior Court. Upon receipt of payment in full of the Balance Due or the Reduced Balance within the time specified in the invoice, DES agrees to forego any claims for additional oversight costs during the relevant time period, including claims for interest. If payment of this invoice is not complete, is not received by the date specified or if checks are returned to DES due to insufficient funds, the State will retain its full rights of cost recovery under the statutes specified above and any other applicable law.

Whether or not payment is made under this invoice, the State reserves all of its rights of enforcement and cost recovery with the respect to any claims or costs, whether presently known or unknown, which are not covered specifically by this invoice. As noted in the first paragraph above, all DES staff costs associated with oversight, review, or management of the hazardous waste response at the site during the time period specified in this invoice are specifically covered by this invoice.

Payment of this invoice is in no manner to be considered or construed as an admission of the existence of any liability on the part of any party. DES recognizes that the addressee specifically denies liability, and that the addressee is making payment in order to avoid any controversy or litigation over the specified costs and the extent that such costs may be recoverable by the State pursuant to RSA 147-A:9, II and RSA 147-B:10, I, II and III(a). Payment of this invoice does not constitute the payment of a criminal, civil or administrative penalty or fine.

Cost Recovery Detail

For: 04/01/2022 to 06/30/2022

DES# 198712002

PETROLANE/NORTHERN UTILITIES SITE

Total Cost: **$136.02**

Personnel

Name	*Orgn*	*Trans Date*	*Task / Expense Desc*	*Hours*	*Cost*	*Overhead*	*Total Costs*
JUSTHAM TANYA P	5392	05/06/2022	GENERAL - PERMIT/APPR/LIC/TECH REVIEW	1.50	$51.33	$84.69	$136.02
				Total Costs for Personnel Class:			$136.02

Schedule 3C

REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022 - 2023 Environmental Response Costs
Site 14
Somersworth Gas Works

LINE	VENDOR NAME	INVOICE NO.	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	TOTAL
1	NONE		$ -	$ -	$ -	$ -	$ -
2			$ -	$ -	$ -	$ -	$ -
3	**TOTAL**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022 - 2023 Environmental Response Costs
Dover Gas Works
Cocheco and Portland Streets, Dover, NH

Schedule 3D

LINE	VENDOR NAME	INVOICE NO.	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	TOTAL
1	**None**						$ -
2							$ -
3							$ -
	TOTAL		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Schedule 3E

REMEDIATION ADJUSTMENT CLAUSE COMPLIANCE FILING
2022 - 2023 Environmental Response Costs
Portsmouth Gas Works

LINE	VENDOR NAME	INVOICE NO.	LEGAL EXPENSE	CONSULTING EXPENSE	REMEDIATION EXPENSE	OTHER EXPENSE	TOTAL
1	**None**						$ -
2							$ -
3							$ -
TOTAL			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Schedule 4
Site Narratives

NORTHERN UTILITIES, INC.

EXETER GAS WORKS

LINE
NO. SCHEDULE 4A

1. SITE LOCATION: Water Street and Green Street in Exeter, NH

2. DATE SITE WAS FIRST INVESTIGATED AS A DISPOSAL SITE:
The U.S. Environmental Protection Agency (EPA) conducted a Preliminary Assessment in 1982

3. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES (July 1, 2022 – June 30, 2023):

- Northern continues to retain AECOM to coordinate communications with the Exeter Housing Authority (EHA), Exeter Department of Public Works (DPW), and Philips Exeter Academy (PEA). Although AECOM has also been retained to manage groundwater sampling associated with the Site's Groundwater Monitoring Program (GMP), no remediation-related activities were conducted by AECOM during the reporting time period.

4. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE:

The former Exeter Gas Works continues to progress towards site closure via the NH DES overseen GMP. However, no remediation work was conducted during the reporting time period.

5. NATURE AND SCOPE OF SITE CONTAMINATION:

Areas containing residual materials from the historic operation and decommissioning of the former manufactured gas plant were discovered on small parcels of land on the north and south sides of Water Street. These residuals, which include coal tars and oils, were found in the soil at discrete locations and in underlying groundwater. The objective of the cleanup project, as discussed with the NH DES, has been to stabilize affected soils to the extent practicable and to enhance the natural attenuation of any residuals in groundwater.

Northern prepared a project Completion Report that was submitted to NH DES in January 2002. The Completion report documented that all construction work was completed in accordance with the Remedial Action Plan (RAP) that was submitted to the NH DES in October 2001. The remedy consisted of the in-situ solidification of MGP residuals on the main parcel by auger mixing using a formulation of Portland cement and organophilic clay followed by grading and planting for site closure. The remedy also consisted of the injection of an oxygen release compound (ORC) into the soils and groundwater in the vicinity of the former settling lagoons on Exeter Housing Authority property. Finally, activity and use restrictions were noticed on the affected property deeds.

Subsequent to the completion of the site remediation, MGP residuals were identified in sediments at the mouth of a stormwater outfall discharging into the Squamscott River. The residuals were discharged to the storm sewer system as part of the process activities during the operation of the MGP. The sediment impacts were remediated successfully in 2016 with NH DES required monitoring of the Squamscott River continuing into and eventually terminating in 2017.

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP OF SITE:

The Exeter Gas Works operated from 1864 through 1955. The gas works was owned and operated by several companies during that time, including Exeter Gas Light Company in 1864, Strafford-York Gas Company in 1911, and Allied New Hampshire Gas Company in 1942. Allied New Hampshire Gas Company was a predecessor of Northern Utilities. Northern sold the eastern portion of the property to the Town of Exeter in 1978. In 1981 the eastern portion of the former MGP property was transferred to the EHA. This portion of the site is currently used for elderly housing. The western portion of the former MGP is currently owned by Northern and is a landscaped park, which serves as a cap to the underlying stabilized soil.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS: None

NAME OF SUIT: Not Applicable

DATE FILED: Not Applicable

STATUS (PENDING/SETTLED): Not Applicable

NORTHERN UTILITIES, INC.

ROCHESTER FORMER MGP SITE

LINE
NO

SCHEDULE 4B

1. SITE LOCATION: Route 125 and Spaulding Turnpike, Rochester, NH

2. DATE SITE WAS FIRST INVESTIGATED AS A DISPOSAL SITE:
The property owner of record reported environmental concerns in 1989.

3. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES (July 1, 2022 – June 30, 2023):

- Northern directed AECOM to continue providing environmental consulting services, including remediation design support and groundwater monitoring, for the former manufactured gas plant (MGP). AECOM conducted two sampling events and submitted an annual report to the New Hampshire Department of Environmental Services (NH DES) for review during the reporting period, which summarized the status of groundwater quality monitoring.

- As required by the Rochester Water and Sewer Department, Northern conducted an annual inspection of the Site's backflow prevention device during the reporting time period. Furthermore, domestic water to the Site was shut-off permanently in October 2022 with the suspension of irrigation activities associated with the phytoremediation project.

- Northern directed AECOM to finalize a remedial action plan (RAP) focused proposed remediation activities for the on-Site source materials to the NH DES, as requested by the agency in 2018. This included an evaluation of the usefulness of the phytoremediation project's continued integration with respect to the activities associated with the RAP. AECOM submitted the RAP to the NH DES in December 2022 (See Exhibit 1, Schedule 4B). However, and due to an unprecedented backlog in cases, the NH DES did not anticipate responding to the RAP until the first half of 2024.

- Northern retained Asplundh to conduct selective tree removal and pruning throughout the phytoremediation project. A number of trees associated with the phytoremediation project had reached maturity and displayed signs of disease (boring beetles), and the underbrush had filled in between 2020 and 2022, when pruning was limited due to the COVID pandemic. These activities coincide with the proposed remediation activities in the RAP.

4. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE:

The Rochester former Manufactured Gas Plant is awaiting a decision from the NH DES (on implementing remediation activities detailed in the submitted RAP) and monitor its progress via the groundwater monitoring program (GMP) overseen by the NH DES.

5. NATURE AND SCOPE OF SITE CONTAMINATION:

Areas containing residual materials from the historic operation and decommissioning of the former MGP were discovered on the two-acre parcel. These residuals, which include coal tars and oils, were found in the soil at discrete locations and in the underlying groundwater. The remediation design focused on removing the affected soils to the extent practicable and enhancing the natural attenuation of any residuals in groundwater.

In addition, the remediation design included the removal of a tar well, which had been previously inaccessible because of propane storage equipment, the purchase of a former parcel from AmeriGas to facilitate the placement of notices of Activity and Use Restrictions (AURs) on the deeds, the demolition of an historic structure, the implementation of a multiphase phytoremediation program to mitigate contaminated groundwater flow, and a further assessment of the residuals through a groundwater monitoring program.

The RAP submitted in December 2022 identified three (3), additional areas with source material present either at or near the groundwater zone. The RAP proposed three (3), different methodologies to remediate these areas – (1) in-situ chemical oxidation (ISCO) of contaminated soils, (2) on-Site solidification of contaminated soils, or (3) contaminated soil removal and disposal off-Site. Northern anticipates the NH DES authorizing one of the methodologies by the first half of 2024.

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP OF SITE:

The Rochester Gas Light Company owned and operated the former gas works from 1906 through 1911. The gas works was subsequently owned and operated by two, separate companies after the Rochester Gas Light Company – Strafford-York Gas Company in 1911 and Allied New Hampshire Gas Company in 1942. The plant ceased operating in 1957. Allied New Hampshire Gas Company was a predecessor of Northern.

However, Northern sold the property to Pyrofax Gas Corporation in 1971. Pyrofax sold the property to Petrolane Gas Service, LP in 1987. AmeriGas purchased Petrolane in 1994. The property was purchased by Northern from AmeriGas in 2004 as part of a settlement agreement. Northern also purchased the eastern portion of the site from Mr. Peter Field in 1990. This portion of the site is undeveloped and contains remnants of a railroad bed. Northern also owns land adjacent to the former gas works.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS:

NAME OF SUIT: Field vs. Petrolane and Northern Utilities, and Petrolane vs. Northern Utilities

DATE FILED: 1988

STATUS (PENDING/SETTLED): Settled 1994

NORTHERN UTILITIES, INC.

SOMERSWORTH GAS WORKS

LINE
NO. SCHEDULE 4C

1. SITE LOCATION: Main Street and Depot Road in Somersworth, NH

2. DATE SITE WAS FIRST INVESTIGATED AS A DISPOSAL SITE:
The New Hampshire Division of Public Health Services and New Hampshire Water Supply and Pollution Control Commission conducted a preliminary assessment in 1985.

3. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES (July 1, 2022 – June 30, 2023):

- Northern directed WSP USA Environment & Infrastructure, Inc. (WSP), formerly Wood Environmental, during the reporting time to continue providing environmental consulting services, focusing on continued groundwater monitoring for the former manufactured gas plant (MGP). In addition, WSP continues to evaluate the effectiveness of the limited excavation, targeted subsurface grouting, and in-situ chemical oxidation (ISCO) treatments, which comprise the remediation program. The most recent ISCO treatment (the third overall) was completed in June 2018. Following sampling and report submittal in 2019, the NH DES directed Northern to include future evaluation of the ISCO treatment's effectiveness, as measured by groundwater contaminants, into the Site's Groundwater Monitoring Program (GMP).

4. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE:

The former Somersworth Gas Works continues to implement the remediation design and monitor its progress via the GMP overseen by the NH DES. However, no remediation work was conducted during the reporting time period.

5. NATURE AND SCOPE OF SITE CONTAMINATION:

The very small footprint of the former Somersworth Gas Works made it unlikely that significant amounts of MGP residuals were used as fill on-site. The extensive test-pit program substantiated the assertion that significant amounts of MGP residuals were not used as on-site fill. Coal tars and liquids that may have accumulated in sub-grade vessels did not result in substantial releases, as indicated by the absence of any significant oil-like material in test pits and borings in the upper 10 to 15 feet of soil at the site. Most of the Northern parcel is now covered with re-graded soil from local street work and capped by four (4) inches of imported topsoil.

As indicated by the site-specific groundwater quality data, metals and heavy-weighted polyaromatic hydrocarbons (PAHs) detected in soil have not leached into the underlying groundwater at significant concentrations. However, two suspected sources of lighter-weight PAHs (e.g., naphthalene) and volatile organic compounds (VOCs) detected in groundwater were identified in excess of regulated levels. The suspected sources were two, former gasholders on at the site. Oily residuals of limited extent were found in soil at depth below these holders. This material has been in periodic contact with the fluctuating water table. Due to the MGP operations having ceased more than 70 years ago, the period of rapid degradation of MGP-related chemicals in groundwater has probably occurred. The relatively stable groundwater quality data are indicative of residual source materials undergoing natural biodegradation.

Northern contracted with WSP (formerly Wood and formerly Amec Foster Wheeler) to act as prime contractor for design and remediation services. Earthwork activities were awarded to ENPRO and were completed in April 2005. This consisted of the removal of subsurface bodies of tar and the jet grouting of a small area of MGP-impacted soil below a foundation floor. Northern and Amec Foster Wheeler awarded Geo-Cleanse Internal, Inc. the subcontract for the remediation of soil and groundwater using ISCO technology. The installation of oxidant injector wells and the first round of oxidant injection were completed in June 2005. Subsequent injections were conducted in September 2005, May 2006, and November 2006. A notice of an Activity and Use Restrictions (AUR) was been placed on the deed associated with the site.

At the direction of the NH DES, Northern conducted another ISCO treatment during the first half of 2018 to address the continuing PAH and VOC peaks. Natural attenuation remains the preferred approach to long-term remediation of the site. However and following this ISCO treatment, the NH DES has required Northern to sample groundwater from the underlying bedrock for the presence of MGP contaminants. This represents a shift in the site's monitoring requirements from exclusively within the overburden to now the overburden/bedrock. Although Northern is confident the recent ISCO treatment was designed to include the underlying bedrock, groundwater transmissivity through this strata is slow and will likely require additional monitoring time to determine a reduction of the contaminants.

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP OF SITE:

Available information indicates that the former gas works began operation as the Great Falls Gas Light Company in 1856 and may have been associated with the mills of the Great Falls Manufacturing Company. The gas company leased two small parcels from the Great Falls Manufacturing Company in 1907, one to the north and one to the south of the main plant site. The plant was deeded to the Strafford-York Gas Company in 1911, which was a predecessor of Allied New Hampshire Gas Company. The Allied New Hampshire Gas Company was eventually merged into Northern Utilities.

At its peak in 1917, the plant was supplying Rochester, East Rochester, Gonic, Somersworth, and Berwick, Maine. Available information indicates that the plant ceased production in 1928, when Rochester's former Manufactured Gas Plant began supplying Somersworth and the surrounding area. The plant appears to have been demolished during the 1930s. Northern constructed a high-pressure Horton Sphere (gas ball) at the site in the late 1940s for storage of propane and natural gas from a high-pressure main. The Horton Sphere was in operation into the 1980s, when it was decommissioned and removed off-site.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS: None

NAME OF SUIT: Not Applicable

DATE FILED: Not Applicable

STATUS (PENDING/SETTLED): Not Applicable

Attachment A
Insurance Recovery Allocation

Northern Utilities, Inc. - New Hampshire Division
Allocation of Environmental Insurance Recoveries

Attachment A
Page 1 of 2

ERC Recovery Allocation

	Allocation %	Recovery Amount	% of Recovery Total	Resolution Fee	% of Resolution Fee
Recovery Total		**$ -**			
Dispute Resolution Fee				**$0.00**	**0.0%**
New Hampshire					
MGP Sites	0.00%	**$0.00**		**$0.00**	
Ratepayer	100.00%	$0.00		$0.00	
Non - MGP	0.00%	$0.00		$0.00	
Total		**$0.00**	**0.0%**	**$0.00**	**0.0%**

Northern Utilities, Inc. - New Hampshire Division
Allocation of Environmental Insurance Recoveries

ERC Recovery Allocation

	Allocation %	Recovery Amount	% of Recovery Total	Resolution Fee	% of Resolution Fee
Recovery Total		**$ -**			
Dispute Resolution Fee				**$0.00**	**0.0%**
MGP Sites	0.00%	**$0.00**		**$0.00**	
Shareholder	0.00%	$0.00		$0.00	
Ratepayer	0.00%	$0.00		$0.00	
Non - MGP	0.00%	$0.00		$0.00	
Total		**$0.00**	**0.0%**	**$0.00**	**0.0%**
New Hampshire					
MGP Sites	0.00%	**$0.00**		**$0.00**	
	0.00%				
Ratepayer	0.00%	$0.00		$0.00	
Non - MGP	0.00%	$0.00		$0.00	
Total		**$0.00**	**0.0%**	**$0.00**	**0.0%**
Maine					
Shareholder	50.00%	$0.00		$0.00	
Ratepayer	50.00%	$0.00		$0.00	
Total		**$0.00**	**0.0%**	**$0.00**	**0.0%**

Attachment A
Page 2 of 2

Northern Utilities, Inc.- New Hampshire Division
2022 - 2023 Environmental Response Costs

			Allocation Amount	New Hampshire 05900	
			0.0%		
Vendor Name	Invoice #	**Total Invoice**	**NH**	517628	517629
		$0.00	$0.00		$0.00
Total		$0.00	$0.00	$0.00	$0.00

Total Insurance Expense	**$0.00**
Total Insurance Recovery	$0.00

Schedule 5
Cost Amortization

NORTHERN UTILITIES, INC. - NEW HAMPSHIRE DIVISION
CALCULATION OF EXCESS ENVIRONMENTAL
RESPONSE COST AMORTIZATION

Schedule 5
Page 1 of 1

Line No.	Description	July 15 - June 16	July 16 - June 17	July 17 - June 18	July 18 - June 19	July 19 - June 20	July 20 - June 21	July 21 - June 22	July 22 - June 23
1	NH FIRM GAS REVENUES FROM PRIOR PERIOD (includes total firm and transportation (excluding off-system revenues))	$51,311,654	$59,038,627	$66,568,530	$74,616,651	$61,186,711	$67,254,093	$80,378,260	$86,306,830
2	5% of Line 1	$ 2,565,583	$ 2,951,931	$ 3,328,426	$ 3,730,833	$ 3,059,336	$ 3,362,705	$ 4,018,913	$ 4,315,341
3	TOTAL ERC COST TO BE RECOVERED (FROM SCHEDULE 1)	$ 16,028	$ 327,440	$ 335,177	$ 375,626	$ 404,677	$ 415,700	$ 432,594	$ 423,485
4	EXCESS AMORTIZATION DEFERRED FROM PRIOR YEARS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	CARRYING CHARGES	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	EXCESS AMORTIZATION FROM PRIOR YEARS PLUS CARRYING CHARGES (LINE 4 PLUS LINE 5)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	TOTAL POTENTIAL ERC COST TO RECOVERED (LINE 3 PLUS LINE 6)	$ 16,028	$ 327,440	$ 335,177	$ 375,626	$ 404,677	$ 415,700	$ 432,594	$ 423,485
8	EXCESS AMORTIZATION TO BE DEFERRED (LINE 2 LESS LINE 7; IF POSITIVE ENTER ZERO)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	EXCESS AMORTIZATION FROM PRIOR PLUS CARRYING CHARGES TO BE RECOVERED (LINE 7 MINUS LINE 3; IF NEGATIVE ENTER ZERO)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Note: July 2014 - June 2018 data shown in line 1 has been corrected from prior filings to reflect the July - June period.

3rd Party Recovery

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Contracting Project Manager

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

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

REMEDIAL ACTION PLAN
Petrolane/Northern Utilities, Inc. Site
Route 125
Rochester, NH 03867

NHDES Site #: 198712002
Project Type: Hazardous Waste Project
Project Number: 0432

Prepared For:
Unitil Service Corp.
6 Liberty Lane W
Hampton, NH 03842-1720
Phone Number (603) 379-3829
RP Contact Name: Thomas Murphy
RP Contact Email: murphyt@unitil.com

Maryanne V Cleary
Digitally signed by Cleary, Maryanne
Date: 2022.12.02 10:01:20 -05'00'

STATE OF NEW HAMPSHIRE
LAURA WARREN
No. 11761
LICENSED PROFESSIONAL ENGINEER
PE/PG STAMP HERE
12/1/22

Prepared By:
AECOM
250 Apollo Drive.
Chelmsford, MA 01824
Phone Number: (978) 905-2100
Contact Name: Ryan McCarthy
Contact Email: ryan.mccarthy@aecom.com

Date of Report: December 2022

AECOM

Remedial Action Plan

Petrolane/Northern Utilities, Inc. Site
Route 125
Rochester, NH 03867

Unitil Service Corp.

Project number: 60139732

December 2022

Quality information

Prepared by	Reviewed by	Approved by
Mark McCabe	Josh Millard, PG	Ryan McCarthy

Prepared for:

Unitil Service Corp.
Hampton, NH

Prepared by:

AECOM
250 Apollo Drive
Chelmsford, MA, 01824
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Table of Contents

Appendices

Tables

Figures

1. Introduction

The former Rochester Manufactured Gas Plant (MGP) site (Site) is located at the intersection of Route 125 and the Spaulding Turnpike in Rochester, New Hampshire. The Site is bounded by Axe Handle Brook to the north, the Cocheco River to the east, and roadways on the west and south (Figure 1-1). The MGP facility operated in the western portion of the Site from 1903 through 1957.

A Source Removal Action was conducted at the Site during the period of September 1999 to December 1999. The source removal activities focused on those areas of the Site where there was evidence of source material within the practical depth of excavation, i.e., two feet (ft.) below the depth of the water table (Figure 1-2). During the program, 19,500 tons of impacted soil was excavated from the Site (RETEC, 2001). The program was designed to address approximately 95% of the source material identified in the Phase II Site Investigation Report (HLA, 1999).

An additional source removal action was conducted in the Former Tar Well Area (Figure 1-2) during the period of January to April 2004 to address source material that had previously been inaccessible due to the presence of infrastructure for the propane distribution system. As in the previous source removal action, the practical depth of excavation was established to be two ft. below the water table. During the program, the top of the tar well was uncovered and investigated. The circular structure was measured with a diameter of 19 ft. and a depth of 7 ft. (10 ft. bgs). The contents of the structure (i.e., approximately 386 tons of impacted soil, 7,303 gallons of benzene-impacted wastewater, 9,439 gallons of emulsion, and approximately 14 tons of coal tar and debris) were removed and managed off-Site at permitted facilities. Subsequently, the walls of the structure were cleaned, the structure was closed using flowable fill, and the excavation was backfilled (RETEC, 2004a). On December 22, 2004, NHDES issued a Certificate of Completion for the remedial actions implemented at the Site.

The Groundwater Management Permit (GWP) for the Site was renewed by the New Hampshire Department of Environmental Services (NHDES) on July 2, 2018 (GWP-198712002-R-006). Under the current GWP, water quality monitoring events are performed in November of each year, and biennial Groundwater Quality Summary Reports are submitted in January of every even numbered year.

In July of 2018, the NHDES requested that Unitil review the results from the groundwater monitoring program and evaluate options for improving the degradation rate of MGP constituents. Unitil's review demonstrated the following:

- The concentrations of the principal MGP constituents were stable, but at a level that is greater than NHDES criteria for site closure; and
- The dissolved-phase concentrations at the Site would not affect the ambient water quality of the Cocheco River.

In 2021, Unitil conducted an investigation to delineate the source material at the Site in an effort to identify impacts that were continuing to affect groundwater quality. The Source Material Investigation Report (AECOM, 2022) identified MGP residuals that are located below the previous remediation area and proximate to the existing monitoring wells as the likely source of the continuing dissolved-phase impacts.

In June 2022, NHDES approved the report and directed Unitil to develop a Remedial Action Plan (RAP) to address the residual contamination to further decrease the dissolved-phase concentrations of MGP constituents of interest (COI). This document has been developed based on the findings of the investigation to recommend a remedy to address the remaining impacts. It is organized as follows: Section 2 summarizes the findings from the source area investigation; Section 3 presents the goals for the proposed remedial action; Section 4 provides and evaluation of the proposed remedial alternatives; Section 5 presents the recommended remedial alternative and Section 6 lists the references used in the preparation of this document. The appendices present the information used to develop the cost estimates for the remedial alternatives.

2. Summary of Remaining Site Impacts

The approved RAP for the 2000 source removal action (ReTec, 1999) anticipated that residual impacts in the lower depths of the saturated zone would remain in place since, at that time, it was determined that the significant cost of additional dewatering to support their excavation was not warranted. However, the results from the 2020 investigation indicate that the distribution of MGP impacts below the remediation area are more extensive than those identified previously. Additionally, a further review of the results presented in the Phase II Report (HLA, 1999) indicate that there are additional areas of source material proximate to MW-02D and MW-03S that are likely affecting those locations.

A summary of the impacts believed to be contributing to the current levels of dissolved-phase impacts is presented in Table 2-1. As indicated, oil-like material (OLM), indicative of non-aqueous phase liquid (NAPL) from the MGP process, was observed in the saturated zone at the majority of locations. The NAPL appears to be generally present in a residual state, i.e., not mobile in the environment. There have not been any observations of NAPL in Site monitoring wells, or sheen on the Cocheco River/ Axe Handle Brook.

As discussed in the Source Material Investigation Report, the most significant quantities of NAPL were observed beneath the prior excavation area at locations GP-712 (3.3 [ft. thickness) in a silt/sand layer and GP-708 (9.9 ft. thickness)/ GP-709 (6.8 ft. thickness) in a lower gravel layer. The frequency and thickness of impacts are observed to decrease at locations towards Axe Handle Brook and the Cocheco River. Generally, impacts were observed at deepening intervals with distance from the prior excavation area.

The locations of the principal source area and areas believed to be affecting the monitoring locations, i.e., secondary source areas, are illustrated in Figure 2-1. The source area is approximately 37,000 square feet (sq ft) in size, with impacts present in depths from 8 to 18 ft. in the saturated zone, resulting in approximately 16,400 cubic yards (cy) of impacted media. The location and quantity of impacts in these areas were used in the evaluation of the remedial alternatives presented in Section 4 of this document.

3. Remedial Goals

The prior remedial action was appropriate to address the potential exposure pathways at the Site and achieved the following:

- Trend analyses demonstrate that constituent concentrations of the Site monitoring wells either show no trend or a decreasing trend.
- Modeling demonstrates that groundwater concentrations of MGP constituents will not adversely affect compliance with NHDES Surface Water Quality Criteria under mean stream flow conditions of the Cocheco River.
- The Activity Use Restriction that was implemented as part of the prior source removal action (Appendix A) mitigates the potential risk from exposure to MGP impacts in soil and prohibits the use of groundwater.

Although there is no risk for current and future Site use, the predicted reduction in groundwater constituent concentrations has not been achieved.

As a result, the goals for the proposed remedial action are as follows:

- The continued prevention of the ingestion/direct contact with impacted soil.
- The continued prevention of the ingestion/direct contact with impacted groundwater.
- Obtain a further reduction in the dissolved-phase concentrations of MGP constituents of interest.

Achieving these goals will require the proposed remedial activities to achieve the following objectives:

- reduce the quantity/strength of impacted source material that is affecting groundwater quality to the extent feasible.
- implement institutional controls to address remaining exposure pathways.

The following evaluation of remedial alternatives is intended to identify a remedy that will achieve a reasonable balance between environmental benefit and remedial.

4. Evaluation of Remedial Alternatives

Meeting the Remedial Goals at former MGP sites typically involves removal/treatment or containment of impacted media. The efforts are frequently supported with the use of institutional controls to address potential exposure pathways associated with residual impacts.

The proposed remedies at the Site will focus on the removal/treatment of source material and include the following approaches that are routinely used at former MGP sites: excavation, *in-situ* solidification (ISS) and *in-situ* chemical oxidation (ISCO). Another MGP remedy, product recovery, is not being evaluated since it would not deal with impacts that are not mobile in the environment, i.e., are present at concentrations that are less than their residual saturation point.

Discussions of the application of Excavation, Solidification and Chemical Oxidation at the Site are provided below with evaluations using the following criteria:

- Effectiveness and reliability.
- Feasibility and ease of implementation.
- Risk reduction and associated benefits.
- Cost effectiveness using the net present worth of all future costs.
- Estimated time to reach the no further action criteria.

A summary of the findings from the evaluations is provided in Table 4-1.

4.1 Excavation, Natural Attenuation and Activity and Use Restriction

Excavation involves the removal of impacted soil for subsequent disposal at a permitted off-Site facility. The application of the approach at the Site is complicated by the fact that the source material exists in the saturated zone in areas proximate to a high-pressure gas transmission line, the Cocheco River and Axe Handle Brook. This alternative includes the following activities:

- Removal of 18,000 cy of clean overburden in the vadose zone for temporary stockpiling and reuse.
- Dewatering of the excavation and on-Site management of construction water with discharge under permit.
- Excavation and disposal of 10,100 cy of source material from the saturated zone.
- Backfilling of the excavation using the clean overburden with final restoration using 10,100 cy of commercial fill
- Natural Attenuation of dissolved-phase impacts.
- Continued implementation of the AUR to address potential human health risk associated with exposure to residual impacts in soil and groundwater.

Descriptions of these activities are provided below, with the excavation plan provided as Figure 4-1. Note that it is likely that work in the saturated zone will be conducted in a series of limited areas, or “cells” to better control the quantity of construction water generated for treatment/disposal. In that scenario, several of the activities, e.g., excavation/stockpiling of clean overburden, dewatering, excavation of impacted media and re-placement of overburden happening sequentially within a given cell before moving to the next area.

A principal consideration for the project is the protection of an active gas line that runs through the source area to the on-Site gas regulator station as well as the limitations posed by the proximity of the Cocheco River and Axe Handle Brook. The excavation plan includes 10-foot off-sets from these features and requires the excavation side walls be sloped at 1.5:1 to provide appropriate support. Note that these protective measures limit the quantity of source material that can safely be accessed.

4.1.1 Description of Activities

Site preparation activities would include installation of erosion controls, removal of portions of the phytoremediation plots, delineation of soil stockpile/loading areas, and construction of decontamination pads/facilities. Mobilization and Site preparation activities would be expected to be completed within a 1-month period.

4.1.1.1 Excavation and Stockpiling of Clean Overburden

Within the excavation area, the vadose zone soil (0-14 ft. bgs) is largely comprised of clean backfill from the prior remediation effort. This soil (18,000 cy) would be removed to provide access to the source material in the saturated zone and temporarily stockpiled on-Site for reuse as backfill in the bottom of the excavations.

4.1.1.2 Dewatering and Management of Construction Water

Well points or sumps would be installed within the excavation area to draw down groundwater as the excavation proceeds to the required depth. Collected water would be stored in transportable settling tanks, and pretreated (filtration/activated carbon) for subsequent discharge to the Cocheco River under the State Pollution Discharge Elimination System (SPDES) program. The system effluent would be sampled in accordance with the requirements of the associated discharge permit. It has been assumed, for the purpose of this evaluation that a 500 gallons per minute (gpm) water treatment system would be required to manage construction water.

4.1.1.3 Excavation of Impacted Soil from the Saturated Zone

Excavation will proceed as the groundwater is drawn down to a depth of up to 16 ft. in the saturated zone. Excavated soil would be free drained within the excavation and subsequently placed in lined and covered stockpile areas on Site or loaded directly into trucks. Excavated soil that exhibits residual free liquid would require additional treatment using drying/stabilization agents prior to shipment.

Waste characterization sampling would be conducted either pre- or post-excavation for acceptance at the Clean Earth facility in Loudon, NH. Material would be shipped by truck using appropriate procedures/documentation (waste profile sheets/manifests). Trucks would be inspected, decontaminated as necessary, and covered prior to leaving the Site. Excavation activities would be expected to be completed within an approximate 4-month period.

4.1.1.4 Site Restoration

Once the excavation depth is reached, samples would be collected from the base and sidewalls to document Site conditions, and the excavation would be backfilled using the stockpiled overburden. Additional backfill (10,100 cy) from a commercial source would be used to restore the Site.

Remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and Site trailers) would be removed, and Site features would be restored. Backfilling and restoration activities would be expected to be completed within a 2-month period.

4.1.1.5 Natural Attenuation

Natural attenuation refers to a range of physical and biological processes that can reduce the concentration or mobility of contaminants in the subsurface environment. Biodegradation is typically the predominant process at former MGP sites. Naturally occurring microorganisms, e.g., bacteria, can break down dissolved-phase MGP constituents of interest. The conceptual model for microbial activity at former MGP sites assumes that microorganisms will preferentially use oxygen as a terminal electron acceptor (TEA) as they oxidize the organic compounds to carbon dioxide and water. However, when oxygen is not present, microorganisms may use alternate electron acceptors in order to metabolize available organic constituents under anaerobic conditions. These alternate TEAs include nitrate (reduction), ferric iron (Fe^{+3}) (reduction), sulfate (reduction), and carbon dioxide (methanogenesis). Monitoring parameters to evaluate natural attenuation include the following:

- Dissolved Oxygen – low levels of dissolved oxygen (DO) in the presence of residual constituents may indicate areas where microbial activity is taking place under aerobic conditions.
- Oxidation Reduction Potential (ORP) – highly positive ORP values indicate areas where reactions are taking place under aerobic conditions, while lower to negative values indicate areas where anaerobic reactions predominate.
- Sulfate – a decrease in sulfate concentrations in areas of residual COI may indicate that microbes are utilizing sulfate (SO_4^{2-}) as a TEA, reducing sulfate to sulfide (S^{2-}).
- Methane – the presence of methane in groundwater indicates the anaerobic biodegradation of organic compounds.

The presence of active anerobic biodegradation processes at the Site was established during the initial post-remediation period through by the monitoring of the principal TEAs. Recent monitoring results for DO and ORP support the fact that anaerobic processes continue to be active at locations downgradient from the principal source area. Natural attenuation is responsible for the fact that recent analyses document either no trend or a decreasing trend in constituent concentrations at Site boundary wells.

The reduction in source strength by the remedy would likely increase biodegradation rates in downgradient areas of the Site. The post-remediation monitoring program would evaluate whether aerobic processes can be re-established and identify opportunities for biological enhancement to improve the rate of biological degradation.

Remediation Monitoring

Post-remediation monitoring would be conducted on a semi-annual basis for two years to provide the appropriate information to document decreasing concentration trends and evaluate plume stability. Monitoring parameters would include the MGP constituents required by the Groundwater Permit, as well as the following natural attenuation parameters: DO, ORP, ferric iron, sulfate and nitrate. If plume stability is not established in the initial 2-year period, monitoring would continue on an annual basis until stability, e.g., decreasing or no trend can be documented. Unitil proposes to review the requirements for additional groundwater monitoring with NHDES once the plume is stable. Five years of post-remediation monitoring have been assumed to achieve a stable dissolved-phase plume.

4.1.1.6 Activity and Use Restriction

An AUR was placed on the Site following the previous remediation to limit direct human contact with MGP residuals that were left in place. The AUR restricts Site use to commercial/industrial applications and limits activities to those that do not involve the disturbance of groundcover or involve the extraction of groundwater. Additionally, the AUR requires written notification to NHDES of activities that will involve the disturbance of groundcover or groundwater, and that those activities be conducted using OSHA-trained personnel using a plan developed by an environmental professional.

4.1.2 Evaluation Criteria

4.1.2.1 Effectiveness and reliability

The alternative is rated Medium for effectiveness and reliability. Excavation is routinely used at former MGP sites and offers a permanent remedy through the removal and off-Site management of source material. Additionally, the removal of source material will facilitate the reduction of dissolved-phase impacts through on-going biological processes.

However, setbacks from the Cocheco River and Axe Handle Brook will limit access to impacted media in the principal source area and dewatering issues will make the excavation of the secondary source areas infeasible due to the significant depth of the impacts (up to 30 ft. bgs) and the proximity to the Cocheco River.

4.1.2.2 Feasibility and ease of implementation

The alternative is rated Medium for feasibility and ease of implementation since the source material is located in the saturated zone and will require significant dewatering and management of construction water.

4.1.2.3 Risk reduction and associated benefits

The alternative is rated High for overall protection of public health and the environment since it addresses the potential risk for current and future Site uses.

4.1.2.4 Cost Effectiveness

The estimated capital cost of the alternative is $5,320,000, with transportation and disposal estimated to comprise $2,176,000 of that amount. Additional design and oversight costs are estimated to be $660,000. The estimated cost for post-remediation monitoring is $160,000 for the assumed 5-year monitoring period. The total net present value (NPV) project cost (Table B-1) including contingency at 20% is estimated to be $5,660,000.

4.2 Solidification, Natural Attenuation and Activity and Use Restriction

Solidification involves the introduction of cement slurry (grout) into impacted media using an auger or excavator bucket to decrease permeability and increase strength. Treatment would create a permanent solidified mass that would eliminate the potential for MGP residuals to migrate from the Site and “isolate” the areas of contamination from groundwater flow. Solidification would control the ability of the source material to adversely affect groundwater quality. This alternative includes the following activities:

- Removal of 15,400 cy of clean overburden in the vadose zone for temporary stockpiling and reuse.
- Solidification of 19,900 cy of soil, with on-Site management of excess grout within the treatment area.
- Backfilling of the excavation and grading of the treatment area using 15,400 cy of the clean overburden.
- Natural Attenuation of dissolved-phase impacts.
- Continued implementation of the AUR to address potential human health risk associated with exposure to residual impacts in soil and groundwater.

4.2.1 Description of Activities

Site preparation activities would include the removal of a portion of the phytoremediation plot, installation of erosion controls, delineation of soil stockpile/loading areas, and construction of decontamination pads/facilities. Preparation activities are expected to be completed within a 1-month period.

4.2.1.1 Solidification of Impacted Soil

The solidification of source material would occur in three phases: the stabilization of areas adjacent to the active gas line, temporary removal/stockpiling of vadose zone soil and solidification of the source material.

The solidification plan includes a 10-foot offset from the active gas line. The soil around the line would be supported by the installation of two rows of overlapping grout columns from ground surface to a depth of 20 ft. bgs. The columns would be installed using a 6-8 ft diameter auger. After the columns have cured, vadose zone soil in the primary source area would be removed to a depth of 12 ft bgs, i.e., 2 ft. above the water table, to provide a working platform for the solidification of the underlying source material.

Soil in the principal source area (14,300 cy) would then be solidified, with samples analyzed to demonstrate compliance with the established performance criteria. Excess grout is expected to be generated at a rate of 20-30% by volume of soil treated. The excess (3,600 cy) would be managed within the vadose zone excavation and allowed to cure in place. Soil in the secondary source areas (5,600 cy) would be treated by the installation of overlapping grout columns from the ground surface to the depth of impacts (up to 25 ft bgs). The excess grout from these areas would be allowed to cure in the principal source area excavation. Solidification activities are expected to be completed within a 6-month period.

The stockpiled overburden (15,400 cy) would be used to backfill the excavation and re-grade the excavation area. Remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and Site trailers) would be removed, and Site features would be restored. Backfilling and restoration activities are expected to be completed within a 1-month period.

4.2.1.2 Natural Attenuation of Dissolved-Phase Impacts

A discussion of Natural Attenuation has been provided previously in Section 4.1.1.5.

Post-remediation monitoring would be conducted on a semi-annual basis for two years to provide the appropriate information to document decreasing concentration trends and evaluate plume stability. Monitoring parameters would include the MGP constituents required by the Groundwater Permit, as well as the following natural attenuation parameters: DO, ORP, ferric iron, sulfate and nitrate. If plume stability is not established in the initial 2-year period, monitoring would continue on an annual basis until stability can be documented. Unitil proposes to review the requirements for additional groundwater monitoring with NHDES once the plume is stable. Five years of post-remediation monitoring have been assumed to achieve a stable dissolved-phase plume.

4.2.1.3 Activity and Use Restriction

A discussion of the AUR has been provided previously in Section 4.1.1.6.

4.2.2 Evaluation Criteria

4.2.2.1 Effectiveness and reliability

The alternative is rated High for effectiveness and reliability. It is routinely used at former MGP sites and offers a permanent remedy through the treatment of source material. The approach provides the benefit of being able to control the distribution of reagents in the subsurface. The isolation of source material in the solidified mass will facilitate the reduction of dissolved-phase impacts through on-going biological processes.

4.2.2.2 Feasibility and ease of implementation

The alternative is rated High for feasibility and ease of implementation. The approach is well suited for addressing impacts in the saturated zone and can access both the principal and secondary source areas.

4.2.2.3 Risk reduction and associated benefits

The alternative is rated High for overall protection of public health and the environment since it addresses the potential risk for current and future Site uses.

4.2.2.4 Cost Effectiveness

The estimated capital cost of the alternative is $4,760,000. Additional design and oversight costs are estimated to be $650,000. The estimated cost for post-remediation monitoring is $160,000 for the proposed 5-year monitoring period. The total NPV project costs (Table B-2) including contingency at 20% is estimated to be $5,130,000.

4.3 Chemical Oxidation, Natural Attenuation and Activity and Use Restriction

In-Situ chemical oxidation involves the subsurface injection of catalyzed hydrogen peroxide (CHP) to treat volatile organic and polynuclear aromatic hydrocarbon constituents in MGP residuals. CHP is a solution of hydrogen peroxide and a ferrous iron catalyst, which generate hydroxyl free radicals that act as the active oxidizing agent. The oxidation of organic compounds by hydroxyl free radicals is a rapid and exothermic reaction. Although intermediate degradation products can be generated, the end products of oxidation are primarily carbon dioxide and water. None of the injected reagents pose an environmental hazard. Unconsumed reagent naturally degrades to oxygen and water after injection. This alternative includes the following activities:

1. Installation of 130 permanent injection wells in the source areas.
2. Injection of 977,000 pounds of CHP reagent over a multi-year period.
3. Process Monitoring.
4. Natural Attenuation of dissolved- phase impacts.
5. Continued implementation of the AUR to address potential human health risk associated with exposure to residual impacts in soil and groundwater.

4.3.1 Description of Activities

Site preparation activities would include installation of erosion controls, delineation of soil stockpile/loading areas, and construction of decontamination pads/facilities. Mobilization and Site preparation activities are expected to be completed within a 2-week period.

4.3.1.1 Installation of Injection Wells

The injection plan would incorporate a 20 ft off-set from the gas line and include the installation of 130 injection wells (104 in the principal source area and 26 in the secondary source areas). The placement assumes a radius of influence (ROI) of 7.5 ft. and the installation in a 15 ft on-center, pattern. The proposed locations of the injection wells are illustrated in Figure 4-3.

The injection points would be constructed of ¾-inch Schedule 80 Chlorinated Poly Vinyl Chloride (CPVC) pipe and be equipped with 10-ft sections of 0.010 slot screen. The injection points would be installed to the depth of the source material (14 to 30 ft bgs) using direct push technology.

4.3.1.2 Injection of Reagent

The injection equipment would include tanks, pumps, gauges and flow control valves to prepare and deliver CHP solutions safely and effectively. The injection of reagents (hydrogen peroxide and catalyst) would be conducted via specially designed mixing heads that are attached to the casing for each injection well. The mixing heads are designed with redundant safety features and are constructed of polypropylene and CPVC for reagent compatibility. Reagent flow would be controlled and monitored at the flow control board on the injection vehicle, the control valves on the mixing heads, and the control valves on the reagent storage tanks.

For the purpose of this evaluation, a minimum injection volume of 400 gal of 34% hydrogen peroxide per injection well has been assumed, providing for the use of 52,000 gallons (501,400 lbs) for the 130 wells. Experience at a similar site resulted in a daily injection volume 700 gallons of 34% hydrogen peroxide (diluted prior to injection) per day, which equates to 75 days of active injection.

The evaluation assumes that three separate injection events will be required over a 7-year period, with injections at 50% and 25% of the locations during the second and third applications, respectively. The approach provides for a total injection quantity of approximately 91,000 gal (877,500 lbs) of 34% hydrogen peroxide.

4.3.1.3 Process Monitoring

Performance monitoring of groundwater conditions and off-gas would be conducted daily throughout the injection program. The analytes measured, purpose, and typical frequency are as follows:

- Groundwater samples would be collected from monitoring, vent, and injection wells within and adjacent to the treatment area. Groundwater samples would be collected daily, prior to beginning the injection each day. The parameters to be measured would include pH, dissolved iron, and hydrogen peroxide concentration, photoionization detector headspace (which provides a semi-quantitative measurement of VOC concentration), and temperature.
- Off-gas measurements would be conducted several times daily during the treatment. Injection, vent, and monitoring wells would be tested daily with field meters for carbon dioxide, oxygen, and VOCs (by PID). Carbon dioxide is produced by oxidation of organic compounds; thus, carbon dioxide production is a sensitive measure of the efficiency and progress of the treatment. Oxygen is produced by reaction of hydroxyl free radicals with hydrogen peroxide, other radicals, or other non-organic compounds; thus, oxygen production is also useful to gauge treatment performance. VOCs are liberated due to the oxygen and carbon dioxide off-gases passing through potentially contaminated water. The concentration of VOCs in off-gases is typically at maximum levels in the initial stages (first few days) of injection and then decreases over the course of the treatment.
- Systems monitoring would include injection pressure monitoring and regular inspections. The pressure is monitored in order to ensure a controlled reaction is occurring and is observed and recorded regularly during each day of injection. Example injection pressures for this type of application are typically between 10 and 60 psi. System components (hoses, fittings, valves, pumps, etc.) are constantly monitored and observed to ensure proper operation and to check for leaks.

Minimal amounts of remediation waste are expected to be generated during well installation and injection activities. Expected waste types include used PPE including Tyvek suits and nitrile gloves, spent field test kits and spent bulk chemical containers. Unless grossly contaminated, PPE would be disposed of as general waste. Depending on the type of field test kits used, spent test materials would either be disposed of as general waste, or secured in 55-gallon drums for off-Site transport and disposal at an appropriate facility. Empty chemical containers would be rinsed then used to collect residuals from the injection process and returned to the chemical vendor for recycling and re-use. All remediation waste containers would be properly labeled while on Site.

De-mobilization activities for each of the injection events are expected to be conducted in less than a week.

4.3.1.4 Natural Attenuation of Dissolved-Phase Impacts

A discussion of Natural Attenuation has been provided previously in Section 4.1.1.5.

Semi-annual groundwater monitoring would be conducted between the first/second and second/third injection events. Post-remediation monitoring would then be conducted on an annual basis following the third injection event to provide the appropriate information to document decreasing concentration trends and evaluate plume stability. Monitoring parameters would include the MGP constituents required by the Groundwater Permit, as well as the following natural attenuation parameters: DO, ORP, ferric iron, sulfate and nitrate. Unitil proposes to review the requirements for additional groundwater monitoring with NHDES once the plume is stable. Three years of additional post-remediation monitoring have been assumed for the purpose of this evaluation.

The well points would be decommissioned at the end of the monitoring program in accordance with NHDES regulations and an Abandoned Well Decommissioning Report will be filed with the agency.

4.3.1.5 Activity and Use Restriction

A discussion of the AUR has been provided previously in Section 4.1.1.6.

4.3.2 Evaluation Criteria

4.3.2.1 Effectiveness and reliability

The alternative is rated Medium for effectiveness and reliability. Although it has been used at MGP sites, it is difficult to control the distribution of reagent in the subsurface and in some instances the approach has not been effective in treating NAPL.

4.3.2.2 Feasibility and ease of implementation

The alternative is rated High for feasibility and ease of implementation. The approach is well suited for addressing impacts in the saturated zone and can access both the principal and secondary source areas.

4.3.2.3 Risk reduction and associated benefits

The alternative is rated High for overall protection of public health and the environment since it addresses the potential risk for current and future Site uses.

4.3.2.4 Cost Effectiveness

The estimated capital cost of the alternative is $ 1,670,000. Additional design and oversight costs are estimated to be $620,000. The estimated cost for post-remediation monitoring is $250,000 for the 7 proposed events. The total NPV project costs (Table B-3) including contingency at 20% is estimated to be $2,060,000.

5. Recommended Remedial Alternative

A review of the evaluation criteria presented in Section 4 indicates that Alternative 2 Solidification would be the most effective and implementable remedy. Solidification provides a permanent remedy and is routinely used at Former MGP sites. The alternative provides the ability to effectively control the distribution of reagents and is well suited to address impacts in the saturated zone. As a result, the use of the approach will maximize the amount of source material that can be treated. The approach will include a monitoring program to document the progress of natural attenuation of dissolved-phase impacts, and the continued implementation of the existing AUR to address the remaining exposure pathways that are potentially complete.

The following discussion provides the details of the activities associated with the implementation of the remedy, including the Pre-Design Investigation, solidification of impacted soil, post-remediation monitoring and continued implementation of the AUR. Note that the work will be supported by the preparation of a Fact Sheet that will be distributed to Town officials and property abutters. The sheet will provide a summary of proposed Site activities and contact information for those seeking further details.

5.1 Pre-Design Investigation

A pre-design investigation will be conducted to collect additional Site data related to the proposed Alternative 2 activities in support of the preparation of the design and Technical Specifications. Overviews of the proposed investigation activities are provided below.

5.1.1 Geotechnical Investigation

Geotechnical data will be collected to define the structural requirements of the solidification mixture. Two (2) borings will be installed within the limit of the principal source area and one boring will be installed in each of the secondary source areas. The borings will be installed from the ground surface to a depth of 35 ft. bgs to address the anticipated depth of treatment (approximately 30 ft. bgs). Two-inch diameter by 24-inch-long split-spoon samples will be collected continuously to the boring termination depth following in accordance with ASTM Method D1586. Soils collected in the split spoons will be field classified in accordance with ASTM Method D2487. Up to three (3) samples will be collected from each boring and analyzed for grain size, bulk density, and moisture content. Additional samples for subsequent treatability testing will be composited from boring locations/intervals exhibiting the most significant MGP impacts.

As part of the field investigation, the monitoring well locations that are located within the treatment area (MW-02 S/D and MW-03 S/D) will be decommissioned in accordance with NHDES requirements. Replacement wells will be installed at downgradient locations.

5.1.2 Treatability Testing

Samples of the MGP-related source material will be collected from soil boring locations/intervals that exhibit significant levels of visual/olfactory impact. The samples will be composited into two 5-gallon containers for use in bench-scale treatability testing.

Upon receipt at the treatability lab, the samples will be screened to remove oversized material, i.e., >0.5 inches, and generally homogenized to provide material appropriate for replicate testing. The unit weight of several samples will be determined to provide a basis for conversion from weight-based (lab use) to volume-based (production use) dosing rates.

Tests will be conducted using a cementitious material of 4:1 ground granulated blast furnace slag (GGBFS)/ Portland cement at a broad range of addition rates, e.g., 5%, 8% and 11% to wet weight of soil to determine the appropriate mix to address Site impacts. The mixes will be evaluated after 7 days of curing using a pocket penetrometer for UCS using ASTM Method D-2166. Note that GGBFS is proposed for use because it is generally available locally and has been demonstrated to improve results for UCS.

A second round of testing will be conducted to evaluate additional cement mixes and to determine the benefit of the use of additives, e.g., bentonite typically at rates of 0.25 to 0.5 % - by wt., to improve permeability. These tests will be conducted using a target ratio of 1:1 water to cementitious mixture to ensure the relative comparison of results across the range of addition rates. The rates will be adjusted to achieve a "pumpable" slurry during production. Note that more "exotic" additives such as organoclay and activated carbon will not be tested since, due to cost/availability, they are generally not practical for production use. UCS testing will be conducted on these samples after 7 and 28 days of curing. Permeability testing will be conducted on those samples that achieve an acceptable UCS value, i.e., >50 psi.

5.2 Solidification of Impacted Soil

Solidification will involve the introduction of a Portland cement slurry (grout) into impacted media to decrease its permeability and increase its strength to meet the following performance standards:

- UCS
  - 28-day UCS of at least 50 pounds psi.
- Permeability
  - 28-day hydraulic conductivity of less than $1X10^{-6}$ cm/sec.

The grout mixture will be developed using the information from the treatability test. Treatment will be conducted by installing overlapping columns using a 6-8 ft. diameter auger. Treatment will create a solidified mass that will eliminate the potential for NAPL to migrate and "isolate" the impacts from groundwater flow. As a result, solidification will control the ability of source material to adversely affect groundwater quality. The treatment area, 36,800 sq. ft. is illustrated in Figure 4-2. An estimated schedule for the implementation of the remedy is provided as Figure 1.

The solidification of source material will occur in four phases: Site preparation; the stabilization of the area adjacent to the active gas line; removal of vadose zone soil and solidification of the remaining impacted soil. All work will be conducted in accordance with a Health and Safety Plan (HASP) developed by the Contractor.

5.2.1 Site Preparation

Prior to the start of the excavation work, Dig Safe will be contacted and companies with subsurface utilities present will be requested to mark-out their utilities in the remediation area. Unitil will locate and mark all underground utilities in the vicinity of the treatment area. Site preparation activities will include the removal of a portion of the phytoremediation plot installation of erosion controls and odor controls, delineation of soil stockpile/loading areas, and construction of decontamination pads/facilities. Sediment controls, e.g., hay bales, silt fence, etc. will be used in accordance with the applicable NHDES guidance. Stormwater run-off will be controlled to prevent contact with impacted soils. Stormwater that does contact impacted soils will be collected and disposed off-Site.

5.2.2 Stabilization of the High-Pressure Gas Transmission Line

The solidification plan includes a 10-foot offset from the high-pressure gas line. The soil adjacent to the line will be stabilized by installing two rows of overlapping ISS support columns along 200 ft. of the gas line to a depth of 20 ft. bgs. The treatment will involve approximately 2,400 cy of soil. The support columns will be required to meet the following performance criteria:

- UCS - 7-day UCS of at least 50.
- Permeability - 28-day hydraulic conductivity of less than 1X10-6 cm/sec.

The support columns will be mixed using a grout mixture that is designed to maximize the strength of the solidified mass. Unitil may elect to include a monitoring program in the design of the remedy to ensure that the line is not disturbed during the remediation.

5.2.3 Removal of Vadose Zone Soil

Once the support columns have cured, vadose zone soil in the principal source area will be removed to a depth of 12 ft bgs, i.e., 2 ft. above the water table, to provide a working platform for the solidification of the underlying source material.

5.2.4 Solidification of Impacted Soil

Soil in the principal source area (14,300 cy) will then be solidified, with samples analyzed to demonstrate compliance with the established performance criteria. Excess grout is expected to be generated at a rate of 20-30% by volume of soil treated. The excess (3,600 cy) will be managed within the vadose zone excavation and allowed to cure in place. Soil in the secondary source areas (5,600 cy) will be treated by the installation of overlapping grout columns from the ground surface to the depth of impacts (up to 25 ft bgs). The excess grout will be allowed to cure in the principal source area excavation.

5.2.4.1 Remedial Action Monitoring

The location of the soil columns will be laid out by survey prior to the start of work. During treatment, the contractor will continuously monitor the following parameters:

Process Monitoring

- Verticality and position of the mixing auger;
- Top of column and bottom of column elevations;
- The quantity/rate of ad-mix for each column;
- Rotation rate of the auger;
- Number of treatment passes; and
- Auger penetration and withdrawal rates.

Performance Standards

Wet column samples will be collected at a frequency of 1 sample/ 500 cy of treated material, for a total of approximately 30 samples. They will be visually inspected to verify that a homogeneous mixture has been created based on the following criteria:

- No visible NAPL or sheen;
- Grout and soil are thoroughly mixed;
- Consistent color for samples collected from different depth intervals and locations; and
- There are no unmixed soil clumps greater than three inches.

The samples will be recovered into standard soil mold cylinders and allowed to cure for subsequent analysis for unconfined compressive strength, permeability and free liquids. The following performance standards will be used for the project.

- UCS
  28-day UCS of at least 50 pounds psi. The 7-day test results will be used to provide an early indicator that the 28-day results will meet the performance standard.
- Permeability
  28-day hydraulic conductivity of less than 1X10-6 cm/sec, with preliminary results obtained at 7 and 14 days to provide an early indicator that the 28-day results will meet the performance standard.
- Free Liquids
  The solidified soil shall have no free liquid present observed along the break point of the UCS testing detailed above.

5.2.5 Perimeter Air Monitoring

Air monitoring activities will be conducted throughout the program to document ambient air quality/ conditions at the Site and evaluate conditions at the property line to ensure that the measures used to control potential fugitive emissions are effective. The monitoring program will consist of the following types of activities:

- Real-time monitoring – to promptly identify potential Site problems to allow the appropriate engineering/emission controls to be implemented, and prevent significant off-Site issues; and
- Constituent-Specific sampling and analysis – to verify that the real-time monitoring process and associated controls are effective for the community.

5.2.5.1 Real-Time Air Monitoring

Continuous real-time data will be collected for total volatile organic compounds (TVOCs) and particulate matter. The results from these measurements will be compared to a set of Site-specific Action Levels, i.e., the concentration/level at which control measures are required to ensure that Site conditions will not pose a potential health risk to off-Site receptors.

Real-time air monitoring will consist of a property line network of portable air monitoring (PAM) stations, supplemental monitoring using hand-held devices, meteorological monitoring, and a notification system to identify periods of elevated emissions. The initial, recommended positions of the monitoring locations are illustrated in Figure 5-2. Locations of sample stations may change to reflect specific Site activities, wind conditions, and/or accessibility. These real-time monitoring activities are discussed in more detail in the following sections.

Portable Air Monitoring (PAM) Stations

The PAM units will be used to collect and analyze data from the three (3) locations during active work periods throughout the duration of the project. At the discretion of Site personnel, the units may also be left in operation during extended non-active work periods (i.e., overnight and/or weekends) based on Site status and anticipated weather conditions.

The following monitors will be used at each station:

- TVOCs – ambient concentrations of TVOCs will be measured using a RAE®, or equivalent PID; and
- Particulate matter – a DustTrak® dust monitor, or equivalent, will be used to monitor respirable particulate (PM_{10}) concentrations 10-microns or smaller.

The monitors will be housed in weather tight enclosures, with sampling inlets located in the breathing zone at the top of the perimeter fence (approximately 2-meters). The TVOC and dust monitors at each PAM station will be set up to calculate 15-minute block averages and have the capability to compare the results to the Action Levels, as well as provide notification to field staff of exceedances. Data will be transmitted in real-time to the central computer using a radio telemetry system. An automated interactive computer display will notify field staff to Site conditions.

Meteorological Monitoring

A meteorological tower will be erected at the central trailer location following the installation guidelines established by the United States Environmental Protection Agency (USEPA) for meteorological monitoring systems. The tower will be equipped with sensors to measure wind speed and direction, sigma theta (wind variability), temperature, and relative humidity on a continuous basis during remedial activities.

A Climatronics® system (or equivalent) will be used for meteorological measurements. A Campbell Scientific® data logger (or equivalent) provided with the meteorological system also includes a digital standard deviation (sigma) processor which calculates the wind fluctuation (sigma theta). Sigma theta is an important parameter to observe during remediation activity, so that the potential for fugitive emissions to change direction during slow wind periods can be assessed and documented.

The on-Site meteorological system will continuously collect data and log the results as 15-minute block averages. The data from both the monitoring instruments and the meteorological system will be transmitted in real-time to the central computer system.

Supplemental Monitoring

During active work periods, measurements from the automated monitoring systems will be supplemented with data collected by the field technician at the Site property line immediately downwind from the work areas using hand-held monitors. Hand-held measurements for TVOCs and particulate matter will be conducted on an as-needed basis throughout active work periods depending on the location of the work and the potential to impact sensitive receptors. In addition to TVOC and particulate measurements, the field staff will also make routine observations of odor intensity and visible dust. The following monitors and/or observations will be used by the technician:

- TVOCs –a RAE® PID, or equivalent PID, will be used to monitor for TVOCs;
- Particulate matter – a DustTrak® dust monitor, or equivalent, will be used to monitor respirable particulate concentrations;
- Odor intensity levels – subjective assessment by the field technicians; and
- Visible dust – subjective assessment by the field technicians.

Field notes from these activities will be documented in project notebooks and transcribed into computer spreadsheets. Monitoring data generated on Site, including field log sheets and field notebooks, will be filed and secured in the Site office trailer, with copies transferred to the office project files.

5.2.5.2 Constituent-Specific Sampling and Analysis

Constituent-Specific sampling and analysis will be conducted for the principal MGP constituents of interest to document the appropriateness of the Action Levels and effectiveness of the emission controls. During field activities, one set of continuous, composite samples will be collected at each of the three fence line stations (approximately 10 hours per day, 50 hours per week). Each canister will be placed within the breathing zone at the PAM stations. The locations of the integrated time-averaged sampling may change based on Site activities, accessibility, and/or weather conditions.

Ambient concentrations of BTEX and naphthalene will be characterized using USEPA Method TO-15: *Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography/Mass Spectrometry*. The composite ambient samples will be collected in 6-liter (L) Summa Canisters using flow controllers calibrated to collect a 6 L samples over an approximate 60-hour period during each week of remedial activities.

Prior to shipping, the laboratory will evacuate the canisters to the prescribed negative pressure, not less than -28 inches of mercury (in. Hg). If the pressure is less than -28 in. Hg, the canister will not be used and will be returned to the laboratory for replacement.

At the start of each week a pre-cleaned, evacuated canister will be positioned at each of the four fence line locations and labeled with the sample location and date. The sampling valve will be opened at the start of Site activities for the day and the initial canister pressure and time noted.

At the conclusion Site activities for the day (approximately 10 hrs duration), the current pressure of the canister and time will be documented, and the sampling valve will be closed. The labeled container will be secured in a container, e.g., a cooler with a lid, that is sealed with chain of custody tape and transferred to a secure location for overnight storage. The canisters will be repositioned for each of the following days of the week and the process repeated.

At the conclusion of each week's sampling, the canisters will be transferred to a secure location until ready for shipment back to the laboratory. Prior to shipping air samples, a Chain of Custody (COC) form will be completed for each batch of samples. The COC form will include information such as project name, project number, sampler's name, sampling date, reporting address, sample contact, laboratory and contact information, sample identifications, sample matrix, analysis required, starting and ending pressures and special instructions or comments. The completed COC will be signed and timed/dated before the samples are shipped. A copy of the COC will be retained for the project file.

Laboratory personnel will sign and date the COC form in acknowledgement of receipt and comment, as necessary to document the sample conditions upon receiving each batch of samples. The laboratory will also assign a case number or unique sample identification number to each sample, and will retain one (1) copy of the completed COC for its records.

5.2.5.3 Odor and Dust Control

An odor and vapor suppressing foam (Rusmar AC-654 foam or similar), water and plastic sheeting will be available at all times during the remedial activity to control potential fugitive emissions.

5.2.6 Waste Management

The implementation of the remedy is not expected to generate wastes for off-Site disposal. In the event that small quantities of wastes are generated, they will be characterized with laboratory analyses in accordance with the requirements of the disposal facilities. They may include: Toxicity Characteristic Leaching Procedure (TCLP), corrosivity, ignitability, reactivity, total petroleum hydrocarbons (TPH) and polychlorinated biphenyls (PCBs). Waste transportation and disposal of all contaminated wastes at an off-Site permitted facility will be managed by an approved Unitil contractor. All shipments of waste from the Site will be documented using waste tracking forms, bills of lading, and receipts.

5.2.6.1 Soil

Soil showing significant signs of MGP impact, e.g., heavy staining of NAPL, will be stockpiled and characterized for off-Site thermal treatment at the Clean Earth facility in Loudon, NH.

5.2.6.2 Construction Debris

Construction and Demolition (C&D) materials, e.g., concrete and pavement, removed during the excavation will be segregated, visually inspected, and decontaminated using scrapers, shovels, and a steam cleaner, as necessary, and loaded into roll-offs for off-Site transportation and disposal.

5.2.6.3 Excess Grout

Excess grout that cannot be managed within the excavation of the principal source area will be consolidated on-Site, characterized and managed off-Site at a permitted landfill.

5.2.7 Off-Site Transportation

The transportation of impacted materials from the Site will be performed in accordance with all regulatory requirements. All haul trucks will have impermeable poly bed liners and impermeable poly covers that fully line the bed of the truck and can be overlapped to cover the top of the load to manage odors during transportation and, if there is the potential for liquids or tarry material leaking from the waste, they will have gasketed tailgates. The trucks may be sprayed, as necessary, with odor suppressive foam prior to covering to reduce vapor and odor emissions.

5.2.8 Decontamination

During and upon completion of the excavation/solidification phases of the project, decontamination of equipment will be performed to prevent contaminated material from being spread to un-impacted areas of the Site.

Decontamination of the earth-moving equipment will occur at the completion of the excavation phase and prior to the handling of clean backfill or mobilization off-Site. The method of equipment decontamination will consist of pressure washing to remove any impacted soil.

Trucks used for the off-Site transport of material will be decontaminated using dry decontamination methods (i.e., removal of loose material with a broom or brush) to the extent practicable to limit the volume of decontamination water. These methods, along with parking of trucks on plastic sheeting during loading, will effectively prevent the spread of contaminated materials onto roadways during transport to disposal facilities.

Decontamination water generated during cleaning of tools and equipment will be temporarily stored on-Site for later off-Site disposal at an approved facility. Water generated from decontaminating personnel will be minimal due to the availability of disposable personal protective equipment (PPE) such as Tyvek® coveralls, booties, and nitrile gloves.

5.2.9 Site Restoration

The stockpiled overburden (15,400 cy) will be used to backfill the excavation and re-grade the treatment area. Remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and Site trailers) would be removed. Backfilling and restoration activities are expected to be completed within a 1-month period.

5.3 Post Remediation Monitoring

Post-remediation monitoring will be conducted on a semi-annual basis for two years to provide the appropriate information to document decreasing concentration trends and evaluate plume stability. Monitoring parameters will include the MGP constituents required by the Groundwater Permit, as well as the following natural attenuation parameters: DO, ORP, ferric iron, sulfate and nitrate. If plume stability has not been established in the initial 2-year period, monitoring will continue on an annual basis until stability can be documented. Unitil proposes to review the requirements for additional groundwater monitoring with NHDES once the plume is stable. Five years of post-remediation monitoring have been assumed to achieve a stable dissolved-phase plume.

5.4 Activity and Use Restriction

An Activity and Use Restriction (AUR) was placed on the Site following the previous remediation to limit direct human contact with MGP residuals that were left in place. The AUR will continue in effect to restrict Site use to commercial/industrial applications and limits activities to those that do not involve the disturbance of groundcover or involve the extraction of groundwater. Additionally, the AUR requires written notification to NHDES of activities that will involve the disturbance of groundcover or groundwater, and that those activities be conducted using OSHA-trained personnel using a plan developed by an environmental professional.

6. References

AECOM, 2021, Source Material Investigation Report, Petrolane/Northern Utilities, Inc. Site, January 2022.

HLA, 1999. Phase II and IIA Site Investigation Report, Former Rochester MGP Site, Rochester, New Hampshire. February 1999.

RETEC, 2001. Completion Report, Former Manufactured Gas Plant, Source Removal Action, Rochester, New Hampshire. April 2001.

RETEC, 2004a. Completion Report Addendum Source Removal Action, Former Manufactured Gas Plant, Rochester, New Hampshire. June 2004.

AECOM, 2019. 2018 and 2019 Biennial Water Quality Report and November 2019 Water Monitoring Data Submittal, Petrolane/Northern Utilities, Inc. site, Route 125, Rochester NH. January 2020.

Tables

Table 2-1
Source Material Summary

Location/ Surface Elevation (ft.) [1]	Boring Interval (ft. bgs)	OLM Thickness (ft.)	Constituent Concentration (mg/Kg)		
			Sampling Interval (ft.)	Naphthalene	Benzene
GP-705 (185 ft.)	20-25	---	20-22	91	<3.1
GP-706 (186 ft.)	20-25	---	21.5-23.5	1,700	<41
GP-708 (180 ft.)	5-10	8.8-9.1	---	---	---
	10-15	11.1-13.9	11.9-13.9	1,500	<41
	15-20	15-15.9	---	---	---
		16.4-19.6	---	---	---
	20-24.5	20-20.5	---	---	---
		21.7-23.1	21.7-23.7	1,600	<36
GP-709 (186.5 ft.)	15-20	16.5-17.8	---	---	---
	20-25	20-21	---	---	---
		---	20-22	540	<1.8
		21.5-23.3	---	---	---
		---	22-24	670	<2.1
	25-30	25-26.2	---	---	---
GP-712 (186 ft.)	10-15	12.2-12.7	---	---	---
	15-20	15-18.3	---	---	---
	20-25	---	20-22	1,100	<37
B-2 (182 ft.)	14-20	14-20	---	---	---
B-3 (184 ft.)	14-20	14-20	---	---	---
	26-30	26-30	---	---	---
B-409 (187 ft.)	14-18	14-18	64	0.48	---
B-410 (188 ft.)	14-22	14-22	12-24	800	9.8
B-411 (185 ft.)	18-24	18-24	12-24.6	840	61
GP-304 (188 ft.)	16-22	16-22	12-15	0.019	---
GP-322 (187.5 ft.)	14-24	14-24	---	---	---
GP-324 (187.5 ft.)	14-24	14-24	---	---	---
GP-325 (188 ft.)	14-20	14-20	---	---	---
GP-326 (185 ft.)	14-16	14-16	---	---	---
MW-403D (181 ft.)	10-16	10-16	---	---	---

Notes:

1 Surface Elevation (MSL)

Bold Source Material Investigation Report (AECOM, 2021)

Itlalics Phase II and Phase IIa Investigation Report, Harding Lawson Assoc, 1999

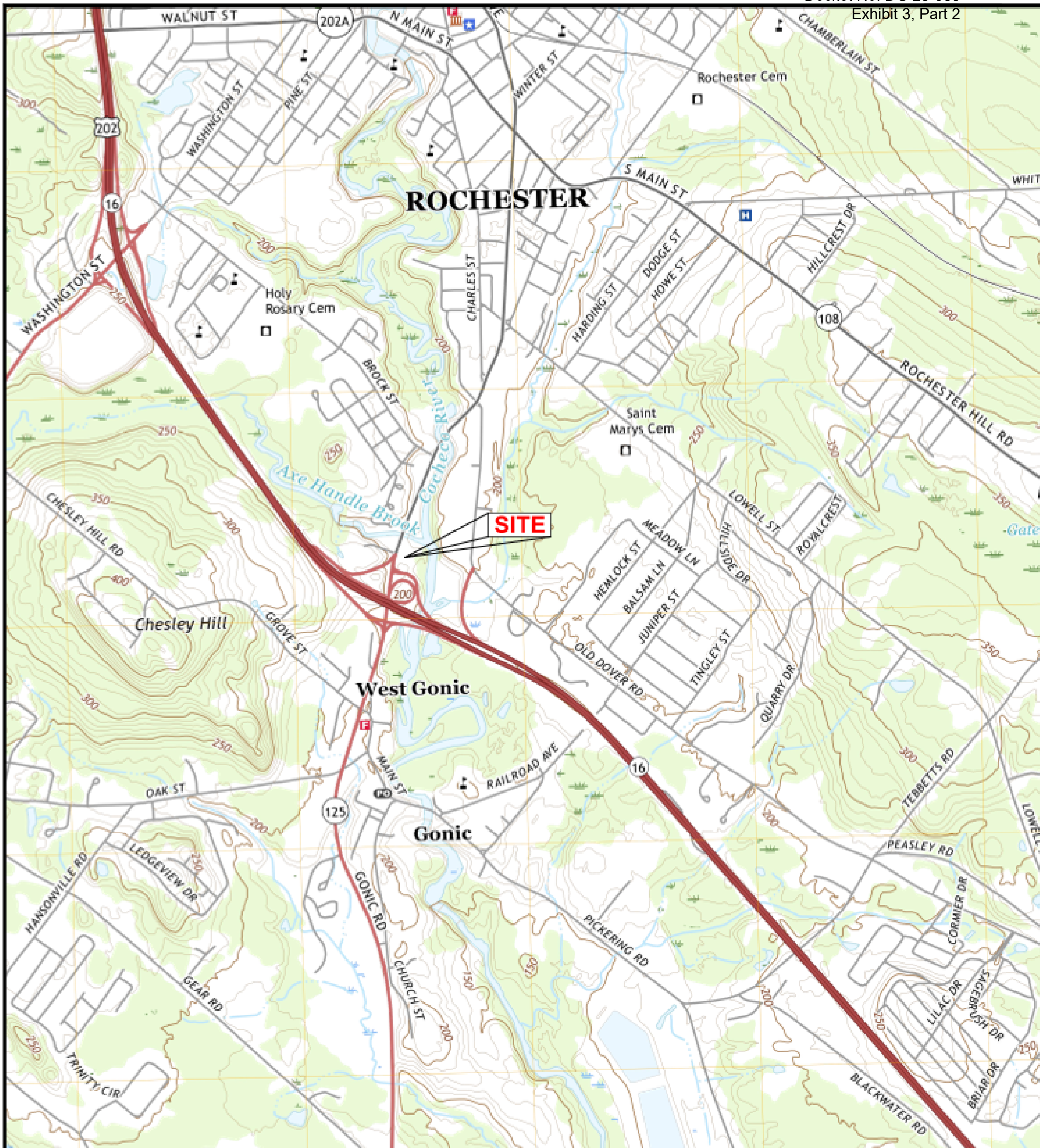
--- No OLM Observed or No Sample Collected

Table 4-1
Summary of Evaluation of Alternatives

Evaluation Criteria	Alternative 1 Excavation, Natural Attenuation and AUR	Alternative 2 Solidification, Natural Attenuation and AUR	Alternative 3 Chemical Oxidation, Natural Attenuation and AUR
Impacted Media Addressed	**10,100 cubic yards**	**16,400 cubic yards**	**16,400 cubic yards**
Effectiveness and Reliability	**Medium** - It is routinely used at former MGP sites and offers a permanent remedy through the removal and off-site management of source material. Additionally, the removal of source material will facilitate the reduction of dissolved-phase impacts through on-going biological processes. However, setbacks from the Cocheco River and Axe Handle Brook will limit access to impacted media in the primary source area and dewatering issues will make the excavation of the secondary source areas infeasible due to the significant depth of the impacts (up to 30 ft bgs) and the proximity to the Cocheco River.	**High** - It is routinely used at former MGP sites and offers a permanent remedy through the treatment of source material. The approach provides the benefit of being able to control the distribution of source material in the ssubsurface. Additionally, the isolation of source material in the solidified mass will facilitate the reduction of dissolved-phase impacts through on-going biological processes.	**Medium** - It has been used at MGP sites, but it is difficult to control the distribution of reagent in the subsurface and in some instances the approach has not been effective in treating NAPL.
Feasibility and Ease of Implementation	**Medium** - The source material is located in the saturated zone and will require significant dewatering and management of construction water.	**High** - All areas of source materiral can be readily accessed.	**High** - All areas of source material can be readily accessed.
Risk Reduction and Associated Benefits	**High** - It addresses the potential risk for current and future site uses.	**High** - It addresses the potential risk for current and future site uses.	**High** - It addresses the potential risk for current and future site uses.
Cost (including 20% Contingency)			
Capital	$5,320,000	$4,760,000	$1,670,000
Design and Oversight	$660,000	$650,000	$620,000
Post-Remediation Monitoring	$160,000	$160,000	$250,000
Total	$6,140,000	$5,570,000	$2,540,000
Net Present Value [1]	$5,660,000	$5,130,000	$2,060,000
Estimated Time Achieve Plume Stability [2]	5 years	5 years	9 years

Notes:
1 Assumes Discount Rate of 8 %
2 Unitil will review the need for additional monitoring with NHDES once plume stability has been demonstrated

Figures



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KILOMETERS: 1, 0.5, 0, 1, 2
METERS: 1000, 500, 0, 1000, 2000
MILES: 1, 0.5, 0, 1
FEET: 1000, 0, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000

QUADRANGLE LOCATION

AECOM

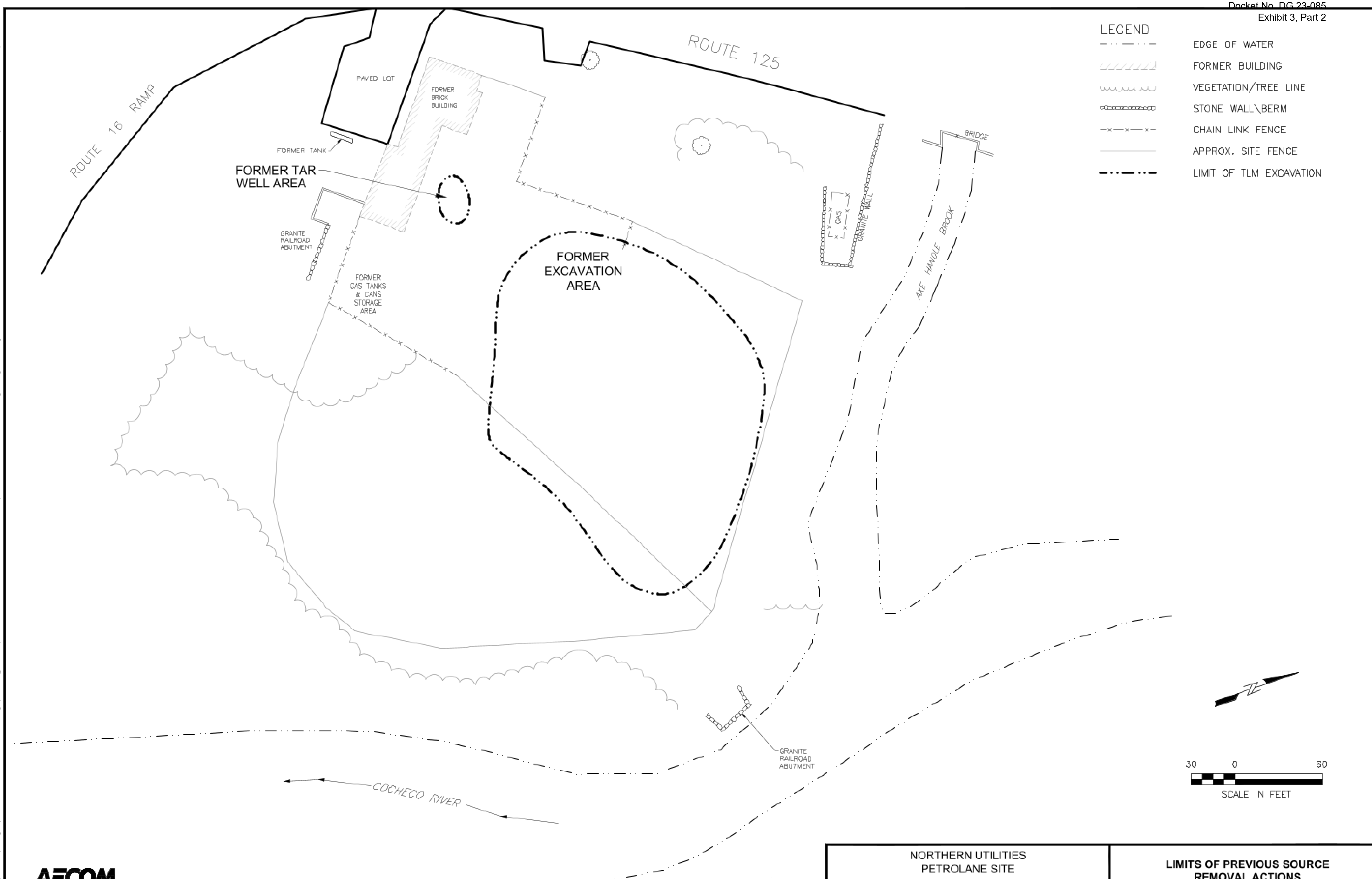
NORTHERN UTILITIES
PETROLANE SITE
60139732

SITE LOCUS

DATE: 04/01/21 | DRWN: K.P.B.

FIGURE 1-1

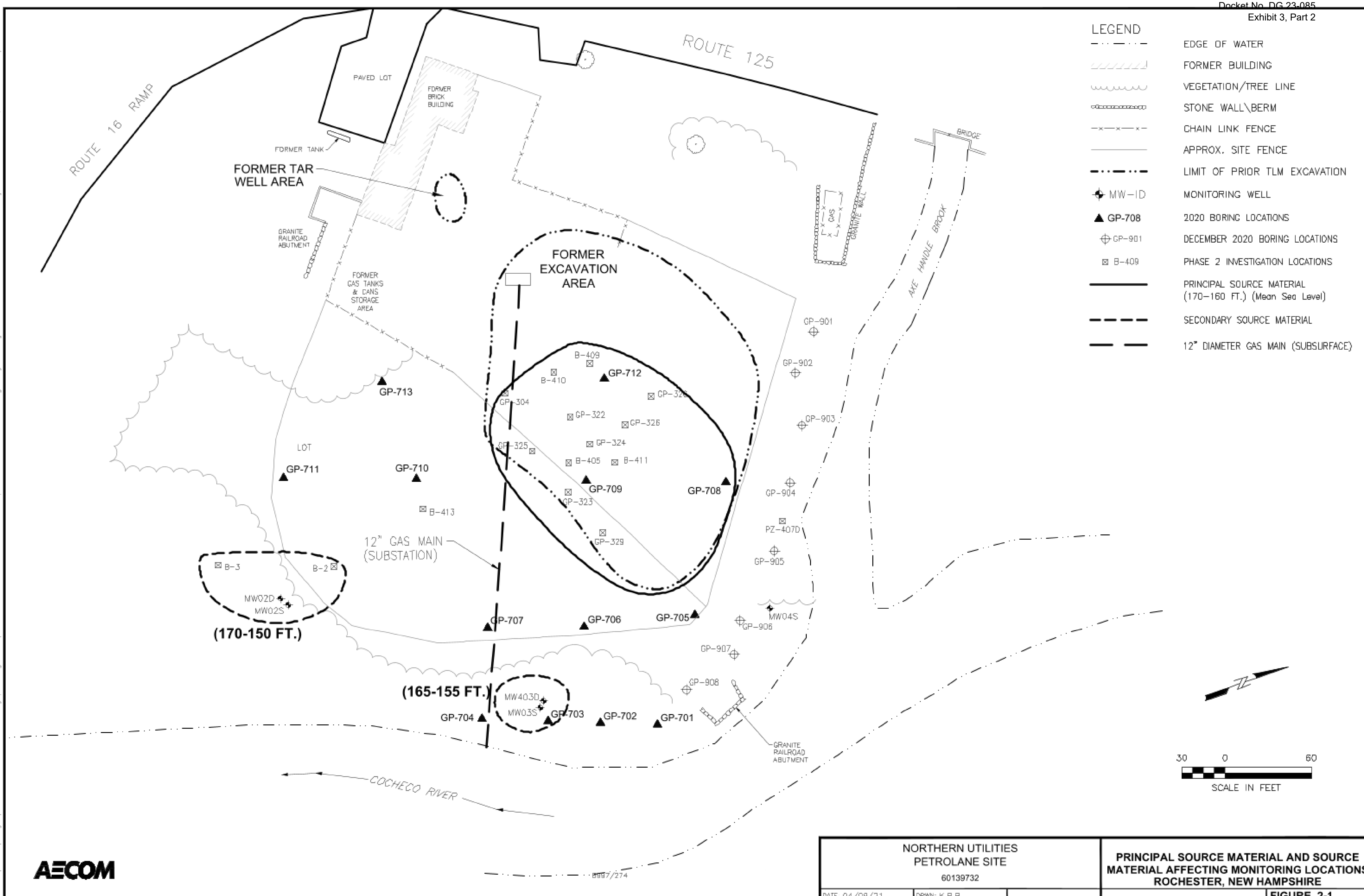
File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities\Rochester NH\Site Locus\Fig 1-1 - Site Locus.dwg Layout: Fig 1-1 - Site Locus User: BarryK Plotted: Apr 01, 2021 - 1:06pm

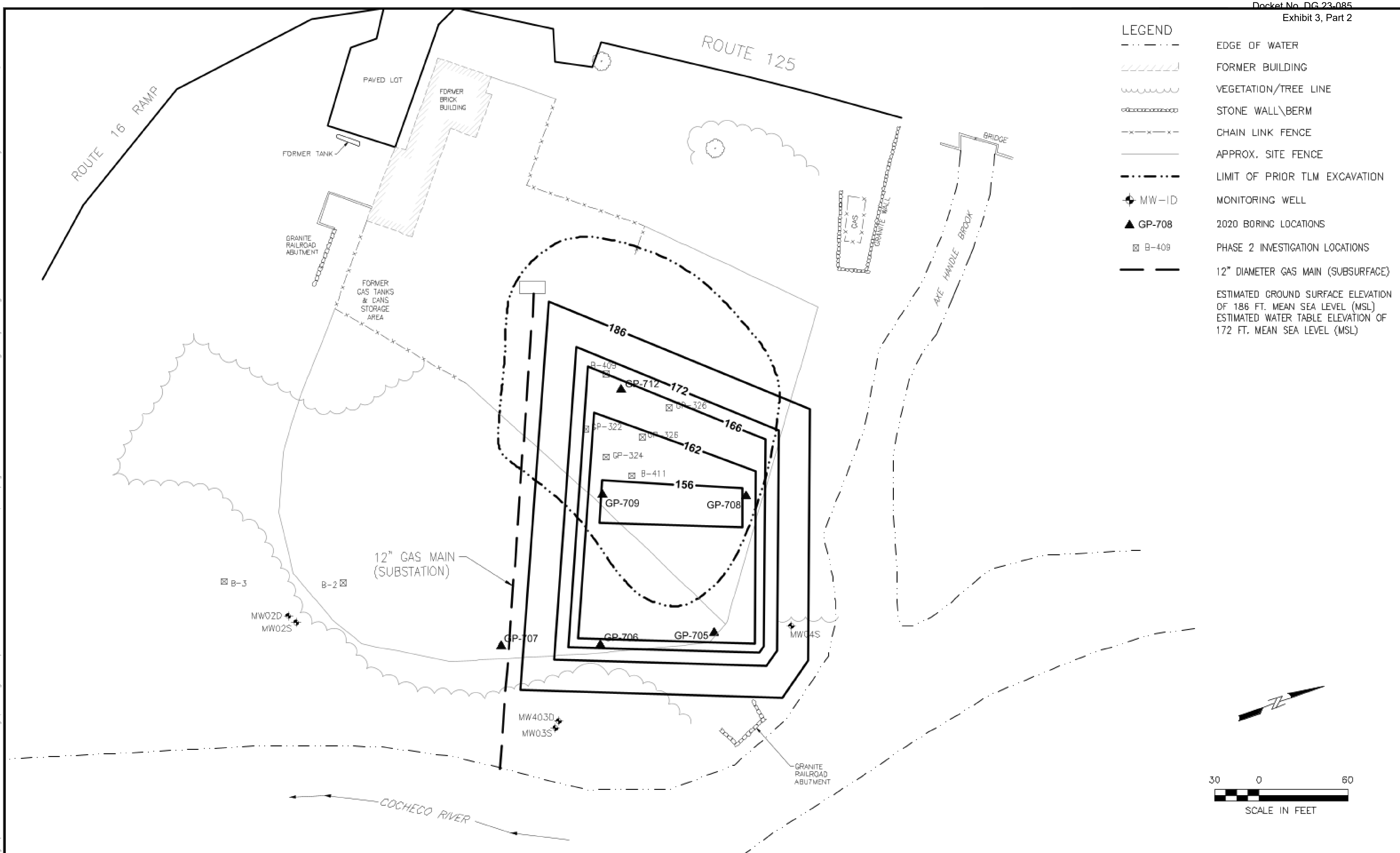


File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities - Rochester NH\60139732 02-02-21.dwg Layout: Fig 1-2 - Limits Prev Source Removal User: BarryK Plotted: Nov 14, 2022

NORTHERN UTILITIES PETROLANE SITE 60139732	**LIMITS OF PREVIOUS SOURCE REMOVAL ACTIONS ROCHESTER, NEW HAMPSHIRE**
DATE: 11/14/22 DRWN: K.P.B.	**FIGURE 1-2**

File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities - Rochester NH\60139732 02-02-21.dwg Layout: Fig 4-1 Source Material User: BarryK Plotted: Oct 26, 2021 - 3:09pm Xref's:

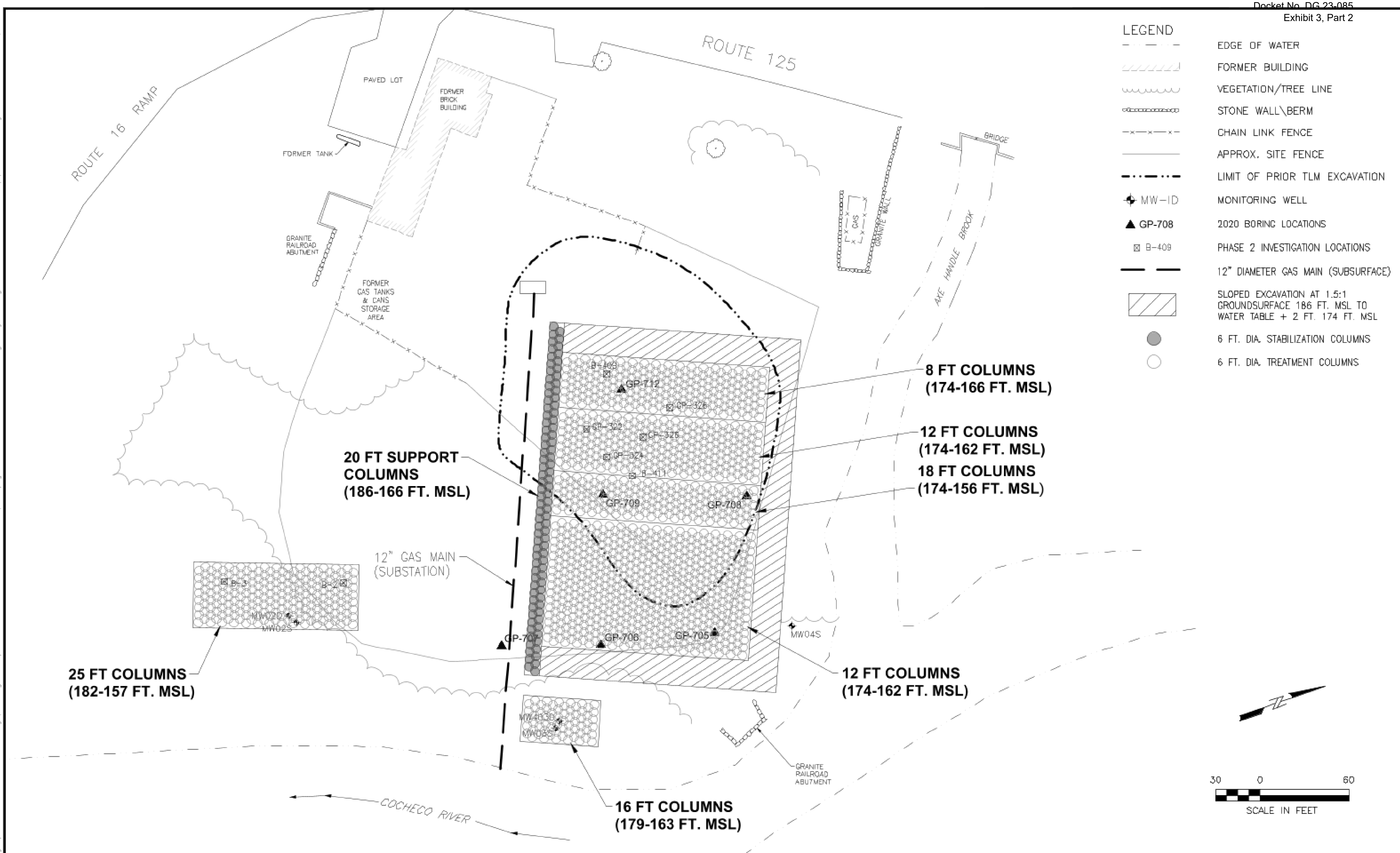




File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities - Rochester NH\RAP\Fig 4-1 - Excavation Plan.dwg Layout: Fig 4-1 Excavation Plan User: BarryK Plotted: Oct 31, 2022 - 11:2

AECOM

NORTHERN UTILITIES PETROLANE SITE 60139732	EXCAVATION PLAN ROCHESTER, NEW HAMPSHIRE
DATE: 10/6/22 DRWN: K.P.B.	FIGURE 4-1

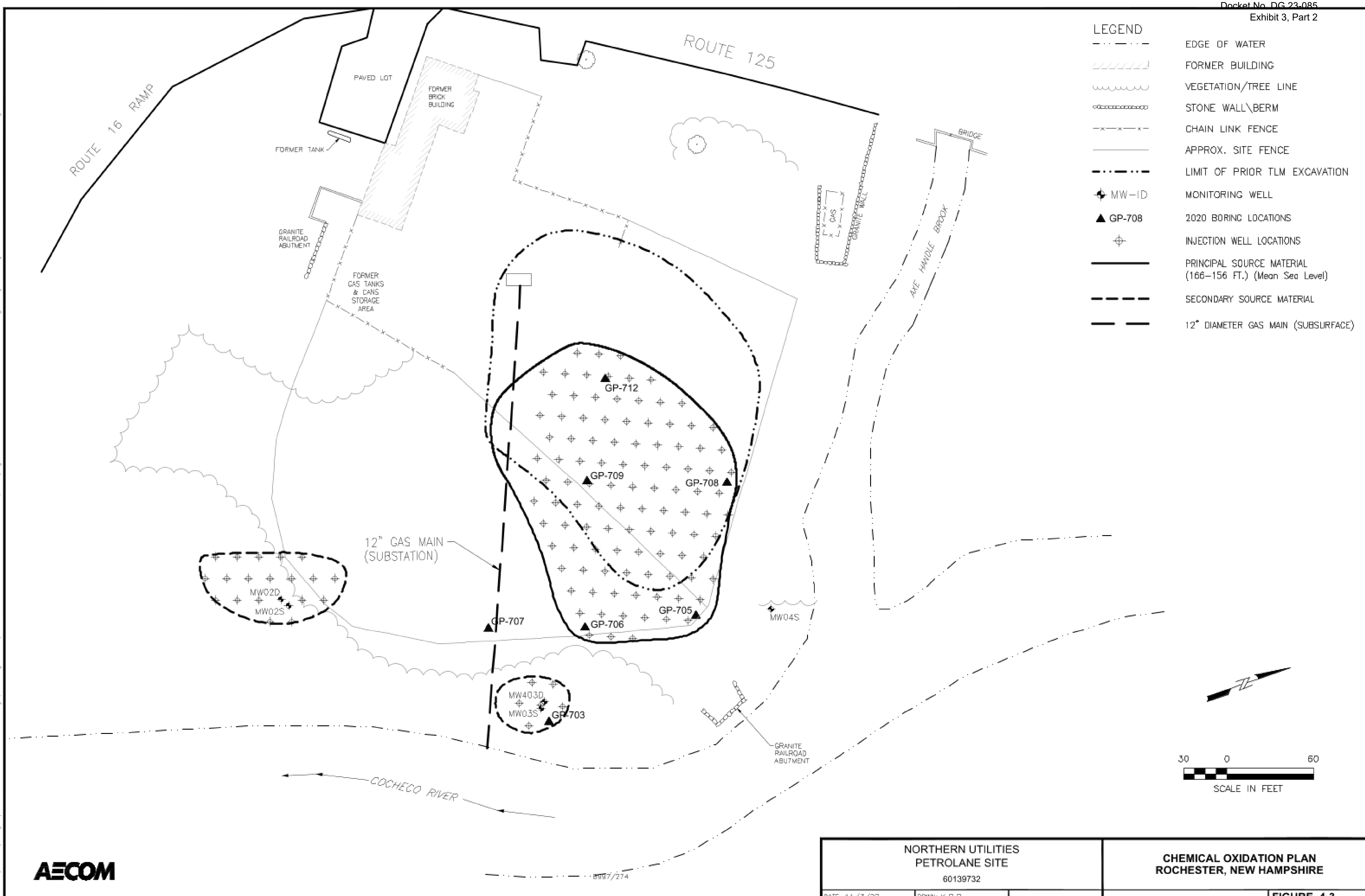


AECOM

NORTHERN UTILITIES PETROLANE SITE 60139732	SOLIDIFICATION PLAN ROCHESTER, NEW HAMPSHIRE
DATE: 10/6/22 DRWN: K.P.B.	FIGURE 4-2

File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities - Rochester NH\RAP\Fig 4-2 - Solidification Plan.dwg Layout: Fig 4-2 Solidification Plan (2) User: BarryK Plotted: Oct 06, 2022

Docket No. DG 23-085
Exhibit 3, Part 2

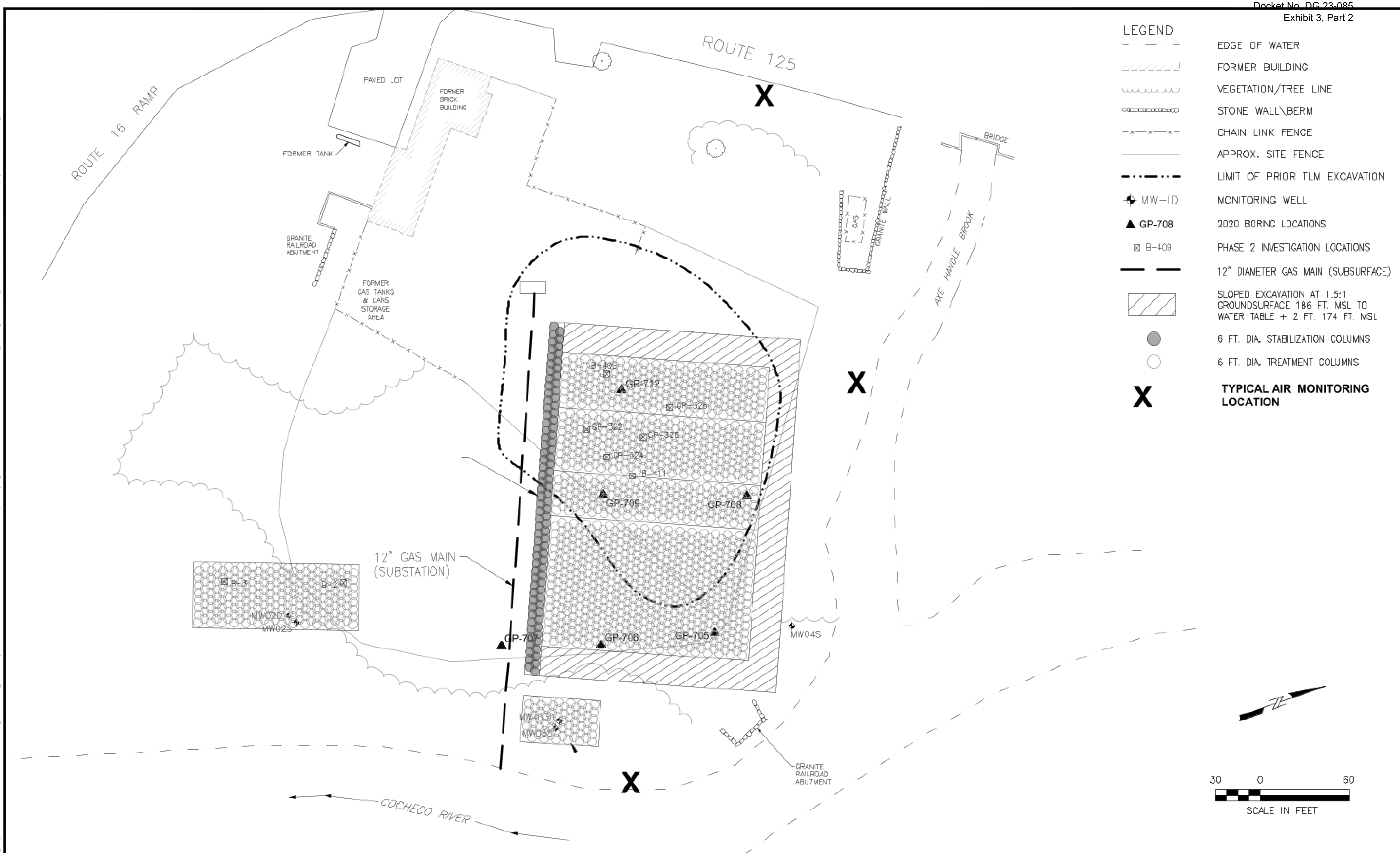


File: C:\Users\barryk\OneDrive - AECOM Directory\Working Jobs\Northern Utilities - Rochester NH\RAP\Fig 4-3 - Chemical Oxidation Plan.dwg Layout: Fig 4-3 Chem Oxidation User: BarryK Plotted: Nov 03, 2022

Figure 5-1
General Project Schedule

		Year 1												Year 2											
		Month												Month											
Activity	Duration	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Design/Procurement[1]	9 months																								
Mobilization	0.5 months																								
Stabilization of High Pressure Gas Line	0.5 months																								
Solidification of Principal Source Material[2]	4 months																								
Solidification of Secondary Source Material	0.5 months																								
Site Restoration	0.5 months																								
Demobilization	0.5 months																								
Post-Remediation Monitoring[3]	5 years																						First Monitoring Event		

1. The design process will be initiated upon NHDES approval of the RAP
2. Assumes that the removal of clean vadose soil, management of spoils and backfilling will happen in concert with the treatment activites as the solidification equipment moves through the source
3. Conducted until the stability of the plume is established.
   RAP assumes semi-annual sampling for 2-years and annual sampling for 3-years.
   NHDES RAP approval in 2023 provides for monitoring through 2029.



AECOM

NORTHERN UTILITIES PETROLANE SITE 60139732	TYPICAL AIR MONITORING LOCATIONS ROCHESTER, NEW HAMPSHIRE
DATE 10/6/22 DRWN: K.P.B.	FIGURE 5-2

Appendix A Activity and Use Restriction

023498

2002 SEP 18 PM 12:51

STRAFFORD COUNTY
REGISTRY OF DEEDS

NOTICE OF ACTIVITY AND USE RESTRICTION

The following Activity and Use Restrictions are hereby placed upon the property belonging to Northern Utilities, Inc., a New Hampshire Corporation (the "Owner" or the "Grantor"), of 300 Friberg Parkway, Westborough, Massachusetts as to the property located on or near Gonic Road, City of Rochester, Strafford County, State of New Hampshire (the "Property"). The Property being certain tracts of the premises conveyed by warranty deed at Book 1506/Page 473 as described in Exhibit A and recorded in the Strafford County Registry of Deeds. The Property is the location of the "Former Rochester Manufactured Gas Plant (MGP) Site", or "Site" which has been assigned site number 871202 by the New Hampshire Department of Environmental Services ("NHDES").

Grantor has conducted site investigation and remediation at the Former Rochester MGP Site to remove coal gasification-related materials ("CGRM") that were generated and accidentally released and/or spilled when the Site was used as a manufactured gas plant between 1903 and 1957. For purposes of these Activity and Use Restrictions, CGRM is defined as any coal, oil and other petroleum wastes and other related products or byproducts of manufacturing gas from coal, oil, or other petroleum products.

The purpose of these Activity and Use Restrictions is to limit direct human exposure to any residual CGRM that was not removed from Grantor's Property. These restrictions shall continue and run with the land until expressly modified or terminated by or on behalf of NHDES and the Grantor and notice of such modifications or termination shall be recorded in the Registry of Deeds. These Activity and Use Restrictions shall be incorporated either in full or by reference into all subsequent deeds, easements, mortgages, leases, licenses, occupancy agreements, or any other instrument conveying an interest in or a right to use that portion of the Grantor's Property.

Restricted Uses and Activities: No use of or activity on the Grantor's Property is permitted which is inconsistent with the objectives of this Activity and Use Restriction, or which might result in a significant risk of harm to health, safety, public welfare or the environment, or in a substantial hazard.

a) The Owner will not use ground water in a manner inconsistent with the prevailing Groundwater Permit issued by the NHDES.

b) To adequately protect neighbors, the general public, and the environment, the Owner shall not excavate or permit other parties to excavate soils within the subject Property, including taking samples for testing and evaluations, unless Owner:

BK2582PG0335

i) Notifies NHDES prior to commencing excavation and provides a description of the conditions and intended nature of the excavation;

ii) Limits disturbance of CGRM-impacted media to the minimum reasonable necessary for the intended purpose;

iii) Ensures that excavation workers are adequately protected in accordance with prevailing industrial hygiene standards (including federal OSHA standards) associated with excavations involving CGRM;

iv) Ensures that CGRM-impacted soil and other regulated materials are excavated and handled in accordance with applicable federal and NHDES standards for CGRM-impacted media, including, but not limited to, hazardous waste requirements, if appropriate;

v) Engages the services of an environmental professional to prepare and implement or supervise the preparation and implementation of a written plan for excavating and handling CGRM-impacted soils and restoring the Property to a condition consistent with this Notice of Activity and Use Restriction;

vi) Restores the Property to a condition consistent with this Notice of Activity and Use Restriction as determined by the NHDES, including proper disposal of any CGRM-impacted media; and

vii) Provides copies of any relevant plan or review and evaluation, and related correspondence to NHDES for approval prior to commencement of excavation activities.

c) Owner shall not permit growing of food on the Property.

d) Owner shall not permit residential use of the Property.

e) Owner shall not permit day care activities, a playground, or children's school on the Property.

f) The Owner shall not permit outdoor recreational activities that disturb landscaping or groundcover.

BK2582PG0336

Permitted Uses and Activities: The following uses of and activities on the Property are allowed, so long as they do not result in a disturbance of landscaping, groundcover, or pavement on Grantor's Property, or involve extraction of groundwater:

a) Retail/commercial uses;

b) Industrial uses;

c) Construction, maintenance, or repair of above-ground improvements, including utility related activities;

d) Maintenance of landscaping and floral gardens and grass;

e) Outdoor recreation uses that do not disturb the landscaping or groundcover (including but not limited to uses such as walking and bird watching); and

f) Any work which may disturb the grounds, excavation, or relocation of contaminated soils undertaken with the written approval of the NHDES.

Emergency Activities: The Owner may conduct excavations within the subject Restricted Area in emergency circumstances that require immediate excavation without obtaining prior written approval of the NHDES in order to repair underground utility lines or other infrastructure or to respond to other types of emergencies. The Owner must meet the conditions outlined in paragraphs (b)(i) through (b)(vi) above under "Restricted Uses and Activities". NHDES shall be afforded a reasonable opportunity to review and comment on any relevant plan developed by an acceptable environmental professional.

Obligations and Conditions Necessary for Implementation: The Owner shall perform the following or ensure that the following actions are taken with respect to the Property:

a) Prevent all excavation on Grantor's Property, except that associated with allowed activities and uses with the written approval of the NHDES;

b) Prevent removal of soils from Grantor's Property, unless authorized by the NHDES;

c) Prevent the use or extraction of groundwater from Grantor's Property, except that associated with allowed uses and activities;

d) Maintain all landscaping, groundcover, and pavement on Grantor's Property in good repair, and fully and immediately repair or replace any landscaping, groundcover, or pavement disturbed as a result of allowed activities and uses; and

e) Maintain all existing fences on Grantor's Property in good repair and prevent unauthorized individuals from entering Grantor's Property.

Proposed Changes in Activities and Uses. Any changes in activities and uses at the Grantor's Property that might result in higher levels of exposure to CGRM than currently exist, including undertaking a prohibited activity or use, must be reflected in a change to this Activity and Use Restriction, approved by the NHDES in accordance with relevant laws, regulations, policies and procedures.

The undersigned officer of Northern Utilities, Inc. warranties under oath that he/she has the actual authority to execute this instrument on behalf of said corporation.

Northern Utilities, Inc.,
A New Hampshire Corporation

By: Kenneth M. Margossian

Name: Kenneth M. Margossian

Title: Executive Vice President

ACKNOWLEDGMENT

Commonwealth of Massachusetts
County of Worcester

On this the 12th day of September, 2002, before me, William MacGillivray, the undersigned officer, personally appeared Kenneth M. Margossian, who acknowledged him/herself to be the Executive Vice President of Northern Utilities, Inc. a New Hampshire Corporation, and that he/she, as such Executive Vice President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by him/herself as Northern Utilities, Inc.

In witness whereof I hereunto set my hand and official seal.

William A. MacGillivray
Notary Public
My commission expires May 7, 2004

BK2582PG0338

NORTHERN UTILITIES, INC.
STRAFFORD COUNTY
ROUTE 125
ROCHESTER, NH

EXHIBIT A

Three tracts or parcels of land situate easterly of New Hampshire Route 125, the road from Rochester to Gonic, in Rochester, near Gonic Village, County of Strafford and State of New Hampshire, bounded and described as follows:

TRACT I: Beginning at a point on the easterly sideline of New Hampshire Route 125 at the northwesterly corner of land now or formerly of Pyrofax Gas Corp.; thence running North Eighteen Degrees Twenty-Four Minutes Fifty-Five Seconds East (N 18° 24' 55" E) a distance of Seventy-Nine and Twenty-Four Hundredths (79.24) feet to a point in the center of Axe Handle Brook, so-called; thence turning and running South Sixty-Five Degrees Eleven Minutes Ten Seconds East (S 65° 11' 10" E) along the center of Axe Handle Brook, so-called, a distance of One-Hundred Twenty-Six and Seventy-Five Hundredths (126.75) feet to a point; thence turning and running South Seventy-Six Degrees Forty-Six Minutes Twenty Seconds East (S 76° 46' 20" E) along the center of Axe Handle Brook, so-called, a distance of Two Hundred Fifty-Seven and Eighty-Four Hundredths (257.84) feet to a point in the center of the Cocheco River; thence turning and running South Forty Degrees Fifty-One Minutes Twenty Seconds East (S 40° 51' 20" E) along the center of the Cocheco River a distance of Fourteen and Three Hundredths (14.03) feet to a point on the northwesterly sideline of land now or formerly of the Boston and Maine Corporation; thence turning and running South Forty-Seven Degrees Twenty-One Minutes Twenty Seconds West (S 47° 21' 20" W) feet along the Boston and Maine Corporation land to the northeasterly corner of said Pyrofax Gas Corp. land; thence turning and running North Seventy-One Degrees Eight Minutes Twenty Seconds West (N 71° 08' 20" W) a distance of Three Hundred Forty-Eight and Thirty-Three Hundredths (348.33) feet along said Pyrofax Gas Corp. land to the point of beginning, be all said measurements, more or less. Meaning and intended to describe Tract I in deed Book 1606 Page 473.

TRACT II: Beginning at a point at the southwesterly corner of the tract herein conveyed at land now or formerly of the Boston and Maine Corporation and land now or formerly of the State of New Hampshire adjacent to the Spaulding Turnpike; thence running northeasterly on a curve to the right having a radius of One Thousand Three Hundred Ninety-One and Twenty-Five Hundredths (1,391.25) feet, a distance of Three Hundred Eight and Thirty Hundredths (308.30) feet along said Boston and Maine Corporation land to a point; thence continuing North Forty-Seven Degrees Twenty-Two Minutes Fifteen Seconds East (N 47° 22' 15" E) along said Boston and Maine Corporation land a distance of One Hundred Fifty-Three and Eighty-Four Hundredths (153.84) feet to a point; thence turning and running South Fifty-Two Degrees Fifty Minutes Five Seconds East (S 52° 50' 05" E) a distance of Seventy-Five and Ninety-Five Hundredths (75.95) feet along said Boston and Maine Corporation land to a point in the center of the Cocheco River; thence turning and running South Ten Degrees Twenty-

Three Minutes Fifty Seconds West (S 10° 23' 50" W) a distance of Three Hundred Seventy-Six and Twenty-Four Hundredths (376.24) feet along the center of the Cocheco River to a point on the northeasterly sideline of said State of New Hampshire land; thence turning and running North Forty-Three Degrees Three Minutes Zero Seconds West (N 43° 03' 00" W) a distance of Two Hundred Thirty-Two and Zero Hundredths (232.00) feet along said State of New Hampshire land to a New Hampshire Highway bound; thence turning and running North Fifty-Eight Degrees Thirty-Eight Minutes Twenty-Five Seconds West (N 58° 38' 25" W) a distance of Two Hundred Two and Eleven Hundredths (202.11) feet along said State of New Hampshire land to said Boston and Maine Corporation land to the point of beginning, be all said measurements, more or less. Meaning and intended to describe Tract II in deed Book 1606 Page 473.

TRACT IIIA: Beginning at a New Hampshire Highway Department concrete bound located North Fifty-Eight Degrees Thirty-Eight Minutes Twenty-Five Seconds West (N 58° 38' 25" W), Three and Eight-One Hundredths (3.81) feet westerly from Station 4895+45+/- of the centerline of location of the Boston and Maine Corporation; thence turning North Fifty-Seven Degrees Twenty-Eight Minutes Fifty Seconds West (N 57° 28' 50" W) a distance of Thirty-Seven and Forty-Seven Hundredths (37.47) feet to a point at land now or formerly of Pyrofax Gas Corp.; thence turning and running northeasterly along a curve to the right having a radius of One Thousand Four Hundred Seventy Three and Seventy-Five Hundredths (1,473.75) feet a distance of Three Hundred Thirty and Sixty Hundredths (330.60) feet to a point of tangency; thence turning and running North Forty-Seven Degrees Twenty-Two Minutes Fifteen Seconds East (N 47° 22' 15" E) a distance of Two Hundred Fourteen and Seventeen Hundredths (214.17) feet to a point located in the Cocheco River; thence turning and running southeasterly by the center of the Cocheco River One Hundred Sixty-Five (165) feet, more or less, to a point; thence turning and running North Fifty-Two Degrees Fifty Minutes Fifteen Seconds West (N 52° 50' 15" W) a distance of Seventy-Five and Ninety-Five Hundredths (75.95) feet to a point on the westerly bank of the Cocheco River; thence turning and running South Forty-Seven Degrees Twenty-Two Minutes Fifteen Seconds West (S 47° 22' 15" W), a distance of One Hundred Fifty-Three and Eighty-Four Hundredths (153.84) feet to a point of curvature located opposite Station 4898+39.6 of the centerline of location of the Boston and Maine Corporation; thence running along a curve to the left having a radius of One Thousand Three Hundred Ninety-One and Twenty-Five Hundredths (1,391.25) feet a distance of Three Hundred Eight and Thirty Hundredths (308.30) feet to a point at said New Hampshire Highway Department land; thence turning and running North Fifty-Eight Degrees Thirty-Eight Minutes Twenty-Five Seconds West (N 58° 38' 25" W) a distance of Forty-Five and Thirteen Hundredths (45.13) feet to the point of beginning, be all said measurements, more or less. Meaning and intending to describe that part of Tract III in deed Book 1506 Page 473 which lies southwesterly of the center of the Cocheco River.

Said tracts of land are shown on "Plan of Land on Route 125 Rochester, NH for Northern Utilities Showing Activity and Use Restriction Areas, July 02, 2002 Owen Haskell, Inc." to be recorded.

Plan #67-20

Appendix B Cost Estimates for Remedial Alternatives

Appendix B-1
Excavation and Natural Attenuation

AECOM

Project Name:	Rochester Former MGP	**Revision No.:**	4
Cost Estimate No.:	Alternative 1	**Date:**	10/21/22
Client	Northern Utilities	**Status:**	Draft
Location	Rochester, NH	**Author:**	MM
		Office:	Chelms
Project Element:	Excavation	**Reviewed By:**	
Type of Estimate:	Feasibility/Conceptual		

Project Details

Project Location:	Rochester, NH
Project Start Date:	2024
Project Duration:	4 Mo
Type of Contract:	Direct Owner
Level of Accuracy:	-30% to +50%
Contingency:	20%

Scope Summary

Excavation of soils to 30' and Natural Attenuation

Excavation Volume	10,100	CY

Document Source:	Source Material Investigation	**Rev. Date**	10/13/2022	**Site Visit?**	yes
Document Source:		**Rev. Date**			
Document Source:		**Rev. Date**			

Cost Summary

Prime Contractor Costs	**$**	**3,145,701**
Other Contracts & Purchases	**$**	**2,175,600**
Subcontractor Costs		
Project Total Estimated Cost	**$**	**6,137,588**

Notes:
1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type		*Accuracy Range*
Preliminary		*-50% to +100%*
Feasibility/Conceptual		*-30% to +50%*
Engineering		
	30%	*-20% to +30%*
	60%	*-15% to +20%*
	90%	*-10% to +15%*

4. Contingency values are based on information provided in 'USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	*Scope Contingency*
Soil Excavation	*15% to 55%*
Groundwater Treatment (Multiple	*15% to 35%*
On-site Incineration	*15% to 35%*
Extraction Wells	*10% to 30%*
Vertical Barriers	*10% to 30%*
Synthetic Cap	*10% to 20%*
Off-site Disposal	*5% to 15%*
Off-site Incineration	*5% to 15%*
Bulk Liquid Processing	*5% to 15%*
Clay Cap	*5% to 10%*
Surface Grading/Diking	*5% to 10%*
Revegetation	*5% to 10%*

AECOM

Rochester Former MGP
Alternative 1
Northern Utilities
Rochester, NH

Excavation

By: MM Rev Date: 10/21/2022

Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
Prime Contractor Costs					0%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Mobilization/Demobilization	LS	1	$66,000	$0	$13,200	$79,200	$79,200	3%
2	Temporary Facilities and Controls	MO	6	$248,560	$0	$49,712	$298,272	$49,712	9%
3	Erosion and Sediment Controls	LF	1,500	$29,145	$0	$5,829	$34,974	$23	1%
4	Odor Foam Consumables	LS	1	$65,465	$0	$13,093	$78,558	$78,558	2%
5	Surface Soil Excavation and Stockpiling	CY	18000	$274,023	$0	$54,805	$328,828	$18	10%
6	Construction Water Management	LS	1	$973,200	$0	$194,640	$1,167,840	$1,167,840	37%
7	Impacted Soil Excavation and Stockpilin	CY	10,100	$274,023	$0	$54,805	$328,828	$33	10%
8	Backfill On-Site Soil	CY	18000	$274,023	$0	$54,805	$328,828	$18	10%
9	Site Restoration	LS	1	$416,977.65	$0	$83,396	$500,373	$500,373	16%
				$2,621,418	$0	$524,284	$3,145,701		100%
Other Contracts & Purchases					0%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	Ton	18,130	$1,813,000	$0	$362,600	$2,175,600	$120	100%
				$1,813,000	$0	$362,600	$2,175,600		100%
Costs					0%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Design	LS	1	$115,000	$0	$23,000	$138,000	$138,000	17%
2	Waste Characterization Sampling	Samples	40	$37,500	$0	$7,500	$45,000	$1,125	6%
3	Air Monitoring and Health and Safety	LS	1	$34,400	$0	$6,880	$41,280	$41,280	5%
4	Operations and Maintenance	Quarterly Event	7	$133,000	$0	$26,600	$159,600	$22,800	20%
5	Oversight Personnel	Man Hours	2737	$360,339	$0	$72,068	$432,407	$158	53%
				$680,239	$0	$136,048	$816,287		100%
Grand Total							$6,137,588		

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Rochester Former MGP
Alternative 1
Northern Utilities
Rochester, NH

AECOM

Excavation

Add Task | Delete Row | Add 1 Blank Row

By: MM   Rev Date: 10/21/22

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	**Mobilization/Demobilization**	**LS**	**1**		**$66,000.00**	
	Excavation Equipment	LS	1	66000	$66,000.00	
2	**Temporary Facilities and Controls**	**MO**	**6**		**$248,560.30**	
	Temporary Facilities- Trailers/Storage Box	Mo.	6	$ 998.88	$5,993.28	
	Portable Toilets	Mo.	6	$ 245.55	$1,473.30	
	Office Equipment	Mo.	6	$ 233.54	$1,401.24	
	Office Supplies	Mo.	6	$ 92.51	$555.06	
	Electric Connection to Office Trailer	Ea.	6	$ 1,352.18	$8,113.08	
	Electric Usage	Mo.	6	$ 200.00	$1,200.00	
	Connection to Hydrant/Water Usage	L.S.	6	$ 2,000.00	$12,000.00	
	Pick Up Truck	Mo.	6	$ 2,198.00	$13,188.00	
	Decontamination Pad	L.S.	1	$ 5,000.00	$5,000.00	
	Decontamination Trailer and Personal Hygiene Facilities	L.S.	1	$ 5,000.00	$5,000.00	
	Water Truck	Mo.	6	$ 1,269.39	$7,616.34	
	Dumpster	Week	24	$ 480.00	$11,520.00	
	Survey	Event	6	$ 5,000.00	$30,000.00	
	Project Manager	Week	30	$ 2,500.00	$75,000.00	
	Superintendent	Event	30	$ 2,350.00	$70,500.00	
3	**Erosion and Sediment Controls**	**LF**	**1,500**		**$29,145.00**	
	Silt Fence	LF	1500	3.13	$4,695.00	
	Hay Bales	LF	1500	8.3	$12,450.00	
	Temporary Fencing	LF	1500	8	$12,000.00	
4	**Odor Foam Consumables**	**LS**	**1**		**$65,464.80**	
	Odor Control Rushmar Foam	gallon	400	$30.00	$12,000.00	
	Odor Control - 1 Laborer, 4 hours per day, 110 days	Hours	440	$87.42	$38,464.80	
	Odor Control Rushmar Unit	Mo.	5	$3,000.00	$15,000.00	
5	**Surface Soil Excavation and Stockpiling**	**CY**	**18,000**		**$274,023.30**	
	Excavator	Hours	670	$150.00	$100,500.00	
	Dozer	Hours	670	$55.00	$36,850.00	
	Equip Oper	Hours	670	$116.57	$78,101.90	
	Laborer	Hours	670	$87.42	$58,571.40	
6	**Construction Water Management**	**LS**	**1**		**$973,200.00**	
	Permitting	LS	1	$20,000.00	$20,000.00	
	Mobilization/Demobilization	LS	1	$400,000.00	$400,000.00	
	Operation	week	16	$25,000.00	$400,000.00	
	Excavation Dewatering	LS	1	$150,000.00	$150,000.00	
	Sampling	Weekly	16	$200.00	$3,200.00	
7	**Impacted Soil Excavation and Stockpiling**	**CY**	**10,100**		**$274,023.30**	
	Excavator	Hours	670	$150.00	$100,500.00	
	Dozer	Hours	670	$55.00	$36,850.00	
	Equip Oper	Hours	670	$116.57	$78,101.90	
	Laborer	Hours	670	$87.42	$58,571.40	
8	**Backfill On-Site Soil**	**CY**	**18,000**		**$274,023.30**	
	Excavator	Hours	670	$150.00	$100,500.00	
	Dozer	Hours	670	$55.00	$36,850.00	
	Equip Oper	Hours	670	$116.57	$78,101.90	
	Laborer	Hours	670	$87.42	$58,571.40	
9	**Site Restoration**	**LS**	**1**		**$416,977.65**	
	Excavator	Hours	80	$150.00	$12,000.00	
	Dozer	Hours	335	$55.00	$18,425.00	
	Equip Oper	Hours	335	$116.57	$39,050.95	
	Laborer	Hours	335	$87.42	$29,285.70	
	Commercial Fill	CY	10,100	$30.00	$303,000.00	
	Seeding	SY	4800	$3.17	$15,216.00	
					$0.00	
	SUB-TOTAL CONTRACTOR				**$2,621,417.65**	**$2,621,417.65**
	Mark-up					**$0.00**
	Contingency	20%				**$524,283.53**
	Total Subcontractor					**$3,145,701.18**
Other Contracts & Purchases						
1	**Waste Disposal**	**Ton**	**18,130**		**$1,813,000.00**	
	Transportation and Disposal (Non-Haz)	Ton	18130	$100	$1,813,000.00	
	Water Disposal	gallon	0		$0.00	
	SUB-TOTAL OTHER CONTRACTS				**$1,813,000.00**	**$1,813,000.00**
	Mark-up					**$0.00**
	Contingency	20%				**$362,600.00**
	Total Subcontractor					**$2,175,600.00**

Costs						
1	**Design**				**$115,000.00**	
	Pre-Design Investigation	LS	1	$40,000.00	$40,000.00	
	Drawings and Specifications	LS	1	$75,000.00	$75,000.00	
2	**Waste Characterization Sampling**	**Samples**	**40**		**$37,500.00**	
	Waste Sampling	Samples	45	$700.00	$31,500.00	
	Confirmation Sampling	Samples	20	$300.00	$6,000.00	
3	**Air Monitoring and Health and Safety**	**LS**	**1**		**$34,400.00**	
	Air Monitoring-Equip	Mo	4	$3,300.00	$13,200.00	
	Suma Canisters	Samples	48	$275.00	$13,200.00	
	HSO-Air Monitoring/Office Support	Hr	80	$100.00	$8,000.00	
					$0.00	
4	**Operations and Maintenance**	**Quarterly Event**	**7**		**$133,000.00**	
	Quarterly GW Monitoring	Quarterly Event	7	$19,000.00	$133,000.00	
5	**Oversight Personnel**	**Man Hours**	**2737**		**$360,338.88**	
	Project Manager	Hr	240	$175.10	$42,024.00	
	Construction Manager	HR	1200	$159.65	$191,580.00	
	Field Staff	Hr	1200	$85.49	$102,588.00	
	Adiministration (Home Office)	HR	96	$95.28	$9,146.88	
	Travel Expenses	LS	1	$15,000.00	$15,000.00	
	SUB-TOTAL COSTS				**$680,238.88**	**$680,238.88**
	Mark-up (ODCs Only)				(no m/u on labor)	**$0.00**
	Contingency	20%				**$136,047.78**
	Total					**$816,286.66**
	GRAND TOTAL					**$6,137,587.84**

Appendix B-2
Solidification and Natural Attenuation

AECOM

Project Name:	Rochester Former MGP	**Revision No.:**	6
Cost Estimate No.:	Alternative 2	**Date:**	11/14/22
Client	Northern Utilities	**Status:**	Draft
Location	Rochester, NH	**Author:**	MM
		Office:	Chelms
Project Element:	Solidification	**Reviewed By:**	
Type of Estimate:	Feasibility/Conceptual		

Project Details

Project Location:	Rochester, NH
Project Start Date:	2024
Project Duration:	3 Mo
Type of Contract:	Direct Owner
Level of Accuracy:	-30% to +50%
Contingency:	20%

Scope Summary

ISS of soils to 30' and Natural Attenuation

Soil ISS Vol	20,000	CY
Total ISS Volume	20,000	CY

Document Source:	Source Material Investigation	**Rev. Date**	10/13/2022	**Site Visit?**	yes
Document Source:		**Rev. Date**			
Document Source:		**Rev. Date**			

Cost Summary

Prime Contractor Costs	**$**	**4,756,445**
Other Contracts & Purchases	**$**	**-**
Subcontractor Costs		
Project Total Estimated Cost	**$**	**5,568,772**

Notes:
1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type		*Accuracy Range*
Preliminary		*-50% to +100%*
Feasibility/Conceptual		*-30% to +50%*
Engineering		
	30%	*-20% to +30%*
	60%	*-15% to +20%*
	90%	*-10% to +15%*

4. Contingency values are based on information provided in 'USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	*Scope Contingency*
Soil Excavation	*15% to 55%*
Groundwater Treatment (Multiple	*15% to 35%*
On-site Incineration	*15% to 35%*
Extraction Wells	*10% to 30%*
Vertical Barriers	*10% to 30%*
Synthetic Cap	*10% to 20%*
Off-site Disposal	*5% to 15%*
Off-site Incineration	*5% to 15%*
Bulk Liquid Processing	*5% to 15%*
Clay Cap	*5% to 10%*
Surface Grading/Diking	*5% to 10%*
Revegetation	*5% to 10%*

AECOM

Rochester Former MGP
Alternative 2
Northern Utilities
Rochester, NH

Solidification

By: MM Rev Date: 11/14/2022

Prime Contractor Costs					0%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Mobilization/Demobilization	LS	1	$436,000	$0	$87,200	$523,200	$523,200	11%
2	Temporary Facilities and Controls	MO	6	$136,560	$0	$27,312	$163,872	$27,312	3%
3	Erosion and Sediment Controls	LF	1,500	$29,145	$0	$5,829	$34,974	$23	1%
4	Odor Foam Consumables	LS	1	$68,465	$0	$13,693	$82,158	$82,158	2%
5	Surface Soil Excavation and Stockpiling	CY	15400	$188,135	$0	$37,627	$225,762	$15	5%
6	ISS Standard 8' Columns	CY	20,000	$2,800,000	$0	$560,000	$3,360,000	$168	71%
7	Spoils Management	CY	5,000	$47,034	$0	$9,407	$56,441	$11	1%
8	Backfill	CY	16000	$235,169	$0	$47,034	$282,203	$18	6%
9	Site Restoration	LS	1	$23,195.94	$0	$4,639	$27,835	$27,835	1%
				$3,963,705	$0	$792,741	$4,756,445		100%
Other Contracts & Purchases					10%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	Ton	-	$0	$0	$0	$0	#DIV/0!	#DIV/0!
				$0	$0	$0	$0		#DIV/0!
Costs					0%	20%			
Task ID	Task Descr.	Unit	Quantity	Bare Cost	MU	Contingency	Total Cost	Unit Rate	%
1	Design	LS	1	$125,000	$0	$25,000	$150,000	$150,000	18%
2	QA/QC Sampling	Samples	40	$17,600	$0	$3,520	$21,120	$528	3%
3	Air Monitoring and Health and Safety	LS	1	$41,000	$0	$8,200	$49,200	$49,200	6%
4	Operations and Maintenance	Quarterly Event	7	$133,000	$0	$26,600	$159,600	$22,800	20%
5	Oversight Personnel	Man Hours	2737	$360,339	$0	$72,068	$432,407	$158	53%
				$676,939	$0	$135,388	$812,327		100%
Grand Total							$5,568,772		

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Rochester Former MGP
Alternative 2
Northern Utilities
Rochester, NH

AECOM

Solidification

Add Task | Delete Row | Add 1 Blank Row

By: MM   Rev Date: 11/14/22

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	**Mobilization/Demobilization**	**LS**	**1**		**$436,000.00**	
	ISS Equipment	LS	1	370000	$370,000.00	
	Excavation Equipment	LS	1	66000	$66,000.00	
2	**Temporary Facilities and Controls**	**MO**	**6**		**$136,560.30**	
	Temporary Facilities- Trailers/Storage Box	Mo.	6	$998.88	$5,993.28	
	Portable Toilets	Mo.	6	$245.55	$1,473.30	
	Office Equipment	Mo.	6	$233.54	$1,401.24	
	Office Supplies	Mo.	6	$92.51	$555.06	
	Electric Connection to Office Trailer	Ea.	6	$1,352.18	$8,113.08	
	Electric Usage	Mo.	6	$200.00	$1,200.00	
	Connection to Hydrant/Water Usage	L.S.	6	$2,000.00	$12,000.00	
	Pick Up Truck	Mo.	6	$2,198.00	$13,188.00	
	Decontamination Pad	L.S.	1	$5,000.00	$5,000.00	
	Decontamination Trailer and Personal Hygiene Facilities	L.S.	1	$5,000.00	$5,000.00	
	Water Truck	Mo.	6	$1,269.39	$7,616.34	
	Dumpster	Week	24	$480.00	$11,520.00	
	Survey	Event	3	$ 5,000.00	$15,000.00	
	Project Manager	Week	10	$ 2,500.00	$25,000.00	
	Superintendent	Event	10	$ 2,350.00	$23,500.00	
3	**Erosion and Sediment Controls**	**LF**	**1500**		**$29,145.00**	
	Silt Fence	LF	1500	$3.13	$4,695.00	
	Hay Bales	LF	1500	$8.30	$12,450.00	
	Temporary Fencing	LF	1500	$8.00	$12,000.00	
4	**Odor Foam Consumables**	**LS**	**1**		**$68,464.80**	
	Odor Control Rushmar Foam	gallon	400	$30.00	$12,000.00	
	Odor Control - 1 Laborer, 4 hours per day, 110 days	Hours	440	$87.42	$38,464.80	
	Odor Control Rushmar Unit	Mo.	6	$3,000.00	$18,000.00	
5	**Surface Soil Excavation and Stockpiling**	**CY**	**15400**		**$188,135.40**	
	Excavator	Hours	460	$150.00	$69,000.00	
	Dozer	Hours	460	$55.00	$25,300.00	
	Equip Oper	Hours	460	$116.57	$53,622.20	
	Laborer	Hours	460	$87.42	$40,213.20	
6	**ISS Standard 8' Columns**	**CY**	**20000**		**$2,800,000.00**	
	ISS Unit Rate	CY	20000	$140.00	$2,800,000.00	
7	**Spoils Management**	**CY**	**5000**		**$47,033.85**	
	Excavator	Hours	115	$150.00	$17,250.00	
	Dozer	Hours	115	$55.00	$6,325.00	
	Equip Oper	Hours	115	$116.57	$13,405.55	
	Laborer	Hours	115	$87.42	$10,053.30	
8	**Backfill**	**CY**	**16000**		**$235,169.25**	
	Excavator	Hours	575	$150.00	$86,250.00	
	Dozer	Hours	575	$55.00	$31,625.00	
	Equip Oper	Hours	575	$116.57	$67,027.75	
	Laborer	Hours	575	$87.42	$50,266.50	
9	**Site Restoration**	**LS**	**1**		**$23,195.94**	
	Excavator	Hours	24	$150.00	$3,600.00	
	Dozer	Hours	24	$55.00	$1,320.00	
	Equip Oper	Hours	24	$116.57	$2,797.68	
	Laborer	Hours	3	$87.42	$262.26	
	Topsoil	cy	0	$0.00	$0.00	
	Seeding	SY	4800	$3.17	$15,216.00	
					$0.00	
	SUB-TOTAL CONTRACTOR				**$3,963,704.54**	**$3,963,704.54**
	Mark-up					**$0.00**
	Contingency	20%				**$792,740.91**
	Total Subcontractor					**$4,756,445.45**
Other Contracts & Purchases						
1	**Waste Disposal**	**Ton**	**0**		**$0.00**	
	Transportation and Disposal (Haz)-	ton	0		$0.00	
	Transportation and Disposal (Non-Haz)-Assumes 30% spoils	Ton	0		$0.00	
	Water Disposal	gallon	0		$0.00	
	SUB-TOTAL OTHER CONTRACTS				**$0.00**	**$0.00**
	Mark-up	10%				**$0.00**
	Contingency	20%				**$0.00**
	Total Subcontractor					**$0.00**

Costs						
1	**Design**				**$125,000.00**	
	Pre-Design Investigation and Treatability Testing	LS	1	$50,000.00	$50,000.00	
	Drawings and Specifications	LS	1	$75,000.00	$75,000.00	
2	**QA/QC Sampling**	**Samples**	**40**		**$17,600.00**	
	QA/QC Sampling	Samples	40	$440.00	$17,600.00	
					$0.00	
3	**Air Monitoring and Health and Safety**	**LS**	**1**		**$41,000.00**	
	Air Monitoring-Equip	Mo	5	$3,300.00	$16,500.00	
	Suma Canisters	Samples	60	$275.00	$16,500.00	
	HSO-Air Monitoring/Office Support	Hr	80	$100.00	$8,000.00	
					$0.00	
4	**Operations and Maintenance**	**Quarterly Even**	**7**		**$133,000.00**	
	Quarterly GW Monitoring	Quarterly Event	7	$19,000.00	$133,000.00	
5	**Oversight Personnel**	**Man Hours**	**2737**		**$360,338.88**	
	Project Manager	Hr	240	$175.10	$42,024.00	
	Construction Manager	HR	1200	$159.65	$191,580.00	
	Field Staff	Hr	1200	$85.49	$102,588.00	
	Adiministration (Home Office)	HR	96	$95.28	$9,146.88	
	Travel Expenses	LS	1	$15,000.00	$15,000.00	
	SUB-TOTAL COSTS				**$676,938.88**	**$676,938.88**
	Mark-up (ODCs Only)				(no m/u on labor)	**$0.00**
	Contingency	20%				**$135,387.78**
	Total					**$812,326.66**
	GRAND TOTAL					**$5,568,772.10**

Appendix B-3
Chemical Oxidation and Natural Attenuation

AECOM

Project Name:	Rochester Former MGP	**Revision No.:**	5
Cost Estimate No.:	Alternative 3	**Date:**	11/8/22
Client	Northern Utilities	**Status:**	Draft
Location	Rochester, NH	**Author:**	MM
		Office:	Chelms
Project Element:	In-Situ Oxidation (ISCO)	**Reviewed By:**	
Type of Estimate:	Feasibility/Conceptual		

Project Details

Project Location:	Rochester, NH
Project Start Date:	2024
Project Duration:	3 Mo
Type of Contract:	Direct Owner
Level of Accuracy:	-30% to +50%
Contingency:	20%

Scope Summary

ISCO of soils to 30' and Natural Attenuation

Soil ISCO Volume	16,400	CY
Total ISCO Volume	16,400	CY

Document Source:	Source Material Investigation	**Rev. Date**	10/13/2022	**Site Visit?**	yes
Document Source:		**Rev. Date**			
Document Source:		**Rev. Date**			

Cost Summary

Prime Contractor Costs	**$**	**1,670,335**
Other Contracts & Purchases		**#REF!**
Subcontractor Costs		
Project Total Estimated Cost	**$**	**2,539,815**

Notes:
1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type	*Accuracy Range*
Preliminary	*-50% to +100%*
Feasibility/Conceptual	*-30% to +50%*
Engineering	
30%	*-20% to +30%*
60%	*-15% to +20%*
90%	*-10% to +15%*

4. Contingency values are based on information provided in 'USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	*Scope Contingency*
Soil Excavation	*15% to 55%*
Groundwater Treatment (Multiple	*15% to 35%*
On-site Incineration	*15% to 35%*
Extraction Wells	*10% to 30%*
Vertical Barriers	*10% to 30%*
Synthetic Cap	*10% to 20%*
Off-site Disposal	*5% to 15%*
Off-site Incineration	*5% to 15%*
Bulk Liquid Processing	*5% to 15%*
Clay Cap	*5% to 10%*
Surface Grading/Diking	*5% to 10%*
Revegetation	*5% to 10%*

AECOM

Rochester Former MGP
Alternative 3
Northern Utilities
Rochester, NH

In-Situ Oxidation (ISCO)

By: MM Rev Date: 11/8/2022

Prime Contractor Costs					0%	20%			
Task ID	*Task Descr.*	*Unit*	*Quantity*	*Bare Cost*	*MU*	*Contingency*	*Total Cost*	*Unit Rate*	*%*
1	*Mobilization/Demobilization*	*LS*	1	$11,130	$0	$2,226	$13,356	$13,356	1%
2	*Temporary Facilities and Controls*	*MO*	7	$104,303	$0	$20,861	$125,163	$17,880	7%
3	*Erosion and Sediment Controls*	*LF*	1,500	$29,145	$0	$5,829	$34,974	$23	2%
4	*Transportation/Travel Costs*	*Weeks*	26	$138,918	$0	$27,784	$166,702	$6,412	10%
5	*Well Installation*	*Wells*	130	$58,810	$0	$11,762	$70,572	$543	4%
6	*Reagent Injection*	*Events*	3	$1,023,640	$0	$204,728	$1,228,368	$409,456	74%
7	*Site Restoration*	*LS*	5,000	$26,000	$0	$5,200	$31,200	$6	2%
	Total			$1,391,946	$0	$278,389	$1,670,335		100%
Costs					0%	20%			
Task ID	*Task Descr.*	*Unit*	*Quantity*	*Bare Cost*	*MU*	*Contingency*	*Total Cost*	*Unit Rate*	*%*
1	*Pre-Design Investigation and Treatability*	*LS*	1	$50,000	$0	$10,000	$60,000	$60,000	7%
2	*Air Monitoring and Health and Safety*	*LS*	1	$54,200	$0	$10,840	$65,040	$65,040	7%
3	*Operations and Maintenance*	*Quarterly Event*	7	$209,000	$0	$41,800	$250,800	$35,829	29%
4	*Oversight Personnel*	*Man Hours*	3137	$411,367	$0	$82,273	$493,640	$157	57%
	Total			$724,567	$0	$144,913	$869,480		100%
Grand Total							$2,539,815		

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Rochester Former MGP
Alternative 3
Northern Utilities
Rochester, NH

AECOM

In-Situ Oxidation (ISCO)

Add Task | Delete Row | Add 1 Blank Row

By: MM   Rev Date: 11/8/22

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	**Mobilization/Demobilization**	**LS**	**1**		**$11,130.00**	
	Dessign Mobilization	Event	3	3710	$11,130.00	
2	**Temporary Facilities and Controls**	**MO**	**7**		**$104,302.54**	
	Temporary Facilities- Trailers/Storage Box	Mo.	7	$499.44	$3,496.08	
	Portable Toilets	Mo.	7	$245.55	$1,718.85	
	Office Equipment	Mo.	7	$233.54	$1,634.78	
	Office Supplies	Mo.	7	$92.51	$647.57	
	Electric Connection to Office Trailer	Ea.	7	$1,352.18	$9,465.26	
	Electric Usage	Mo.	7	$200.00	$1,400.00	
	Connection to Hydrant/Water Usage	L.S.	7	$2,000.00	$14,000.00	
	Decontamination Pad	L.S.	1	$5,000.00	$5,000.00	
	Decontamination Trailer and Personal Hygiene Facilities	L.S.	1	$5,000.00	$5,000.00	
	Dumpster	Week	28	$480.00	$13,440.00	
	Project Manager	Week	10	$ 2,500.00	$25,000.00	
	Superintendent	Event	10	$ 2,350.00	$23,500.00	
3	**Erosion and Sediment Controls**	**LF**	**1500**		**$29,145.00**	
	Silt Fence	LF	1500	$3.13	$4,695.00	
	Hay Bales	LF	1500	$8.30	$12,450.00	
	Temporary Fencing	LF	1500	$8.00	$12,000.00	
4	**Transportation/Travel Costs**	**Weeks**	**26**		**$138,918.00**	
	Transportation /Travel	Week	26	$5,343.00	$138,918.00	
5	**Well Installation**	**Wells**	**130**		**$58,810.00**	
	Mobilization/Demobilization	LS	1	$2,000.00	$2,000.00	
	Installation	Well	130	$130.00	$16,900.00	
	Well Material	Well	130	$307.00	$39,910.00	
6	**Reagent Injection**	**Events**	**3**		**$1,023,640.00**	
	Labor and Equipment	Day	130	$4,156.00	$540,280.00	
	Reagent	Gallons	91200	$5.30	$483,360.00	
7	**Site Restoration**	**LS**	**5000**		**$26,000.00**	
	Mobilization	LS	1	$2,000.00		
	Well Decomissioning	Wells	130	$200.00	$26,000.00	
	SUB-TOTAL CONTRACTOR				**$1,391,945.54**	**$1,391,945.54**
	Mark-up					**$0.00**
	Contingency	20%				**$278,389.11**
	Total Subcontractor					**$1,670,334.65**
Other Contracts & Purchases						
1	**Waste Disposal**	**Ton**	**#REF!**		**$0.00**	
	Transportation and Disposal (Non-Haz)	ton	0		$0.00	
	SUB-TOTAL OTHER CONTRACTS				**$0.00**	**$0.00**
	Mark-up					**$0.00**
	Contingency	20%				**$0.00**
	Total Subcontractor					**$0.00**
Costs						
1	**Pre-Design Investigation and Treatability Testing**				**$50,000.00**	
	Pre-Design Investigation and Treatability Testing	LS	1	$50,000.00	$50,000.00	
2	**Air Monitoring and Health and Safety**	**LS**	**1**		**$54,200.00**	
	Air Monitoring-Equip	Mo	7	$3,300.00	$23,100.00	
	Suma Canisters	Samples	84	$275.00	$23,100.00	
	HSO-Air Monitoring/Office Support	Hr	80	$100.00	$8,000.00	
					$0.00	
3	**Operations and Maintenance**	**Quarterly Even**	**7**		**$209,000.00**	
	Quarterly GW Monitoring	Quarterly Event	11	$19,000.00	$209,000.00	
4	**Oversight Personnel**	**Man Hours**	**3137**		**$411,366.88**	
	Project Manager	Hr	240	$175.10	$42,024.00	
	Construction Manager	HR	1400	$159.65	$223,510.00	
	Field Staff	Hr	1400	$85.49	$119,686.00	
	Administration (Home Office)	HR	96	$95.28	$9,146.88	
	Travel Expenses	LS	1	$17,000.00	$17,000.00	
	SUB-TOTAL COSTS				**$724,566.88**	**$724,566.88**
	Mark-up (ODCs Only)				(no m/u on labor)	**$0.00**
	Contingency	20%				**$144,913.38**
	Total					**$869,480.26**
	GRAND TOTAL					**$2,539,814.90**