Restoration Advisory Board
Horsham Air Guard Station

Keith Freihofer
NGB/A4VR
2 December 2020

Updates Since September

- Environmental Restoration Program Sites:
  - No change

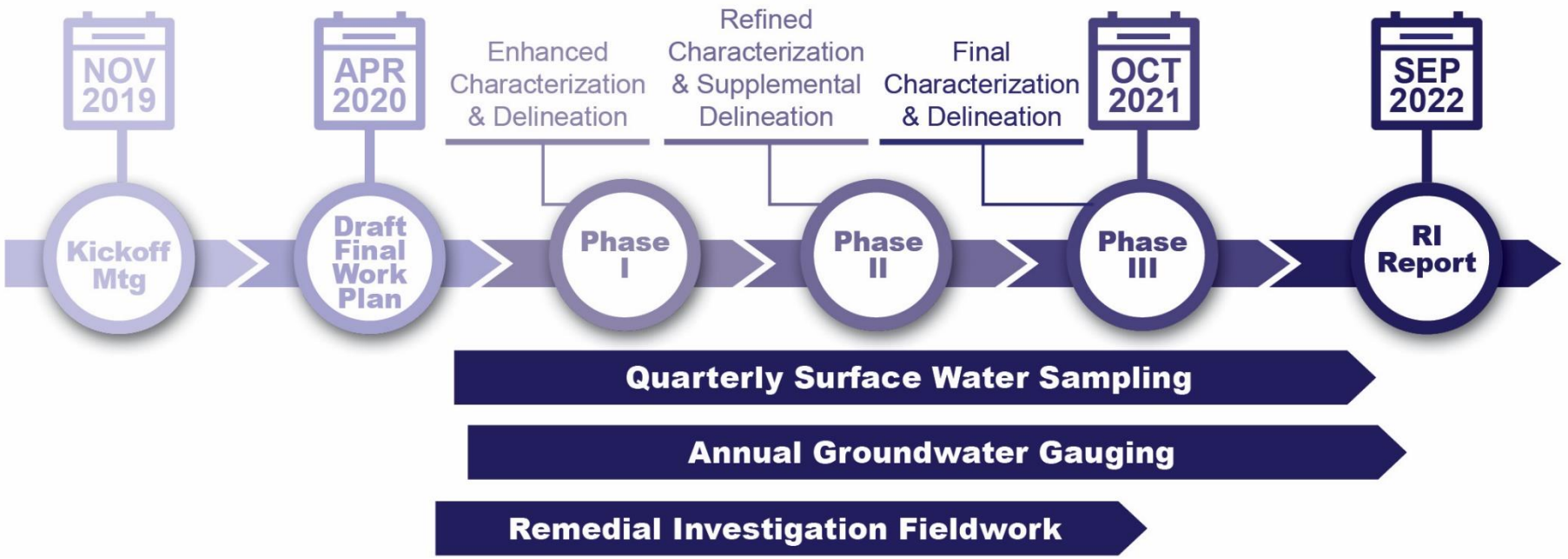
- PFAS Remedial Investigation:
  - Continued Phase I field investigation with surface water and sediment sampling, soil sampling, well installations, and groundwater sampling.
  - Regulatory approval for work plan for regional surface water sampling

- PFAS surface water treatment:
  - 180 gallons per minute system continues to operate
  - Draft NPDES Industrial Stormwater permit under review
  - 500 gallons per minute surface water treatment system under construction

Remedial Investigation Project Objectives

- Delineate the nature and extent of PFAS contamination, the threat to human health and the environment and prepare a Remedial Investigation (RI) Report.
  - Collect soil, sediment, surface water, and groundwater PFAS data on and around Horsham AGS
  - Conduct Baseline Risk Assessment (BRA)
  - Investigate link between groundwater and unnamed tributary to Park Creek
  - Obtain data required to inform future development of a Feasibility Study
  - Conduct quarterly surface water sampling for PFAS in coordination with the Navy
  - Conduct annual potentiometric gauging to support USGS model

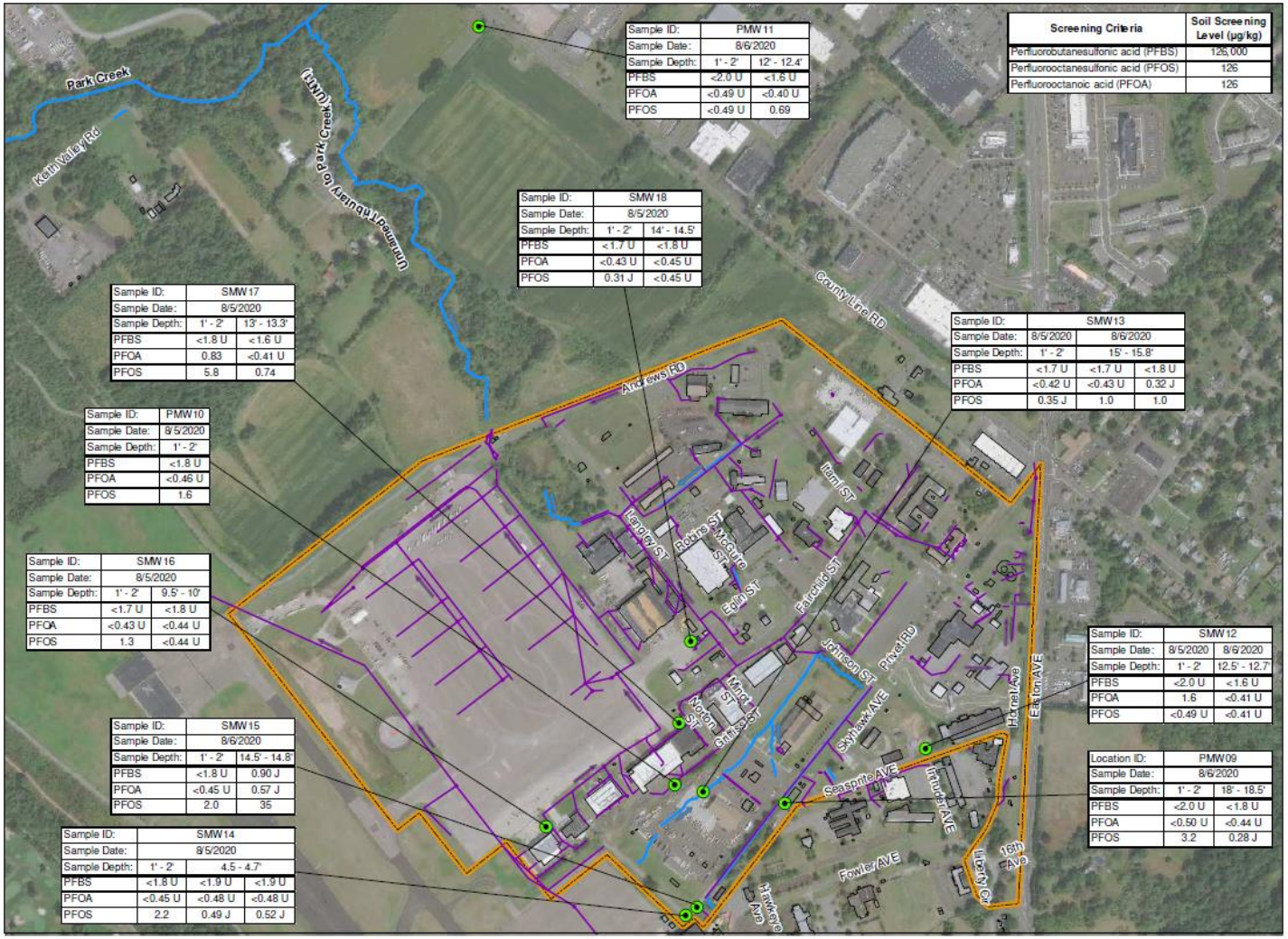
General Project Steps and Schedule



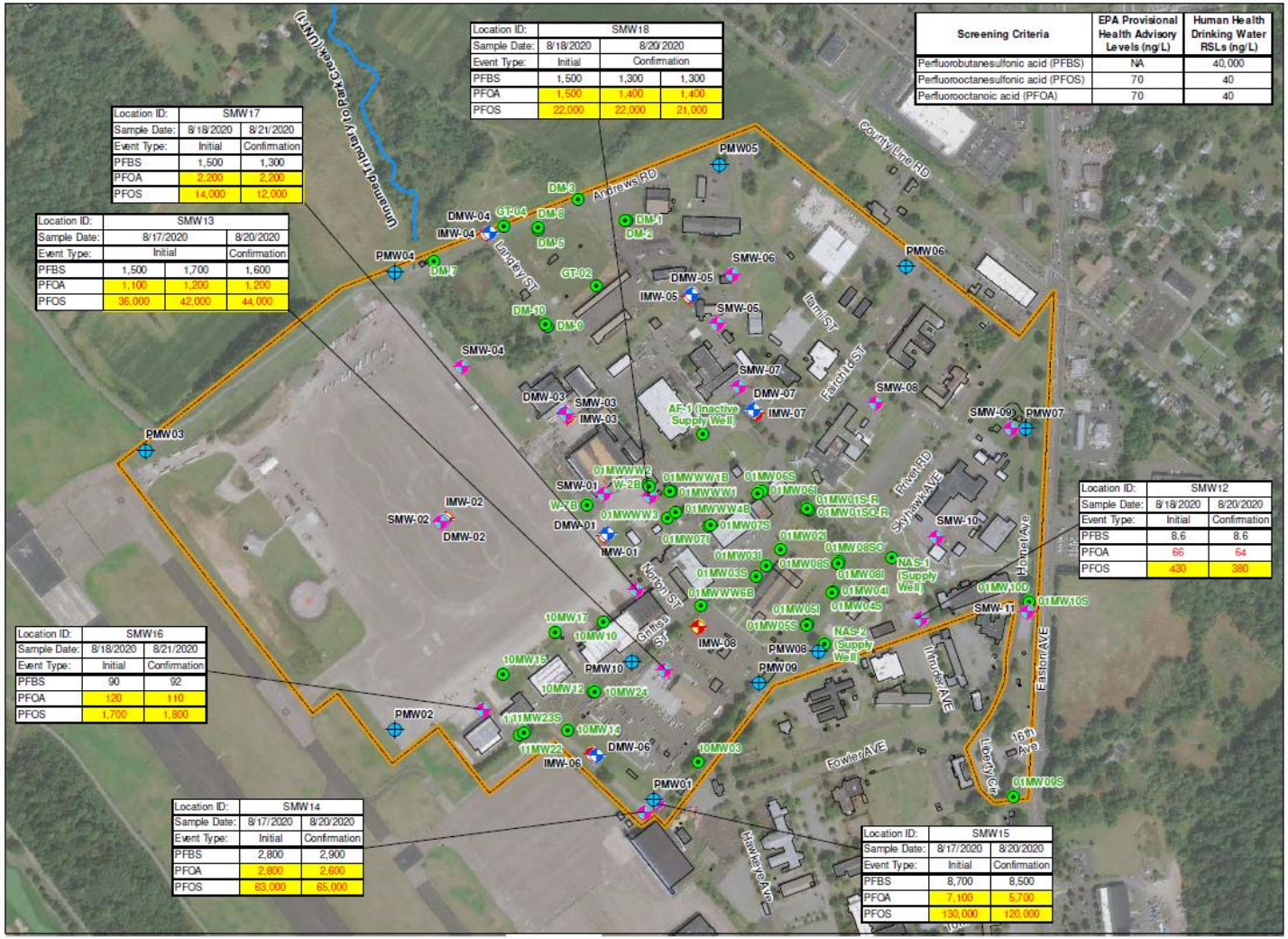
Remedial Investigation Progress

- 9 September: Conducted surface water/sediment sampling at Park Creek tributary.
- 19 September: Finished drilling activities for multiport monitoring wells.
- 10-22 September: Conducted borehole geophysical surveying of multiport well locations.
- October 7: Coordination meeting with PADEP and EPA for multiport well screen placement.
- October 21: Received final approval for regional Surface Water Sampling and Analysis Plan.
- Ongoing: Pursuing access for potential offsite monitoring well locations. Reviewing preliminary data to update site understanding.

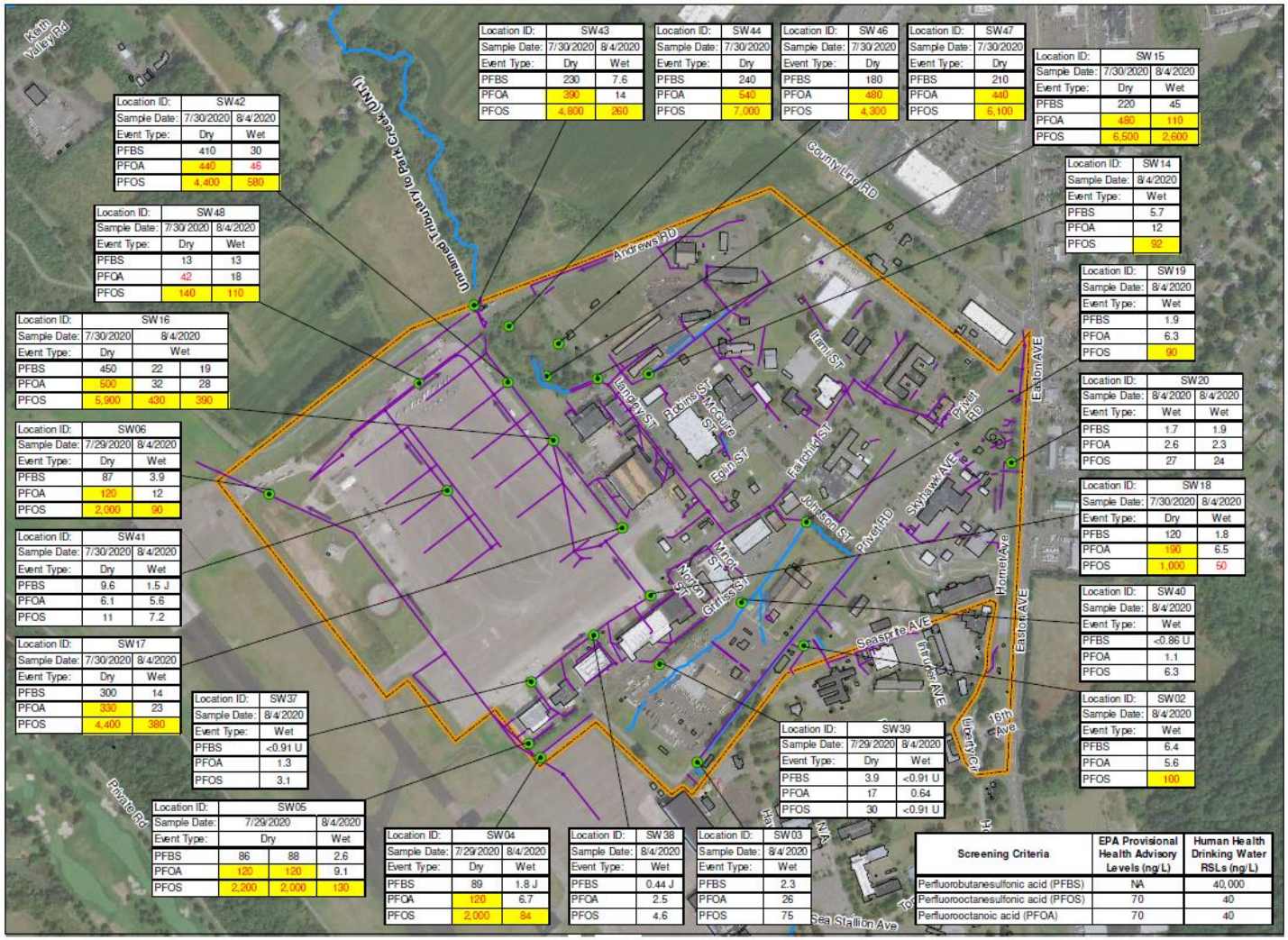
Phase I Preliminary Results Soil



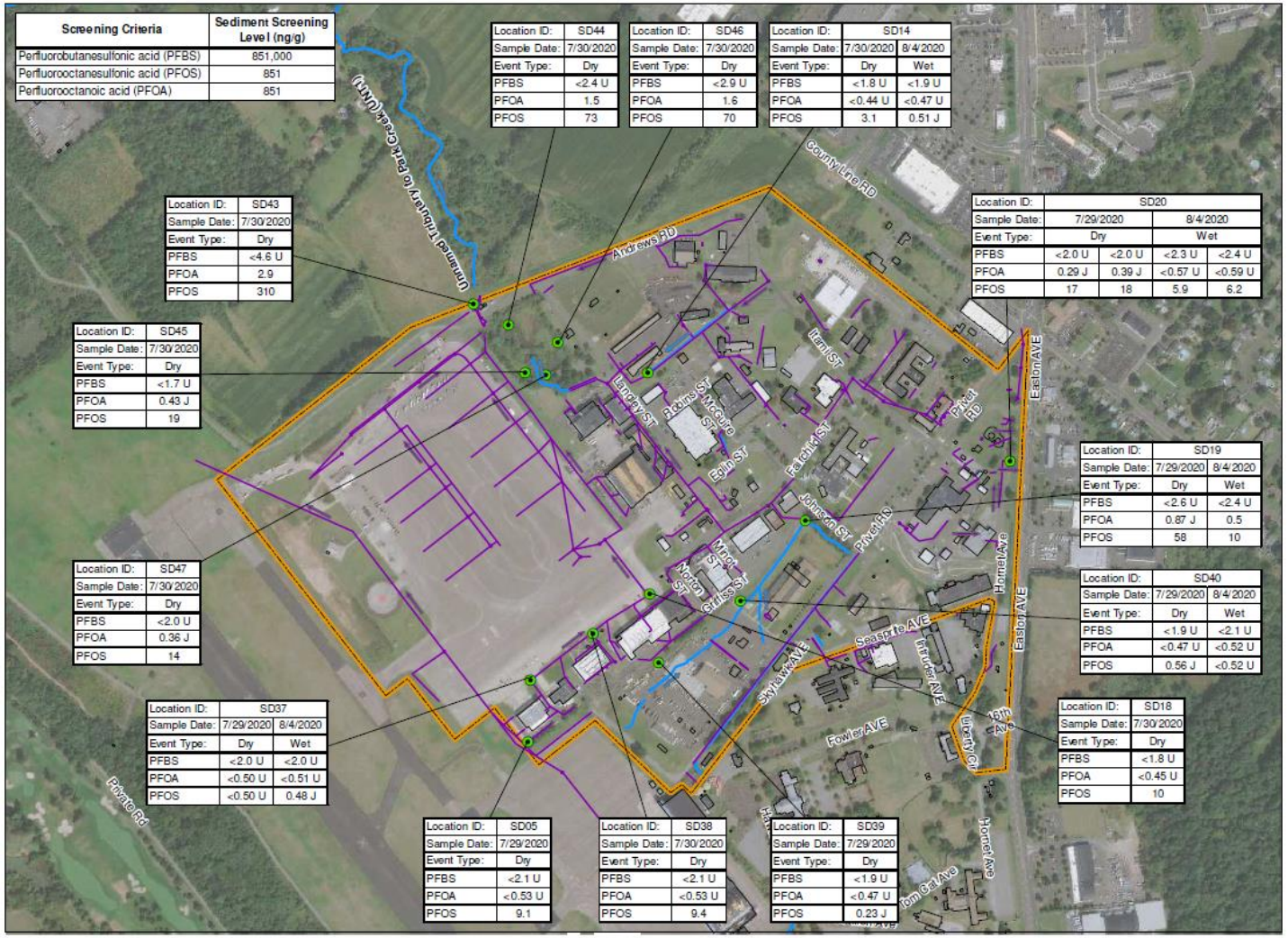
Phase I Preliminary Results for Groundwater



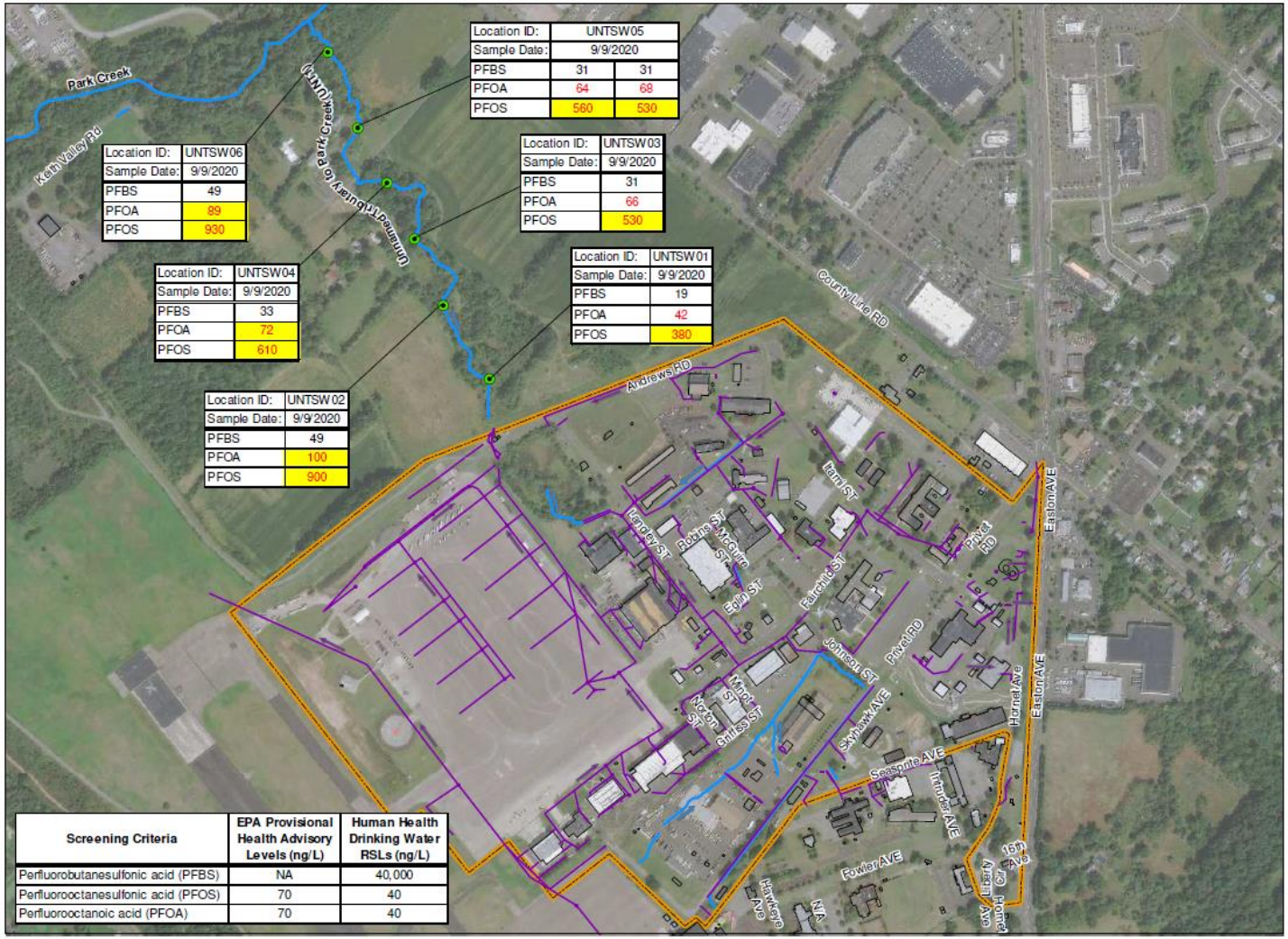
Phase I Preliminary Results for On-Site SW



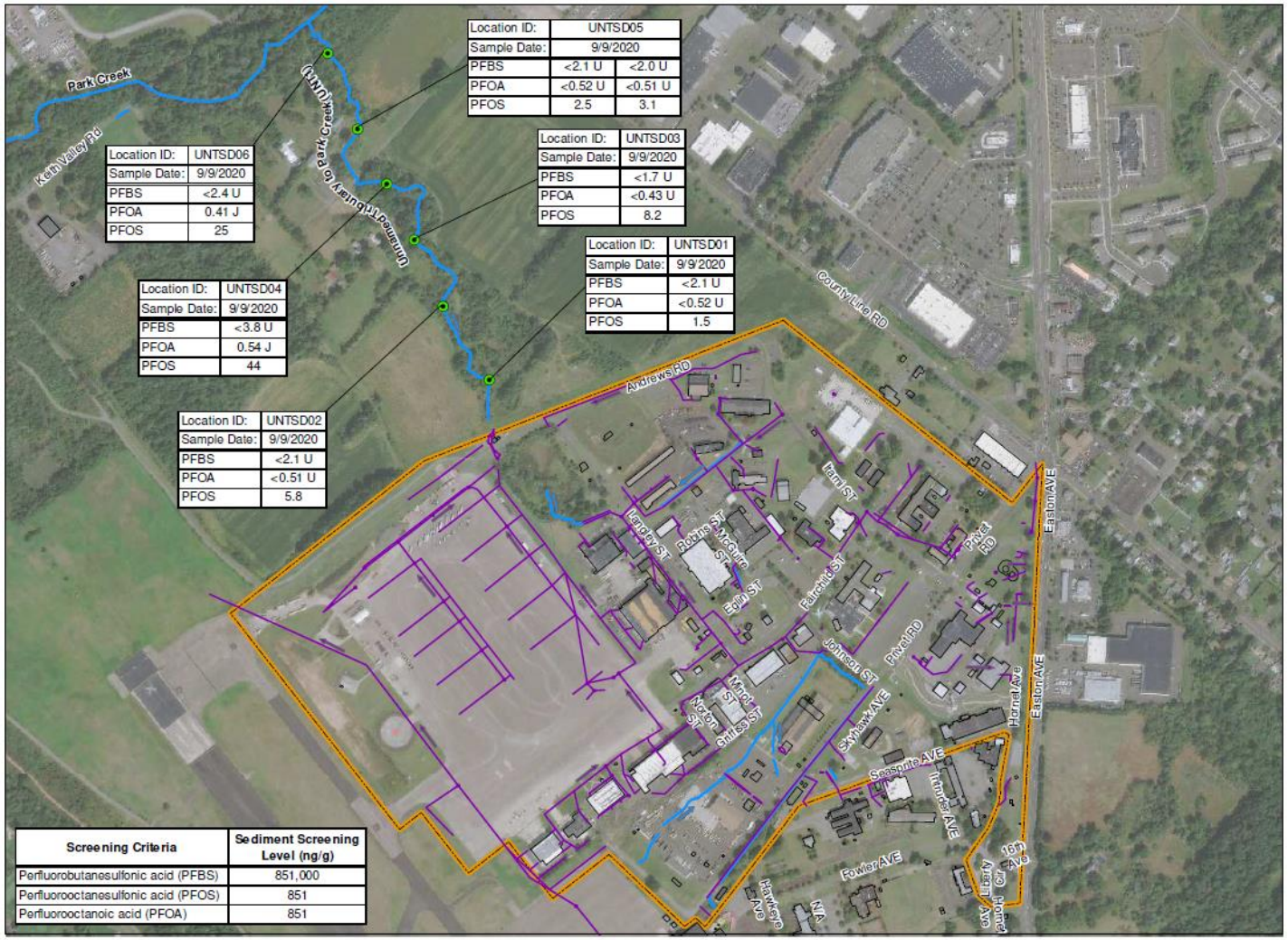
Phase I Preliminary Results for On-Site SED



Phase I Preliminary Results for Off-Site SW



Phase I Preliminary Results for Off-Site SED



Quarterly Surface Water Sampling

- Received final approval for regional Surface Water Sampling and Analysis Plan.
- Joined Navy during September Quarterly Event
- Leidos will assume Quarterly Sampling at select locations beginning in December

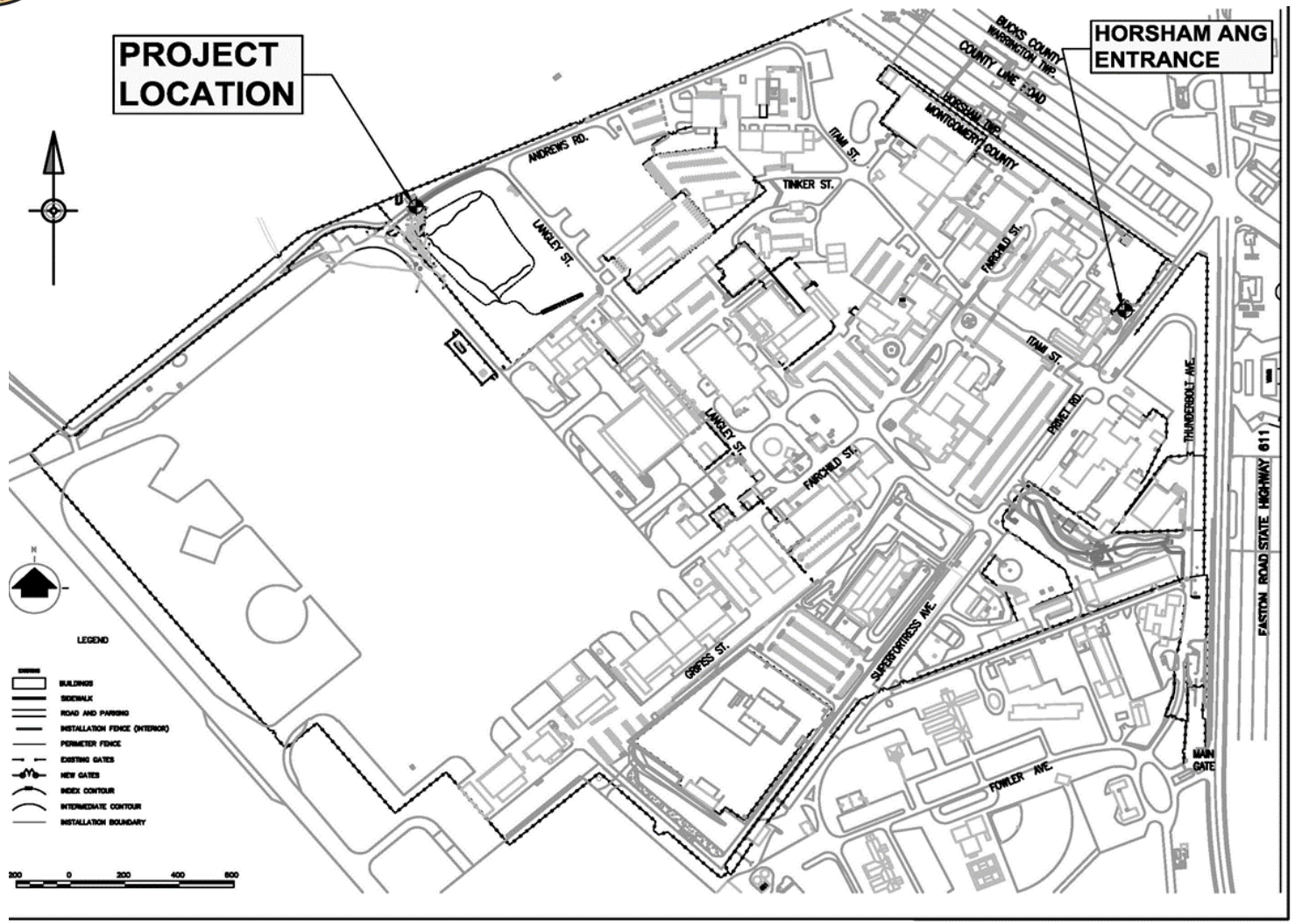
Remedial Investigation Actions Planned for Next 3 Months

- Actions Planned for Next 3 Months
- Install/sample multi-port wells
- Prepare Tech Memo for Phase I Results
- Finalize Phase II plans
- Obtain access for offsite monitoring wells

PFOS/PFOA in Surface Water on Horsham AGS

- PFOS/PFOA has been detected in surface water leaving the Horsham Air Guard Station. This water flows from a stormwater detention basin on the northwest boundary of the Base to Park Creek which flows to the Little Neshaminy Creek.
  - 500 gallons per minute treatment plant to replace current temporary plant
  - Treatment Units:
    - Sand Filter – remove particles and material that may foul other units
    - Zeolite Filter – remove algae, heavy metals, some organics
    - Granular Activated Carbon (GAC) – remove organic compounds
    - Ion Exchange Resin – remove PFAS
  - Construction started October 2020, anticipated completion Summer 2021

PFOS/PFOA in Surface Water on Horsham AGS



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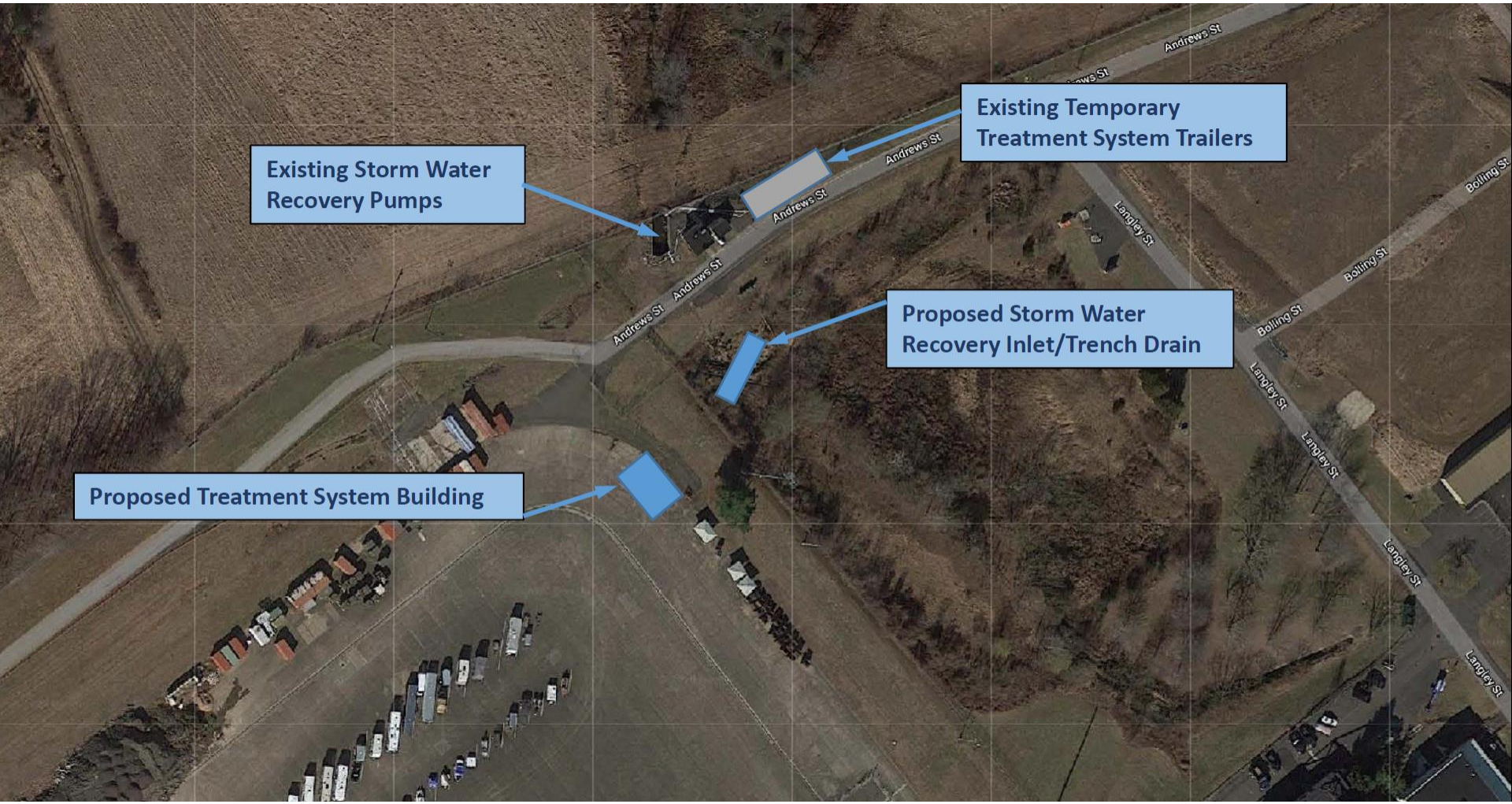
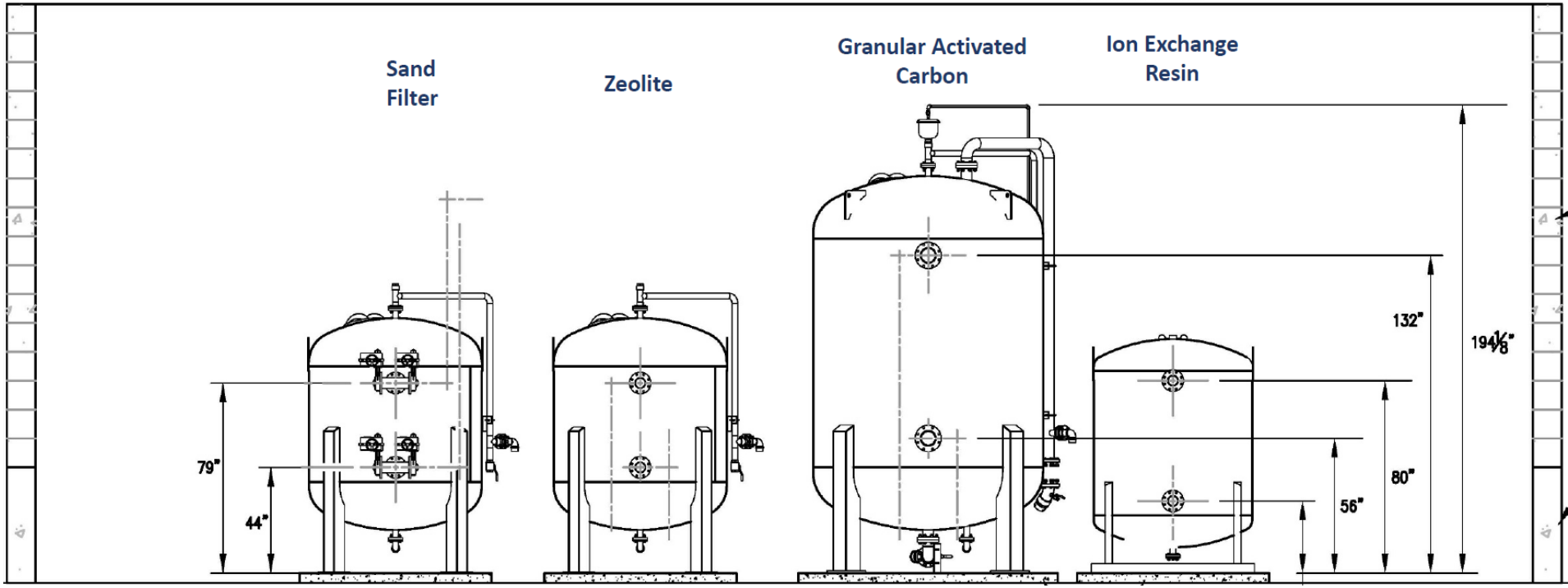


PFOS/PFOA in Surface Water on Horsham AGS

New Treatment System Process/Layout



PFOS/PFOA in Drinking Water

- Warrington Township sold its drinking water system to North Wales Water Authority (NWWA). ANG transferred the Warrington Township cooperative agreement to NWWA for filtration of municipal wells and connection of private homes with PFOS/PFOA Lifetime Health Advisory exceedances to municipal water.

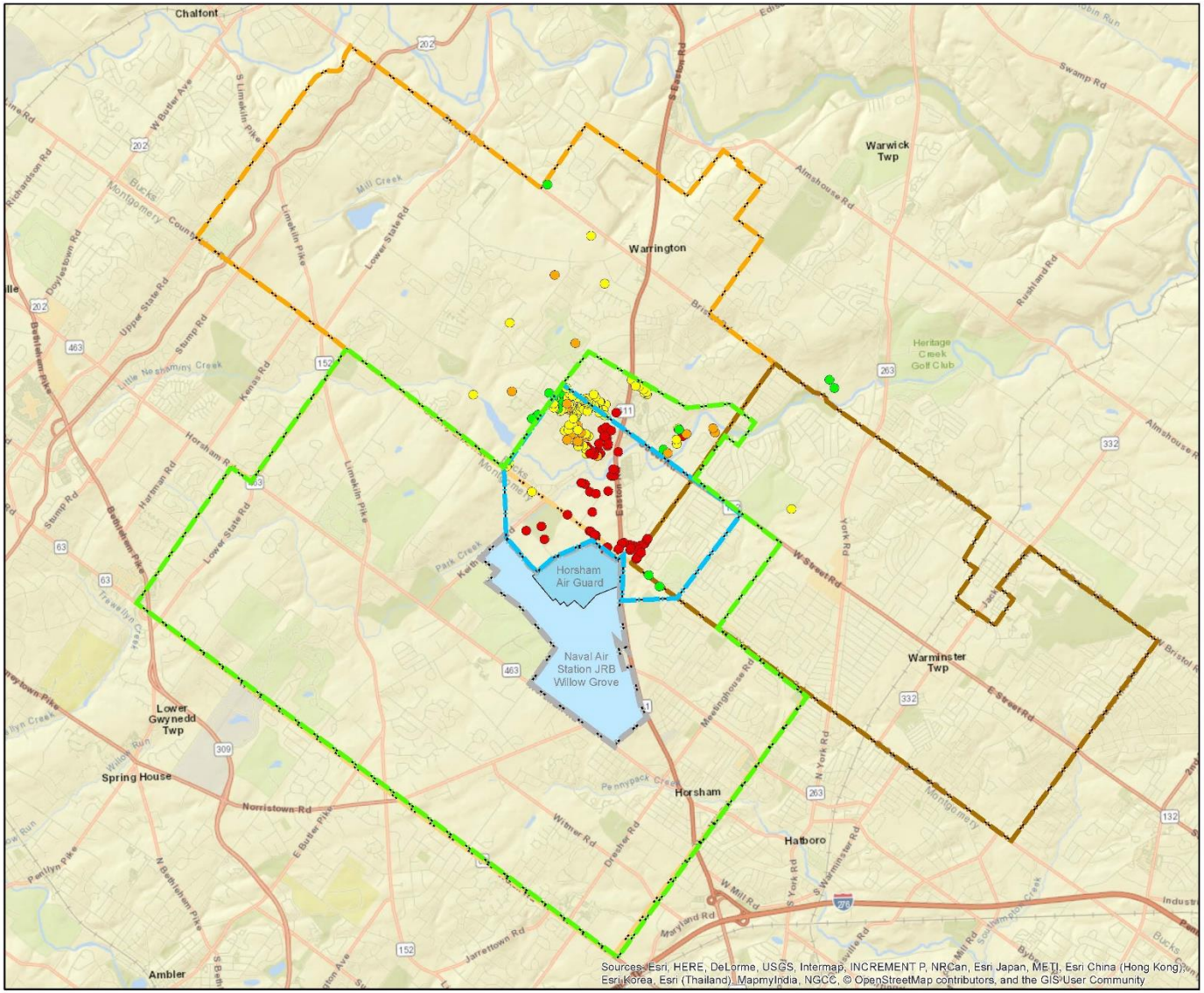
Private Well Sampling

- ANG has contract in place with Wood to provide PFOS/PFOA testing of private drinking water wells and supply bottled water to properties with PFOS/PFOA at or above the EPA Lifetime Health Advisory level (LHA) for residents within our area of responsibility in Horsham, Warminster, and Warrington
- The number of private wells sampled by ANG are:
  - Horsham: 5, all above LHA; 4 have been connected to municipal water (remaining one not in use)
  - Warrington: 150, 46 are above LHA; 35 have been connected
  - Warminster: 12*, 11 are above LHA; 8 have been connected

    *Some of these properties are on Valley Road with Warminster mailing addresses but are located in Warrington Township
- Sampling contact for ANG area of responsibility: David Side at david.side@woodplc.com or (610) 877-6111

UNCLASSIFIED

Private Well Sampling Map



PFC Sample Location Map
as of October 2018

Horsham Air Guard Station
Horsham and Warrington Township

Legend

Health Advisory Level (HAL)
HAL is the sum of both PFOA+PFOS
(PFOA 0.070 ug/L, PFOS 0.70 ug/L)

- Sum of PFOA+PFOS concentrations above 0.070 ug/L
- Sum of PFOA+PFOS concentrations detected between 0.040 ug/L and 0.070 ug/L
- Sum of PFOA+PFOS concentrations detected at or below 0.040 ug/L
- PFOA & PFOS not detected
- Horsham Air Guard
- Former NAS JRB Willow Grove
- Sampling Area
- Air Force Administrative Order Boundary
- Horsham Township
- Warrington Township
- Warminster Township

Notes & Sources

Sources:
Street Base Map hosted by ESRI.

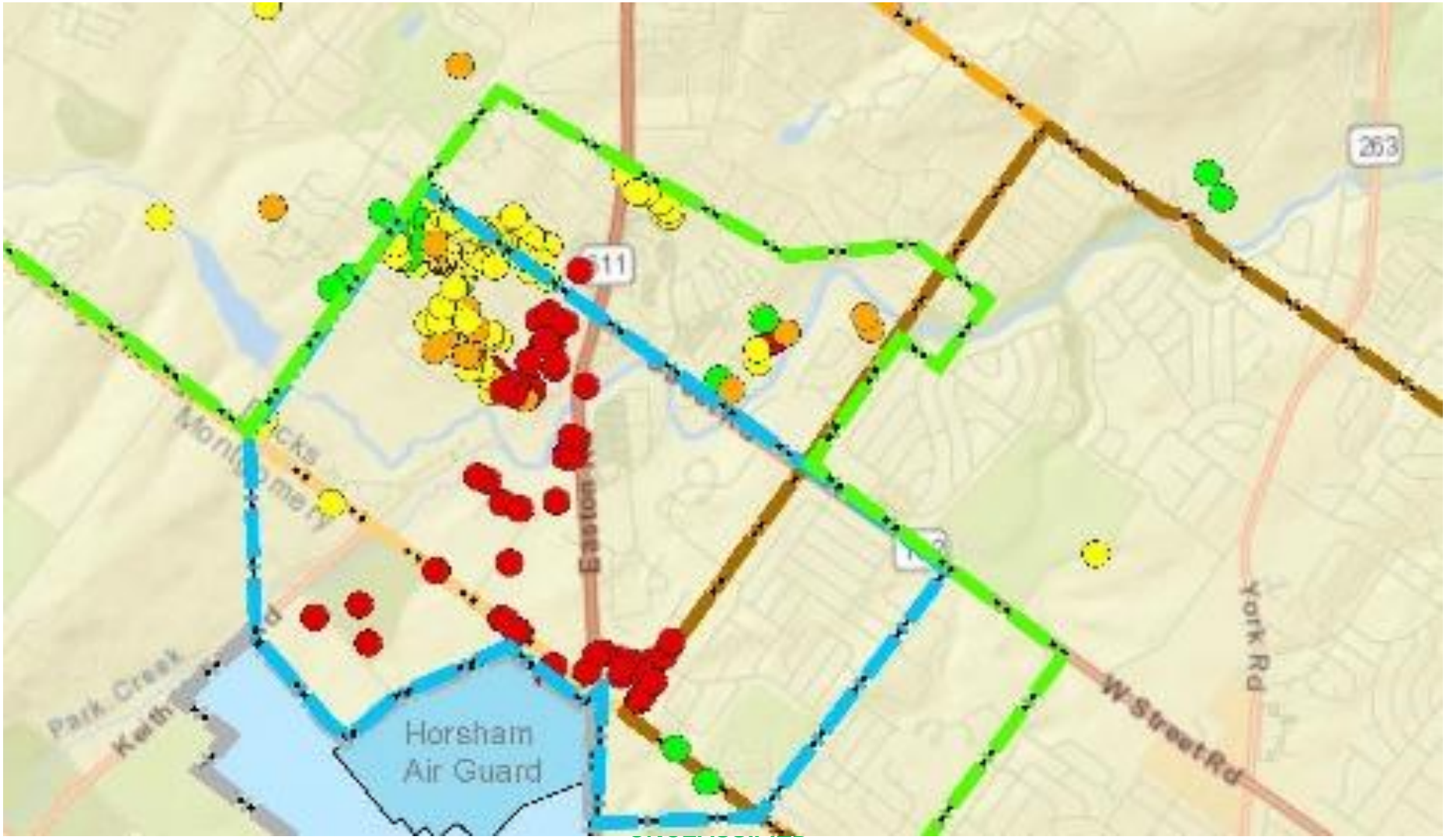
0 1,950 3,900 7,800 11,700 15,600 Feet

N

wood.
Wood
Environment & Infrastructure, Inc.
751 Arbor Way
Blue Bell, PA 19422
(610) 828-8100

Figure 2

Private Well Sampling Map



Actions Planned for Next 3 Months

- PFAS Remedial Investigation:
  - Install/sample multi-port wells
  - Prepare Tech Memo for Phase I Results
  - Finalize Phase II plans
  - Obtain access for offsite monitoring wells
- Surface water treatment:
  - Continue construction of permanent treatment plant
  - Draft NPDES Stormwater Permit is under review
- Continued private well sampling

Questions?

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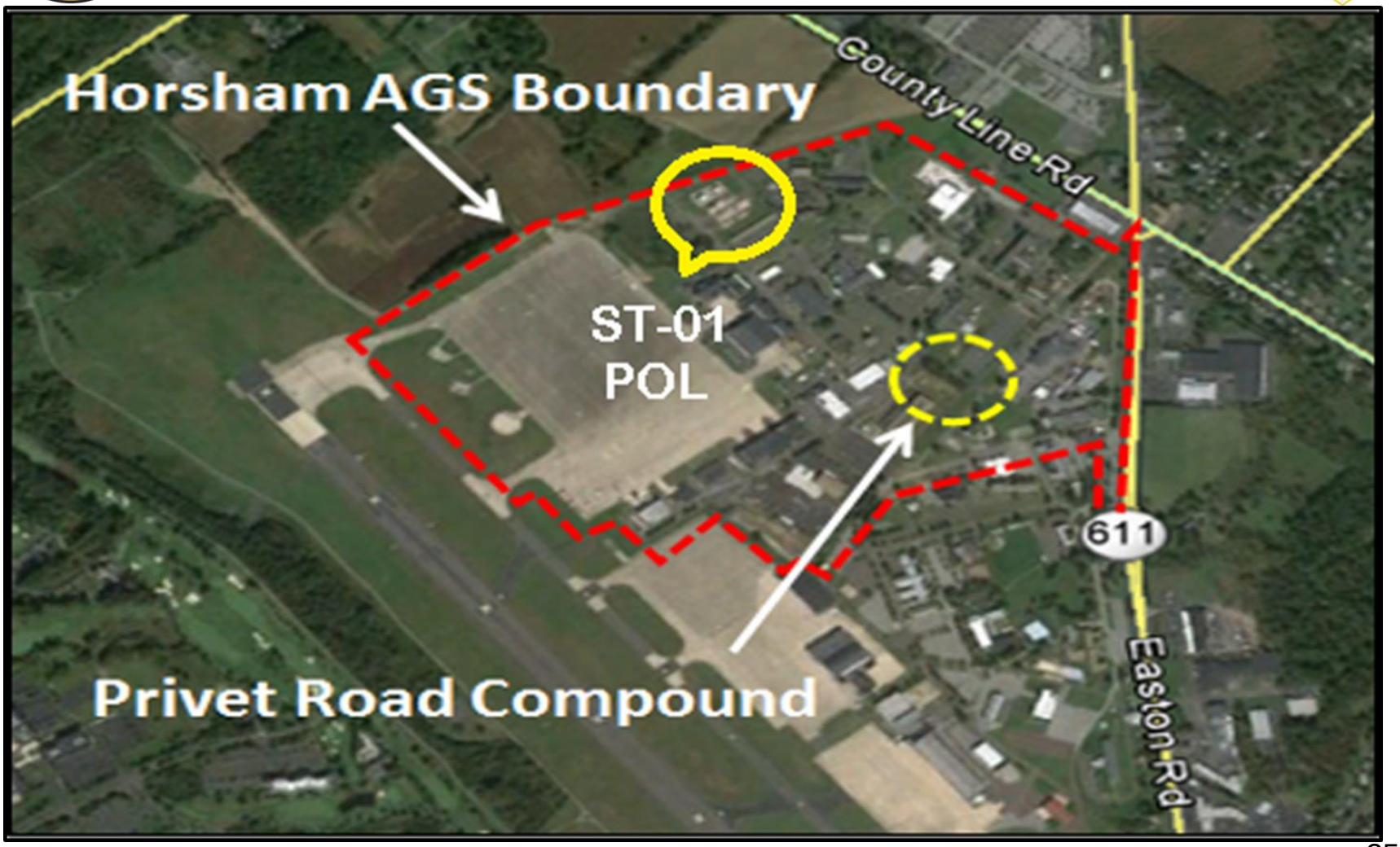
240-612-8762

Air National Guard Administrative Record:
https://ar.afcec-cloud.af.mil/Search.aspx
select “Air National Guard”, then “Horsham AGS”, then click Search

Previously Presented Data

Environmental Restoration Program Sites



Air Force Reserve ST-01 POL

- Former Air Force Reserve Petroleum Tank Area
  - Originated from a jet fuel spill in the 1970's
  - Injections of persulfate and Epsom salt replaced the biosparge system in 2016
  - Petroleum tanks were dismantled in 2016
    - Disposed 175 tons of petroleum impacted soil at licensed facility
    - Confirmatory sampling contract underway in accordance with 25 Pennsylvania Code, Section 245.310 of the Department of Environmental Protection (DEP)'s Rules and Regulations
- Results were provided and accepted by PADEP on 10 September 2019 in a Supplemental Remedial Investigation Report and a Site Characterization Report in accordance with:
  - Closure Requirements for Aboveground Storage Tank Systems Technical Guidance Number 263-4200-001 (PADEP, 2017)
  - Pennsylvania Code, Chapter 245-310 Site Characterization Report

- POC: Ms. Margaret Patterson: margaret.patterson@us.af.mil

Privet Road Compound

- Former waste management area for Naval Air Station Joint Reserve Base Willow Grove
- Sampling completed in 2017 indicates trichloroethene (TCE) and tetrachloroethene (PCE) exist in the groundwater but levels are below maximum contaminant levels (MCL) set by the U.S. Environmental Protection Agency for drinking water quality
- Leidos, Inc. is contracted for continued long-term monitoring. Biannual groundwater sampling and land use control inspections will continue to be conducted pending a final site remedy
- Second Five-Year Review for Privet Road groundwater contamination was finalized in September 2018 and is available on the ANG Admin Record

PFOS/PFOA on Horsham AGS

- In 2015, ANG completed a Preliminary Assessment of potential PFOS/PFOA release sites at the Horsham Air Guard Station (AGS). Ten potential source areas identified in the PA include:
  - Buildings that contained foam fire suppression systems
  - Areas that may have received runoff from foam releases
  - Stormwater sediment basin
  - Former waste water treatment plant
  - Former storage area for wastewater treatment sludge
- These potential source areas were further investigated by Leidos in a PFOS/PFOA Facility Investigation and additional investigation is underway in the Remedial Investigation (RI)

Potential PFOS/PFOA Source Areas

PFAS Investigation Update

- GW sampling event conducted in March 2018
- Joint gauging event conducted 8-9 March 2018
- Baseflow SW sampling conducted 19 March 2018
- Rain event SW sampling conducted 28-29 June 2018

- Documents available on Administrative Record
  - Final Facility Investigation Report
  - Final Groundwater Monitoring Reports for December 2017 Sampling Event
  - Final Groundwater Monitoring Reports for March 2018 Sampling Event
  - http://afcec.publicadmin-record.us.af.mil/Search.aspx
- Final Stormwater Study Tech Memo submitted March 2019
- Final Conceptual Design Report submitted to ANG
- NPDES stormwater permit application submitted to PADEP 28 August

Groundwater Data Update

- Gauging conducted 8-9 March 2018
  - Semi-confined multilayer aquifer system, subdivided into four zones for contouring
  - Gradients trends northwest in each zone
- Sampling event conducted 5-15 March, 2018
  - Concentrations similar to previous events
  - 78 of 85 locations exceeded 70 PPT (ng/l) (combined PFOA/PFOS)
  - Highest concentrations found in three general areas: along the southern boundary, near Building 335, and near Building 201.
  - Highest concentrations at PMW01, Zones A, B, and C: 329,500 PPT, 147,400 PPT, and 186,900 PPT, respectively.
  - Next highest concentration at IMW-06 (49,000 PPT) along the southern boundary).
  - Four wells near Buildings 201 and 335 contained concentrations above 10,000 PPT.