

Coakley Landfill Community Update

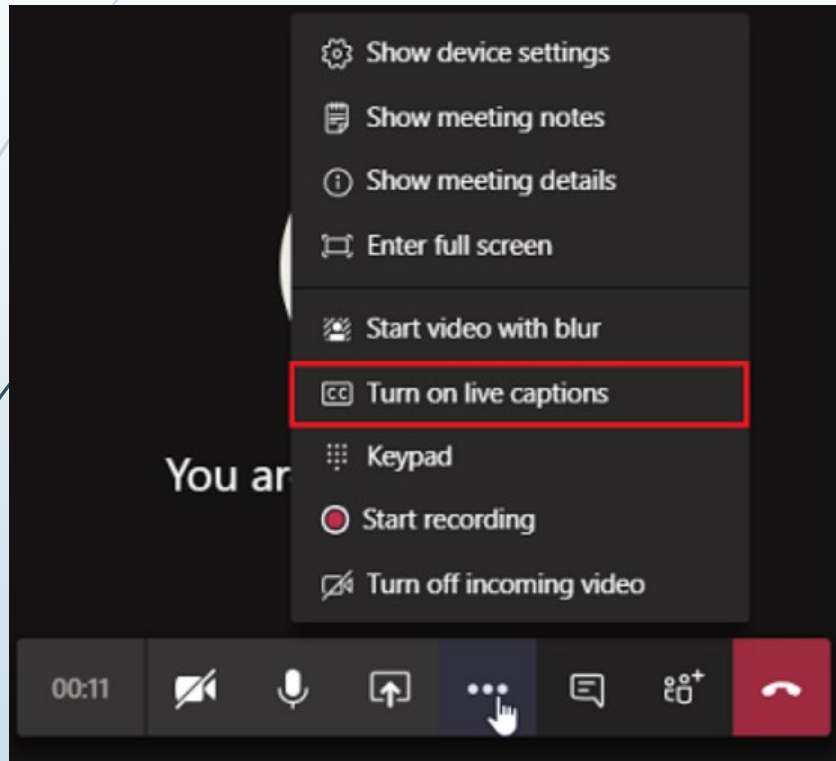
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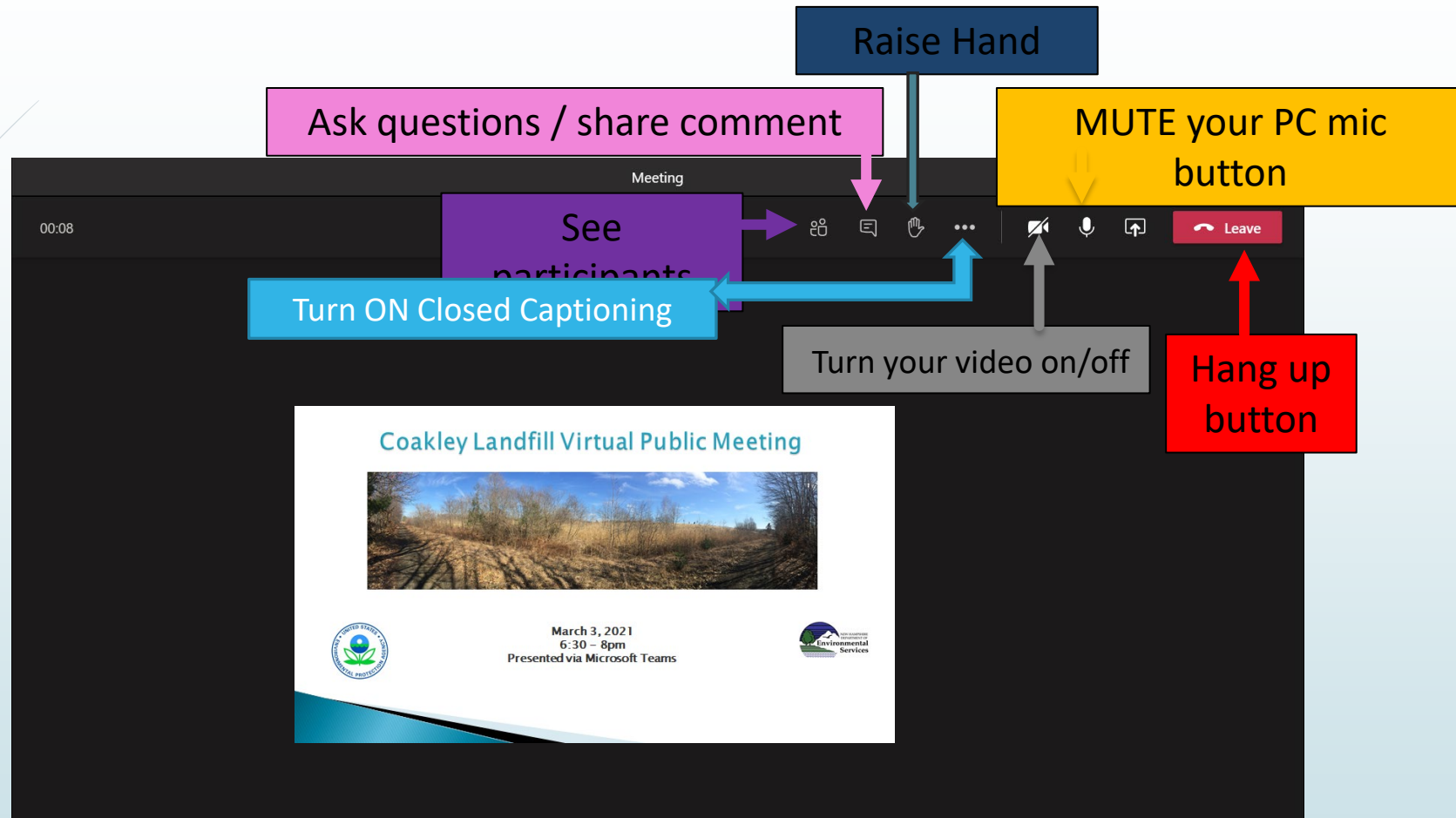
March 3, 2021



Closed Captioning



1. Once joined or in the group call, click on the 3 ellipses (More actions)
2. Click on *Turn on live captions (preview)*
3. The closed captions will appear on the bottom left-hand side of the screen



MS Teams Meeting Controls for Participant

Agenda

- 6:30** Introductions and Agenda Review, *Kelsey Dumville, EPA*
- 6:40** EPA Update and Current Status, *Skip Hull, EPA*
- Site History and Background
 - Ongoing Investigations
 - Five Year Review
- 6:55** NHDES Update and Current Status of Private Well Sampling, *Drew Hoffman, NHDES*
- 7:10** Project Updates, *Peter Britz, CLG, and Chris Buckman / Haley Ward, Consultant to CLG*
- 7:30** Question and Answer, via online chat and phoneline
- 8:00** Adjourn

*Each agenda item will involve a short presentation and will leave time for clarifying questions and answers. Presenters will attempt to answer questions right away, however certain questions require additional follow-up and we will work to do so following the presentation-portion of the meeting.

Introductions

- USEPA
 - Skip Hull, Project Manager (Presenter)
 - Kelsey Dumville, Community Involvement Coordinator
 - Melissa Taylor, NH/RI Superfund Section Chief

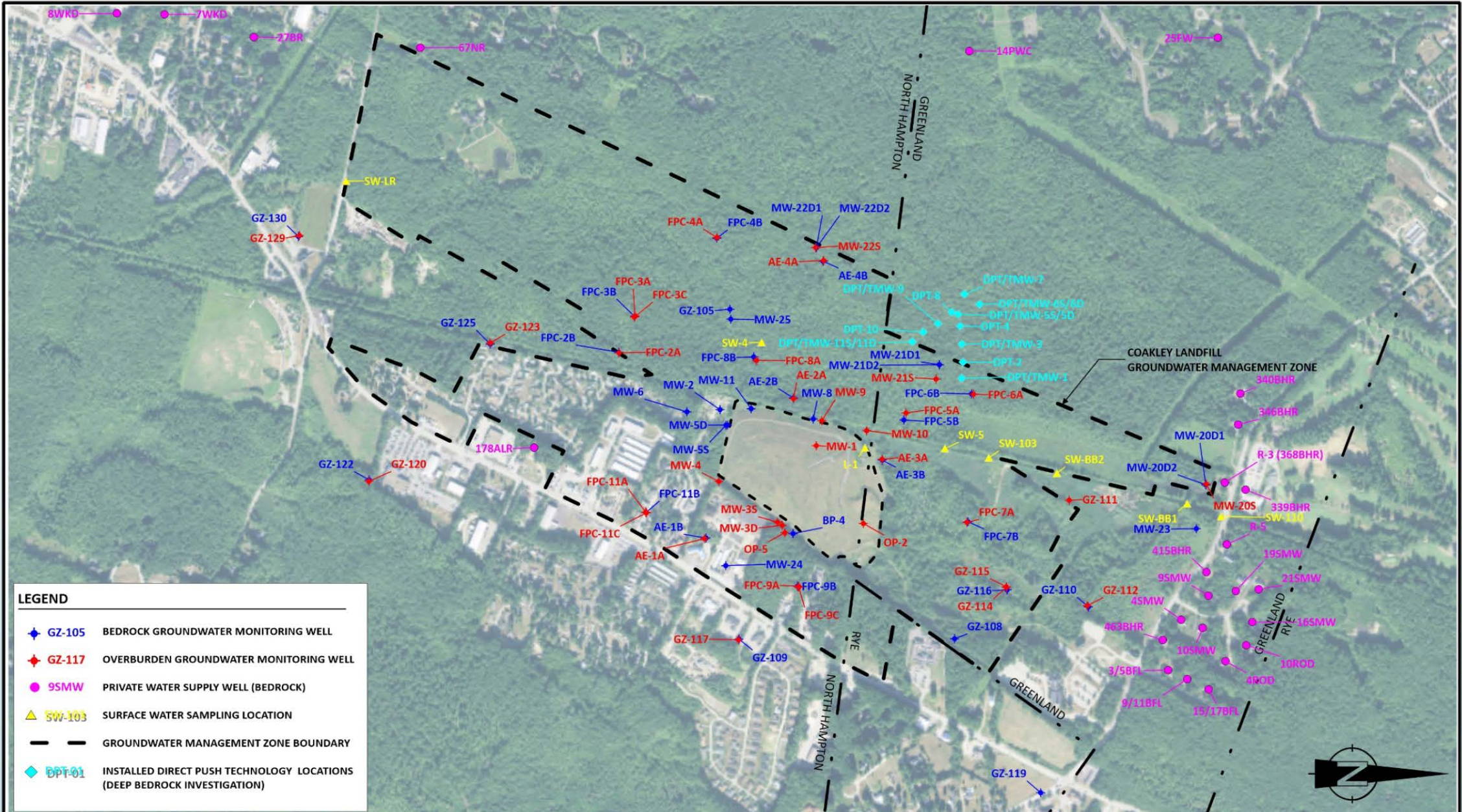
- NHDES
 - Drew Hoffman, Project Manager (Presenter)
 - Dr. Jonathan Ali, Toxicologist
 - Kate Emma Schlosser, Emerging Contaminants Program
 - Michael Wimsatt, Director Waste Management Division
 - Robin Mongeon, Supervisor Federal Sites Section
 - Jim Soukup, Weston Solutions

- CLG
 - Peter Britz, Project Manager
 - Chris Buckman, Haley Ward (Presenter)

Site History

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- 2016: PFAS compounds discovered in groundwater at Coakley Landfill
- 2016: Extensive private well sampling initiated based on emerging contaminants PFAS and 1,4-dioxane
- 2016: Federal Health Advisory and State AGQS for PFOA and PFOS = 70 parts per trillion (ppt) or nanograms per liter (ng/L)
- 2018: NHDES lowers AGQS for 1,4-dioxane to 0.32 mg/L
- 2018: Investigation of extent of contamination in bedrock groundwater
- 2019-2020: NHDES adoption of AGQS for 4 PFAS compounds
- 2020: Berrys Brook contaminant reduction pilot study (House Bill 494)



LEGEND

- ◆ GZ-105 BEDROCK GROUNDWATER MONITORING WELL
- ◆ GZ-117 OVERBURDEN GROUNDWATER MONITORING WELL
- 95MW PRIVATE WATER SUPPLY WELL (BEDROCK)
- ▲ SW-103 SURFACE WATER SAMPLING LOCATION
- GROUNDWATER MANAGEMENT ZONE BOUNDARY
- ◆ DPT-01 INSTALLED DIRECT PUSH TECHNOLOGY LOCATIONS (DEEP BEDROCK INVESTIGATION)

PROJECT TITLE:	COAKLEY LANDFILL SUPERFUND SITE NORTH HAMPTON & GREENLAND, NEW HAMPSHIRE		DWG:	BY: CFB	REV:	NOTE:
				DATE: 2021-02-22	REV DATE:	
SHEET TITLE:	SAMPLING AND INVESTIGATION LOCATIONS		JN: 10424.002	APPROVED BY: CFB	ISSUE:	APPROXIMATE SCALE 1:9,000 0 FT 750 FT 1500 FT
			SCALE: AS SHOWN	CHECKED BY:	ISSUE DATE:	


HALEY WARD

Ongoing Investigations

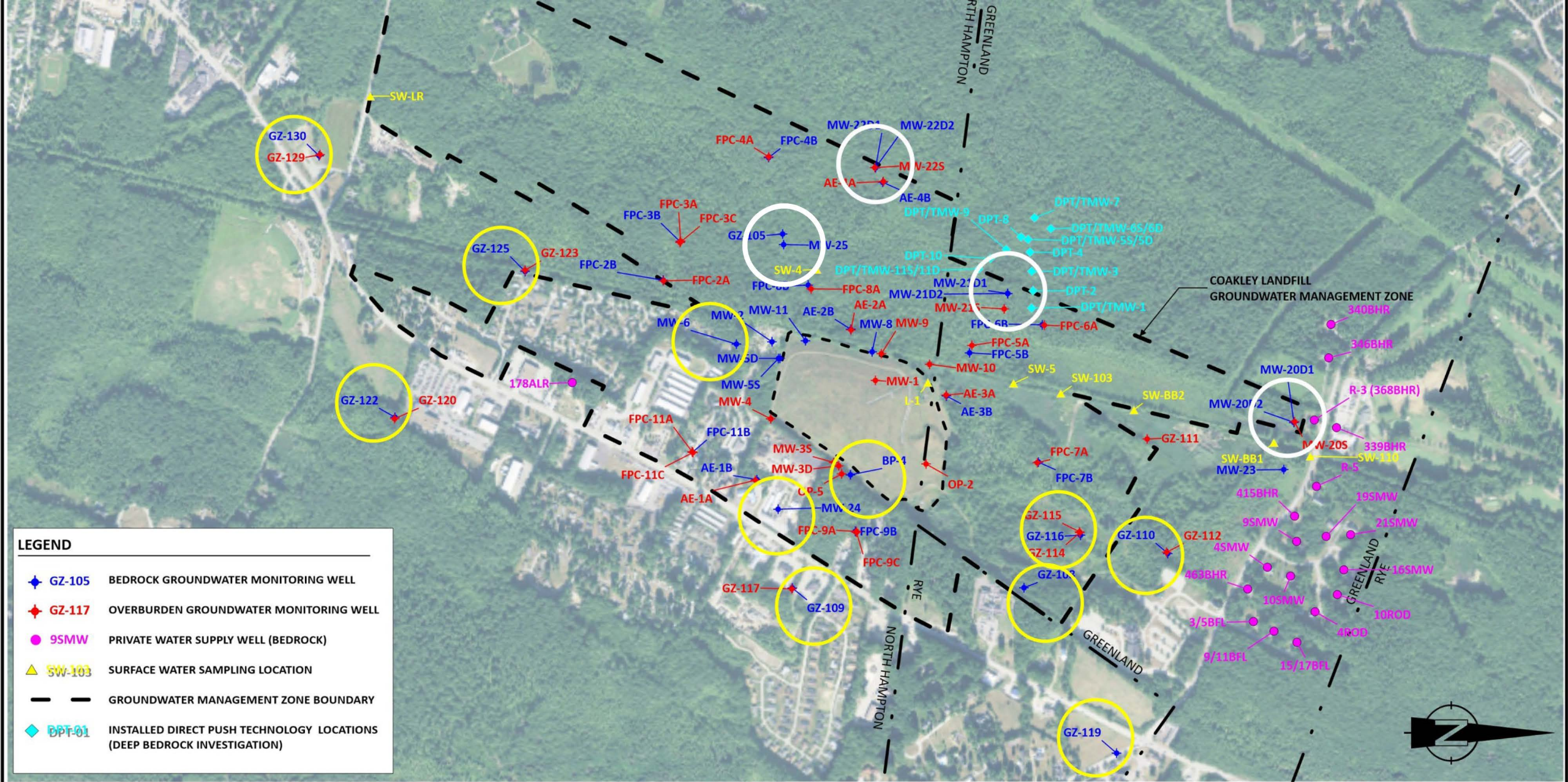
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➤ Deep Bedrock

➤ Initiated in 2018:

- Understand flow pathways in bedrock
- Determine level of contamination in bedrock
- Assess the potential for migration of contaminants in bedrock groundwater to potential receptors

- ☐ 4 new deep bedrock boreholes installed
- ☐ 11 historic bedrock boreholes redeveloped
- ☐ Borehole geophysics and sampling
- ☐ Surface geophysics and bedrock outcrop mapping
- ☐ 96-hour pumping test
- ☐ Investigation schedule for completion 2021



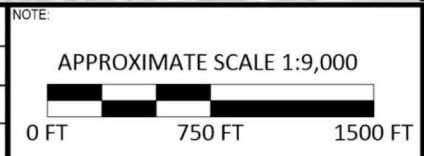
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Ongoing Investigations

10

- Stormwater Runoff
 - Stormwater runoff from landfill cap sampled during storm events
 - Landfill liner and cover material sampled
 - PFAS detected in runoff, though runoff events are very infrequent
 - Landfill cap liner and cover material contain PFAS compounds
- Berrys Brook Contaminant Reduction (HB 494)

Next Steps

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- Continued Private Well Sampling
- Fifth 5-Year Review
- Bedrock Investigation Completion
- Updated Conceptual Site Model and Long-Term Recommendations
- USEPA PFAS Action Plan Update
 - Unregulated Contaminant Monitoring Rule 5
 - PFOA and PFOS Regulatory Determination

Coakley Landfill Contact Information

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www.epa.gov/superfund/coakley

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Private Well Sampling

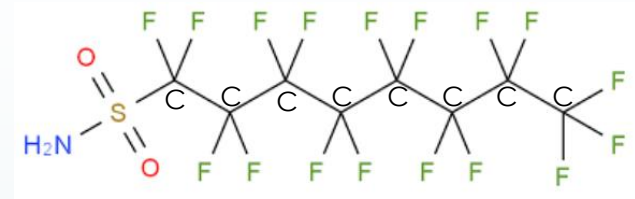
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- Private well sampling has occurred since site discovery (1980s)
- Private well sampling expanded in 2016
 - ✓ Over 100 wells initially sampled by NHDES
 - ✓ Ongoing biannual sampling of 24 private wells by CLG
 - ✓ 9 sampling rounds collected to date
- Data Summary
 - ✓ Three private wells considered “impacted” by the site
 - ✓ Two wells exceed NH standards for 1,4-dioxane & PFOA
 - Both private wells have been equipped with treatment systems
 - ✓ All 24 wells have had detections of PFAS – below NH standards
 - ✓ Data trends suggest steady state
- PFOSA first detected in spring 2020 at all private wells sampled, including wells that have never had PFAS compounds detected

Private Well Sampling

2

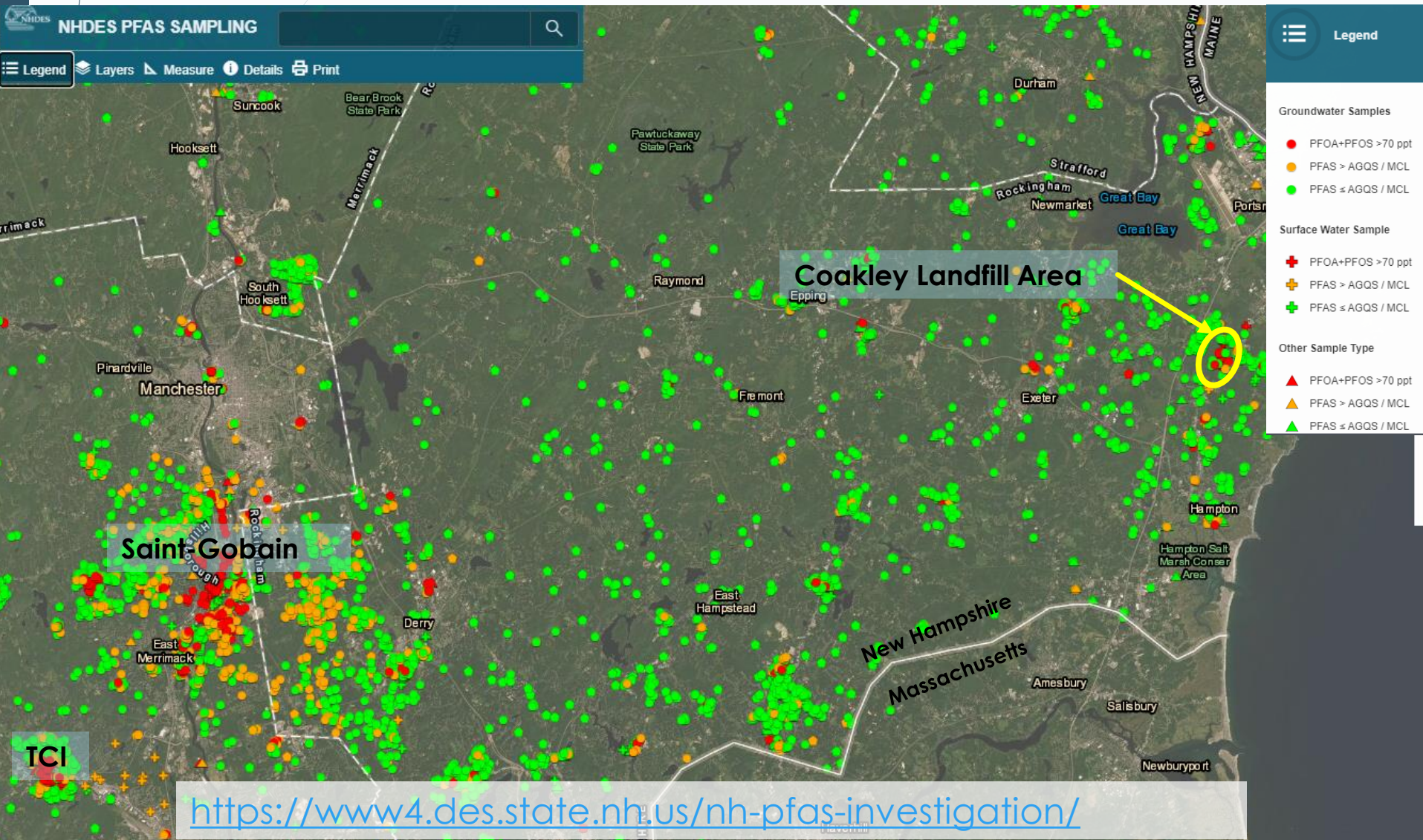
- PFOSA = perflourooctanesulfonamide
- No NH or EPA standards for PFOSA
- Very limited toxicity data available on PFOSA
- PFOSA occurrence and concerns
 - Very low levels detected in Fall 2020 before CLG changed laboratories
 - First detected in Spring 2020 upon CLG lab change
- Agencies working with the CLG to evaluate potential lab discrepancies
- Does not impact confidence in other PFAS data



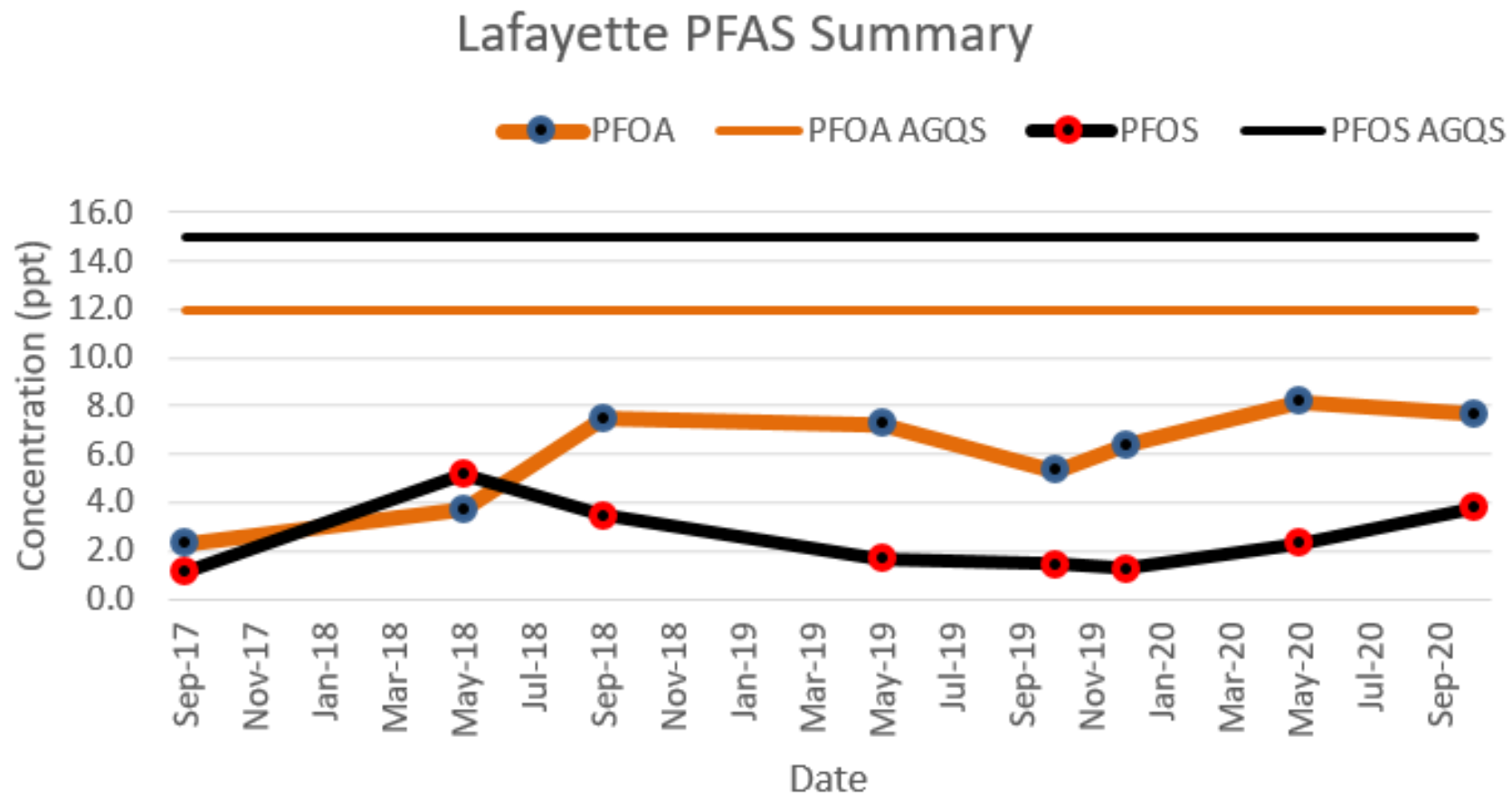
PFAS Sampling Snapshot

3

southeast NH



Data Plot Example



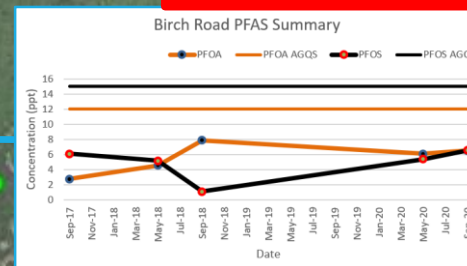
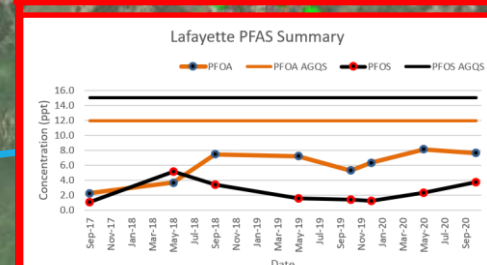
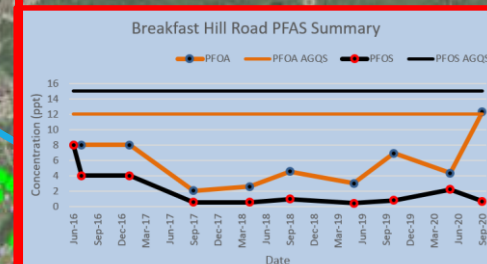
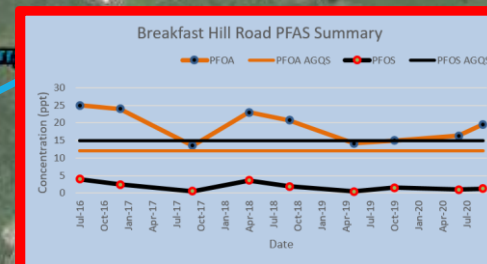
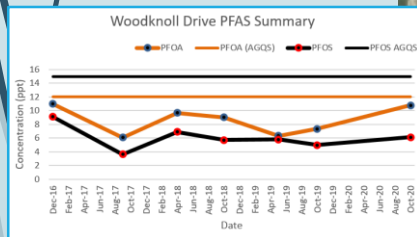
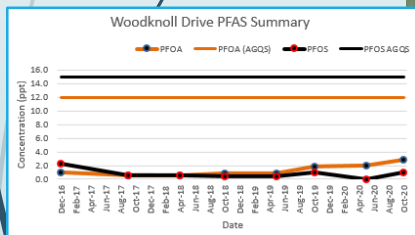
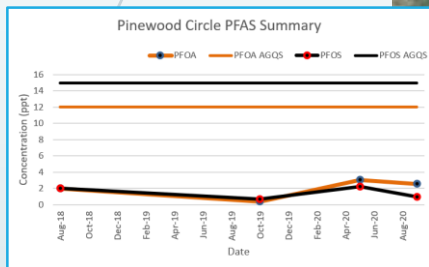
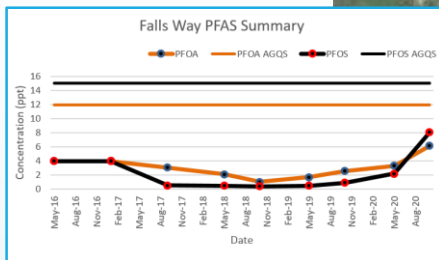
PFAS Summary Private Wells

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Private wells
sampled biannually

Groundwater Samples

- PFOA+PFOS >70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL



Legend for all figures

● PFOA
 — PFOA AGQS
 ● PFOS
 — PFOS AGQS

PFAS Summary Private Wells (cont)

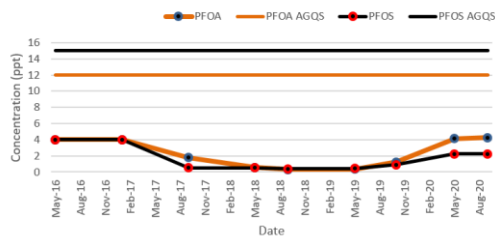
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Groundwater Samples

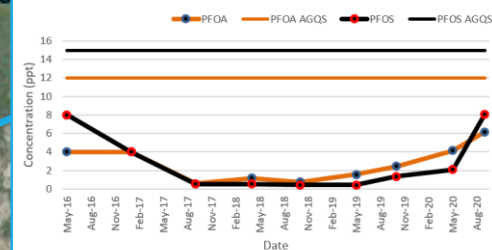
- PFOA+PFOS >70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL

Private wells sampled biannually

Stone Meadow Way PFAS Summary



Red Oak Drive PFAS Summary



GMZ

Breakfast Hill Golf Club

Berry

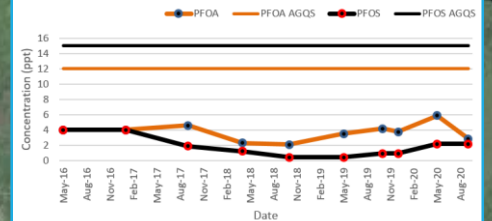
Norton Brook

Coakley Landfill

Black Rock Creek

Hampton Golf Club

Stone Meadow Way PFAS Summary



Legend for all figures

● PFOA
 — PFOA AGQS
 ● PFOS
 — PFOS AGQS

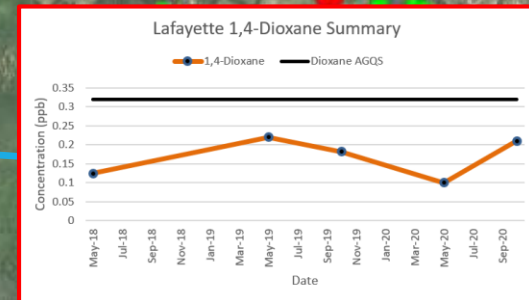
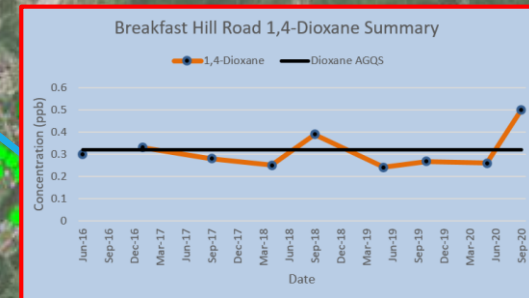
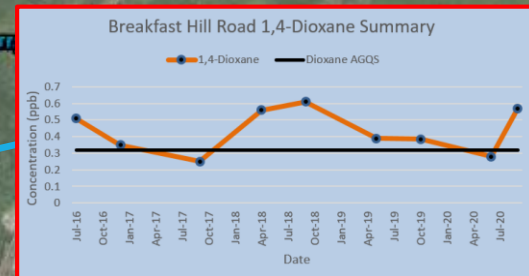
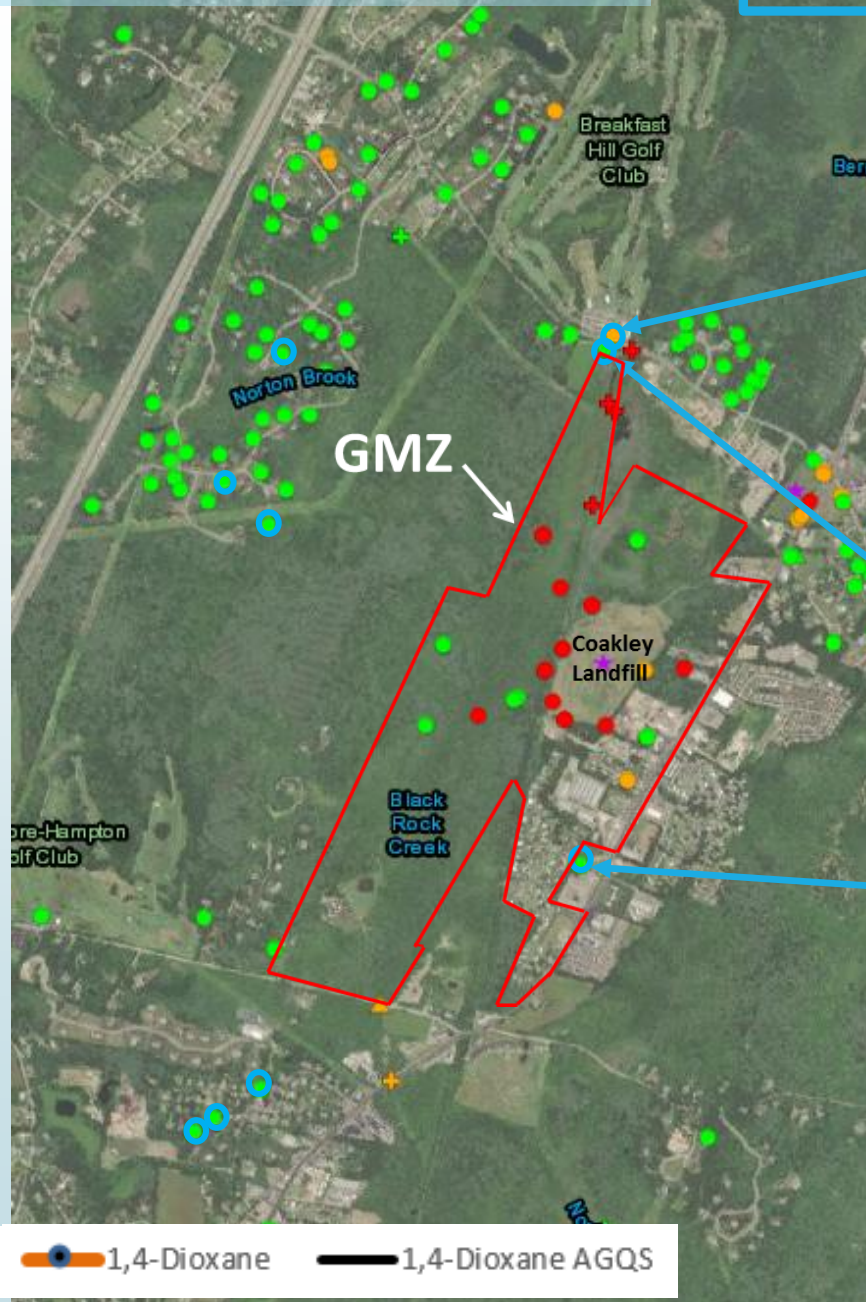
1,4-Dioxane in Private Wells

7

Private wells
sampled biannually

Groundwater Samples

- PFOA+PFOS >70 ppt
- PFAS > AGQS / MCL
- PFAS ≤ AGQS / MCL



Legend for all figures

● 1,4-Dioxane — 1,4-Dioxane AGQS

Summary of Private Well Sampling

- Continued biannual sampling of site MWs and private wells
- Data support limited off-site impacts
- Data suggest steady state and stable conditions
- Agencies working with CLG to evaluate PFOSA detection issues
- Bedrock investigation will refine understanding of bedrock flow and existing/potential off-site impacts



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ENGINEERING | ENVIRONMENTAL | SURVEYING

Coakley Landfill Group

Coakley Landfill Community Update

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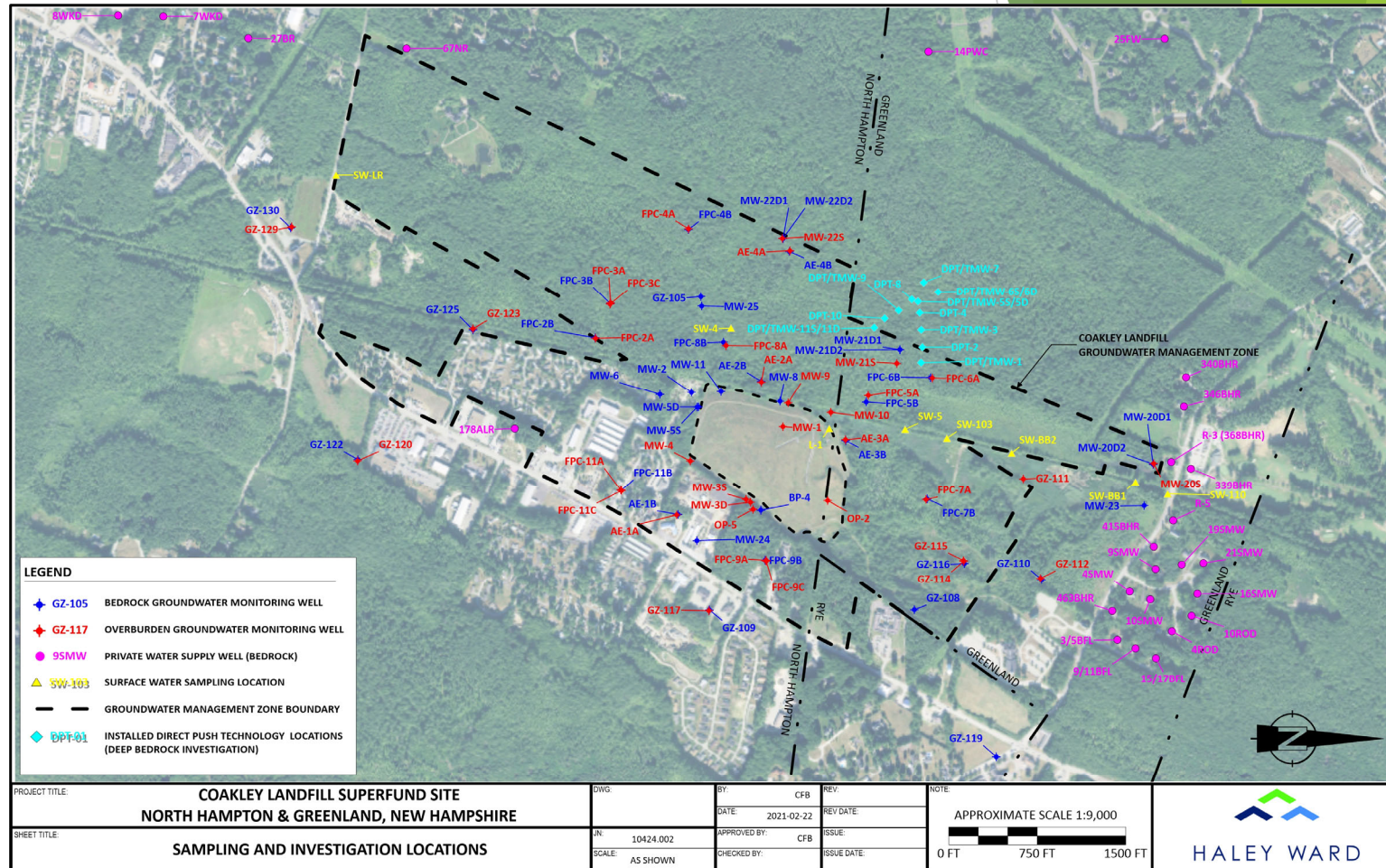
Peter Britz

Coordinator
Coakley Landfill Group
plbrtz@cityofportsmouth.com
603.610.7215

March 3, 2021

Completed and Ongoing Activities

- Reconnaissance Wells
 - 2019-2021
- Interim Report
 - Fall 2019
- Work Plan Addendum
 - Spring 2020
- Aquifer Pumping Test
 - 2021
- New Well Installation
 - 2019-2021
- Groundwater Sampling
 - Spring/Fall
- Surface Water Treatment
 - 2020-Present

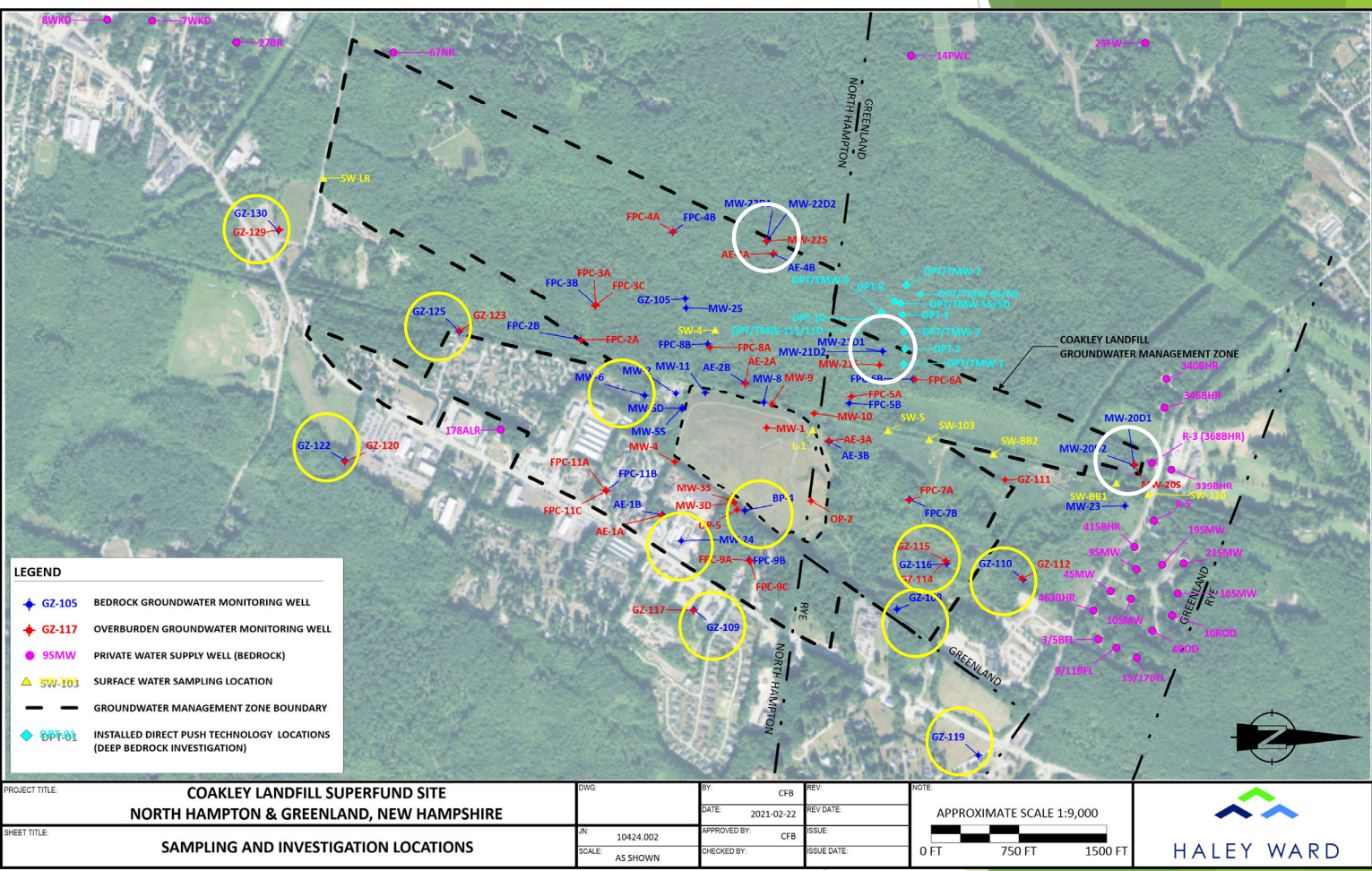
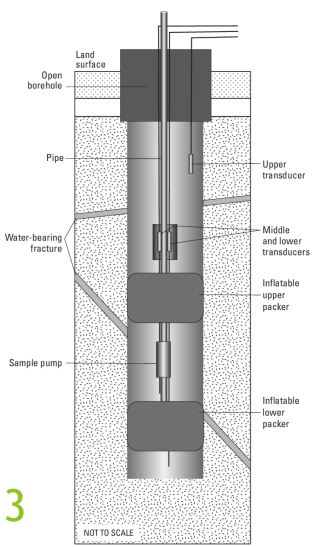


Reconnaissance Wells

- 11 Wells Redeveloped
- 11 Wells Surveyed
- 10 Wells Sampled
 - 54 GW Samples

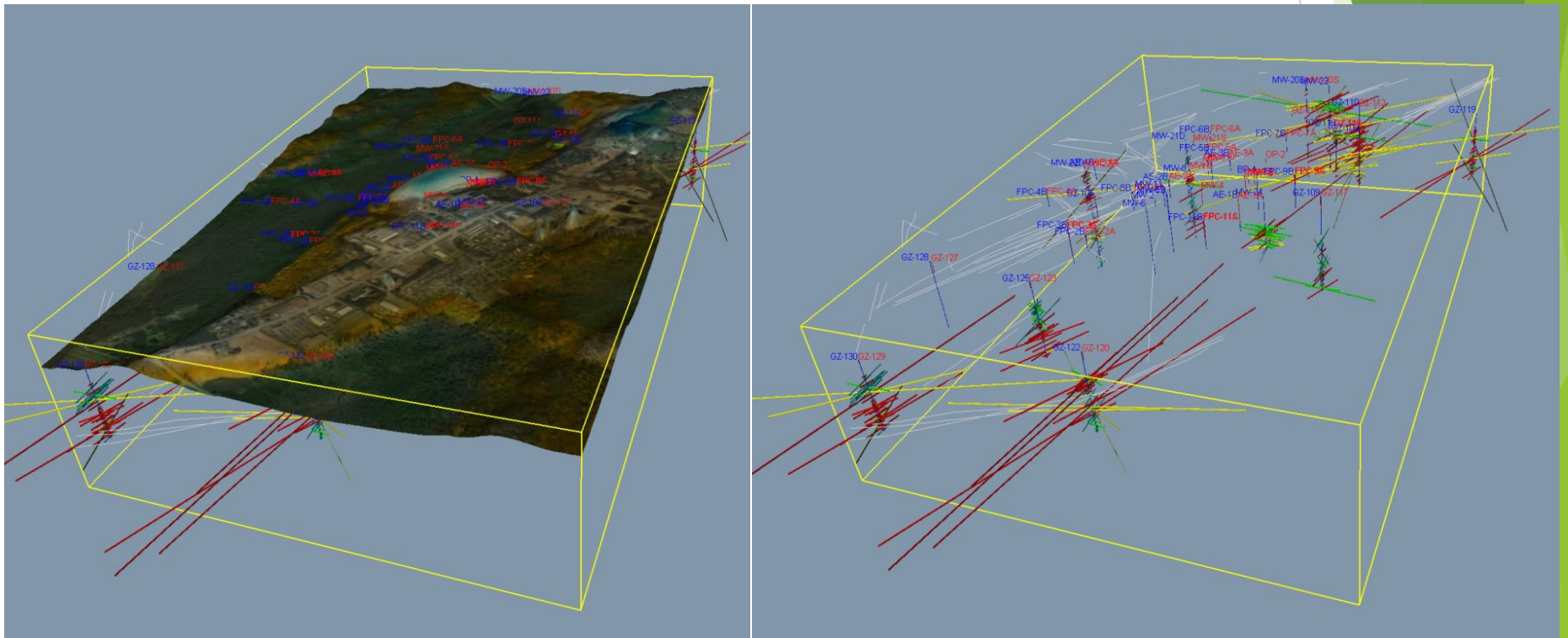
New Well Construction

- MW-20/MW-21/MW-22
- 6 New Nested Bedrock Wells Constructed - 2019



Straddle Packer Diagram taken from Design and Operation of a Borehole Straddle Pack for Ground-Water Sampling and Hydraulic Testing of Discrete Intervals at U.S. Air Force Plant 6, Marietta, Georgia, (Halloway and Wadell, 2008)

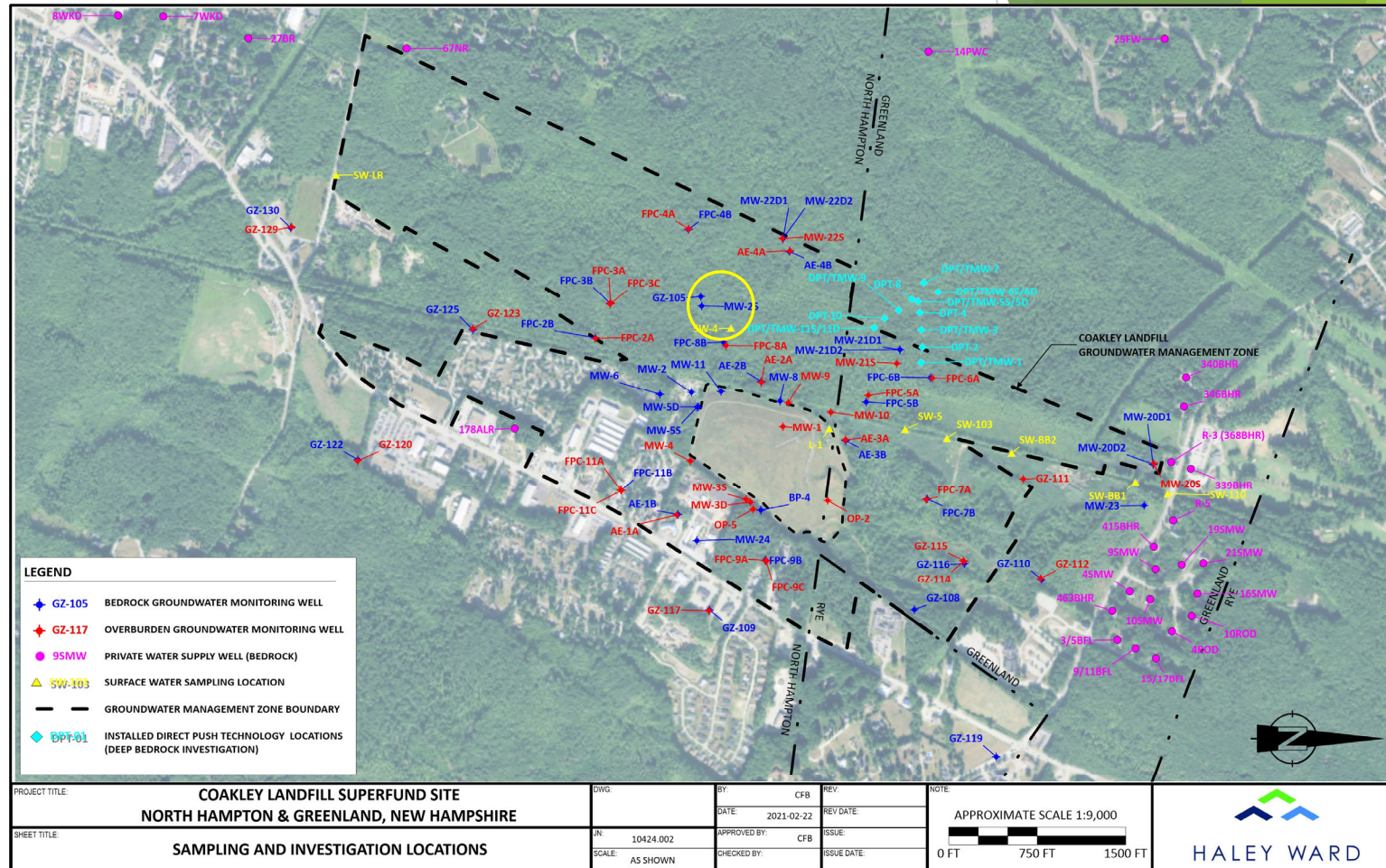
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New Boring Completion (MW-25)

- Data Gap
 - Southern Migration
- Surface Geophysics
- Access Agreements
 - NHDOT
- BMPs
- Drilling
- Borehole Geophysics
- Interval Packer Sampling*
- Well Construction*

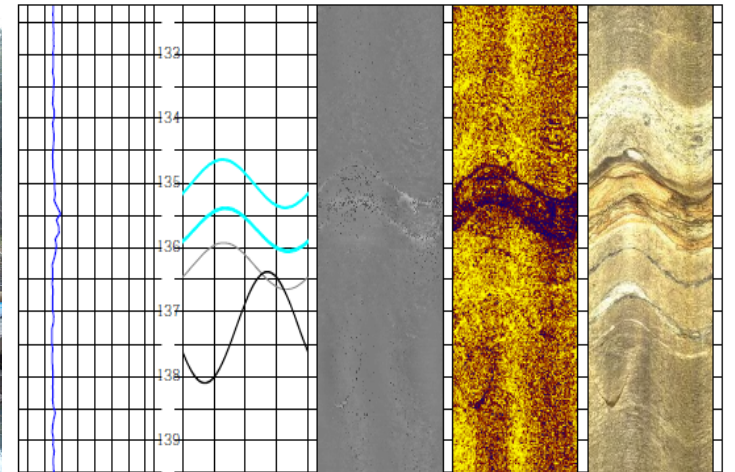
*To Be Completed



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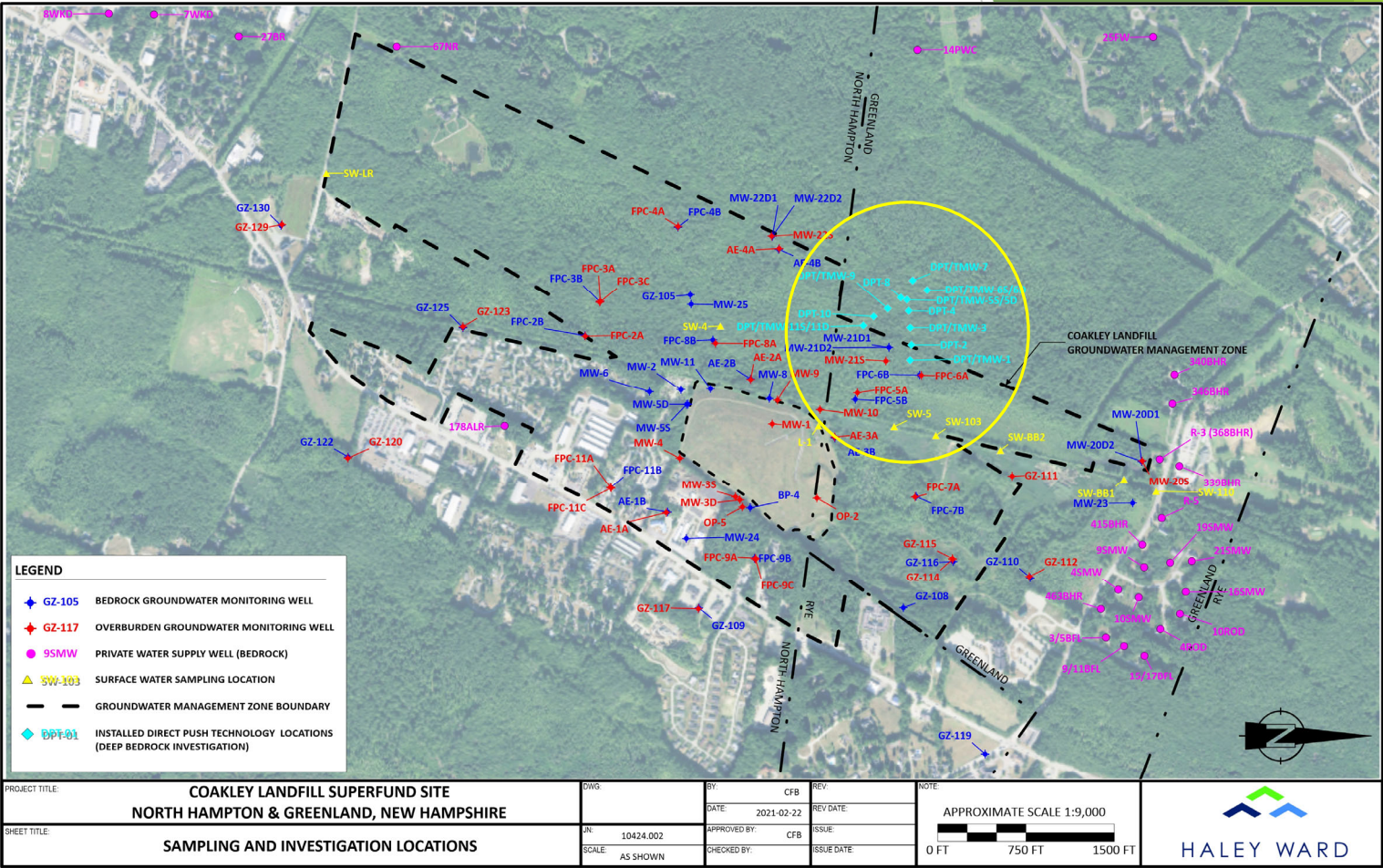


Direct Push Investigation

- Data Gap
 - Overburden Groundwater
- 11 Locations Completed
- 10 Total GW Samples
- Definition of GMZ Western Boundary



Photo courtesy of Geoprobe Systems, Inc.



PFOSA (Perfluorooctanesulfonamide)

- PFOSA often present in paper, cardboard packaging, textiles, carpet, leather, etc. (e.g., 3M Scotchgard)
- Phased out in the US in early 2000's, still produced overseas and imported to US in consumer products.
- Difficult compound to analyze for in collected groundwater and drinking water samples.

EtFOSE--->EtFOSAA--->PFOSA--->PFOS

- Continue to monitor a list of 26 PFAS compounds in samples collected in support of investigation activities.

PFPeA
PFBS
PFBA
PFUnA
PFTrDA
PFTeDA

PFOSA
PFOS*
PFOA*
PFNA*
PFHxS*
PFHxDA

PFHxA
PFHpS
PFHpA
PFDS
PFDaA
PFDA

MeFOSE
MeFOSAA
MeFOSA
EtFOSE
EtFOSAA
EtFOSA

8:2 FTS
6:2 FTS

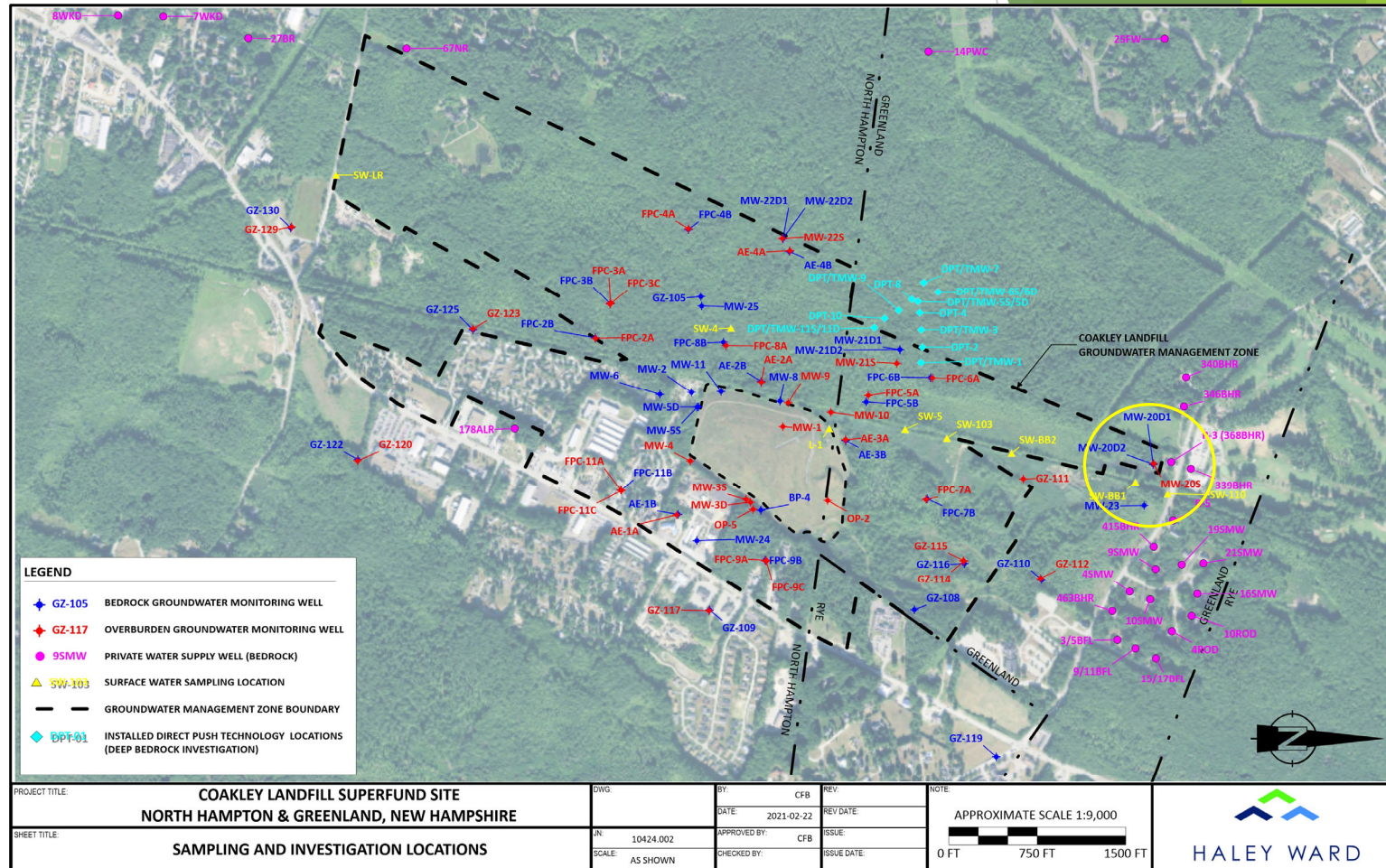
* Denotes PFAS compound with NHDES MCL.
Bold denotes compound associated with PFOSA

Surface Water Treatment

- House Bill 494
- Remedy Evaluation
- Learning Process
- Ongoing Pilot Studies

Individual Steps

- Remedy Options
 - Modifications
- Site Preparation
 - Flow Restoration
 - Channel
- Inter-agency Effort
 - USEPA
 - NHDES
 - NHDOT
 - USDA
- Deployment/Sampling
- Evaluation



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