Restoration Advisory Board (RAB) Meeting Minutes
Former Fort Devens Army Installation
17 October 2019

Location: Town Hall, 1 Main Street, Ayer, MA

Time: 6:30 PM – 9:00 PM

Attendees: see attached sign-in sheet

Introductory Remarks:

- Bob Simeone welcomed all.

Presentation: See attached presentation slides, dated 17 October 2019, which provided updates on the following topics related to PFAS investigations at the former Fort Devens:

1. Community Involvement Plan (CIP) Update
2. Sampling Update for Private Wells and Community/Non-Community Systems
3. Sampling Update of Town Public Water Supply Wells
4. Water Supply Well Treatment Update
5. Remedial Investigation (RI) Update
6. Next Steps

Note:

Discussions described herein were paraphrased where appropriate for the sake of clarity.

Community Involvement Plan Update

Amy Brand (Jacobs) provided a summary of the CIP. She indicated a new CIP will be developed based on results of the personal interviews, the fillable .pdf questionnaires received, and the results of the online questionnaire. Amy stated that the same questions were asked through the three methods mentioned above. The total response rate was 141 (11 personal interview, 19 written questionnaires, 111 online survey responses). Amy indicated she received a large number of online responses after the Town of Ayer distributed the link to the survey.

PACE (People of Ayer Concerned about the Environment) asked how people were selected for the interview. Amy replied that EPA guidance suggests contacting people through local organizations and also asking people during interviews if they knew other people who would be interested in being interviewed. The objective of the interviews and questionnaires is to get information from a representative cross-section of the community.

Amy explained with respect to questions on the most important environmental issues, 93 percent indicated “drinking water” and then by comparison, growth and development was the next issue most identified by 53 percent of the respondents. Respondents could select more than one issue in response to the question.

EPA asked what percentage of the responses came from different areas. Amy indicated that respondents did not have to identify their town, but of those who did provide that information, 67 percent were from Ayer, 13 percent from Harvard, 9 percent from Devens, 3 percent from Shirley, 1 percent from Lancaster, and 7 percent from other.

Amy gave examples of where respondents indicated they get news, specifically:

- Emails: weekly Devens community newsletter, town email "blasts", Board of Selectmen emails
- Newspapers: Harvard Press, Nashoba Valley Voice, Lowell Sun
- Online: Next Door, Town Facebook pages, PACE Facebook page
- Websites: Town websites (Ayer, Boards of Health)

Amy indicated the summary presented is a high-level summary of the results and the results are still being evaluated. She indicated the CIP is a CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) requirement and it is meant to be a "living document". She indicated the schedule is to send the new CIP to the stakeholders for review in mid-December and is planned to be finalized in spring 2020.

A member of the public asked if, after reading the CIP, people will understand how to communicate about PFAS. Amy replied that the CIP will describe how the Army plans to communicate PFAS issues at the former Fort Devens to the public.

PACE asked whether comments on documents are on the Army website. Bob Simeone replied that the final documents provided on the website include the Army's responses to comments in an appendix. Amy noted that technical documents are required under CERCLA law to be stored as part of the Administrative Record.

Mary Jude Pigsley (Mass. Drinking Water Program) noted that it will be important to think about how people receive information with respect to drinking water, as some residents are connected to town supplies and some residents have their own well.

A member of the public asked whether the raw data from the CIP interviews/surveys would be made available for independent review. Amy replied that the raw survey data will be included in an appendix, but with the personal identifying information not shown because the surveys were meant to be anonymous.

A member of the public suggested that the old RAB meeting notices be updated to describe the RAB and indicate pertinent content such as drinking water. The person also indicated the frequency of the RAB should be reevaluated. Laurie Nehring (PACE) indicated the RAB used to be monthly, but recommended that a bimonthly meeting should be considered. The Army indicated these ideas will be considered during development of the CIP.

Sharon McCarthy (Harvard Board of Health) asked who the intended audience for the CIP is (e.g., what age group, etc.). Amy replied that the CIP is intended to be used by the Army, specifically for outlining methods for delivering information to the community. The CIP will also be available for public review.

Sampling Update for Private Wells and Community/Non-Community Systems

Jim Ropp (KGS) explained that a "private well" serves a single private residence, "community wells" serve multiple residences (e.g., apartment complex), and "non-community wells" serve users such as a place of

business or a restaurant. Jim noted that the first samples as part of the fall 2019 sampling of wells in Harvard were collected today. Samples will be analyzed via EPA method 537.1 for 18 PFAS compounds. The lab reports are received 21 days after the samples are collected, and reports are sent to the residences, town Board of Health, EPA, and MassDEP within 45 days after the sample is collected. Jim indicated the Army has, so far, received 61 responses from residents wanting their wells sampled out of the 196 request letters recently issued by the Army. Sharon McCarthy (Harvard Board of Health), clarified that the private well sampling is planned to occur in the areas of Blanchard Road, Old Mill Road, Lancaster County Road, Depot Road, Myrick Lane, Cedar Ledge Road, and Ayer Road from Route 2 to the town line. A few wells on Prospect Hill Road and Old Shirley Road (near where those roads intersect Depot Road) are also on the list.

Mark Wetzel (Ayer DPW) asked whether all of the wells were in bedrock and Jim indicated yes they were. Mark Wetzel asked if a fracture trace analysis was planned. Jim indicated one was not planned at this time.

Dan Groher (USACE) noted that the samples would be taken from existing taps, and the wells would not be opened. The sampling crews will attempt to take the sample before any in-home treatment system. The crews will also inquire with the homeowner about in-home treatment systems.

A Shirley resident asked whether there is a concern about other groundwater transport directions and whether more distant private wells would be sampled. Jim replied that the Army is currently sampling the wells closest to Devens and, based on those results, additional sampling can be considered.

A member of the public recommended that future RAB presentation slides include an overview map or aquifer map.

Sampling of Town Public Water Supply Wells

Jim Ropp (KGS) presented the results of the Army's Third Quarter sampling of the Devens and Town of Ayer public water supply wells. The Army included sampling of the wells at Spectacle Pond even though the PFAS detections are not believed to be associated with the former Fort Devens. The presentation slide shows which of the 18 analyzed PFAS compounds were detected. Jim explained PFNA (one of the compounds included in the MassDEP guidance benchmark) was not shown on the table because it was not detected in the samples.

At Grove Pond at the time of sampling, wells #1 and #6 were operating. There are no results for wells #8 and #7 shown because well #8 was not connected to the water supply at that time and well #7 was not operating. Mark Wetzel indicated well #8 was off for maintenance.

Mark Wetzel noted that the Spectacle Pond wells are in a different watershed than Devens and there is no likelihood that the PFAS at the Spectacle Pond wells are associated with the former Fort Devens. Mark indicated that PFAS also has been detected in the Littleton town wells, which are located on the other side of Spectacle Pond. Mark speculated that both sets of wells could be impacted by deposits of airborne PFAS. Mark indicated they are in the process of designing a treatment system for Spectacle Pond wells, and he will be petitioning the Town of Ayer for money and asking the MassDEP for money for the treatment system.

A member of the public asked about the PFAS detections at the MCI Shirley wells. Mary Jude Pigsley (Mass. Drinking Water Program) replied that the MCI Shirley system can also receive water from Devens when additional water supply is needed, which is why there were PFAS detections in the past. Results of the quarterly sampling of the water supply well at MCI Shirley are posted on the MassDEP website.

Jim Ropp explained the Devens wells results. He noted that currently Patton well is not pumping. The owner of the Natural Café (Jackson Road, Devens) requested that a sample be collected from her tap because of potential PFAS in the pipes. Bob Simeone recommended talking to MassDevelopment after the meeting because they are responsible for water at that location.

A member of the public asked about the detection limits for the analytical results. Jim indicated they are approximately 1 part per trillion (ppt), which is sufficiently low to verify whether the water tested exceeds the EPA and MassDEP benchmarks or not.

A member of the public asked how the sample results are shared. Jim replied that results are sent to the water department and residents immediately after the data are received from the lab and validated (error checked). Mark Wetzel noted that he posts an update on his website (Town of Ayer DPW) when new results are received. Jessica Strunkin (MassDevelopment) noted that MassDevelopment sent a letter to all of their customers last week indicating there were no detections of PFAS in the Devens water.

Water Supply Well Treatment Update – Ayer

Dan Groher (USACE) described that sampling, receiving data from the lab, and validating the data takes approximately six weeks.

Dan described the temporary treatment system on Grove Pond well #8. It consists of two granular activated carbon vessels placed on the well with the highest PFAS concentrations. The system is sampled monthly from the raw water, in between the vessels, and after the vessels. When there is a significant PFAS detection in between the vessels, the carbon is removed from the first vessel, the flow from the well is directed to the second vessel, which then becomes the first vessel, and new carbon is put into the empty vessel, which is now the second vessel. Mark Wetzel noted that well #8 is the first well on and the last well off.

A member of the public asked about the capacity. Dan replied that through bench scale testing, the Army estimates the carbon can last between three and six months before needing changeout. Well #8 is currently providing 200 gallons per minute (gpm) to the Town of Ayer treatment plant.

A member of the public asked about maintenance issues and the risk of the well going offline. Mark Wetzel indicated they did have problems with pressure because there are a lot of minerals in the water. They had to add a booster pump and they backwash the carbon approximately every four weeks.

A member of the public asked how much it cost to run per month. Dan estimated the cost at approximately $100,000 per month and noted that the carbon vessels are rented.

Mark Wetzel indicated the permanent treatment system planned for the Grove Pond wells will consist of removal of iron and manganese followed by PFAS filtration using an ion exchange vessel. Testing of different media indicated that ion exchange would be the most effective for this system. The Army gave the Town of Ayer a grant for the cost of installing the system (~$3.2 million) and for 10 years to operate the system (~$1.2 million). The system will treat all of the Grove Pond water supply wells and will have

an estimated capacity of 2 million gallons per day. Construction of the new system is anticipated to be completed in June 2020.

Water Supply Well Treatment Update – Devens

Jim Moore (Utility Manager for Devens) indicated that when Devens heard MassDEP would be lowering PFAS concentrations in their PFAS guidance in early 2019, MassDevelopment started working on treatment ideas for their water supply. The MacPherson well has been operating with a granular activated carbon filter since August 5, 2019. The system capacity is 600,000 gallons per day and the well is operating 24 hours/day, 7 days a week. Water from the Shabokin well is treated using granular activated carbon approximately 500,000 gallons per day since September 24, 2019, with capacity up to one million gallons per day. The well is operated as needed. The two wells meet the average water demand at Devens. They are planning to install permanent treatment systems for the Patton and Shabokin wells at those locations. Jim Moore indicated they are planning temporary treatment at Patton for PFAS using ion exchange and will be testing different types of resin as part of the pilot test. The plan for the permanent treatment system is planned to be granular activated carbon followed by ion exchange. They are also planning permanent treatment for iron and manganese and will use green sand filters.

Remedial Investigation (RI) Update:

Katie Thomas (KGS) provided an update of the RI sampling program to determine the nature and extent of PFAS contamination at the former Fort Devens. Katie noted that the property was divided into three areas in order to facilitate the planning of sampling activities. Area 1 is along the eastern side of Fort Devens and by the Grove Pond wellfield. Area 2 is along the center of former Fort Devens, and includes the MacPherson well area. Area 3 includes the area around the former Moore Army Airfield (MAAF). Katie described the status of the sampling program at each Area of Contamination (AOC) in Areas 1, 2, and 3.

Mark Wetzel (Ayer DPW) asked how data would be presented to draw conclusions. Katie replied that plan-view and cross-sectional view maps of the PFAS contamination in groundwater would be prepared.

It was asked whether the RI includes soil sampling. Katie replied that the RI includes groundwater, soil, surface water, and sediment sampling.

It was asked whether soil sampling would be affected by the area that were reworked during redevelopment of the property. Katie replied that is a concern for shallow soil sampling results in some areas.

It was asked whether surface water samples were being collected from Cold Spring Brook. Katie replied that, for the Area 1 investigation, surface water and sediment samples have been collected from Cold Spring Brook, Grove Pond, and Balch Pond. Low levels of PFAS have been detected in some surface water samples (e.g., approximately 12 to 15 ppt).

It was asked whether aqueous film forming foams (AFFF) containing PFAS could have been applied to past fuel oil spills in the Grove Pond area. Katie replied that there are no records of that, but noted that some petroleum products such as JP-8 (Jet Propellant 8) are known to contain PFAS.

It was asked whether the Army was seeing distinct ratios of PFAS compounds which could suggest different sources. Katie replied that different ratios have been observed and that multiple sources are

suspected (e.g., AOC 57 and the Grove Pond area are each believed to be impacted by more than one source of PFAS).

A member of the public asked about the difference between a piezometer and a monitoring well. Katie explained that a piezometer is intended to be used for monitoring water levels in the aquifer and a monitoring well is intended to be used both for water levels and sample collection from a target depth in the aquifer. However, a water sample can also be collected from some piezometers.

A member of the public asked whether PFAS samples have been collected from Mirror Lake. Katie replied no, but it could be considered.

A member of the public asked about adding signage at Mirror Lake to discourage fishing. No new signage is planned at this time. *[Note: Mirror Lake already has a public health fish consumption advisory due to conditions not related to PFAS.]*

It was asked whether there have been any past remediation activities at the Devens Fire Station on Jackson Road. Katie replied no. The fire station was newly added to the RI due to the past storage and use of firefighting foams on the property.

It was asked whether it was correct that AFFF was used during the 2015 fire at the Recycling Center. Katie replied that firefighting foams were used to extinguish the 2015 fire, and it is unknown what types were used. Even though newer firefighting foams have been reformulated to exclude some PFAS compounds such as PFOS, it is possible that older formulations were still on the shelves of the fire departments at that time. Bob Simeone noted that multiple towns responded to the fire and 60 pails (5-gallons each) of concentrated foam were used to extinguish the fire.

A member of the public asked where the Devens wastewater treatment plant (WWTP) discharges to. Katie replied that the discharge goes to the onsite sand infiltration beds, and re-enters the groundwater aquifer. Groundwater then flows toward the Nashua River. It was asked whether surface water and sediment samples were being collected. Katie replied that surface water and sediment sampling has been completed in Areas 1 and 2 and is currently ongoing in Area 3 (includes the Nashua River). Data results may be available for the next RAB meeting. It was asked whether fish samples were being collected. Katie replied that no fish tissue samples are planned at this time.

It was asked whether ecological risks would be evaluated. Katie replied that ecological risks would be evaluated in the RI report after data collection is complete.

It was asked whether samples are being collected south of the airfield and west of the river. Katie replied that a couple sample locations are planned at the south end of the airfield as well as west of the river.

It was asked whether the ongoing treatment for tetrachloroethylene (PCE) in groundwater at AOC 50 (at the airfield) would affect PFAS in that area. Katie replied that the treatment process for reducing PCE concentrations in groundwater is not expected to affect PFAS concentrations, but potential impacts to PFAS would be evaluated.

Laurie Nehring (PACE) recommended that immediate action be taken at AOC 31 (former firefighting training area) due to the high PFAS concentrations which are traveling toward the Nashua River. Katie replied that under CERCLA, a time critical removal action (TCRA) could be performed if an imminent risk

to a sensitive receptor is identified, but otherwise we need to follow the step-wise CERCLA process and first identify the nature and extent of PFAS contamination before a remedial action can be implemented.

Next Steps & Announcements:

Jim Ropp (KGS) summarized the planned/ongoing work for PFAS (see attached presentation slides).

A member of the public requested that future RAB presentation maps note where the maximum PFAS concentrations are detected.

Laurie Nehring (PACE) announced that PACE has received a grant from the Silent Spring Institute to look at PFAS exposures in Ayer.

The next RAB meeting will be held on 16 January 2020, at 6:30 PM, at the MassDevelopment Office at 33 Andrews Parkway in Devens.

SIGN-IN SHEET

Former Fort Devens Army Installation
Restoration Advisory Board (RAB) Meeting
17 October 2019

Name	Affiliation	E-mail or Phone
Amy Brand	Jacobs	amy.brand@jacobs.com
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Jim Moore	MDFA	JMoore@massdevelopment.com
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Mark Wetzel	Ayer DPW	Mwetzel@ayer.ma.us
Jessica Stranton	MassDev	jstranton@massdevelopment.com
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Jon Winkler	Nashoba Valley Voice	Jwinkler@nashobavalleyvoice.com
Ann Whitney	resident	annwhitney9@gmail.com
Sharon McCarthy	HARVARD BOH	Sharonmccarthy100@gmail.com
Dan Patnaude	Pleasant St	dpatnaude@gmail.com

SIGN-IN SHEET

Former Fort Devens Army Installation
Restoration Advisory Board (RAB) Meeting
17 October 2019

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Brent Smith	USACE	BRENT.L.SMITH@usace.army.mil
Jim Rapp	KGS	jrapp@komangs.com
Scott Winter		scott.winter@outlook.com
Beth Suedmeyer	Resident	bsuedmeyer@hotmail.com
Tom Philippi	Harvard Bot	
Zanetta Purnell	EPA	purnell.zanetta@epa.gov
Irv Rockwood	PACE	irvrockwood@gmail.com
Katie Thomas	KGS	

Former Fort Devens Army Installation
Project Status Update
17 October 2019

Restoration
Advisory Board
Meeting

U.S.ARMY

US Army Corps of Engineers
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Agenda

- Per- and Polyfluoroalkyl Substances (PFAS)
  - Community Involvement Plan (CIP) Update
  - Sampling Update for Private Wells and Community/Non-Community Systems
  - Sampling Update for Municipal Water Supply Wells
    - Ayer, Devens
  - Water Supply Well Treatment Update
    - Ayer, Devens
  - Remedial Investigation (RI) Update
    - Ongoing field activities
    - Sampling results to date

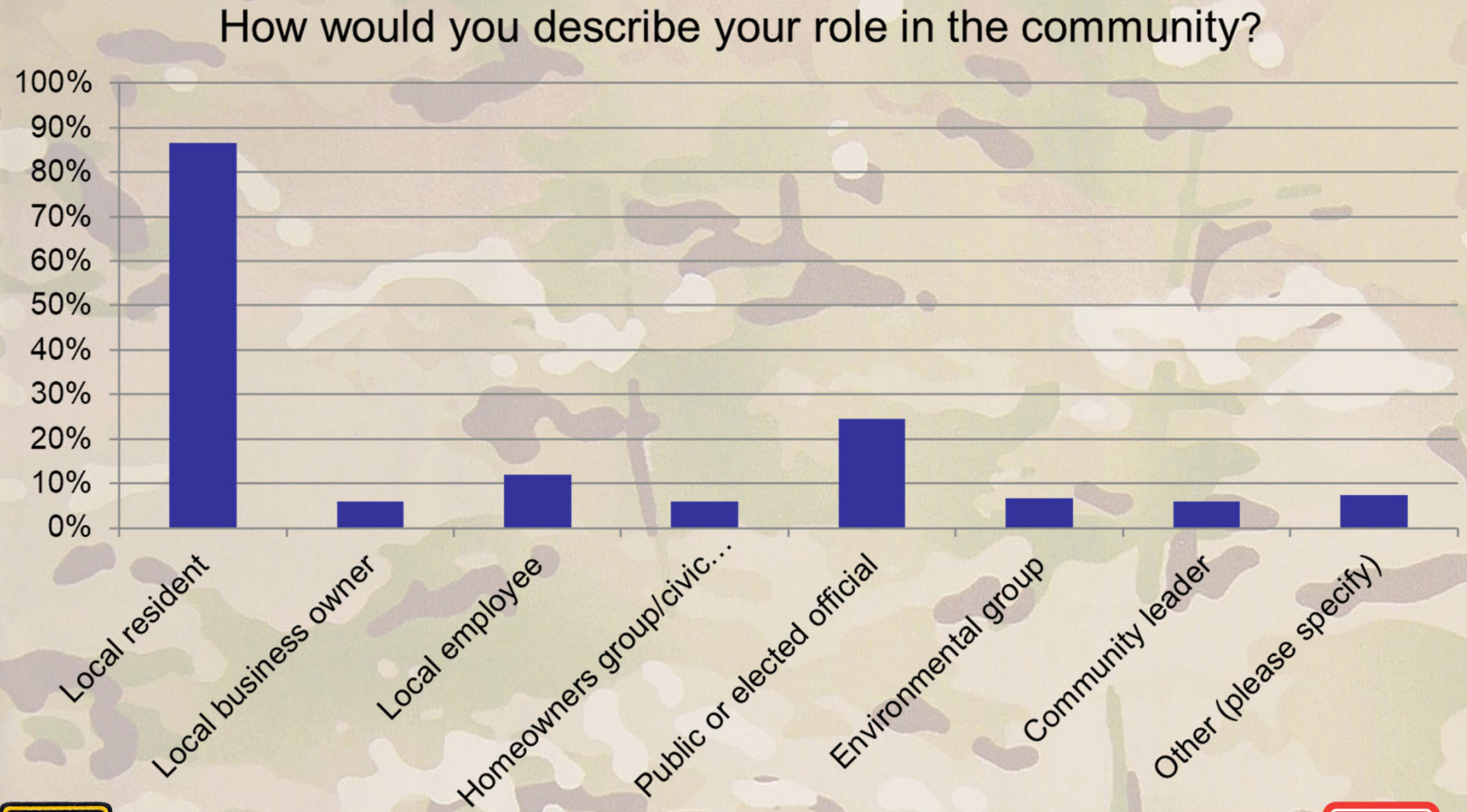
Community Involvement Plan Interviews and Survey Findings

October 17, 2019

Collecting Community Input

- Process
  - Fillable .pdf of questionnaire posted on ftdevens.org website (July 1 – Sept 24)
  - Hard copies of questionnaire placed in town halls and libraries
  - Personal interviews conducted (August 7-9)
  - Online survey posted (July 22-Sept 19)
- Response rate = 141
  - 11 personal interviews
  - 19 written questionnaires
  - 111 Survey Monkey responses

Respondent Roles

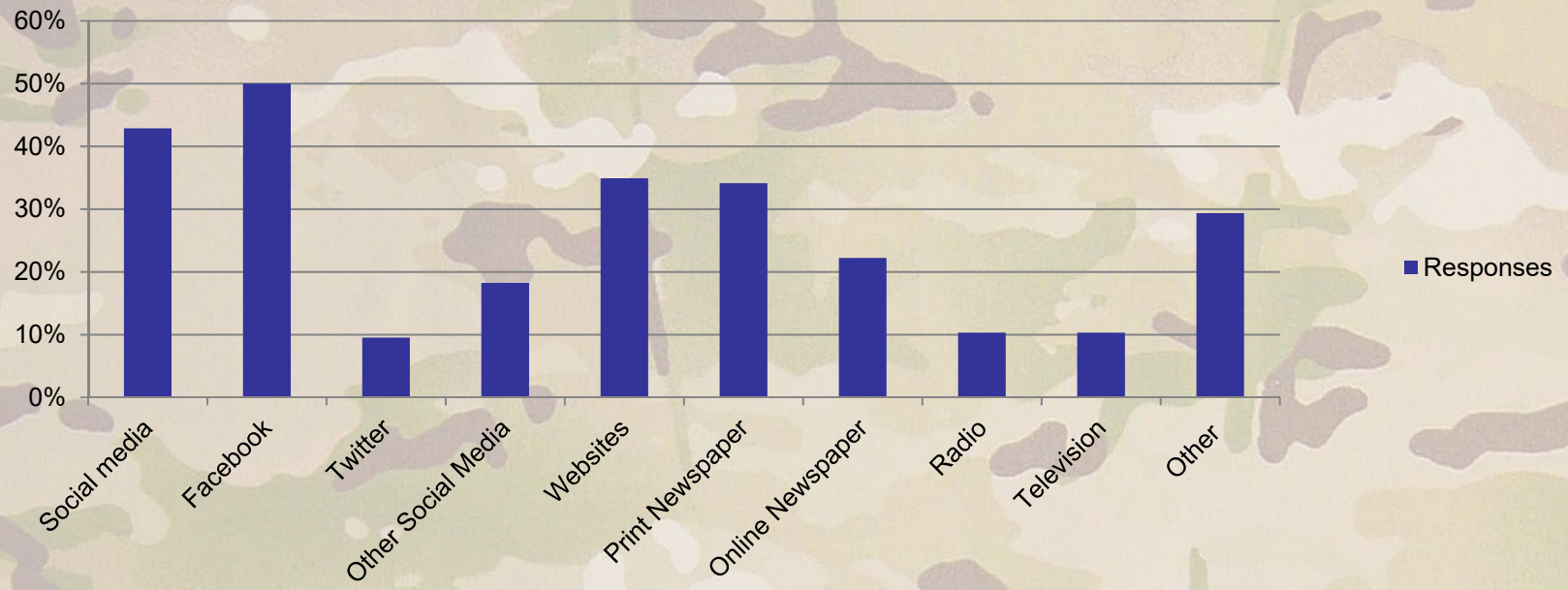


Interest/Concern about PFAS and Drinking Water

- 97% moderately-extremely interested/concerned
  - (60% extremely)
- 46% feel they've been affected by PFAS contamination
  - 44% not sure
  - 9% no
  - 1% did not answer
- 93% said "drinking water" when asked about the most important environmental issues facing the community
  - By comparison:
    - 53% growth and development
    - 38% surface water quality
    - 36% traffic

Community News Sources

In general, how do you get news about your local community?



Community News Sources

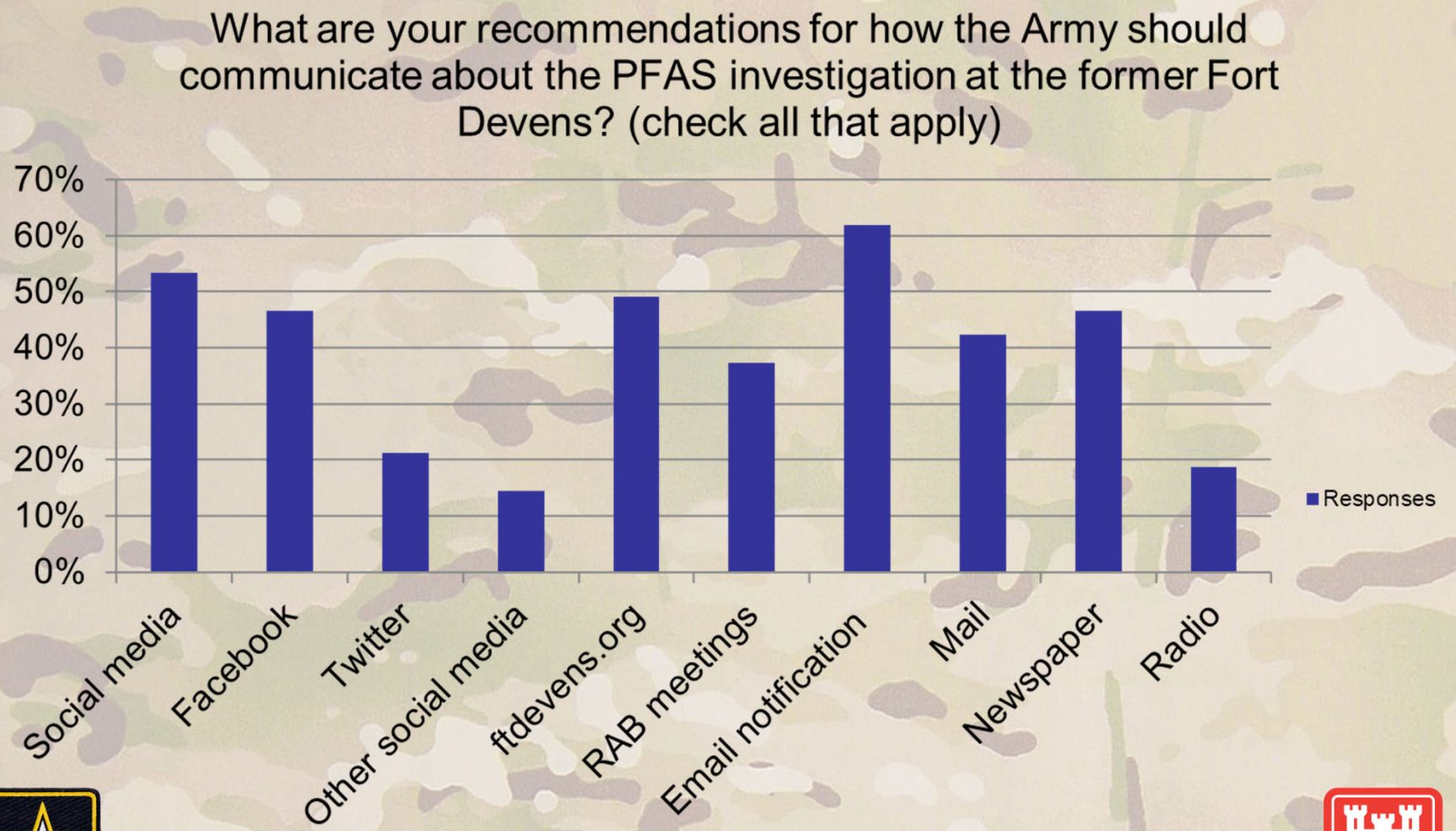
Town Sources

- Spike in survey responses the week that Ayer distributed the link
- Of those who provided more information:
  - 65% specifically mentioned town emails and websites
  - 53% said they would contact towns with a question

Army

- 76% NOT aware of Fort Devens Environmental Restoration Program www.ftdevens.org website
- 69% NOT aware of RAB meetings
  - Of those who are aware: 58% have attended a meeting (N=19)
  - Of those who have attended, 100% found it useful
- 55% don't know who to contact with a question
  - 17% would contact Bob Simeone (his name was listed specifically)

How Should the Army Communicate about the PFAS Investigation?



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Summary of Results

- People are very interested & concerned, especially about drinking water and potential health impacts
- For information, people tend to rely on:
  - Towns (website, email, social media notification)
  - PACE
- People are not well aware of opportunities provided by the Army (RAB meetings, website, contact)
  - But 100% who attended a RAB found it informative
- Emphasis on providing information in multiple ways – the more information, the more often, the better

Community Involvement Plan
Next Steps

- Finish analyzing and summarizing results
- Develop enhanced communication strategy
- Prepare CIP for stakeholder review and comment (i.e., MassDev/Devens, MassDEP, EPA, PACE, and local town officials and BOHs)

Well Sampling Update for Community/ Non-Community Systems and Private Wells

- 2018 (summer) – Sampled 21 wells in Shirley & Harvard
  - PFAS detected in some wells, but below EPA's LHA of 70 ppt and Mass ORSG of 70 ppt
  - Source of PFAS in wells uncertain based on hydrogeology
- 2019 (spring) – Sampled 3 locations in Harvard; sampling 1 location quarterly
- 2019 (fall) – Sampling 196 wells at the request of the Harvard Board of Health
- 2019 – Ongoing PFAS Remedial Investigation (RI) to locate possible source areas and define nature and extent of PFAS contamination associated with the former Fort Devens

Sampling of Municipal Water Supply Wells - Ayer Detections of PFAS, August 2019

	Grove Pond Wells (ppt)			Spectacle Pond Wells (ppt)		
	Well 1	Well 6	Finished Water (wells 1,6)	Well 1A	Well 2A	Finished Water
	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
PFBS	2.14	1.88	1.92	ND	ND	ND
PFHxA	6.03	45.1	20.8	2.70	21.0	11.2
PFHpA	3.31	39.6	17.3	1.94	9.14	5.17
PFHxS	5.16	7.28	5.05	3.85	2.37	3.02
PFOS	2.92	6.8	4.57	6.79	6.70	7.33
PFOA	6.82	29.8	15.8	7.04	8.48	7.72
EPA LHA	9.74	36.6	20.4	13.8	15.2	15.1
Mass ORSG	18.2	83.5	42.7	19.6	26.7	23.2

Results show the detected PFAS out of 18 analytes tested.

Yellow shading shows concentrations above the EPA LHA (Lifetime Health Advisory) (PFOS, PFOA of 70 ppt) and/or Mass ORSG (Office of Research and Standards Guideline) for drinking water(PFOS, PFOA, PFHpA, PFNA, PFHxS of 70 ppt).

The MassDEP has proposed a groundwater cleanup standard (GW-1) for the sum of PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt.

ND = non-detect

Sampling of Municipal Water Supply Wells - Devens Detections of PFAS, August-September 2019

	Patton Well (ppt)	Shaboken Well - Raw (ppt)	Shaboken Well - Finished (ppt)	MacPherson Well - Raw (ppt)	MacPherson Well - Finished (ppt)
	8/20/2019	9/19/2019	9/19/2019	9/11/2019	9/11/2019
PFBS	ND	ND	ND	5.48	ND
PFHxA	5.96	3.93	ND	21.3	ND
PFHpA	3.37	ND	ND	18.9	ND
PFHxS	6.23	13.6	ND	68.1	ND
PFOS	3.06	5.74	ND	53.9	ND
PFOA	8.42	6.85	ND	28.4	ND
PFNA	ND	ND	ND	2.99	ND
EPA LHA	11.5	12.6	ND	82.3	ND
Mass ORSG	21.1	26.2	ND	172.3	ND

Results show the detected PFAS out of 18 analytes tested.

Yellow shading shows concentrations above the EPA LHA (Lifetime Health Advisory) (PFOS, PFOA of 70 ppt) and/or Mass ORSG (Office of Research and Standards Guideline) for drinking water(PFOS, PFOA, PFHpA, PFNA, PFHxS of 70 ppt).

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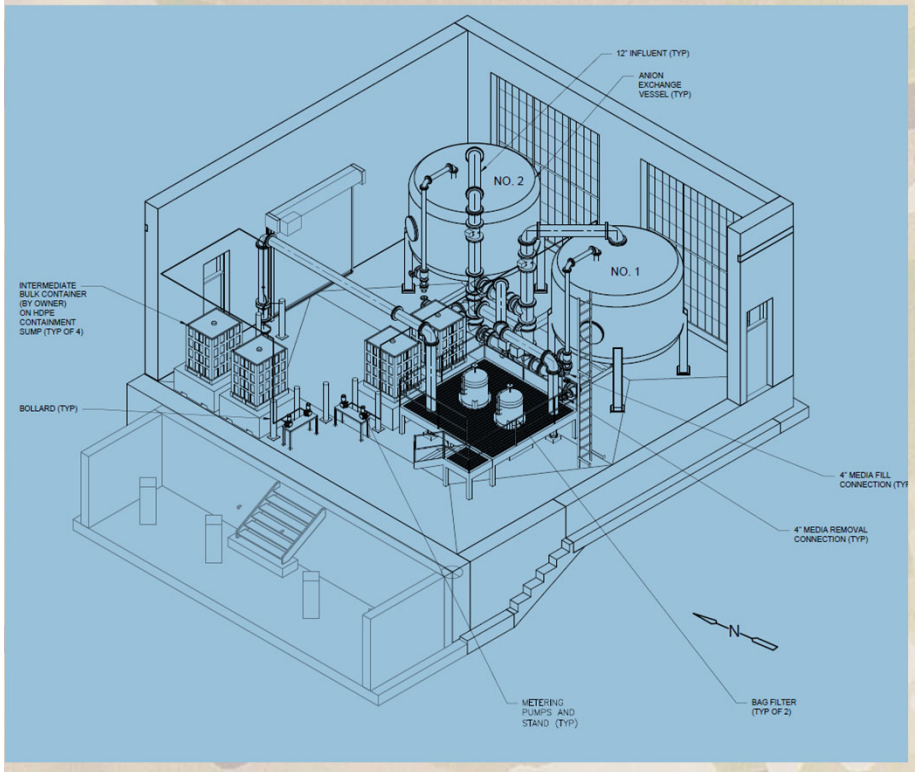
Update on Grove Pond Wellfield - Time Critical Removal Action (TCRA)

- Ongoing <u>temporary</u> treatment of Well #8 using granular activated carbon
  - On-line since June 2019; pumping ~ 200 gpm; >6M gallons treated
  - Well #8 raw water range from 200 to 245 ppt for 5 OSRG PFAS compounds
  - Treated Well #8 water ND for PFAS compounds
  - Well #7 off-line

Update on Grove Pond Wellfield - Environmental Services Cooperative Agreement (ESCA)



- Supported by federal ESCA grant ~ $4.4M signed 5-Sep-2019
- <u>Permanent</u> upgrade to Grove Pond Water Treatment Plant – New Ion Exchange (IX) System
  - Installation of IX begun: Sept 2019
  - Anticipated completion: June 2020
  - Will treat up to 2M gallons per day

MacPherson Well

Devens installed a single GAC filter in June 2019. Has been treating ~ 600K GPD since activation on 8-5-19.

Shabokin Well

Devens installed four (4) Calgon GAC filters in July 2019.

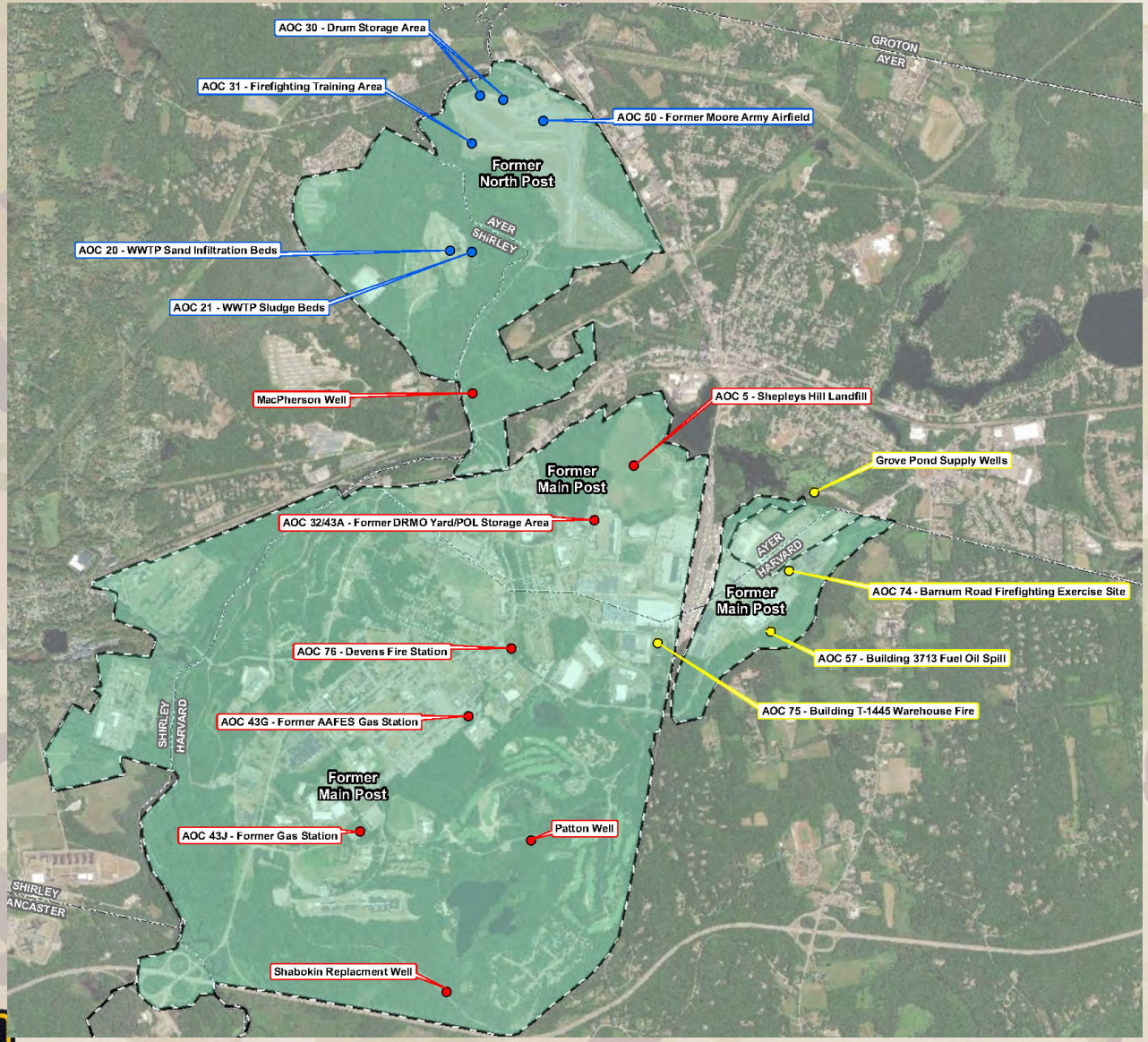
The vessels have been treating ~ 500K gals per day since full activation on 9-24-19. Full treatment capacity is up to 1 MGD.

A temporary structure will be installed NLT 11-30-19 to winterize the system.

Vessels will be moved to a new Fe and Mn WTP's to be completed in late 2021.

Patton Well

- Devens has entered an agreement with WSP to provide 3 resin filters. To be delivered NLT 10/30/19.
- Projected to be ready for activation NLT 12/31/19.
- Units will be housed in a modified storage container.



RI Areas of Investigation

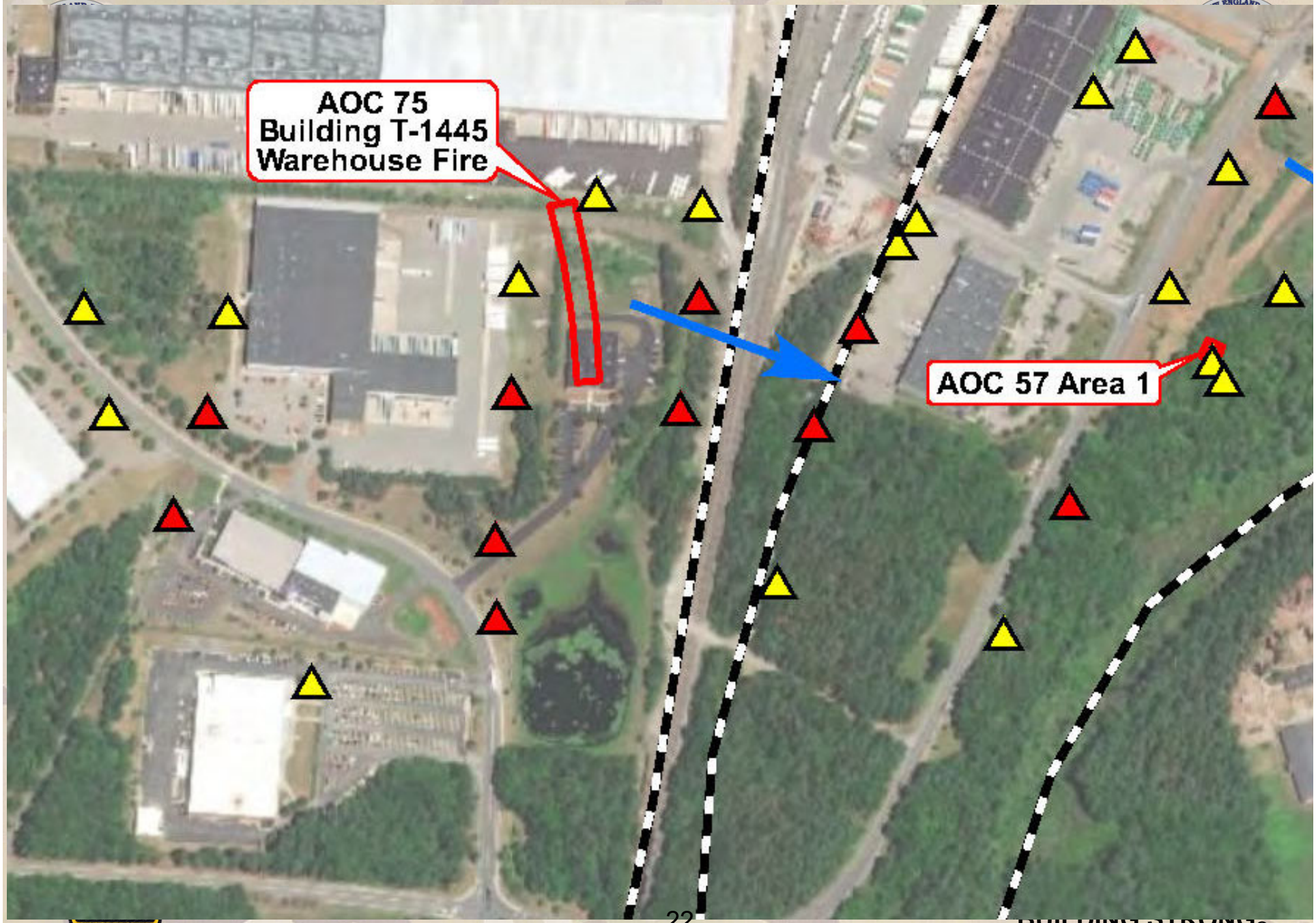
Area 1 = yellow

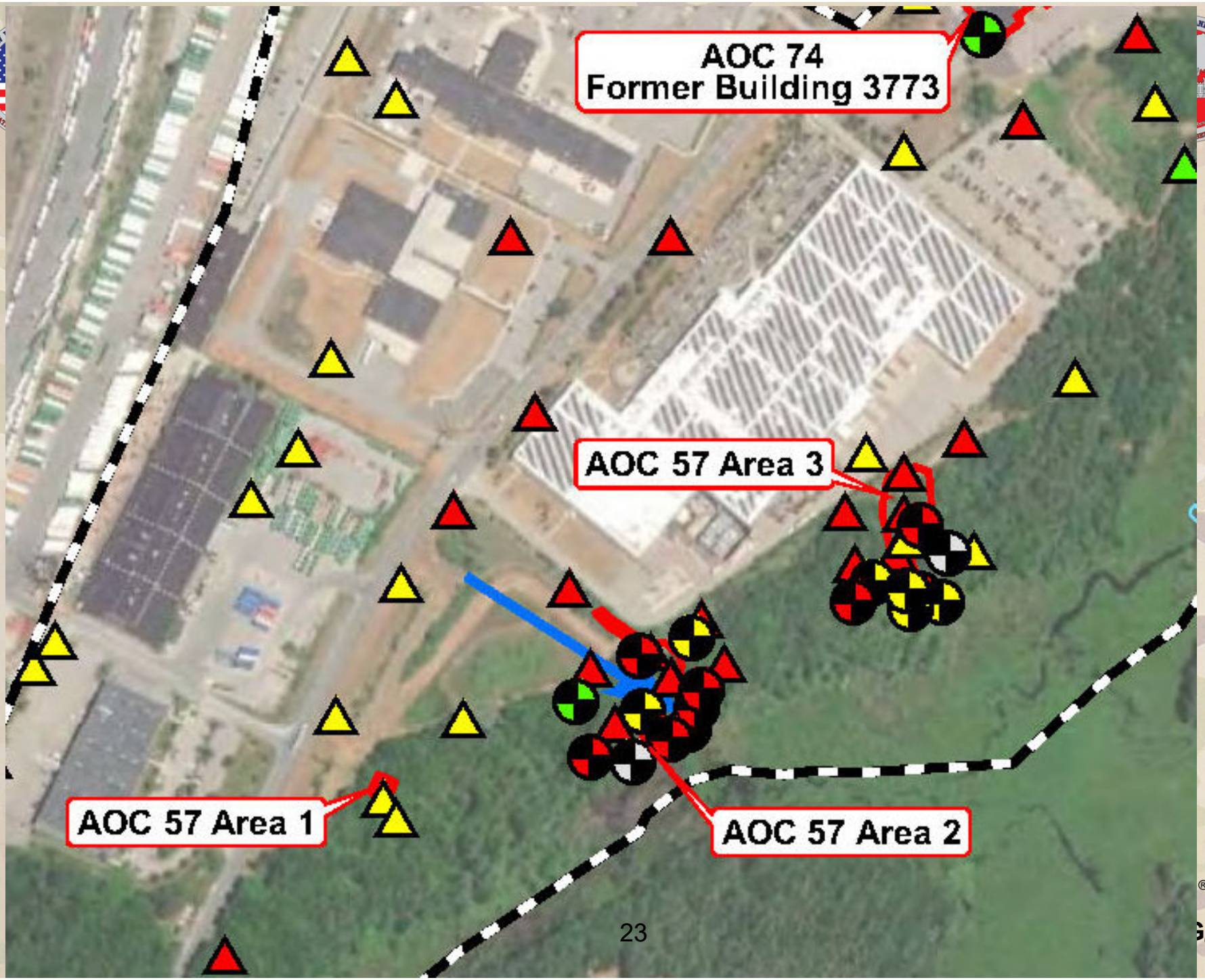
Area 2 = red

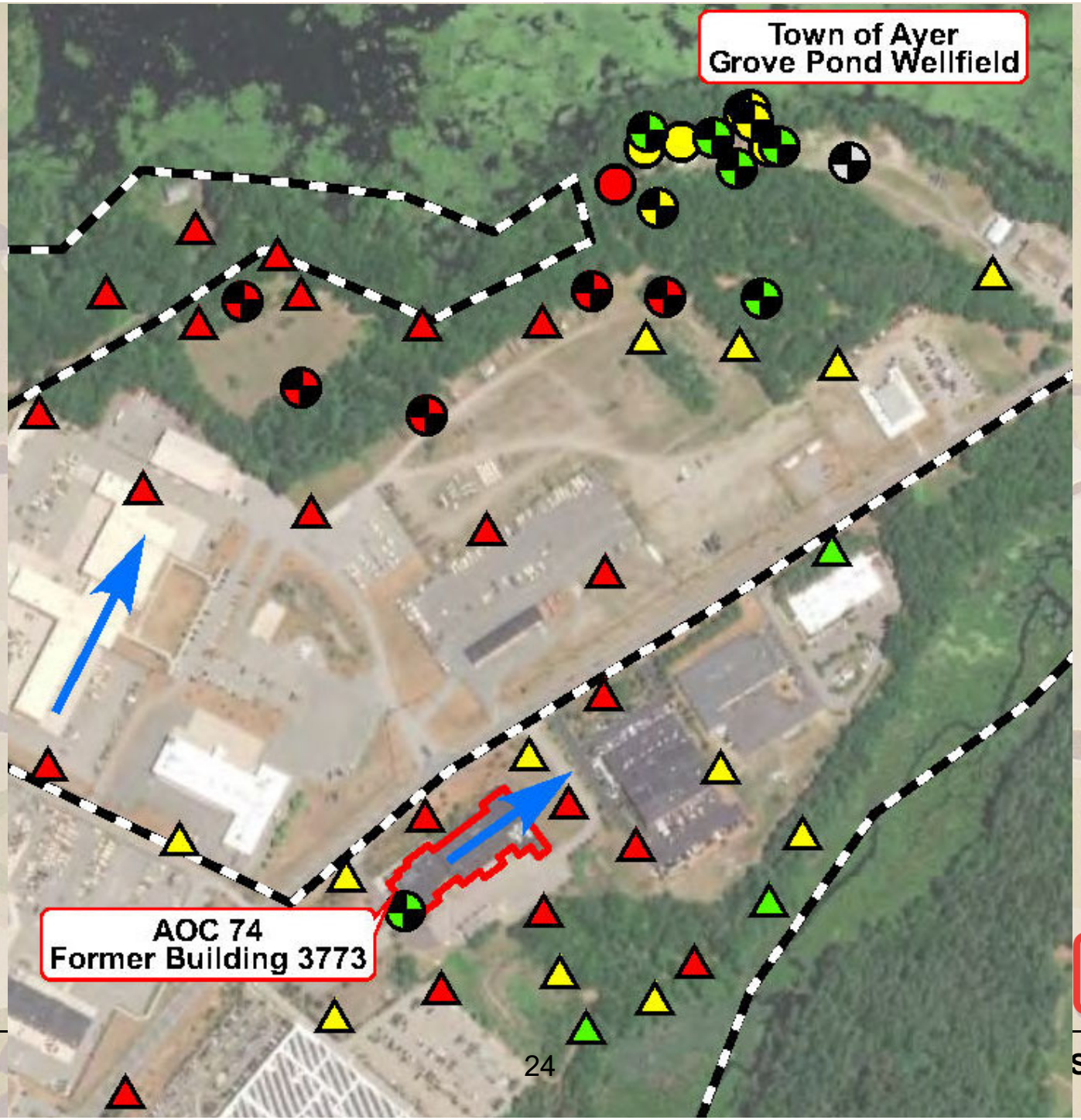
Area 3 = blue

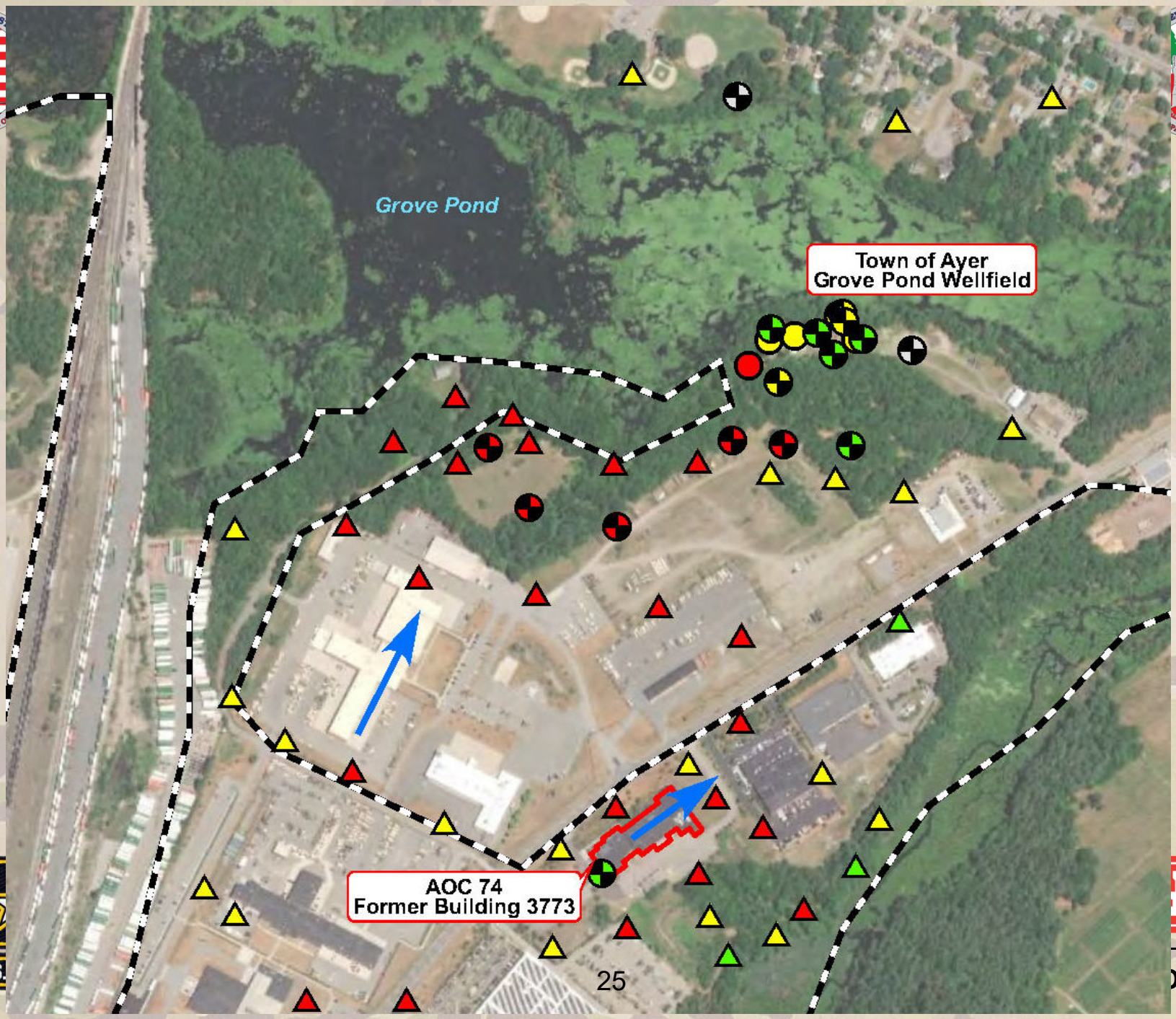
Area 1 Activities

- Completed
  - 95 Vertical profiles conducted
  - 9 Piezometers installed
  - 37 Soil borings conducted
  - 31 Monitoring wells sampled
  - 14 Surface water and sediment samples collected
  - 2 Synoptic water level surveys
- Planned
  - Monitoring well and piezometer installation
  - Monitoring well sampling
  - Synoptic water level survey
  - Cold Spring Brook investigation


AOC 75
Building T-1445
Warehouse Fire
AOC 57 Area 1


AOC 74
Former Building 3773
AOC 57 Area 3
AOC 57 Area 1
AOC 57 Area 2


Town of Ayer
Grove Pond Wellfield
AOC 74
Former Building 3773


Grove Pond
Town of Ayer
Grove Pond Wellfield
AOC 74
Former Building 3773

Area 1 Preliminary Observations

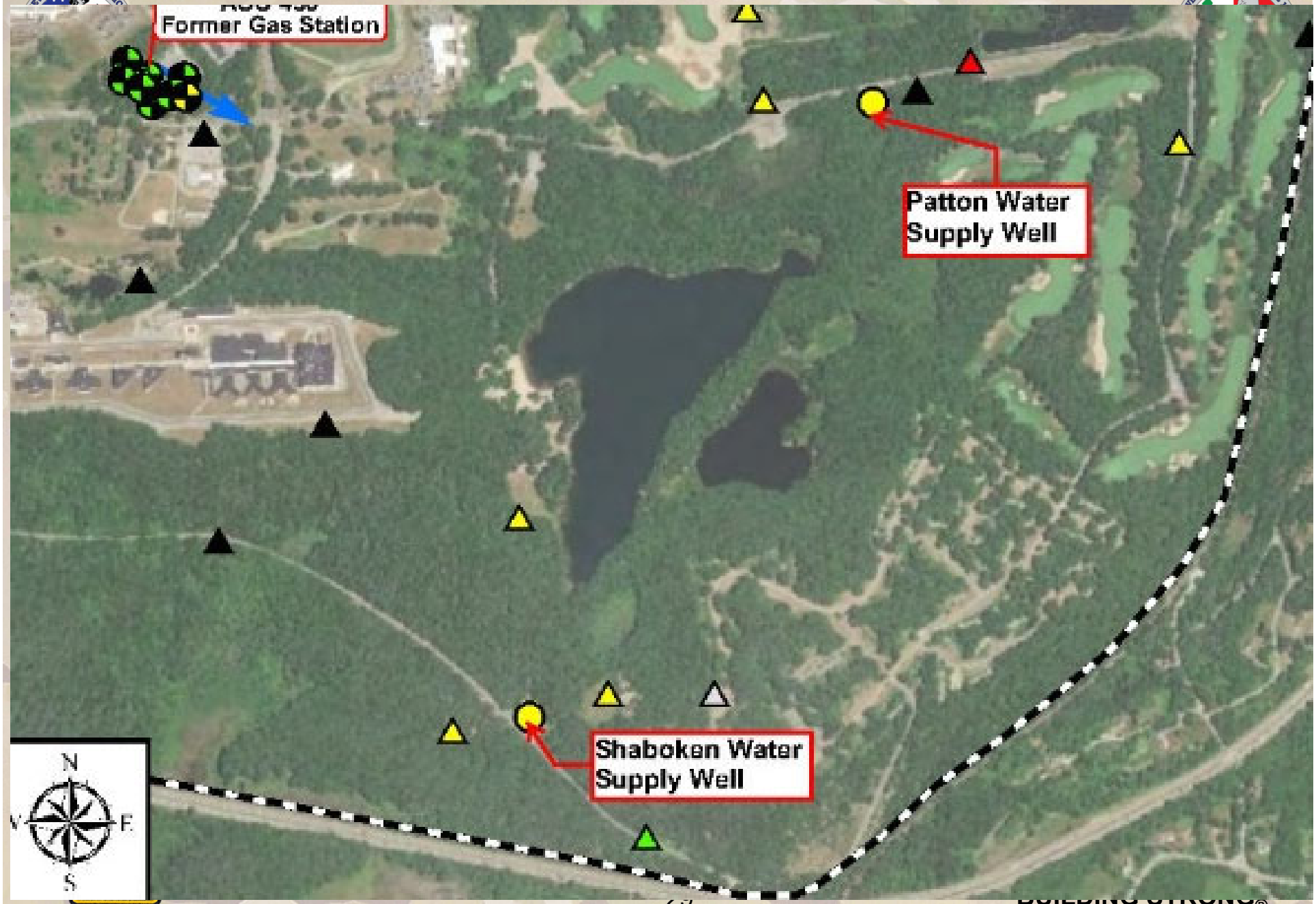
- AOC 75 – Former Bldg T-1445 Warehouse Fire
  - ► not all sources and extent identified
  - ► flows toward Cold Spring Brook
  - ► maximum PFOA+PFOS in groundwater = 1,400 ppt
- AOC 57 – Building 3713 Fuel Oil Spill Site
  - ► multiple sources, not all sources and extent identified
  - ► flows toward Cold Spring Brook
  - ► maximum PFOA+PFOS in groundwater = 4,390 ppt

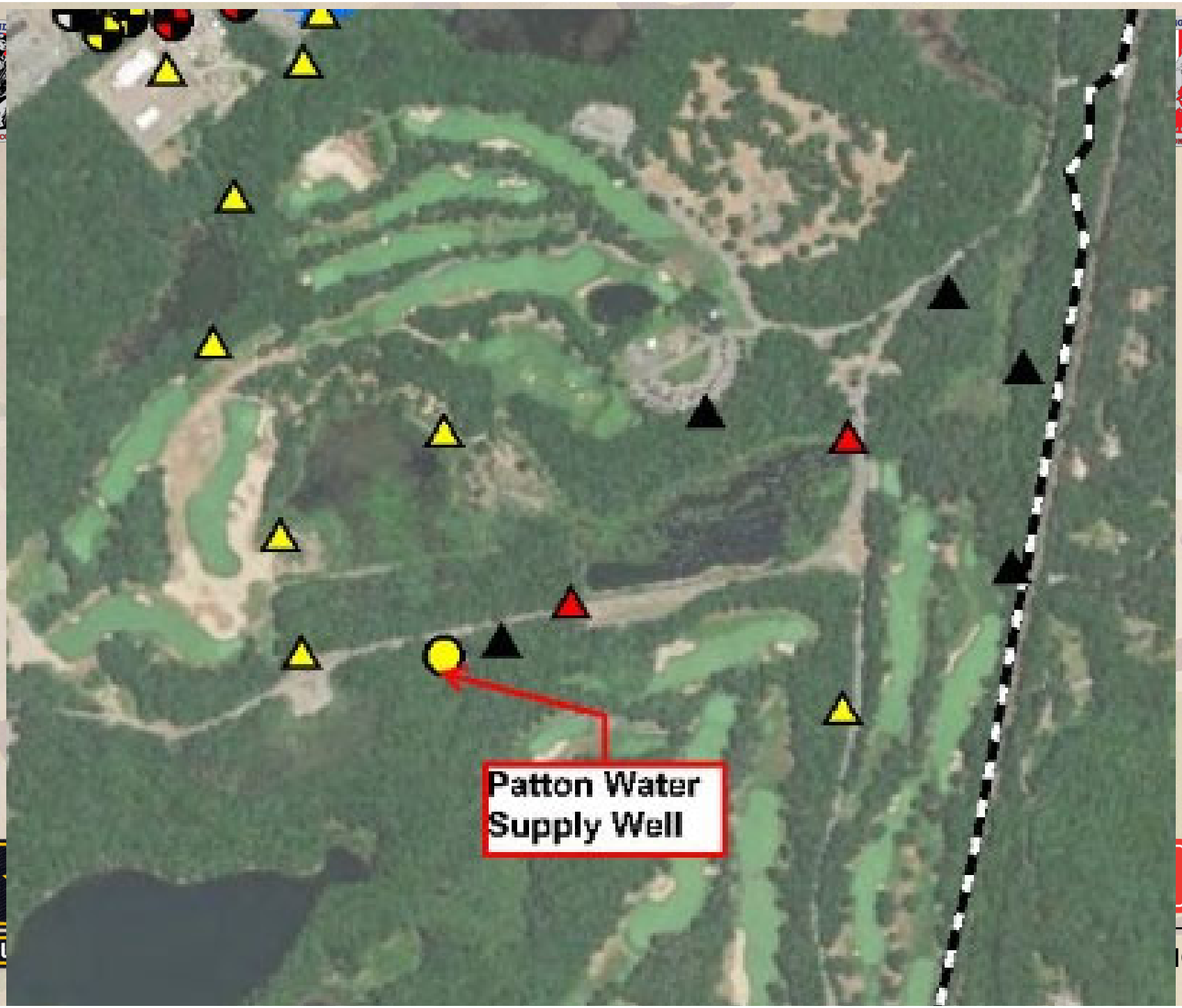
Area 1 continued

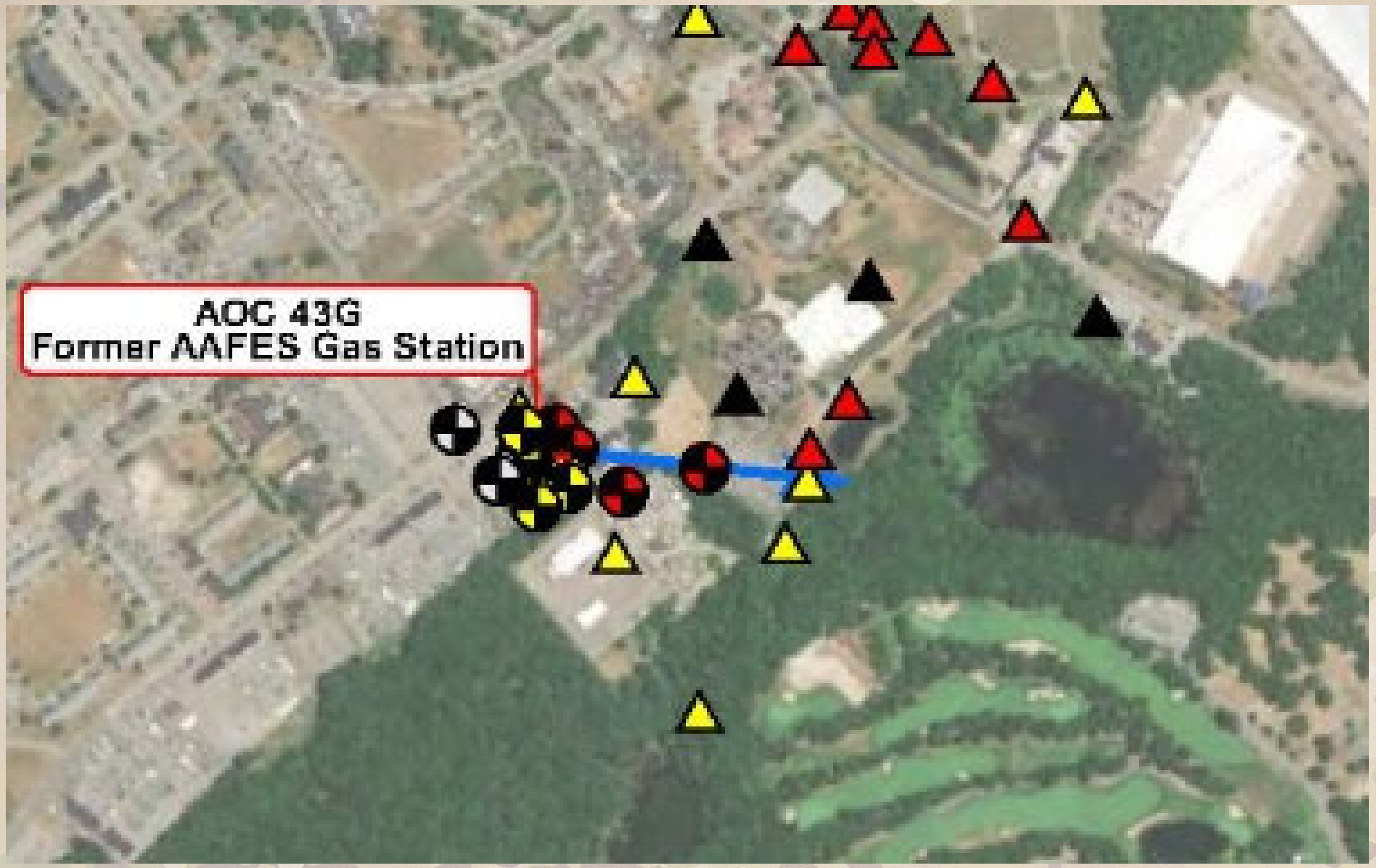
- AOC 74 – Barnum Road Firefighting Exercise Site
  - likely source area identified, extent not confirmed
  - flows toward Cold Spring Brook and Grove Pond
  - Maximum PFOA+PFOS = 2,270 ppt
- Grove Pond Area
  - multiple potential sources, extent not confirmed
  - broad area of impacted groundwater
  - flows toward Grove Pond, impacts to Grove Pond not yet evaluated
  - maximum PFOA+PFOS in groundwater = 640 ppt

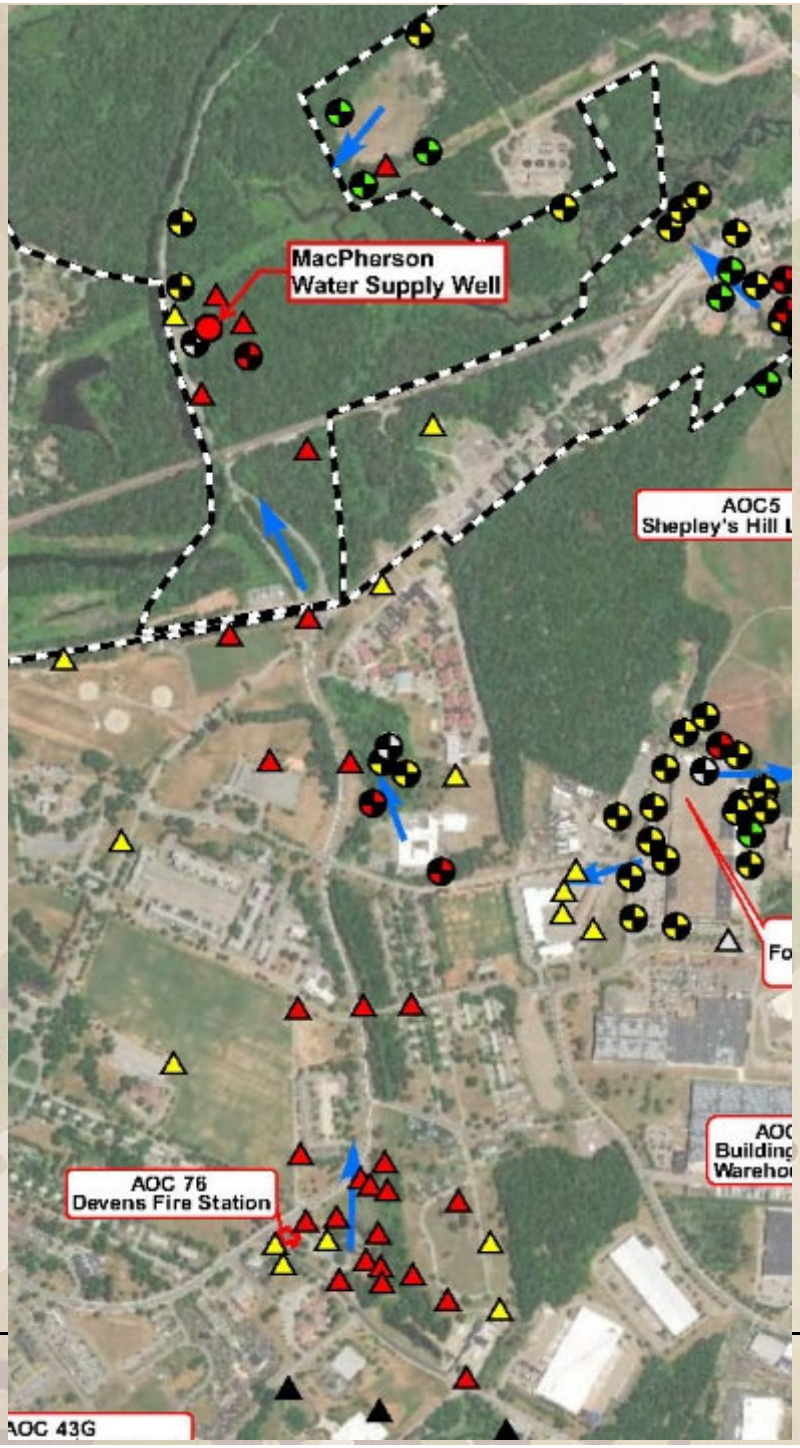
Area 2 Activities

- Completed
  - 79 Vertical profiles conducted
  - 31 Piezometers installed
  - 15 Soil borings conducted
  - 75 Monitoring wells sampled
  - 26 Surface water and sediment samples collected
  - 2 Synoptic water level surveys
- Planned
  - Vertical profiling
  - Monitoring well and piezometer installation
  - Monitoring wells sampling
  - Synoptic water level survey
  - Soil borings


Former Gas Station
Patton Water Supply Well
Shaboken Water Supply Well
N
W
E
S


Patton Water
Supply Well


AOC 43G
Former AAFES Gas Station



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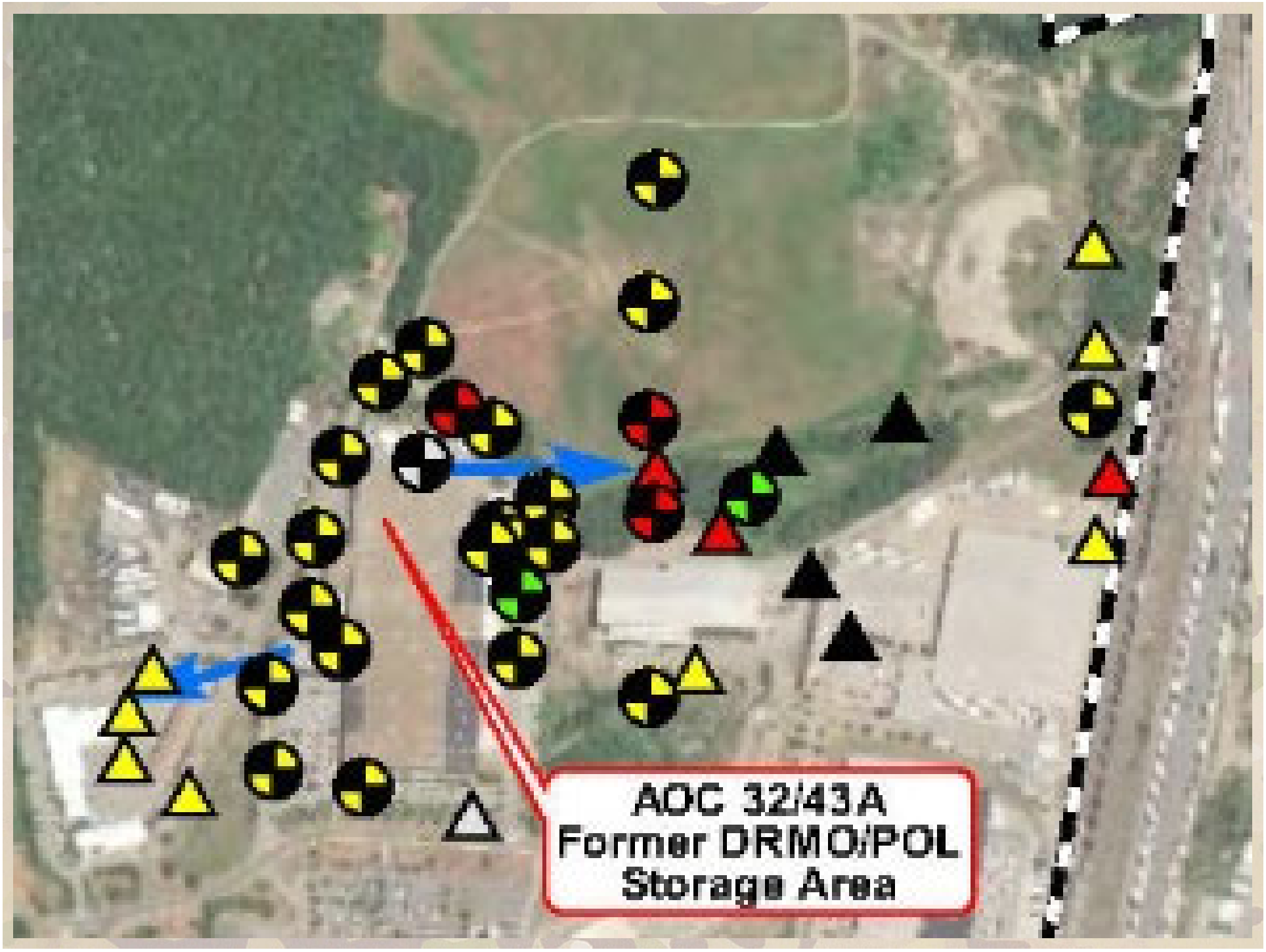
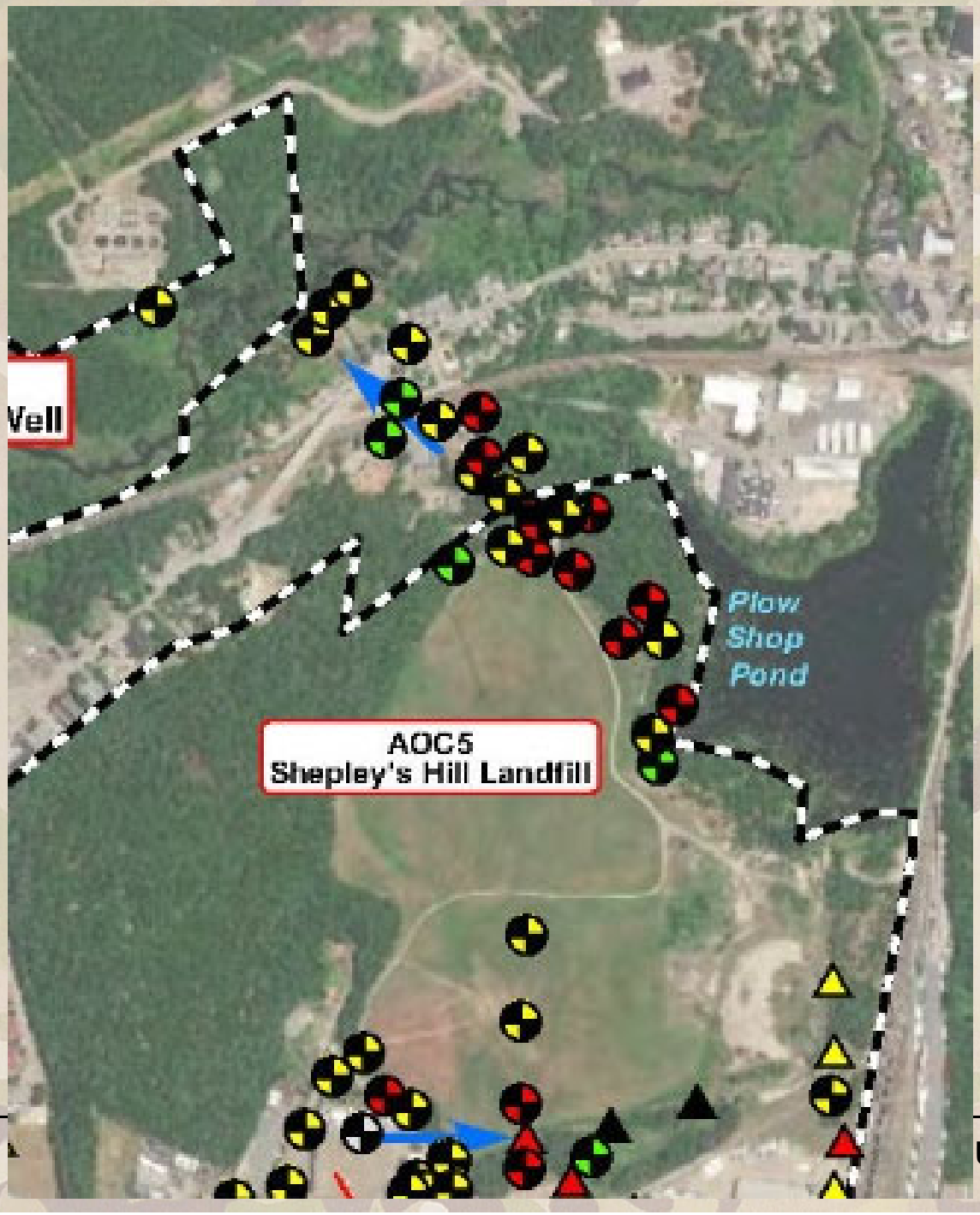

AOC 32/43A
Former DRMO/POL
Storage Area


Vell
Plow
Shop
Pond
AOC5
Shepley's Hill Landfill

Area 2 Preliminary Observations

- Shaboken Water Supply Well
  - source or sources unknown
  - groundwater flow direction is approximated
  - maximum PFOA+PFOS in groundwater = 24 ppt
- Patton Water Supply Well
  - potential source is AOC 40 (former disposal area), extent not confirmed
  - groundwater flow direction is approximated
  - maximum PFOA+PFOS in groundwater = 394 ppt
- AOC 43J – Historical Gas Station J
  - groundwater flows to the southeast
  - maximum PFOA+PFOS in groundwater = 36.6 ppt

Area 2 continued

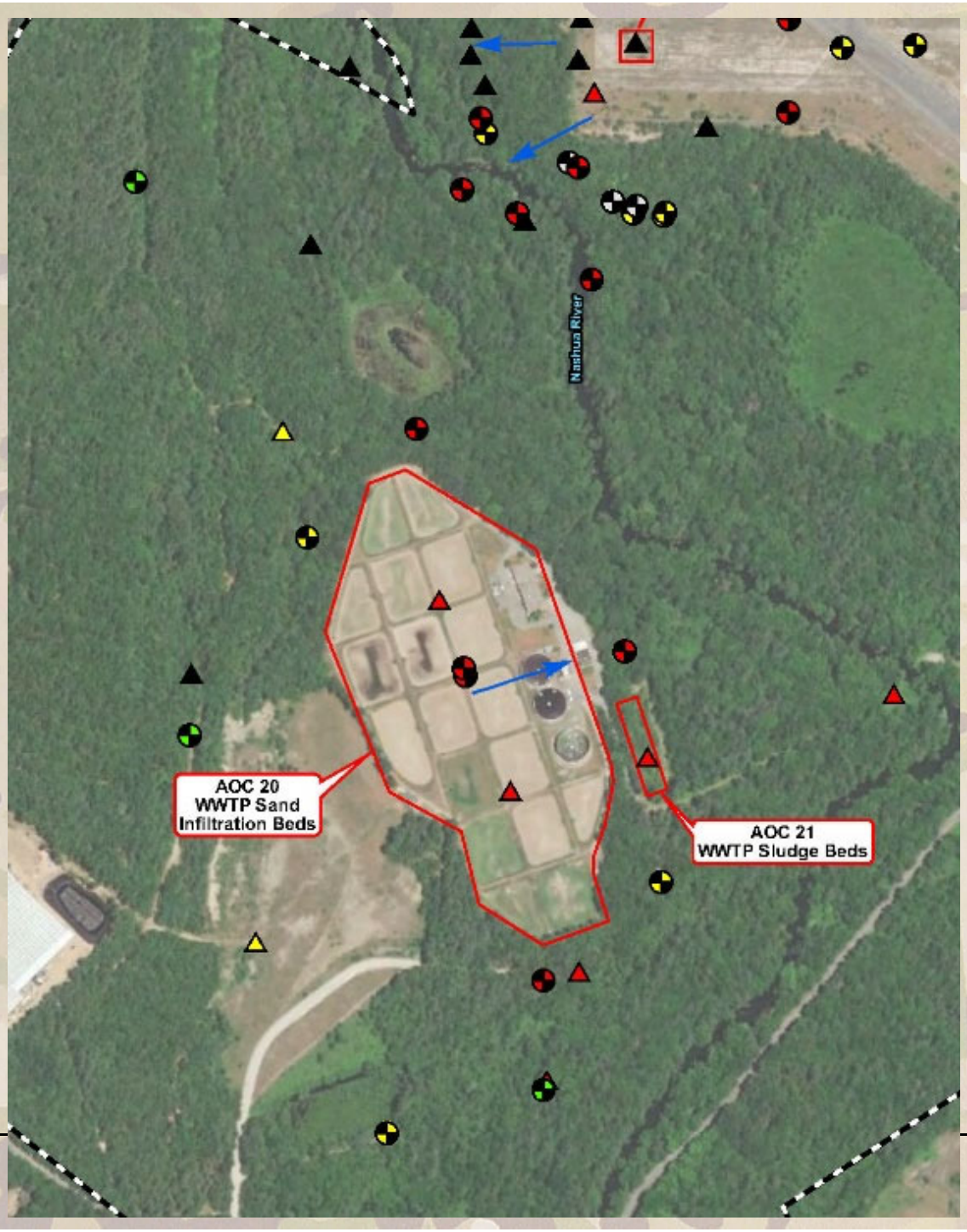
- AOC 43G – Historical Gas Station G
  - likely source area identified, extent not confirmed
  - groundwater flows to east and then north
  - maximum PFOA+PFOS in groundwater = 2,190 ppt
- AOC 76 – Devens Fire Station
  - likely source identified, extent not confirmed
  - groundwater flows to the north
  - maximum PFOA+PFOS in groundwater = 4,160 ppt
- MacPherson Water Supply Well
  - PFAS likely attributed to AOC 76 – Devens Fire Station
  - maximum PFOA+PFOS in groundwater = 119 ppt

Area 2 continued

- AOC 32/43A – Former DRMO/POL Storage
  - multiple sources, Devens Recycling Center Fire, extent not confirmed
  - groundwater flows to the east and then northeast
  - maximum PFOA+PFOS in groundwater = 2,880 ppt
- AOC 5 – Shepley's Hill Landfill
  - groundwater flows to Plow Shop Pond and Nonacoicus Brook
  - maximum PFOA+PFOS in groundwater = 127 ppt

Area 3 Activities

- Completed
  - 31 Vertical profiles conducted
  - 13 Piezometer installed
  - 43 Monitoring wells sampled
- Planned
  - Vertical profiling/piezometer installation
  - Soil borings
  - Surface water and sediment sampling
  - Monitoring well and piezometer installation
  - Monitoring well sampling
  - Synoptic water level surveys



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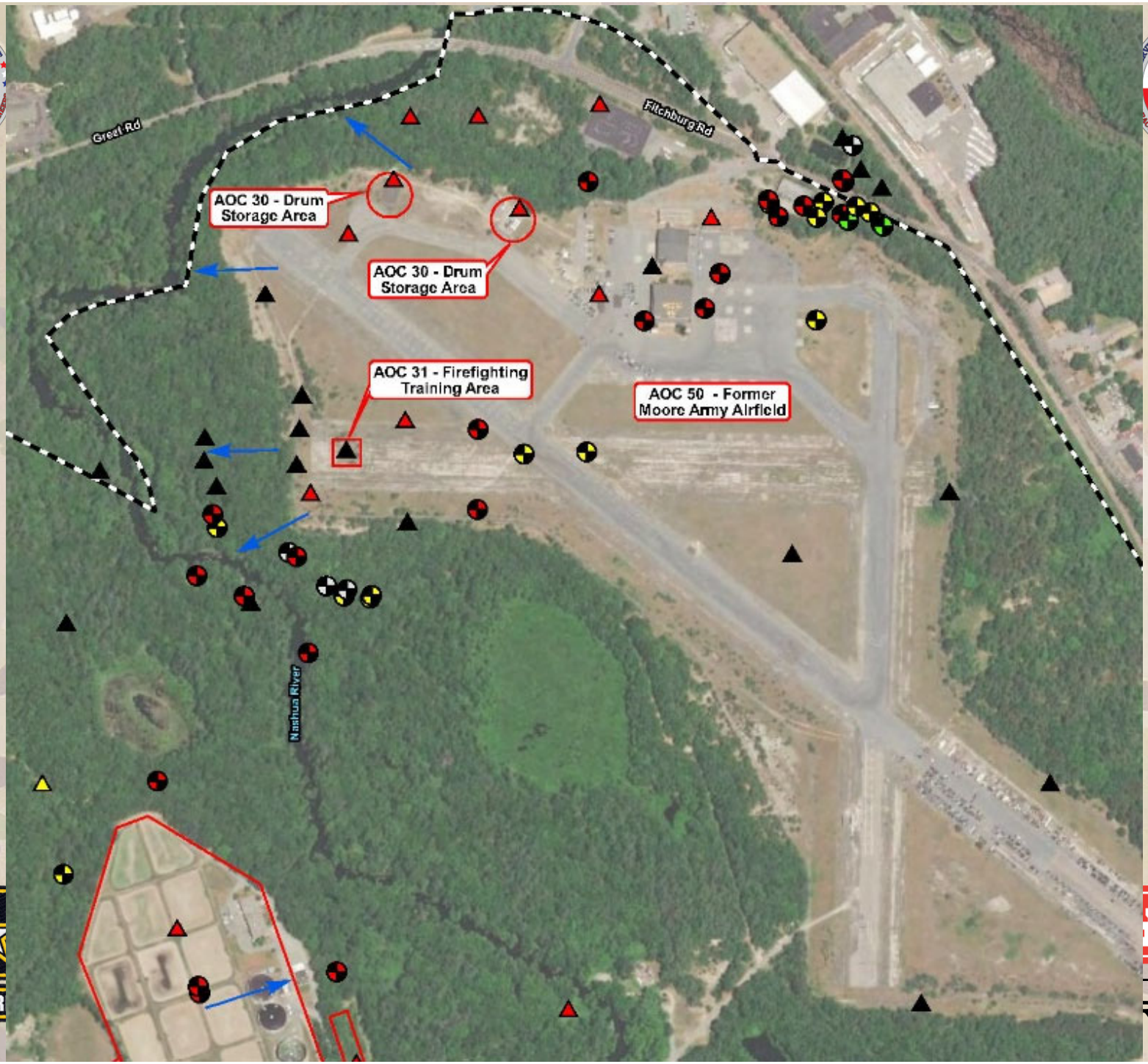
Great Rd
Fitchburg Rd
AOC 30 - Drum Storage Area
AOC 30 - Drum Storage Area
AOC 31 - Firefighting Training Area
AOC 50 - Former Moore Army Airfield
Nashua River

Area 3 Preliminary Observations

- AOC 20/21 – Devens Wastewater Treatment Sand Filter Beds/Sludge Drying Beds
  - ► likely source areas identified, extent not confirmed
  - ► groundwater flow toward Nashua River
  - ► maximum PFOA+PFOS in groundwater = 320 ppt
- AOC 30 – Former Moore Army Airfield Drum Storage Area
  - ► likely sources identified, extent not confirmed
  - ► groundwater flow toward Nashua River
  - ► maximum PFOA+PFOS in groundwater = 3,530 ppt

Area 3 continued

- AOC 31 – Former Moore Army Airfield Fire Training Area
  - ► likely source identified, extent not confirmed
  - ► groundwater flow toward Nashua River
  - ► maximum PFOA+PFOS in groundwater = 39,000 ppt
- AOC 50 – Former Moore Army Airfield
  - ► multiple sources, extent not confirmed
  - ► groundwater flow toward Nashua River
  - ► maximum PFOA+PFOS in groundwater = 10,500 ppt

Next Steps

- Continue RI sampling efforts in Areas 1, 2, and 3
- Private well sampling in Harvard (Oct.-Nov.)
- 2019-Q4 Town Water Supply Well Sampling (Nov.)
- Prepare Community Involvement Plan for stakeholder review and comment (Dec.)
- Continue to operate temporary treatment system at Grove Pond well #8
- Compilation/presentation of existing RI data

Former Fort Devens Army Installation Project Status Updates

Questions?