Per- and Polyfluoroalkyl Substances (PFAS) Update

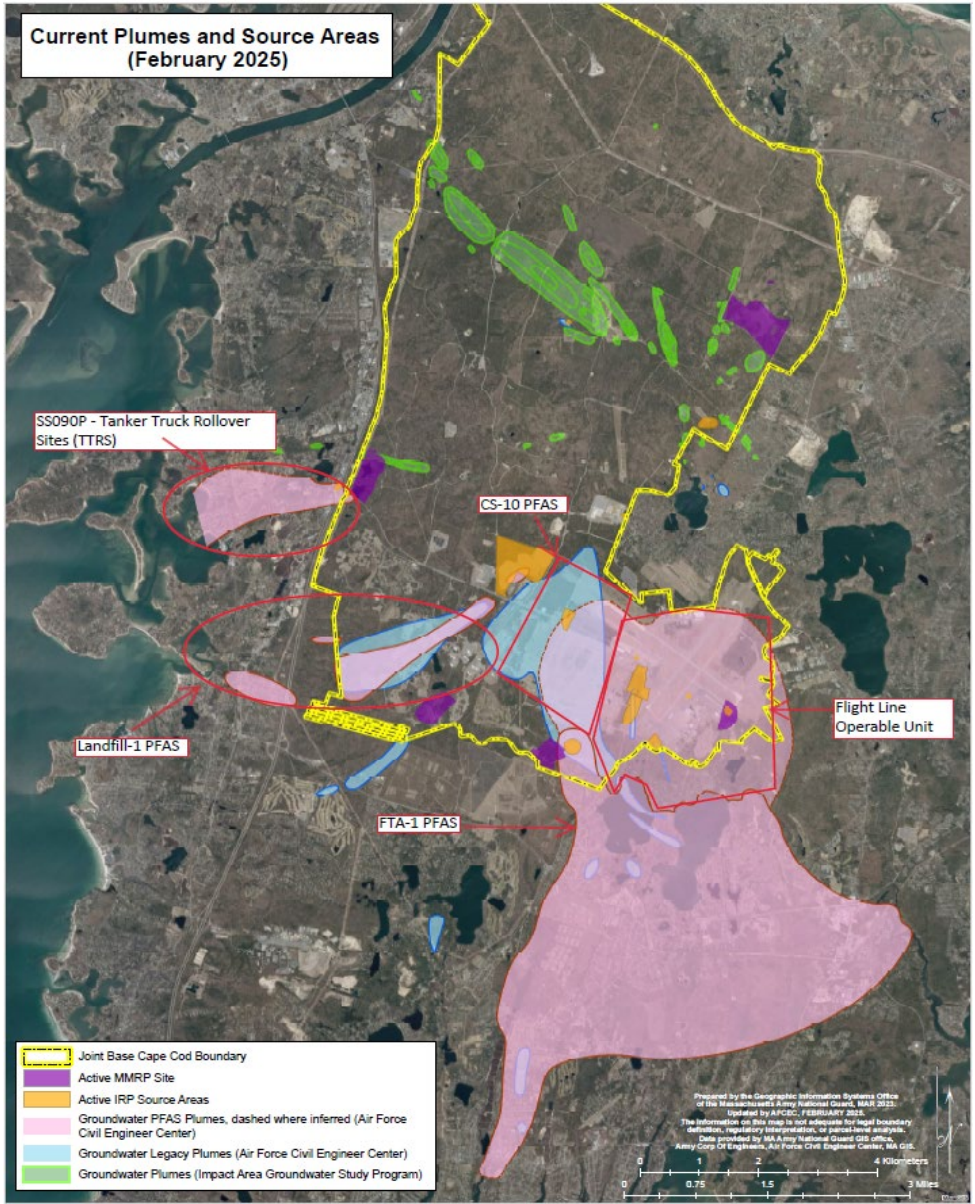
Joint Base Cape Cod Cleanup Team Meeting

25 March 2026

Overview

- PFAS Base Wide Snapshot
- PFAS Site Reviews and Status
  - Ashumet Valley (AV)/Fire Training Area-1 (FTA-1 PFAS)
  - Flight Line Operable Unit
  - Chemical Spill-10 (CS-10 PFAS)
  - Tanker Truck Rollover Site (TTRS)
  - Landfill-1 (LF-1 PFAS)

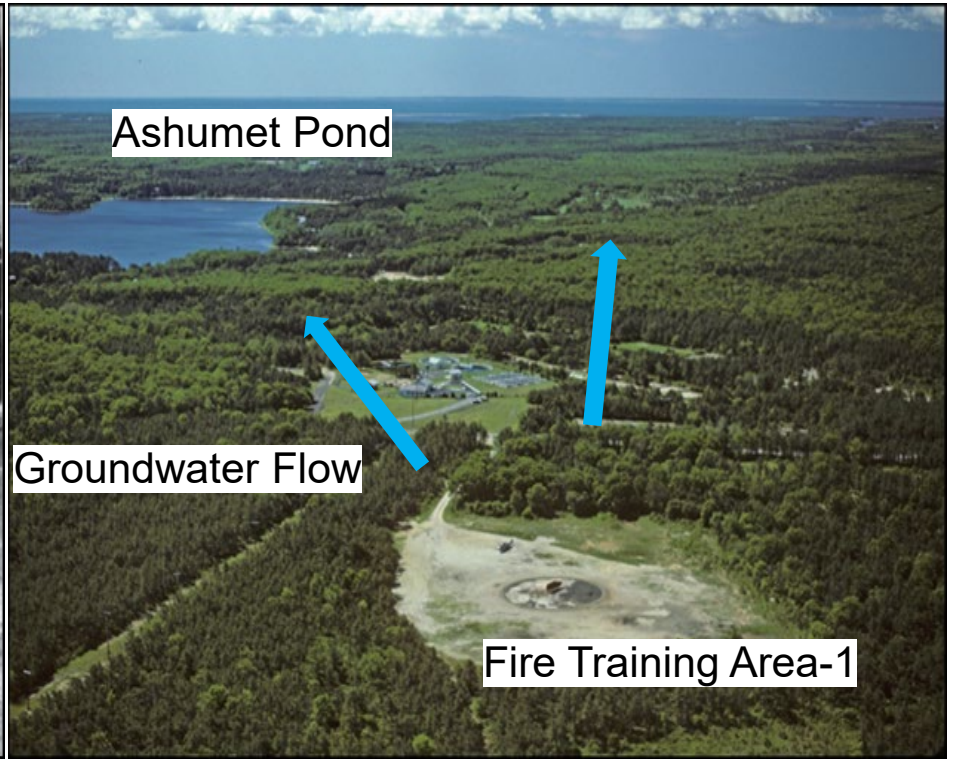
PFAS Base Wide Snapshot



Ashumet Valley/FTA-1 PFAS
Source Overview

- The primary source of PFAS to Ashumet Valley (AV) is from FTA-1
  - PFAS plume called “FTA-1” to distinguish it from AV Legacy
- FTA-1 operated from 1958 – 1985
  - Use of aqueous film forming foam (AFFF or “A Triple F”) with PFAS began in 1970
- Additional AFFF release in 1997
  - AFFF used to suppress a fire during thermal treatment of the FTA-1 soils to remove volatile organic compound contamination

Ashumet Valley/FTA-1 PFAS



Ashumet Valley/FTA-1 PFAS
CERCLA Actions

- **Interim Removal Actions (**2015-current) eliminate exposure in drinking water
  - Included time-critical and non-time critical removal actions documented in Action Memorandums
  - Municipal Wellhead Treatment Systems (4), connected residences to municipal water (+130), bottled water, residential treatment systems

- Supplemental PFAS **Remedial Investigation (RI)** completed March 2024
  - RI started in 2015
  - Describes Nature and Extent of Contamination
  - Includes Human Health and Ecological Risk Evaluation
  - Contaminants of Concern (COCs):
    - PFOA, PFOS, PFHxS, PFNA in groundwater and soil (leaching potential)
    - PFOS in fish (human consumption)

PFOA = Perfluorooctanoic acid
PFOS = Perfluorooctane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFNA = Perfluorononanoic acid

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

FTA-1 PFAS Extent

PFAS Detections in Groundwater

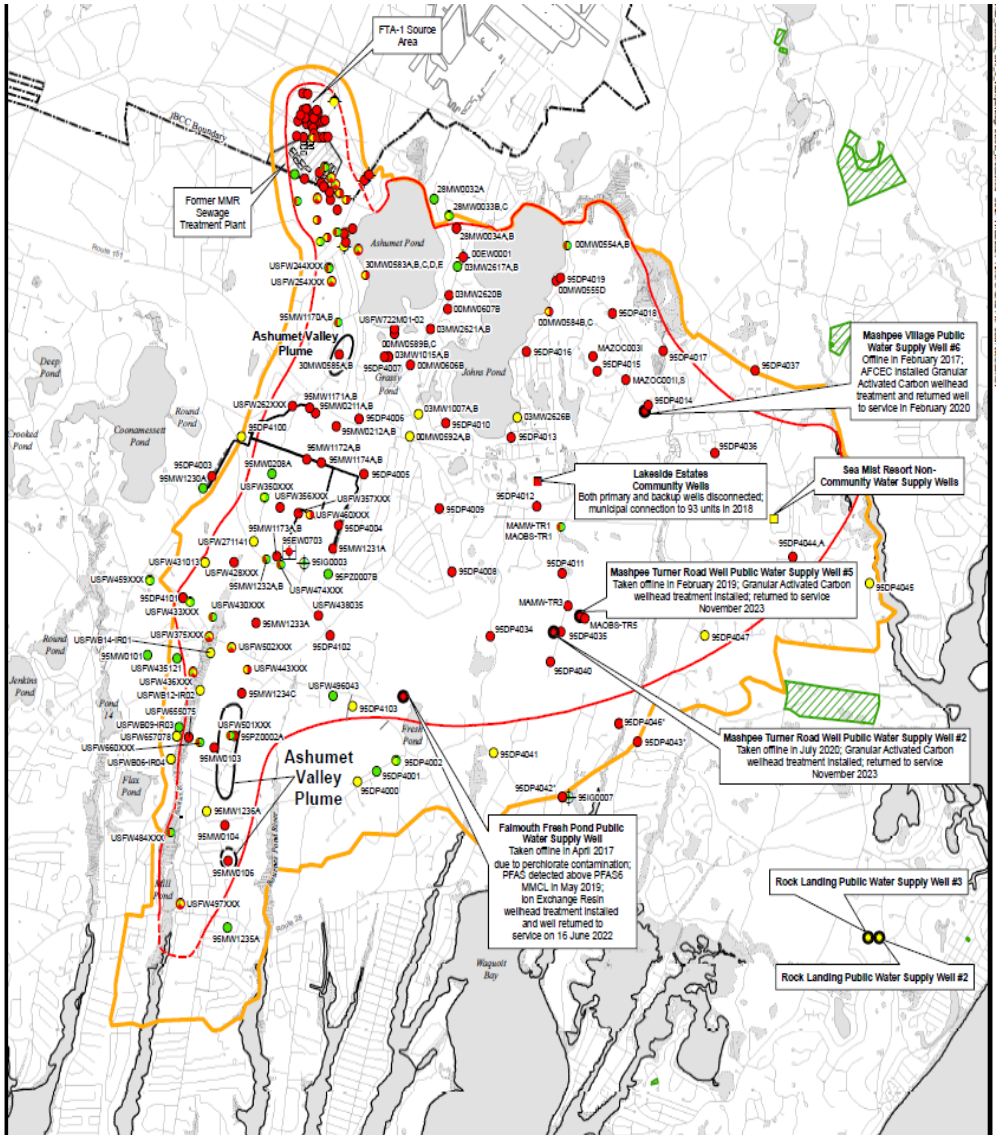
- Above PFAS MCL* or MassDEP PFAS6 MMCL**
- Below PFAS MCL and MassDEP PFAS6 MMCL
- No Detection

FTA-1 PFAS Plume Boundary

FTA-1 Land Use Control Area

Exposure to PFAS-contaminated groundwater addressed with bottled water, in-house treatment systems, connections to public water supply, and treatment systems on municipal wells.

*MCL = maximum contaminant level
**MMCL = Massachusetts maximum contaminant level



Ashumet Valley/FTA-1 PFAS
CERCLA Actions (continued)

- Draft Supplemental PFAS **Feasibility Study (FS)** for groundwater and soil prepared in April 2023
  - Groundwater FS is on hold while other work proceeds and interim action performance can be evaluated
  - Soil to be addressed in future Base Wide Soil FS
  - Private well sampling and mitigation will continue

- Draft PFAS **Explanation of Significant Differences (ESD)** prepared in March 2024
  - Modifies legacy remedy for Ashumet Valley groundwater to include interim remedial action for PFAS
  - Adds Land Use Controls for groundwater and fish
  - ESD Public Comment Period expected in Spring 2026

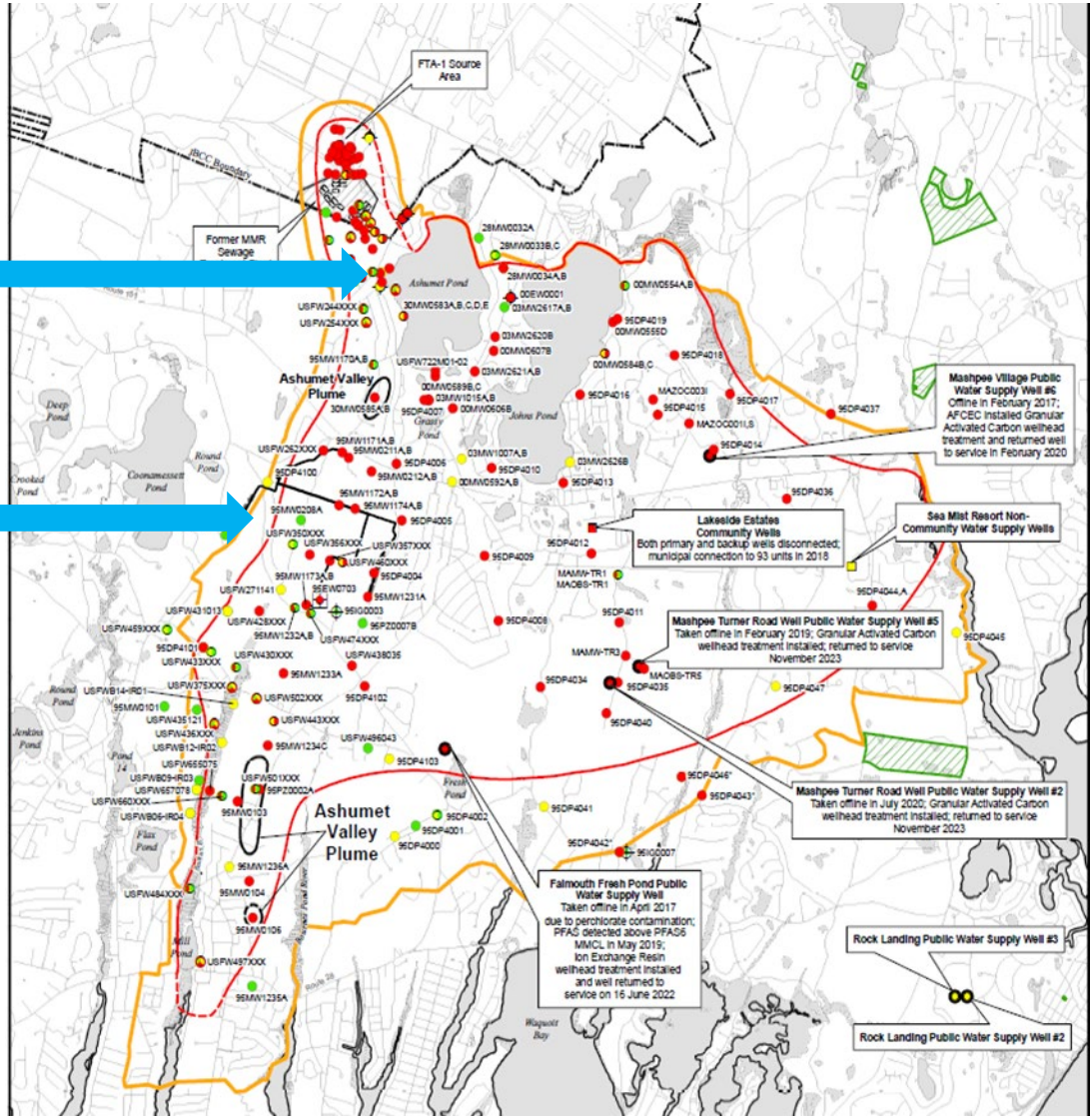
Ashumet Valley/FTA-1 PFAS

- PFAS is impacting Ashumet Pond and Johns Pond
- Do not eat any fish
- Safe for swimming
  - Avoid swallowing water and contact with foam

FTA-1 PFAS Interim Remedial Action Locations

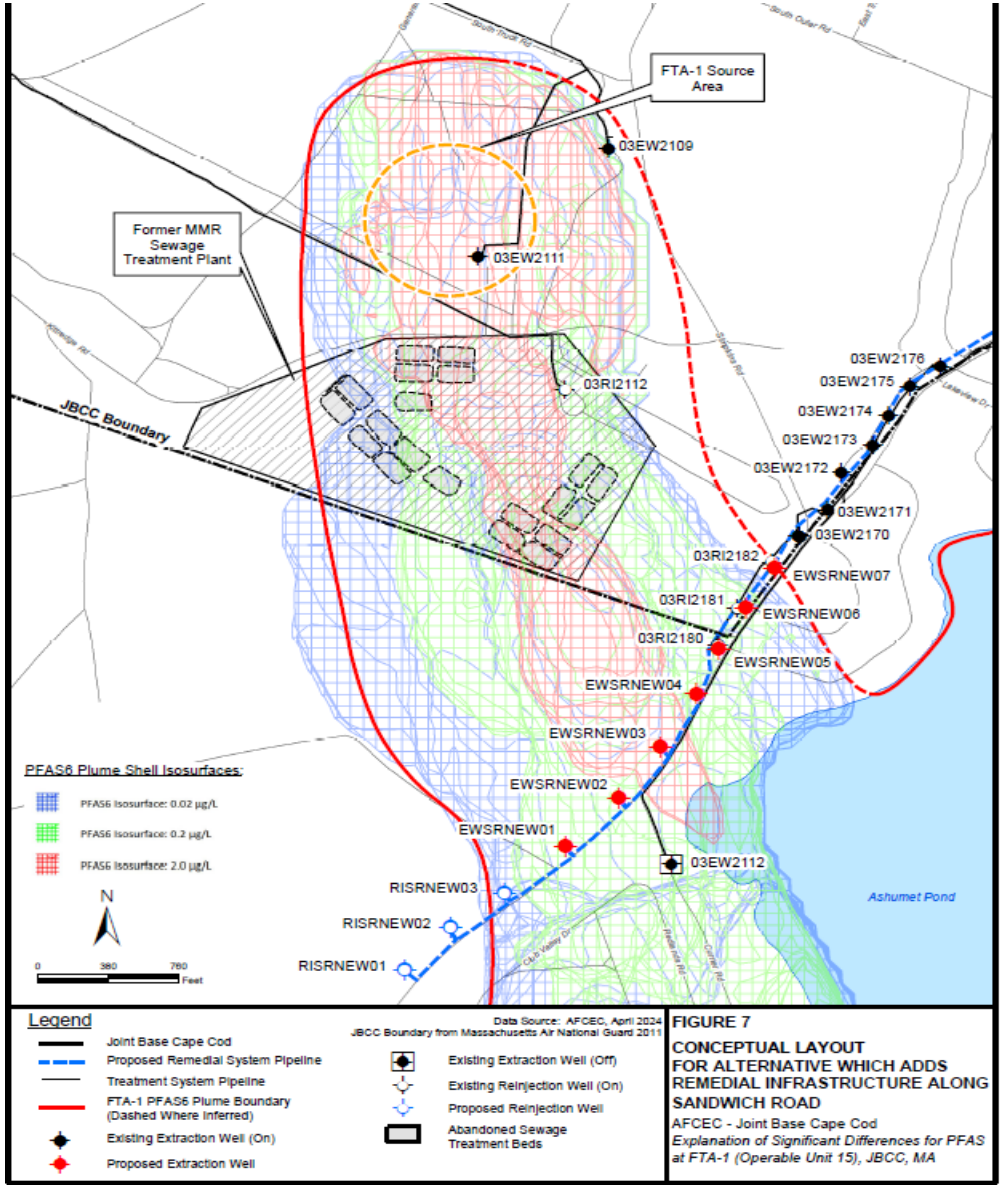
New Sandwich Rd Extraction Fence

Restart Ashumet Valley Treatment System



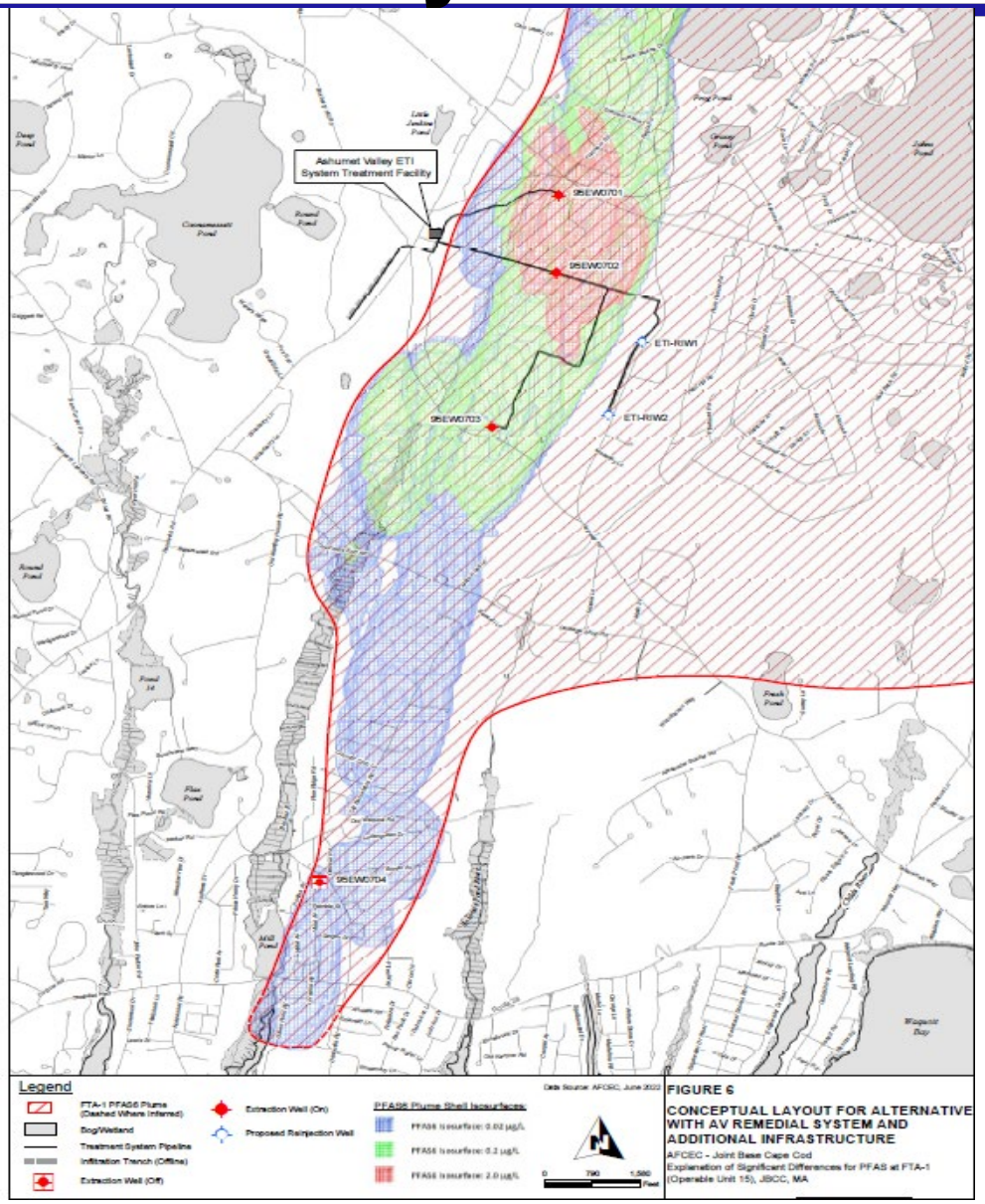
FTA-1 PFAS Sandwich Rd Extraction Fence

- **Install 7 new extraction wells and 3 new reinjection wells**
- **Total flow rate estimated at 1,350 gallons per minute (gpm)**
- **Water to be treated at Sandwich Road Treatment Facility (Granular Activated Carbon [GAC])**



FTA-1 PFAS Restart Ashumet Valley Treatment System

- Restart existing 3 extraction wells
- Install 2 new reinjection wells
- Total flow rate estimated at 1,400 gpm
- Treatment at existing Ashumet Valley system (GAC)



Proposed FTA-1 PFAS GW Interim Remedial Action Status

ESD Status

- Apr 2026: Estimated Completion of Draft Final FTA-1 ESD
  - To be followed by 30-day public comment period
  - Issue Final ESD with response to public comments

Design/Construction Status

- Sep 2024: Awarded contract for design of FTA-1 PFAS Interim Remedy
- Aug 2025: Awarded contract modification for construction
  - Nov 2025: Draft Design/Remedial Action Workplan submitted to AFCEC
  - Spring/Summer 2026: Clearing, drilling, piping along Sandwich Rd and Crane Wildlife Management Area
  - Spring 2027: System Startup

- AFCEC will continue to update the JBCCCT regarding the design/construction of interim remedial action

Flight Line Operable Unit (OU)
Source Overview

- The sources of PFAS in the Flight Line OU are direct AFFF releases associated with:
  - Fire Station operations and testing
  - Hangar fire suppression systems
  - Emergency Responses

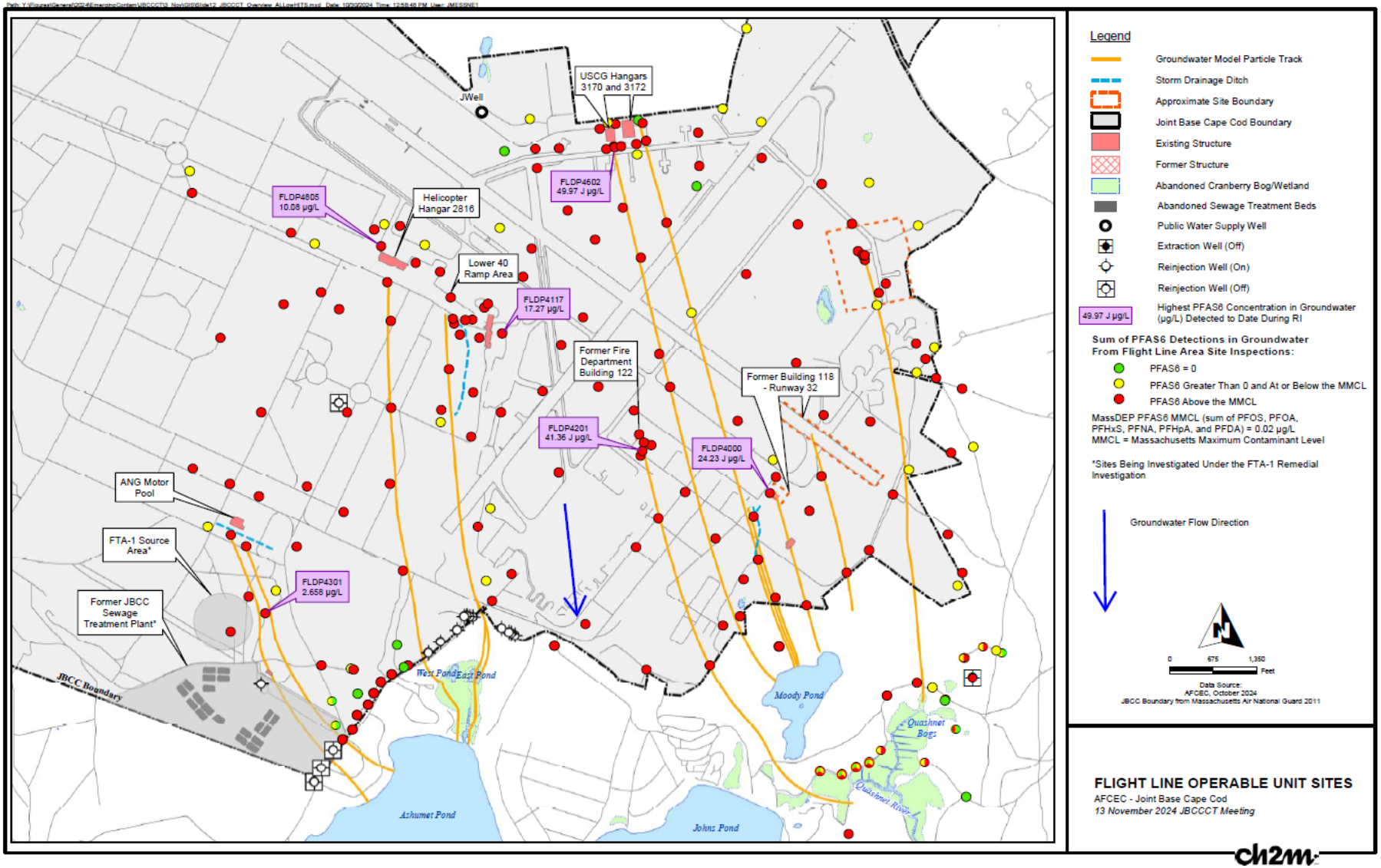
- Possible indirect PFAS releases due to surface application of wastewater treatment plant (WWTP) composted sludge
  - AFFF entered WWTP collection system
  - PFAS transfer from AFFF to sludge
    - Sludge is now transported off-base to industrial treatment facility

Flight Line Operable Unit (OU)
CERCLA Actions (Continued)

- **Preliminary Assessment (PA)** completed in 2015
- **Site Inspections (SI)** completed in 2017 and 2021
  - Confirmed PFAS in groundwater migrating off-base with potential drinking water impacts
- **Remedial Investigation (RI)** began in 2021
  - Groundwater sampling and analysis complete, numerous graphics provided
  - Awaiting FY26 contract to prepare RI report for non-soil media
    - Draft RI due to EPA on 4 Apr 2027
  - Much soil data collected; additional data collection in future Base Wide Soil RI

Flight Line Operable Unit (OU)

PFAS Groundwater Detections

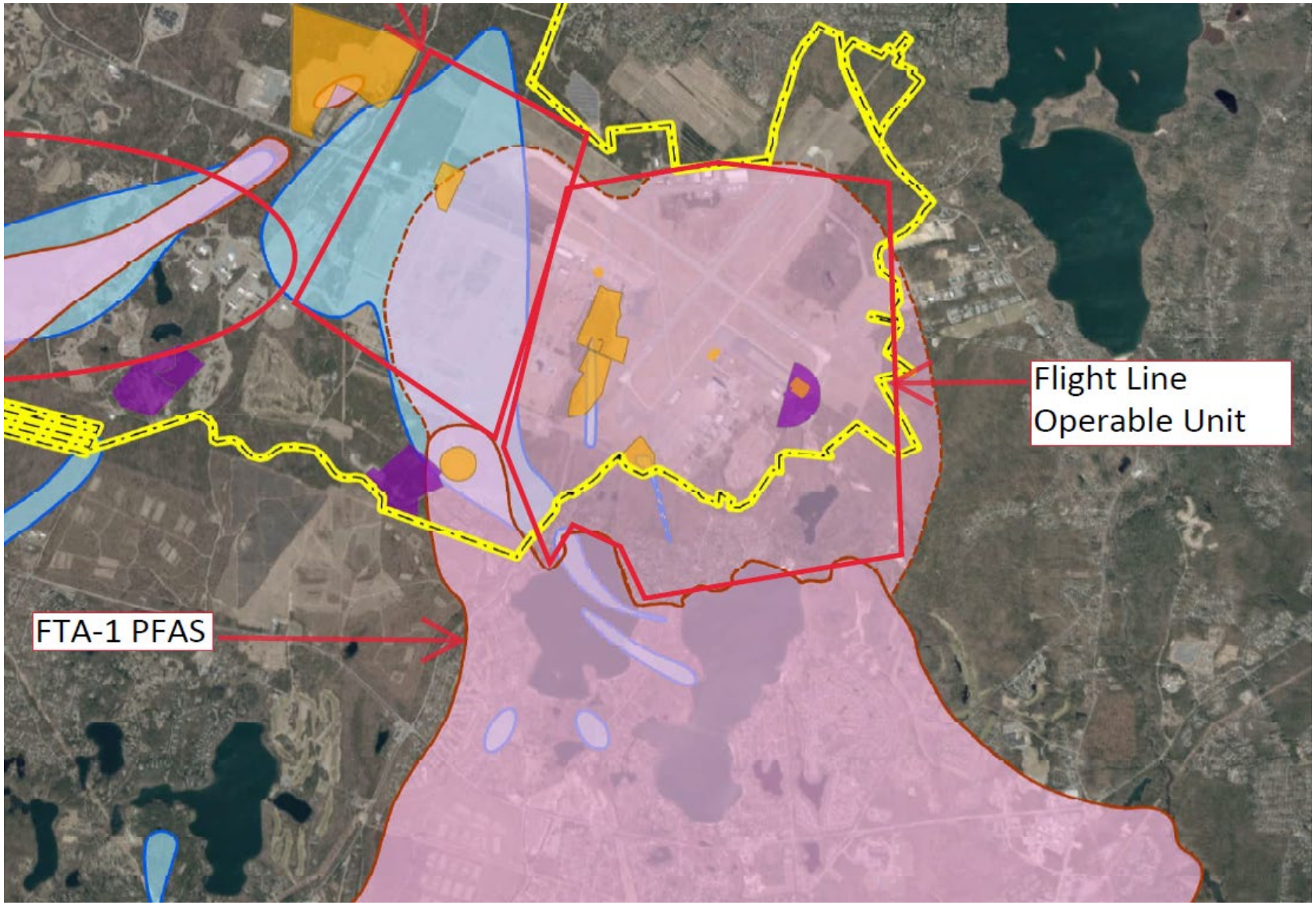


Flight Line Operable Unit (OU)
CERCLA Actions (continued)

- Air Force discussing a **Non-Time Critical Removal Action (NTCRA)** for groundwater after RI completion – planned for FY27 initiation (subject to funding)
  - **Engineering Evaluation/Cost Analysis (EE/CA)** to evaluate alternatives to prevent/reduce migration across base boundary
  - EE/CA Public Comment Period
  - Followed by **Action Memorandum** to authorize NTCRA

- Non-soil media **FS, Proposed Plan (PP), Record of Decision (ROD)** on hold until soil remedy is understood and performance of groundwater interim system can be evaluated (post-2030)
  - May be combined with FTA-1 FS/PP/ROD-A due to commingling

Flight Line Operable Unit (OU)
FTA-1 and Flight Line OU Commingling



Flight Line Operable Unit (OU)
CERCLA Actions (continued)

- Flight Line Soil will be combined with FTA-1 and CS-10 PFAS soils in a separate **Base Wide Soil FS, PP, and ROD**
  - Next step is Base Wide Soil Remedial Investigation of Flight Line and CS-10 Soils (on-hold due to limited funding)
  - FTA-1 Soil RI has been completed

CS-10 PFAS
Source Overview/CERCLA Status

- One source identified (composted sludge)
  - Groundwater detections indicate other sources exist

- **Base Wide Soil Remedial Investigation (RI)** will determine nature and extent of source areas – on hold due to limited funding

- **CS-10 Supplemental Remedial Investigation (RI)** will determine nature and extent of groundwater contamination – on hold due to limited funding

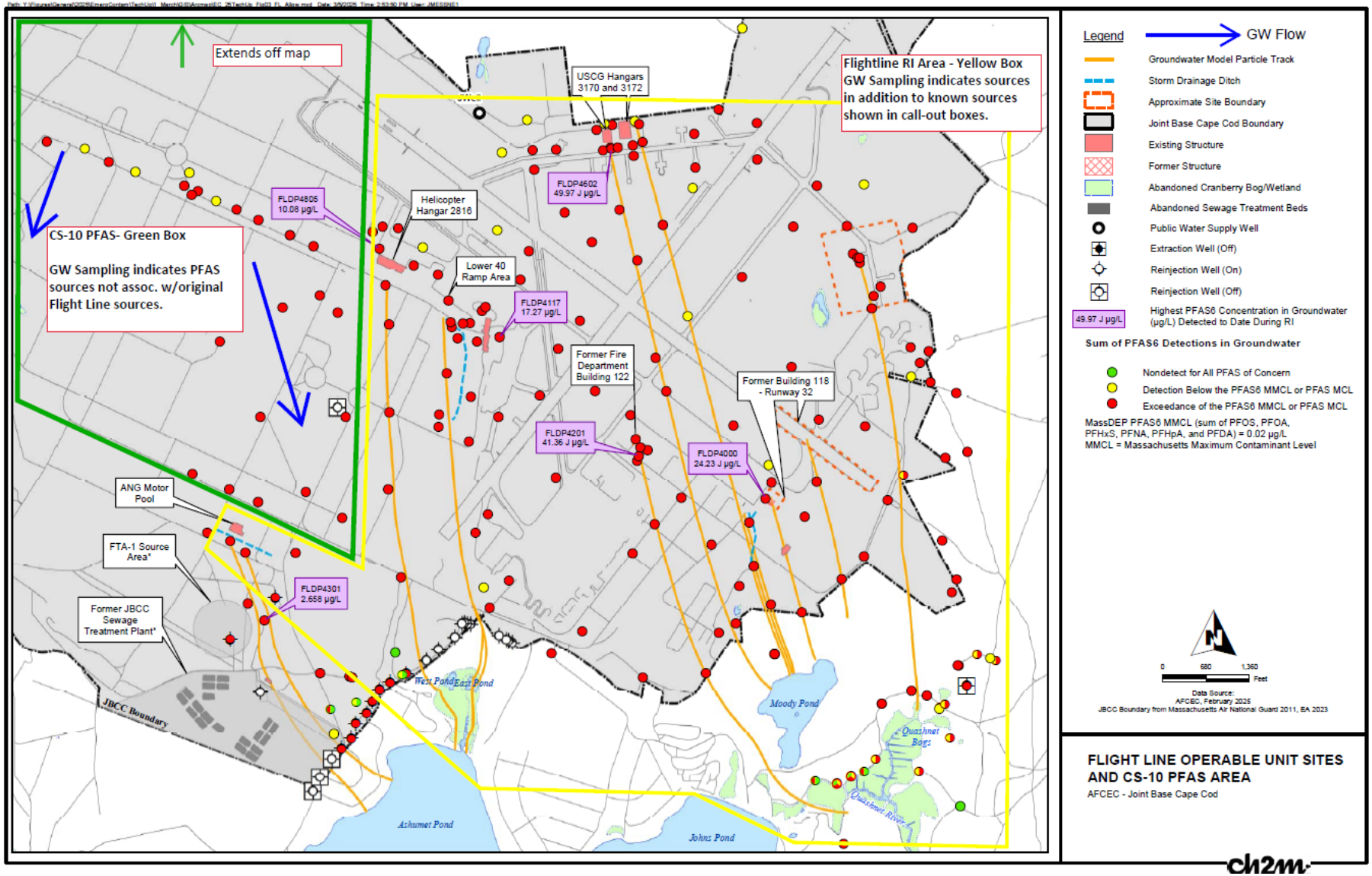
CS-10 PFAS
Source Overview/CERCLA Status

- **CS-10 Focused Feasibility Study (FFS)** will evaluate remedial alternatives for groundwater
  - Follows Supplemental Remedial Investigation completion
  - PFAS currently being treated in CS-10 In-Plume and Sandwich Road groundwater treatment facilities
  - Unknown if additional treatment is needed

- Planning an **Explanation of Significant Differences (ESD)** to add PFAS as contaminant of concern at CS-10 after groundwater RI/FFS

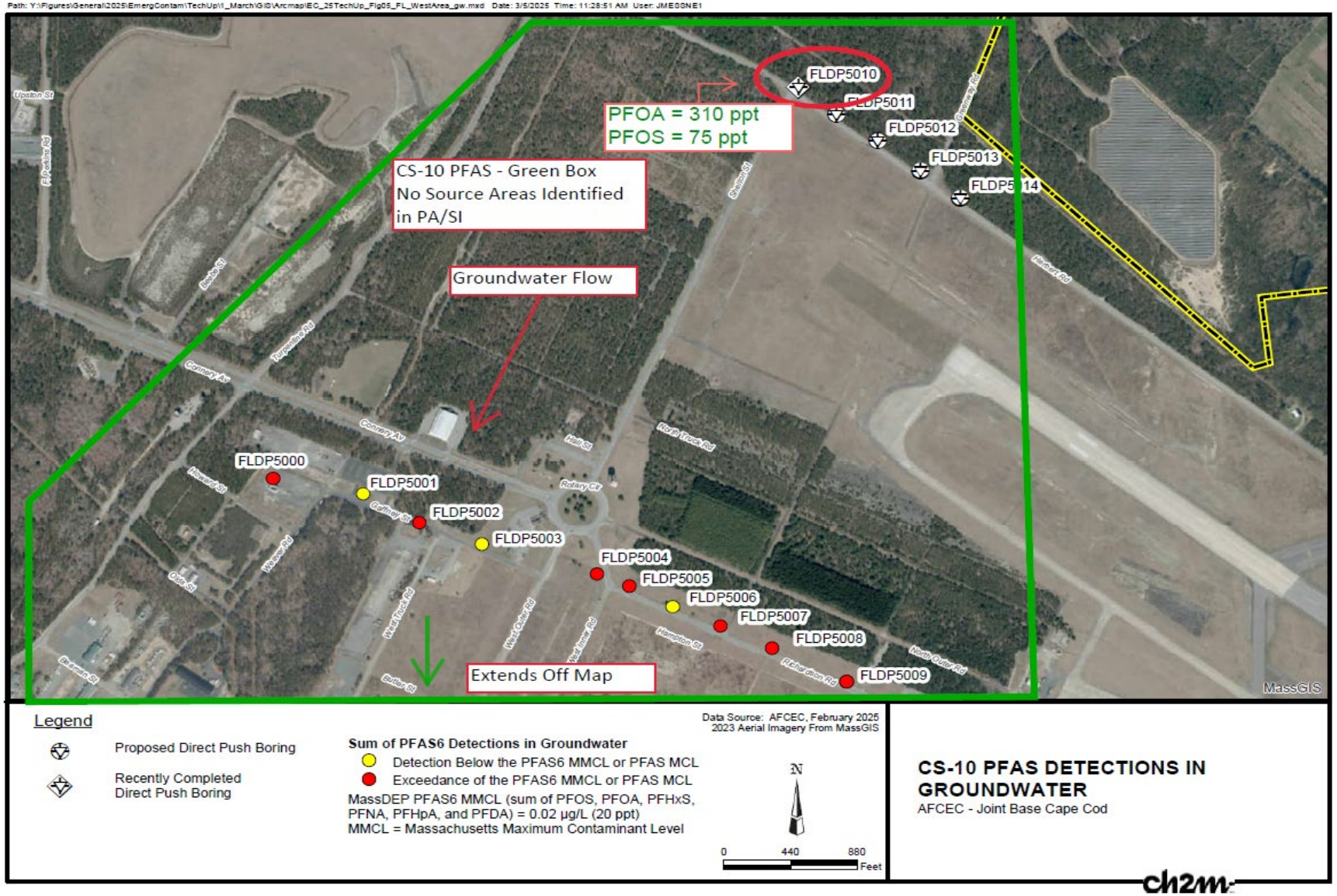
CS-10 PFAS

PFAS Groundwater Detections (Green Box)



CS-10 PFAS

PFAS Groundwater Detections (Green Box)



Tanker Truck Rollover Site
Source Overview

- The sources of PFAS are AFFF applications associated with two fuel tanker truck rollovers at the Route 28 rotary (JBCC entrance)
  - AFFF applied to reduce risk of explosion or fire
  - Tanker Truck Rollover #1 – January 2000
  - Tanker Truck Rollover #2 – September 1997

Tanker Truck Rollover Site
CERCLA Actions

- PFAS **Preliminary Assessment (PA)** completed June 2015
  - Identified potential AFFF release locations

- **Interim Removal Actions** (2016-2022)
  - Bottled water, carbon treatment, and municipal connections at seven residences
  - Included time-critical and non-time critical removal actions documented in Action Memorandums

- Focused **Site Inspection (SI)** completed April 2017
  - Confirmed releases of AFFF due to PFAS in groundwater

Tanker Truck Rollover Site
CERCLA Actions (Continued)

- **Remedial Investigation (RI)** completed in March 2025
  - RI started in 2017
  - Describes Nature and Extent of Contamination
  - Includes Human Health and Ecological Risk Evaluation
  - Contaminants of Concern (COCs):
    - PFOA, PFOS in groundwater and soil (leaching potential and potential ecological impacts)

Tanker Truck Rollover Site
PFAS Groundwater Detections

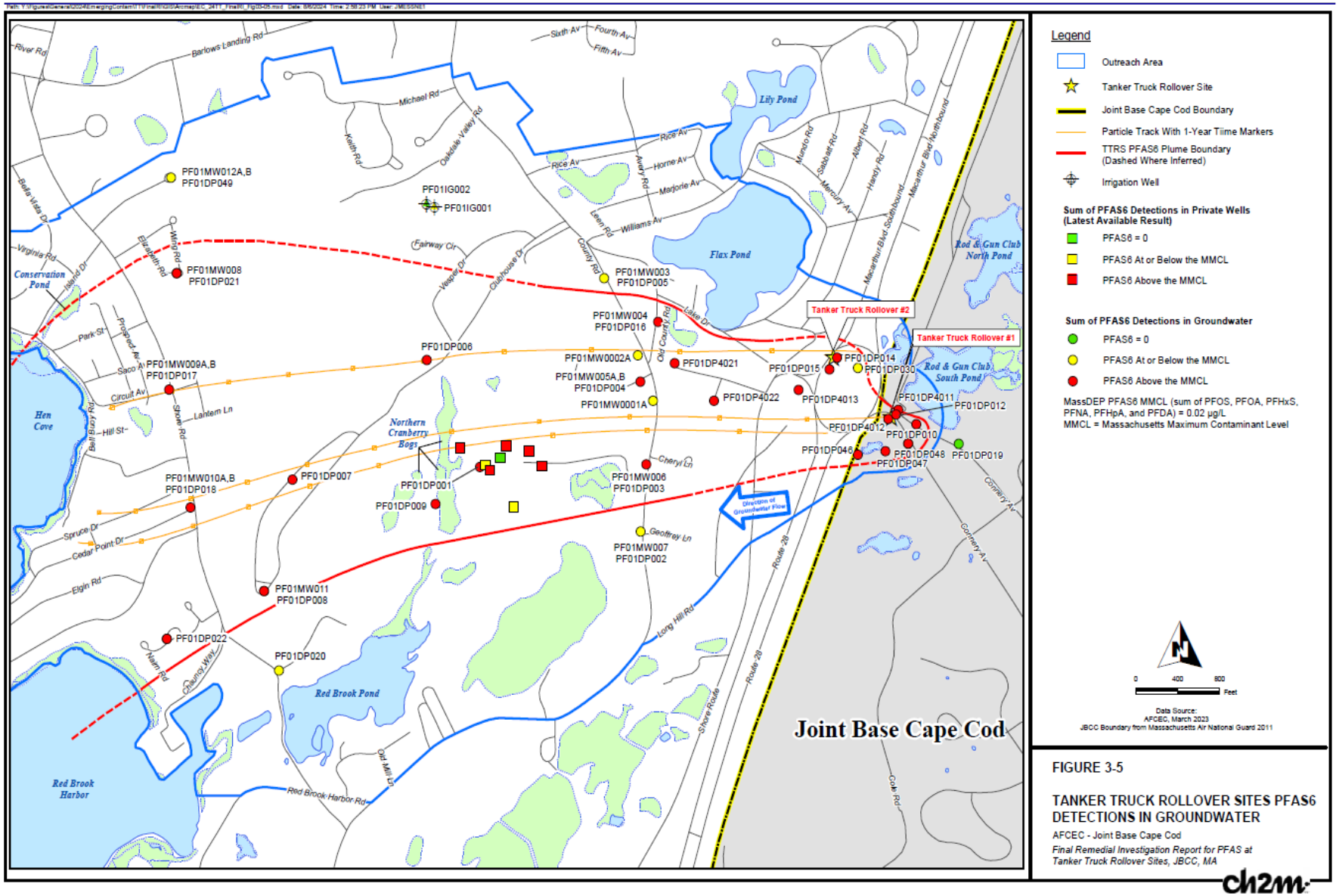


FIGURE 3-5

TANKER TRUCK ROLLOVER SITES PFAS6 DETECTIONS IN GROUNDWATER

AFCEC - Joint Base Cape Cod

Final Remedial Investigation Report for PFAS at Tanker Truck Rollover Sites, JBCC, MA

ch2m.

Tanker Truck Rollover Site
PFAS Soil Rollover #1

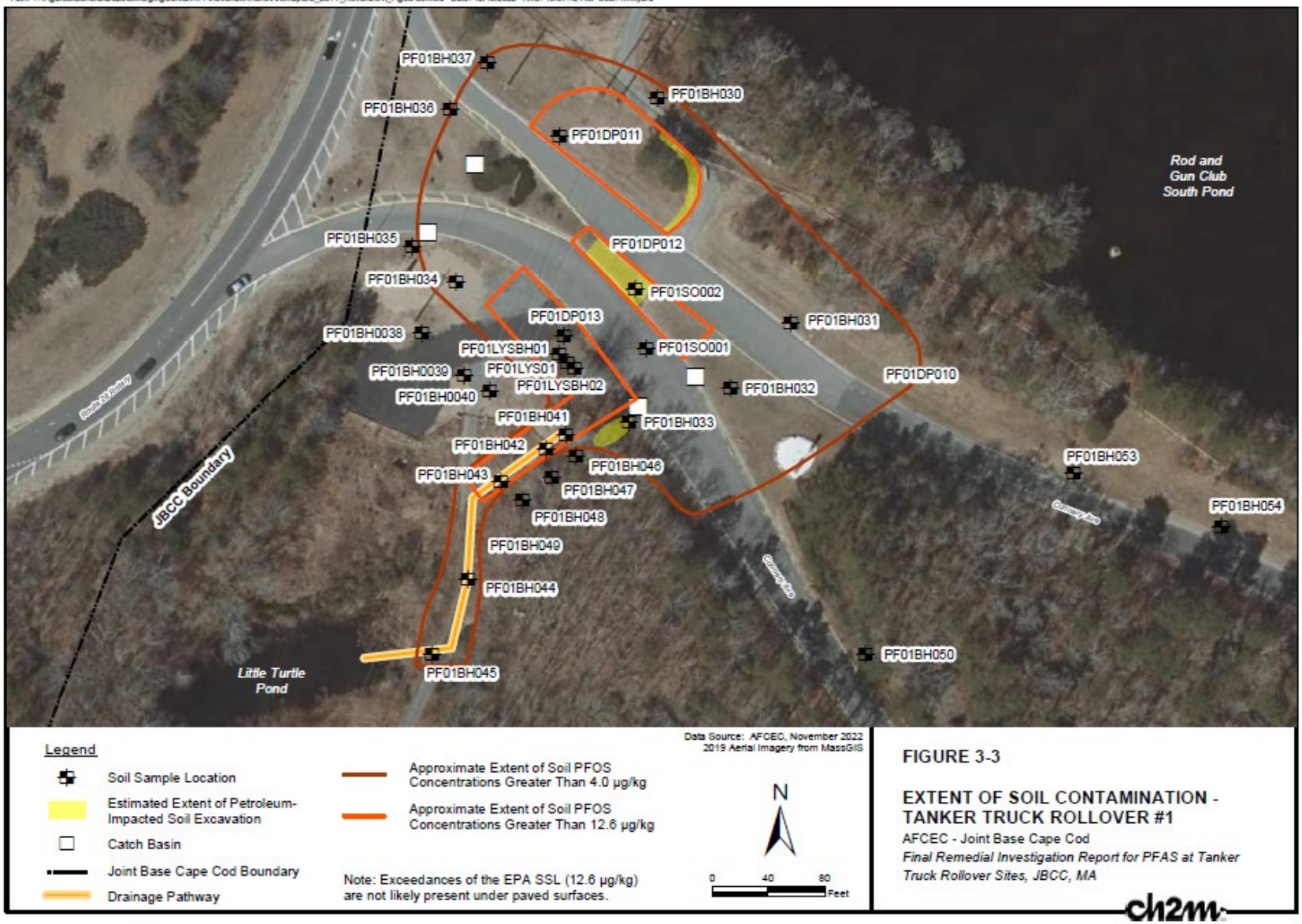


FIGURE 3-3

EXTENT OF SOIL CONTAMINATION - TANKER TRUCK ROLLOVER #1

AFCEC - Joint Base Cape Cod

Final Remedial Investigation Report for PFAS at Tanker Truck Rollover Sites, JBCC, MA

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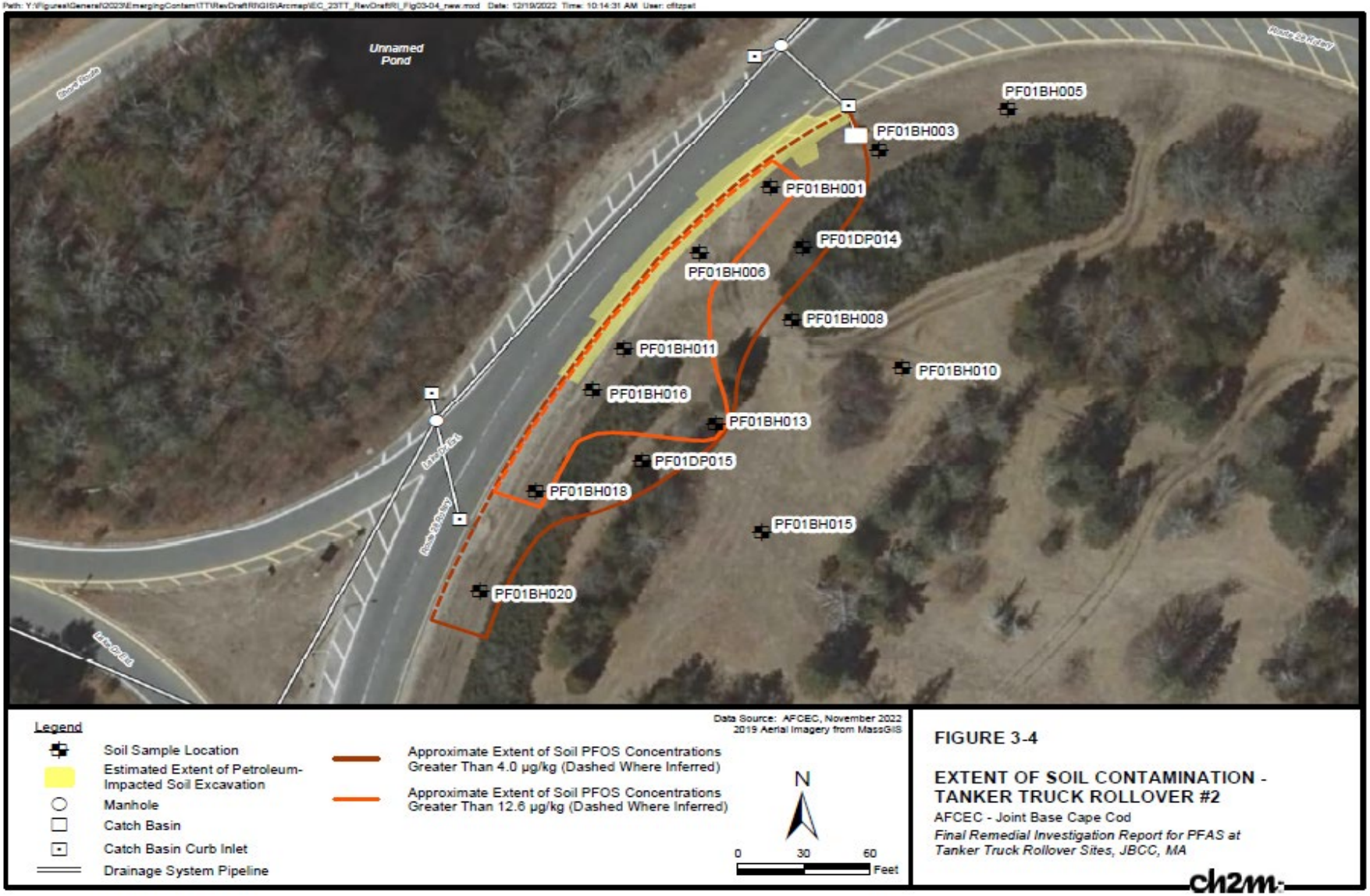
Tanker Truck Rollover Site
PFAS Soil Rollover #2



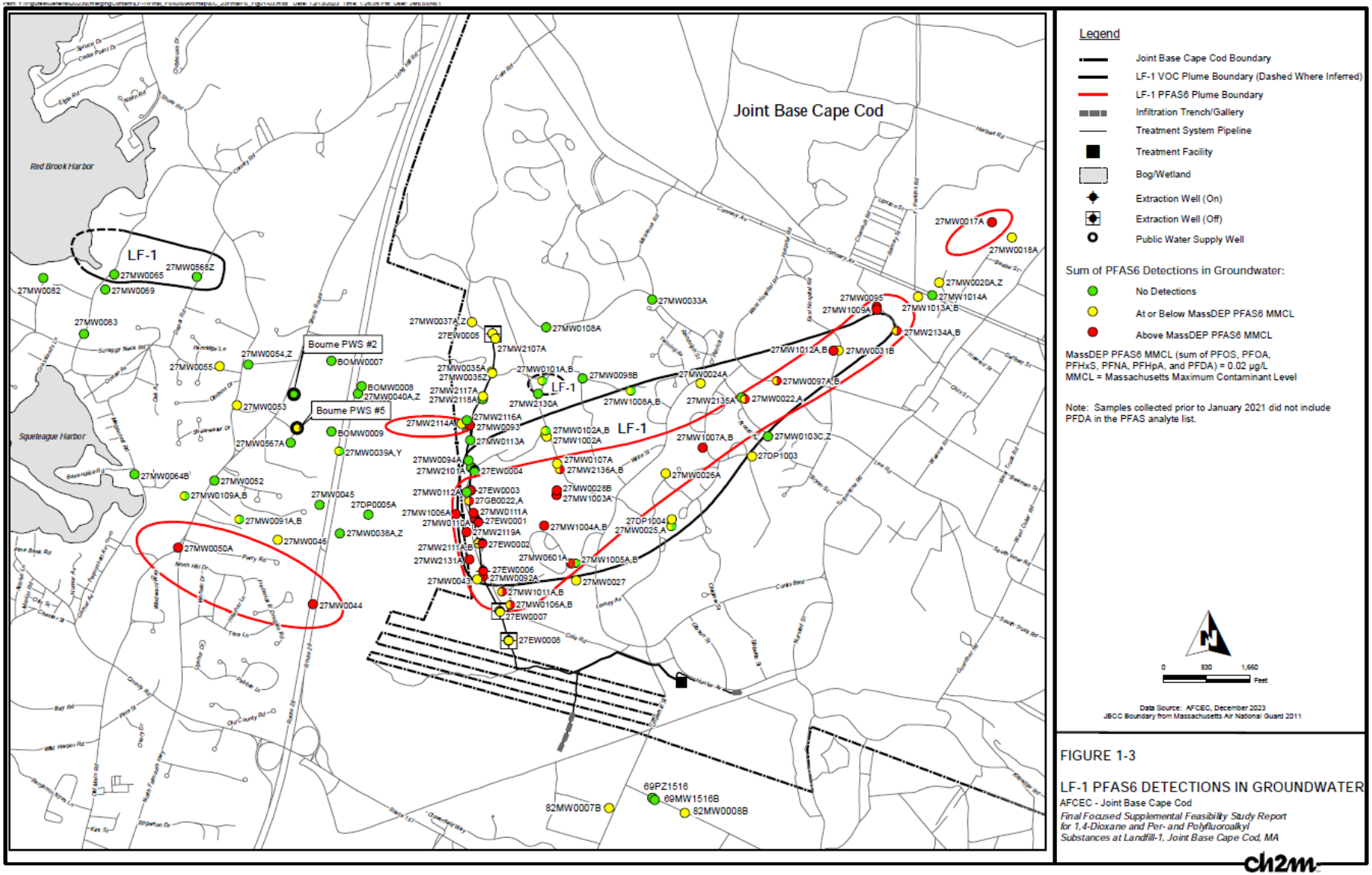
Tanker Truck Rollover Site
CERCLA Actions (Continued)

- Draft Supplemental PFAS **Feasibility Study (FS)** for groundwater and soil prepared in Jul 2022 and revised in March 2023
  - FS requires update to integrate federal PFAS maximum contaminant levels (MCLs), update risk assessments, and re-model groundwater alternatives
  - FS requires more extensive analysis of source area treatment technologies
- Final all-media **FS, Proposed Plan (PP), Record of Decision (ROD)** on hold due to limited funding

LF-1 PFAS
Source Overview/CERCLA Status

- PFAS Source: Disposal in base landfill
- PFAS is being removed from groundwater as part of legacy LF-1 operation
- **Supplemental Remedial Investigation (RI)** completed January 2018
  - RI started in 2015 (Included 1,4-dioxane)
  - Describes Nature and Extent of Contamination
  - Includes Human Health Risk Evaluation
  - Contaminants of Concern (COCs): PFOA, PFOS, 1,4-dioxane in groundwater

LF-1 PFAS
PFAS Groundwater Detections



LF-1 PFAS
Source Overview/CERCLA Status

- **Focused Feasibility Study (FS)** completed in December 2023
  - Evaluated three remedial alternatives
    - Existing remedy, No-Action for PFAS
    - Use existing treatment system/Land Use Controls for PFAS
    - Expand existing system/Land Use Controls for PFAS

- Draft **Explanation of Significant Differences (ESD)** submitted in December 2023
  - Will select alternative and add PFAS (and 1,4-dioxane) as contaminants of concern at LF-1
  - Draft ESD needs an addendum to integrate federal PFAS MCLs, update risk assessment, re-model groundwater alternatives
  - On hold due to limited funding

PFAS Investigations/Reports Impacted by Funding Limitations

- Near-Term (next two years) CERCLA actions that are on hold due to funding limitations:
  - Flight Line Groundwater EE/CA**
  - CS-10 PFAS Groundwater RI*
  - Flight Line and CS-10 PFAS Soil RI*
  - TTRS FS and Proposed Plan*
  - LF-1 ESD w/addendum completion***

* The Air Force did not propose Federal Facility Agreement (FFA) milestones in 2026 or 2027 for these activities. In EPA review.

** No FFA milestone required for EE/CAs

*** FFA milestone already met for submission of Draft document

PFAS CERCLA Strategy

JBCC PFAS SITES - CERCLA STRATEGY

PFAS SITE/OU	MEDIA	Preliminary Assessment	Site Inspection	Remedial Investigation	Feasibility Study	Interim Action	Proposed Plan	Record of Decision	
FIRE TRAINING AREA-1 (FTA-1) PFAS	Groundwater	N/A	N/A	2024	Future	In Progress	Future	Future	Combine with Flight Line OU FS/PP/ROD
	Sediment, Surface Water	N/A	N/A	2024	Future	N/A	Future	Future	
	Soil	N/A	N/A	2024	Future	N/A	Future	Future	Address in PFAS Soil OU FS/PP/ROD
FLIGHT LINE OU	Groundwater	2015	2021	2027	Future	Future	Future	Future	Combine with FTA-1 FS/PP/ROD
	Sediment, Surface Water	2015	2021	2027	Future	N/A	Future	Future	
	Soil	2015	2021	Pending	Future	N/A	Future	Future	Address in PFAS Soil OU FS/PP/ROD
CHEMICAL SPILL-10 PFAS	Groundwater	N/A	N/A	Pending	Future	In Progress	N/A	ESD-Future	
	Soil	N/A	N/A	Pending	Future	N/A	Future	Future	Address in PFAS Soil OU FS/PP/ROD
TANKER TRUCK ROLLOVER SITES (TTRS)	Groundwater, Soil, Sediment, Surface Water	2015	2017	2025	Pending	2016-2022	Future	Future	
LANDFILL-1 PFAS	Groundwater	N/A	N/A	2018	2023	In Progress	N/A	ESD-Pending	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