Air Force Civil Engineer Center

Pease
RAB Meeting

18 September 19

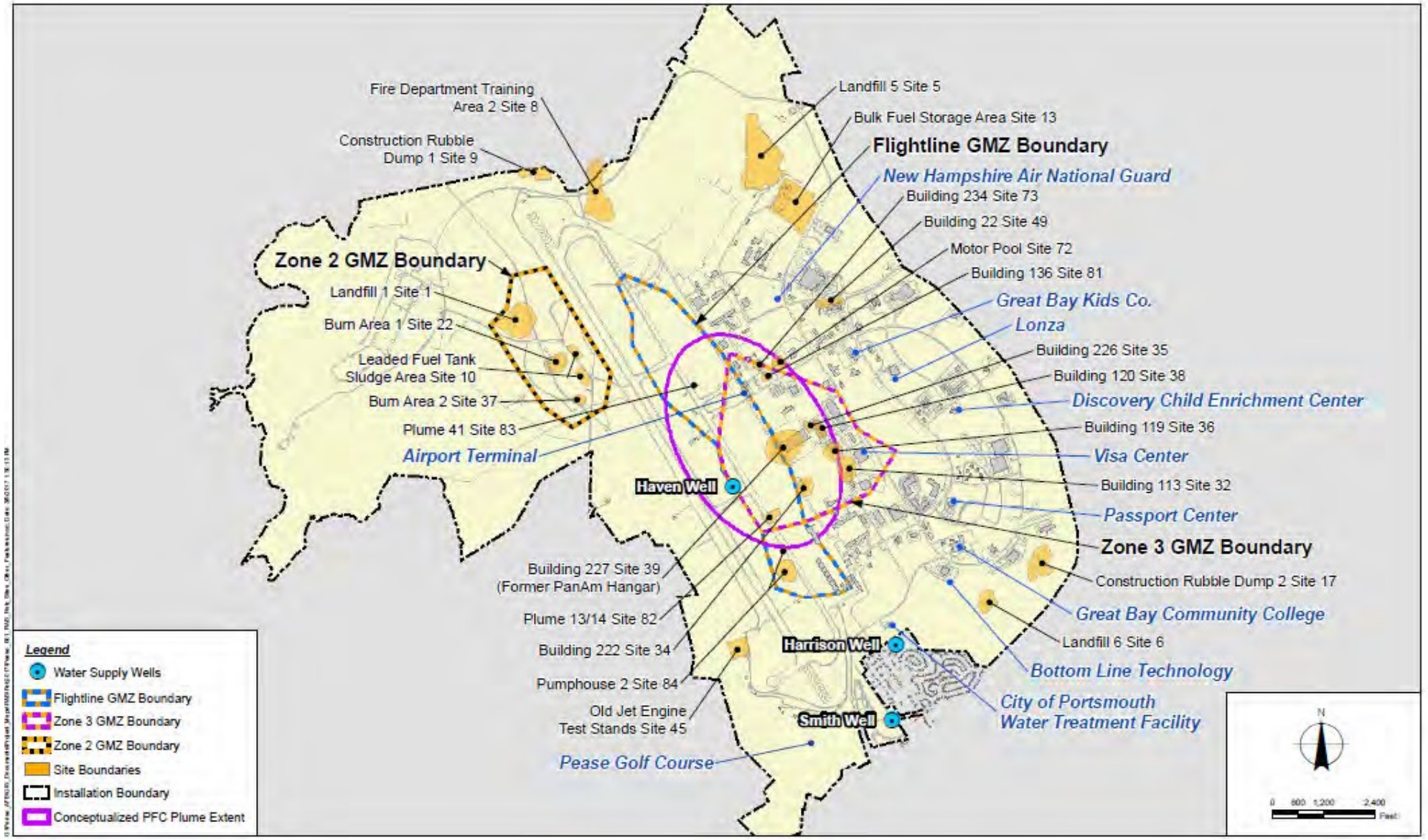
Agenda

- **Welcome, Introduction, RAB Business** – Ona Ferguson (Consensus Building Institute)
- **Air Force Cleanup Update** – Roger Walton (AFCEC)
- **Portsmouth Water Treatment** – Brian Goetz (City of Portsmouth)
- **Open Discussion Time**
- **Expanded Site Investigation Overview** (Wood E&I)
- **Public Comments**
- **Open Discussion Time**
- **Meeting recap, upcoming meeting date** – Ona Ferguson
- **Adjourn**

Air Force Clean Up Update

Roger Walton
Air Force Civil Engineer Center

Pease Sites Map



Update September 2019

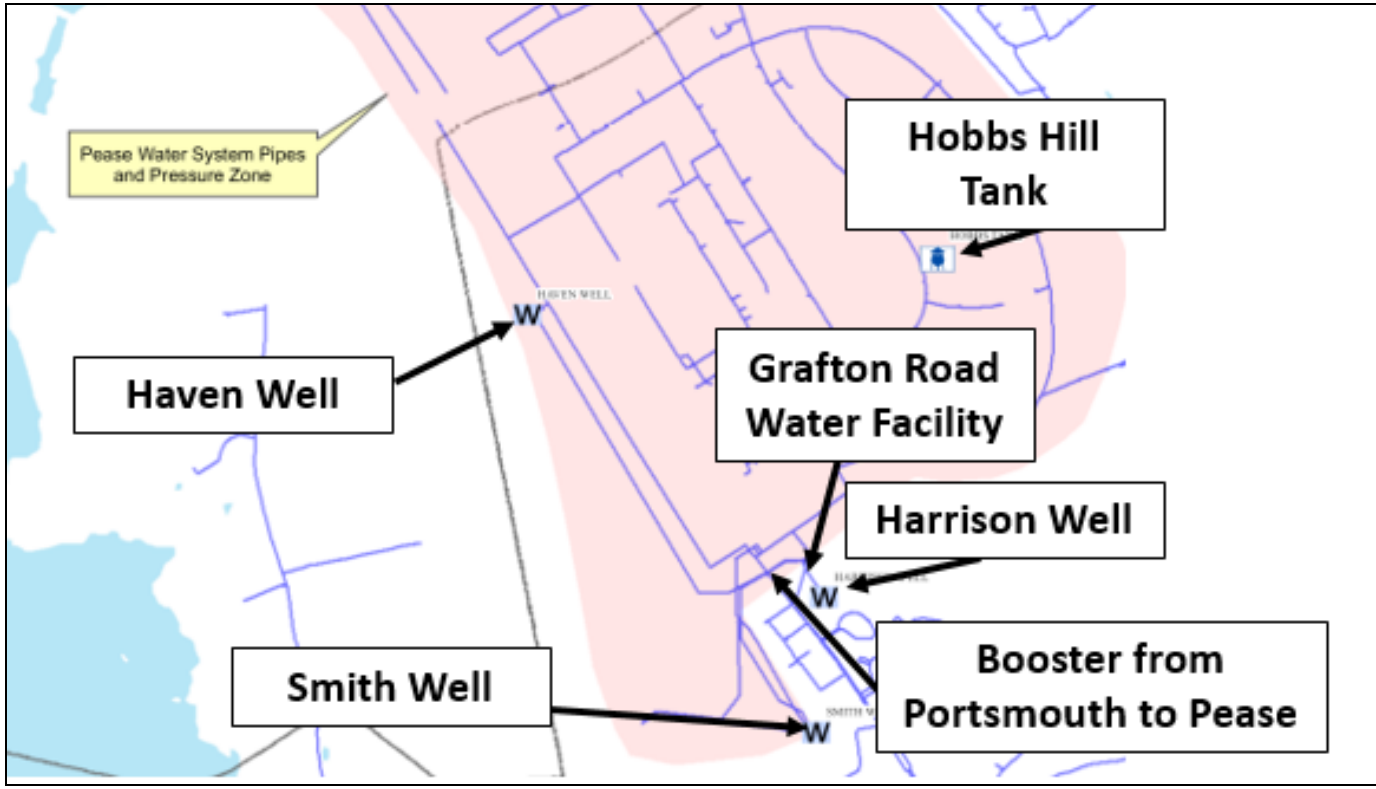
- Shellfish data update
- Five year review status
- Update on Department of Defense review of NH MCLs and Ambient Groundwater Quality Standards

Pease Tradeport
Water Treatment System Update

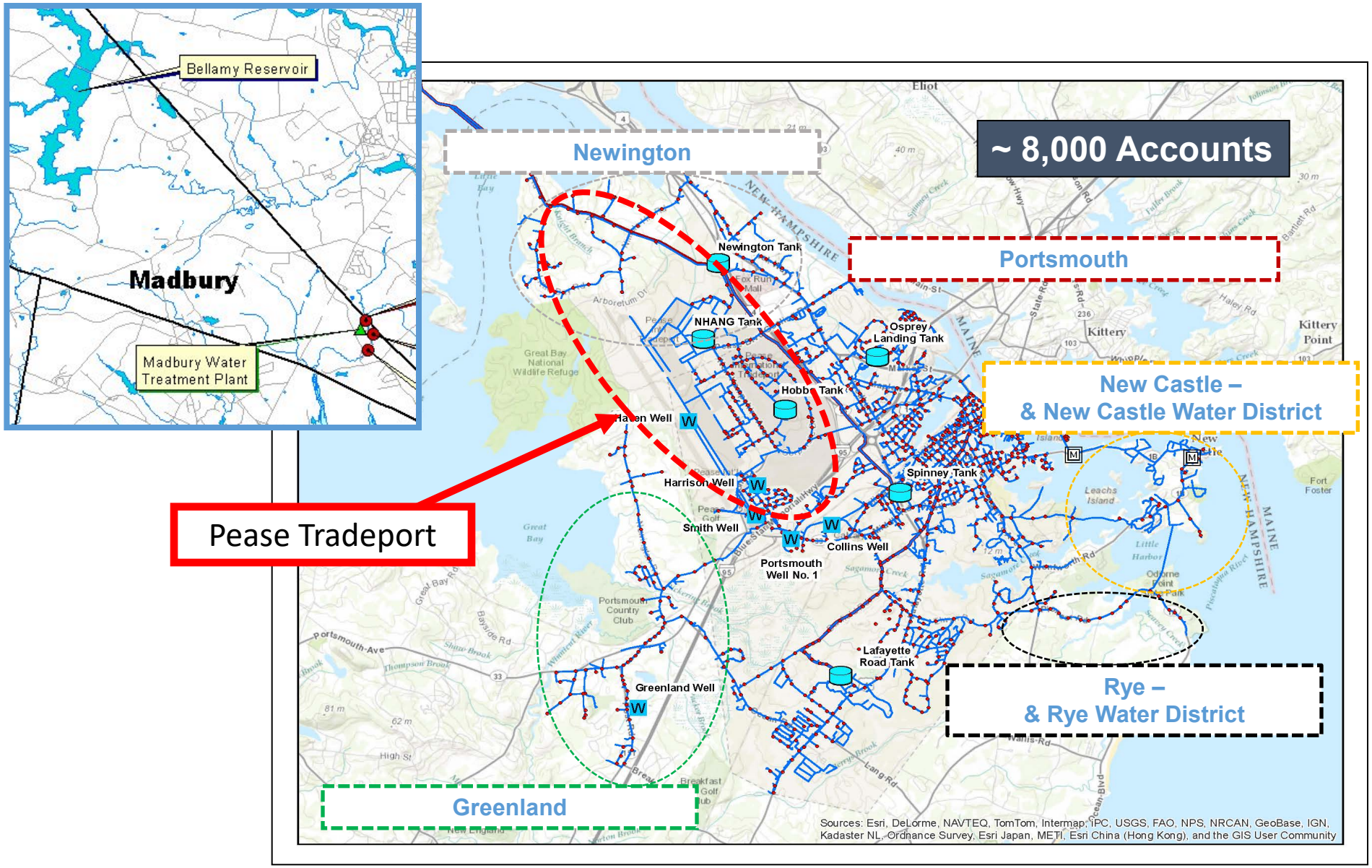
Pease Restoration Advisory Board

September 18, 2019

Current Pease Tradeport
Grafton Road Water Facility

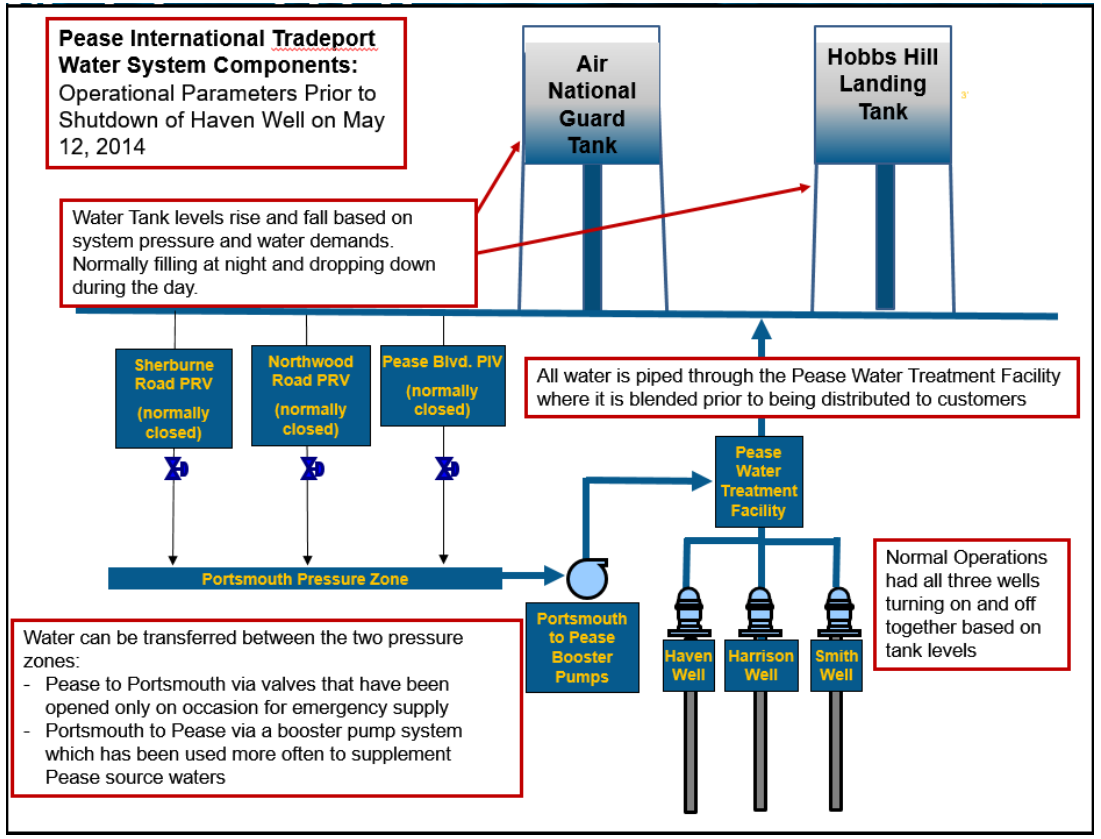


Portsmouth Regional and Pease International Tradeport Water Systems



Water System Interconnection Information:

- Portsmouth to Pease
- Pease to Portsmouth

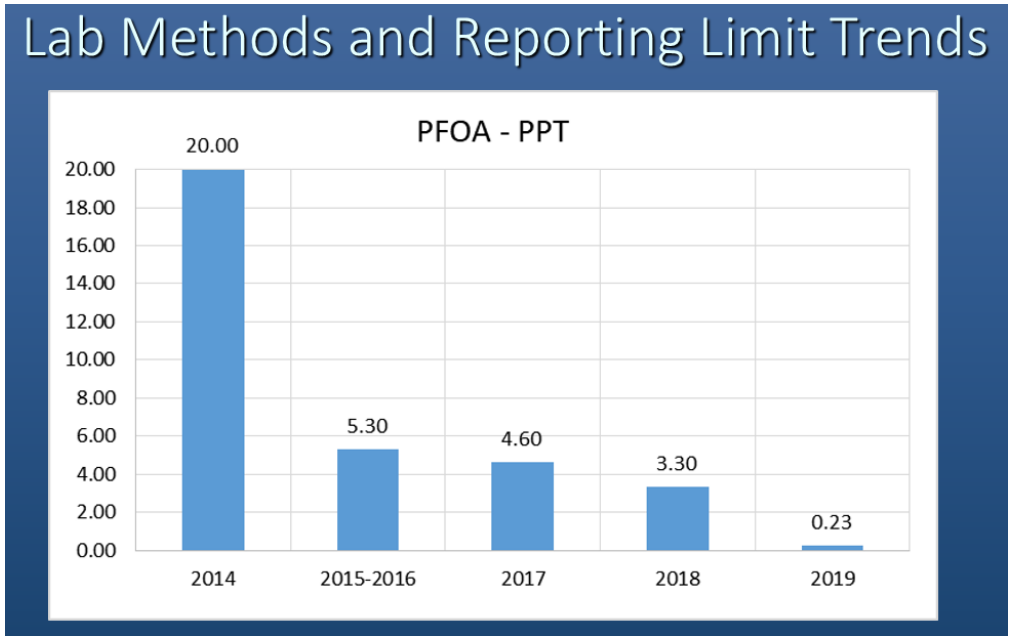


Filter Demonstration Project Status

- Activated carbon in both of the demonstration filters was changed out in March 2019.
- Plan on replacing carbon one more time in November 2019 prior to installation of permanent carbon filters in 2020
- Updates and data posted on City Website

Non Target Analysis

- Continue to work with Testing for Pease team (Colorado School of Mines and Northeastern University) with sample collection
- Concurrent sampling by City for analysis by Maxxam laboratories using lowest detection limits available (2 ppt reportable per new NHDES regulations).



Treatment System Performance: - GAC and Resin

- Haven Well Treatment Pilot Testing Report
  - Posted on City Website
  - http://files.cityofportsmouth.com/files/dpw/HavenWellPilotReportF.pdf


Weston & Sampson

westonandsampson.com

5 Centennial Drive
Peabody, MA 01960 (HQ)
tel: 978.532.1900

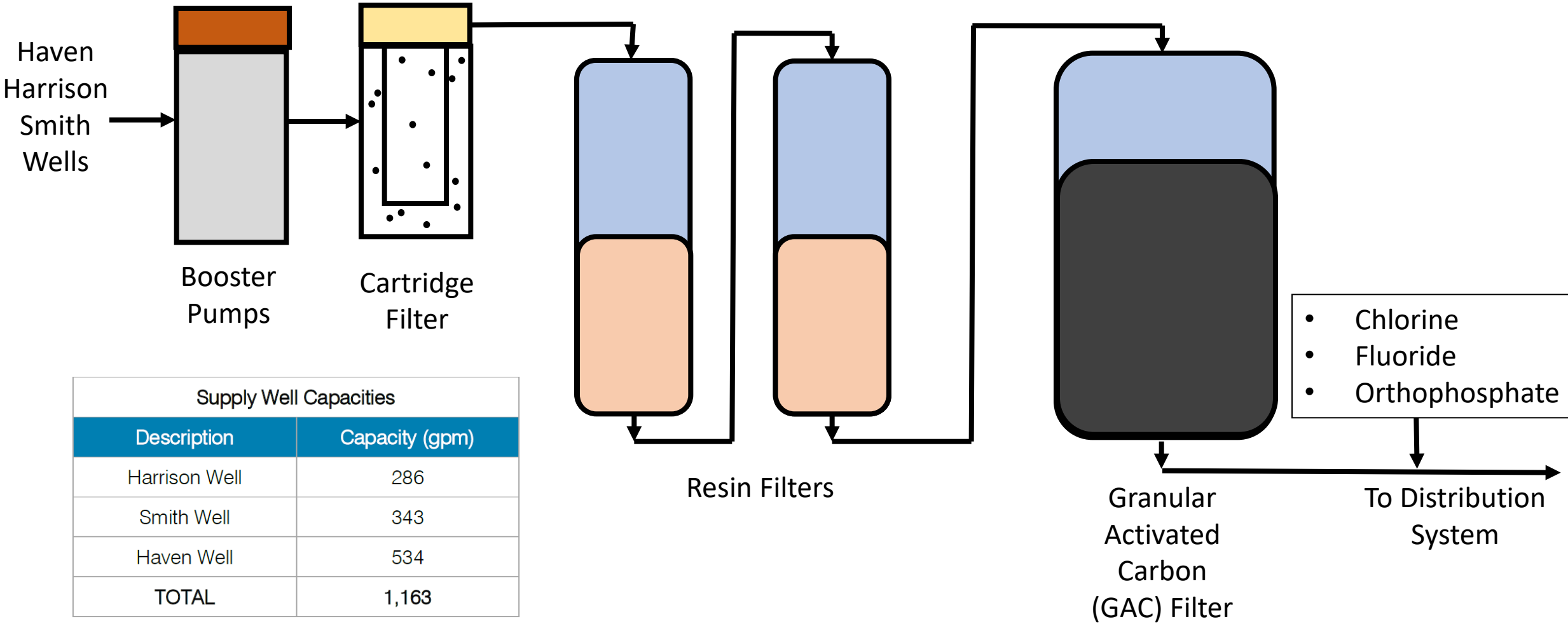
REPORT

September 2018

CITY OF
Portsmouth
NEW HAMPSHIRE

Haven Well Pilot Testing Program

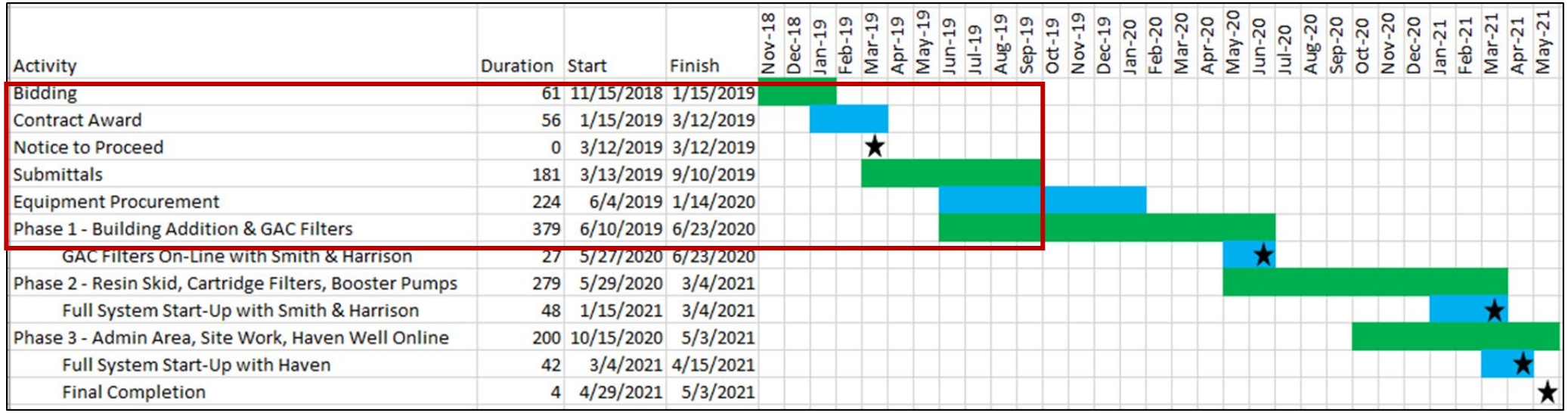
Grafton Road Water Facility Process Schematic
Final Treatment System Components



Supply Well Capacities	
Description	**Capacity (gpm)**
Harrison Well	286
Smith Well	343
Haven Well	534
TOTAL	1,163

Grafton Road Water Treatment Facility Construction

Activity	Duration	Start	Finish
Bidding	61	11/15/2018	1/15/2019
Contract Award	56	1/15/2019	3/12/2019
Notice to Proceed	0	3/12/2019	3/12/2019
Submittals	181	3/13/2019	9/10/2019
Equipment Procurement	224	6/4/2019	1/14/2020
Phase 1 - Building Addition & GAC Filters	379	6/10/2019	6/23/2020
GAC Filters On-Line with Smith & Harrison	27	5/27/2020	6/23/2020
Phase 2 - Resin Skid, Cartridge Filters, Booster Pumps	279	5/29/2020	3/4/2021
Full System Start-Up with Smith & Harrison	48	1/15/2021	3/4/2021
Phase 3 - Admin Area, Site Work, Haven Well Online	200	10/15/2020	5/3/2021
Full System Start-Up with Haven	42	3/4/2021	4/15/2021
Final Completion	4	4/29/2021	5/3/2021




Tyvek
HomeWrap
VOLVO

Thank You

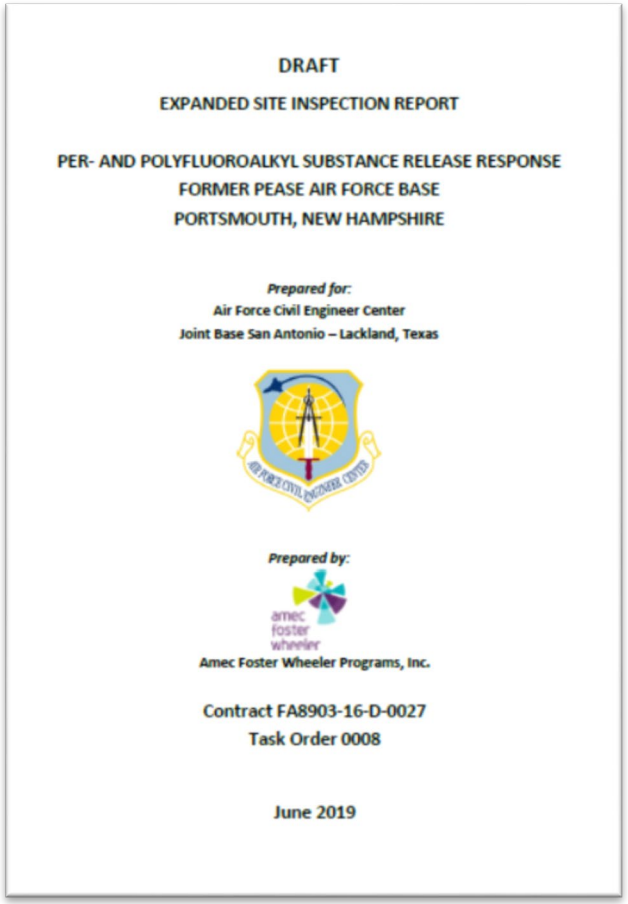
Brian Goetz – Deputy Director of Public Works
Al Pratt, P.E. – Water Supply Operations Manager
City of Portsmouth, New Hampshire

Open Discussion Time

- **Opportunity for RAB members to share thoughts, questions and concerns related to the clean up**

Expanded Site Inspection Report Layout

- Section 1.0 – Introduction - Overview to the Expanded SI objectives and regulatory criteria
- Section 2.0 – Site Background - Site description, previous PFAS investigation results and CSM
- Section 3.0 – Expanded SI Activities - Activities performed to fulfill the objectives
- Section 4.0 – Investigation Results - Groundwater, surface water, and sediment PFAS analytical data
- Section 5.0 – Discussion - Update to the CSM, based on Expanded SI findings
- Section 6.0 – Conclusions
- Section 7.0 – References



DRAFT

EXPANDED SITE INSPECTION REPORT

PER- AND POLYFLUOROALKYL SUBSTANCE RELEASE RESPONSE
FORMER PEASE AIR FORCE BASE
PORTSMOUTH, NEW HAMPSHIRE

Prepared for:
Air Force Civil Engineer Center
Joint Base San Antonio – Lackland, Texas

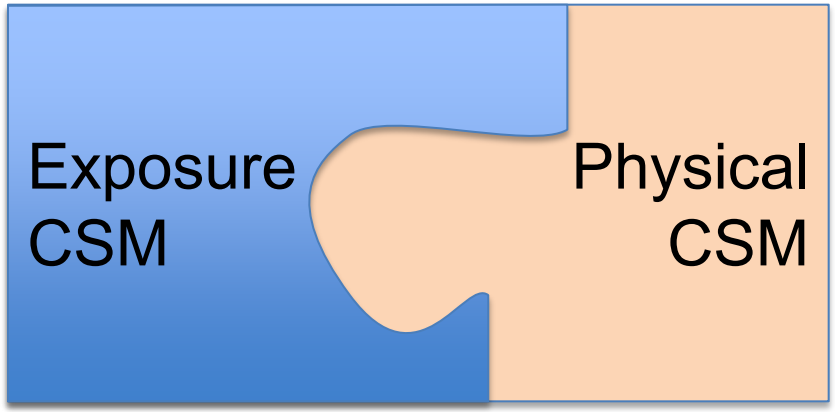
Prepared by:
Amec Foster Wheeler Programs, Inc.

Contract FA8903-16-D-0027
Task Order 0008

June 2019

CSM = Conceptual Site Model

CSM - Introduction



- CSMs provide an understanding of how contaminants migrate in the environment from source areas
- CSMs provide a spring board for future investigations and remedial actions
- Physical CSMs use existing data and are continuously refined as new data is collected
- Presentation will start with basic concepts and vocabulary and walk through latest rendition of the CSM developed for Pease

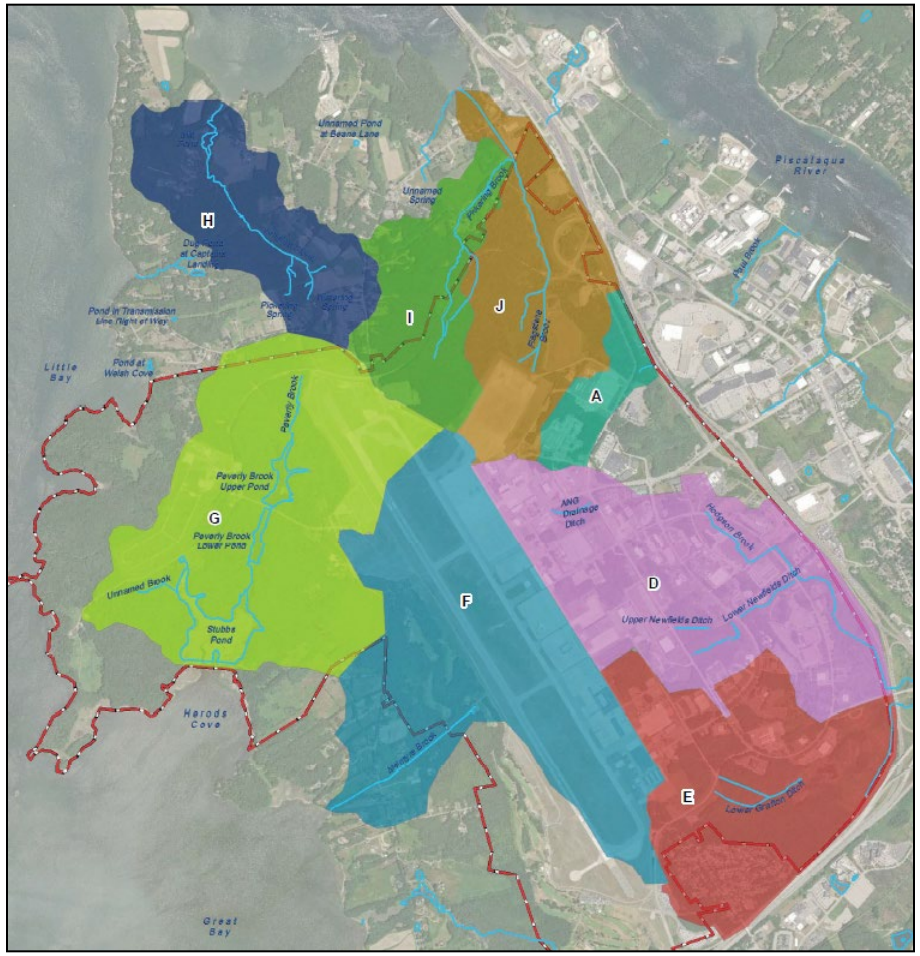
CSM - Introduction

Topography and
Hydrology
(Surface Water)

Geology
Bedrock and Soil (overburden)

Hydrogeology
Groundwater

CSM - Topography - Hydrology



Several watersheds exist on the peninsula

Shallow groundwater discharges to surface water

CSM – Geology

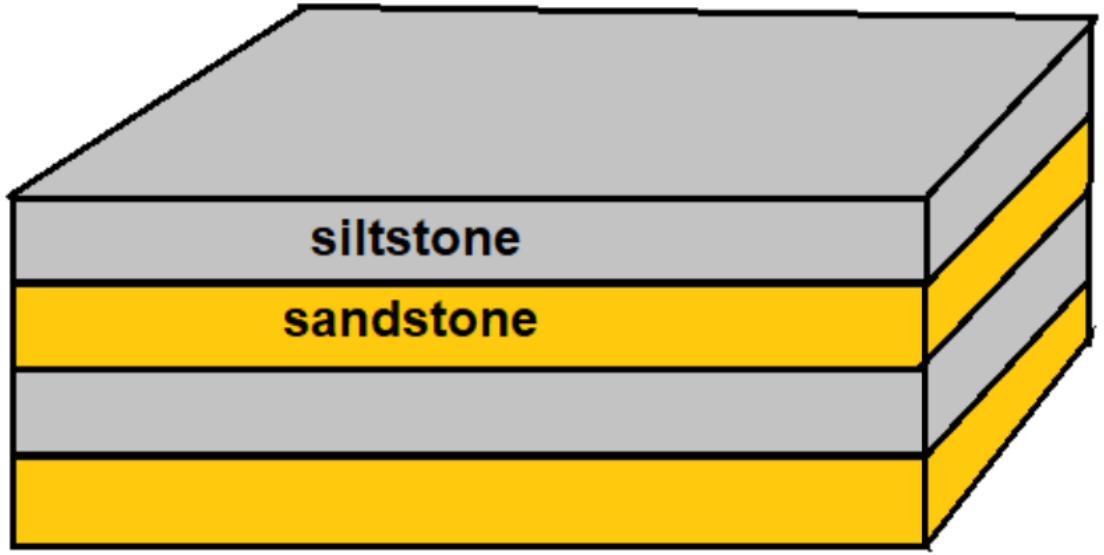
<u>Overburden</u>

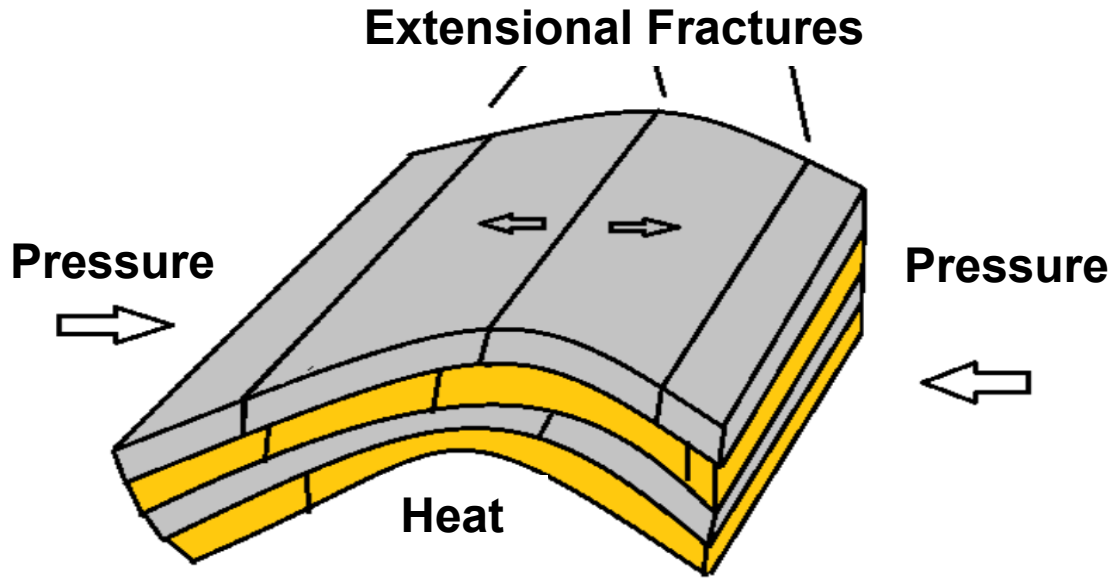
Glaciers drop or push clay, silt, sand, gravel, cobbles, and boulders on top of the rock

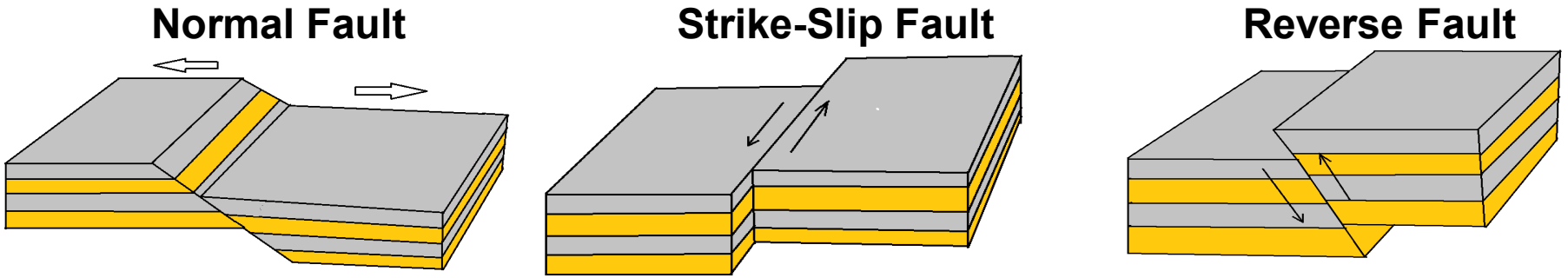
<u>Bedrock</u>

Eroded deposits build up in layers in the ocean and become rock

Geology – Bedrock (BR)

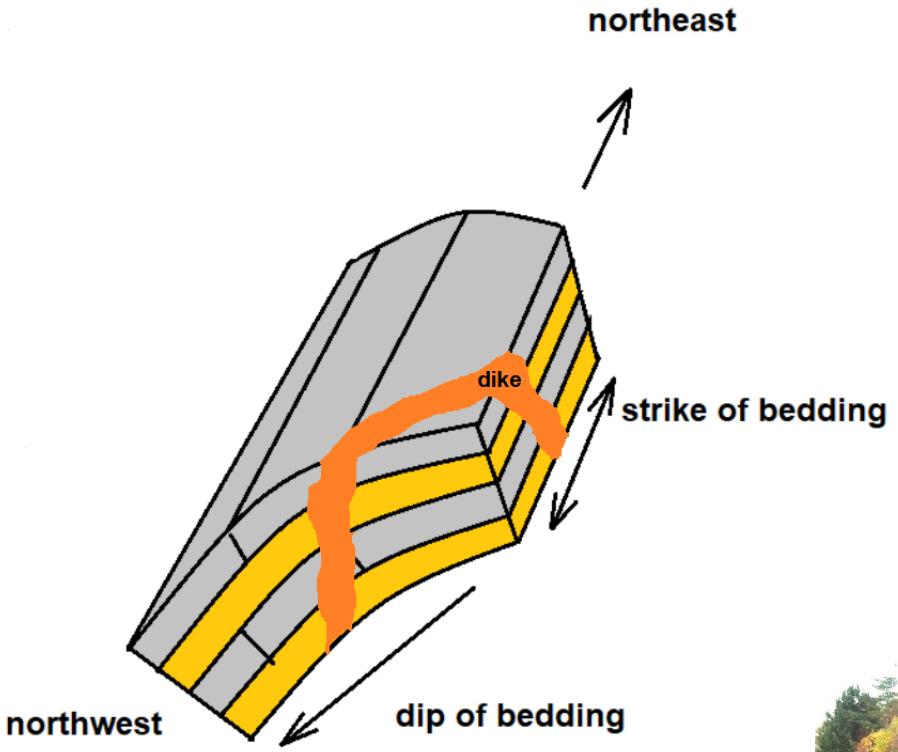


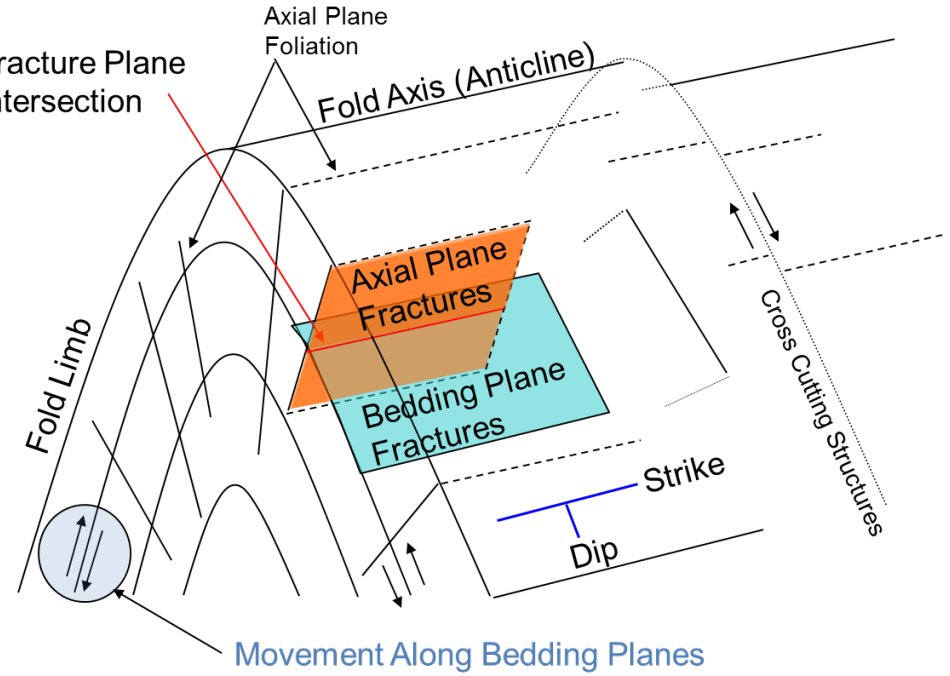




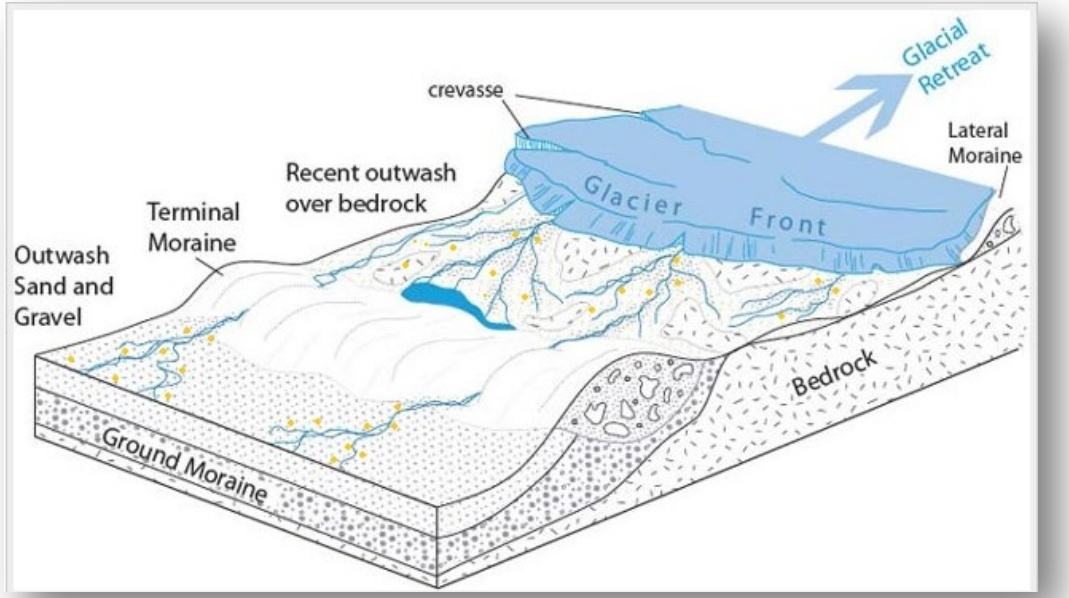
Bedrock started out ~ 450 million years ago as layered deposits of silt and sandstone

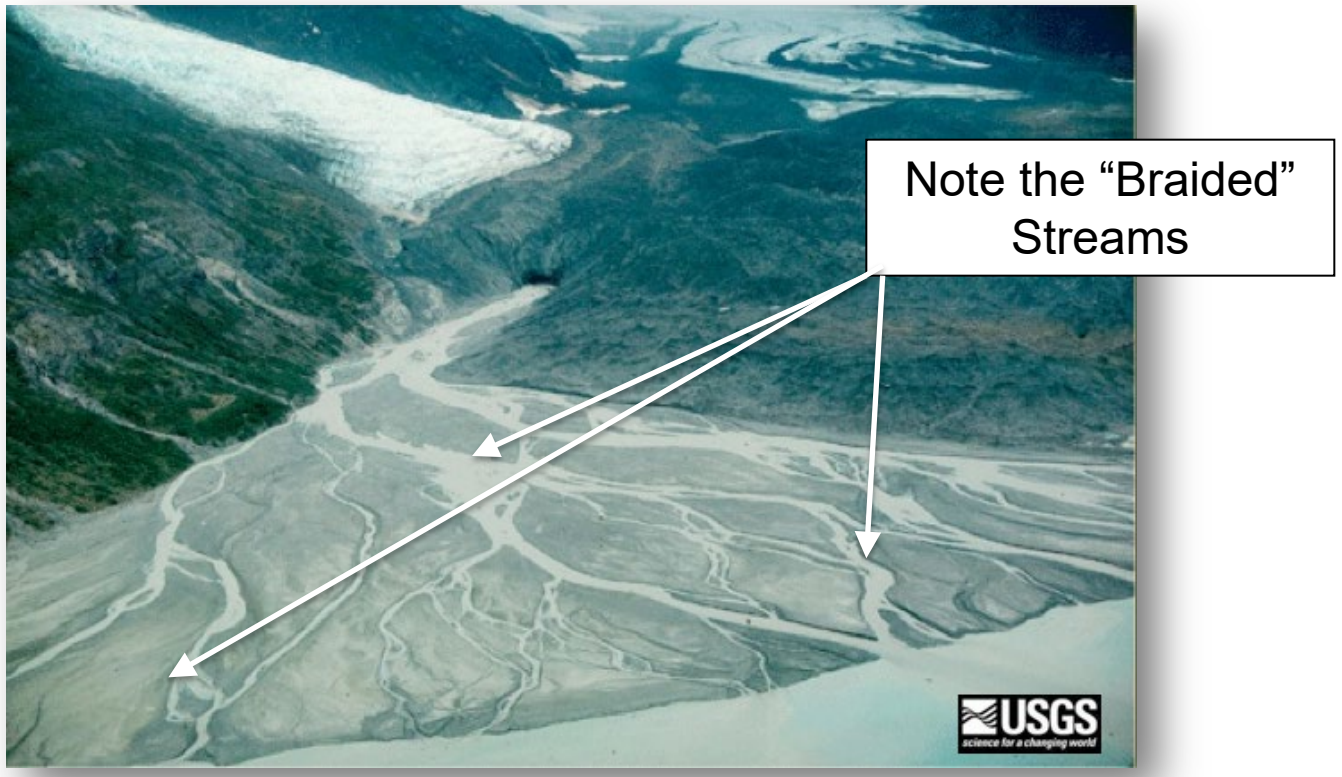
Geology – Bedrock (BR)





Geology – Overburden (OB)

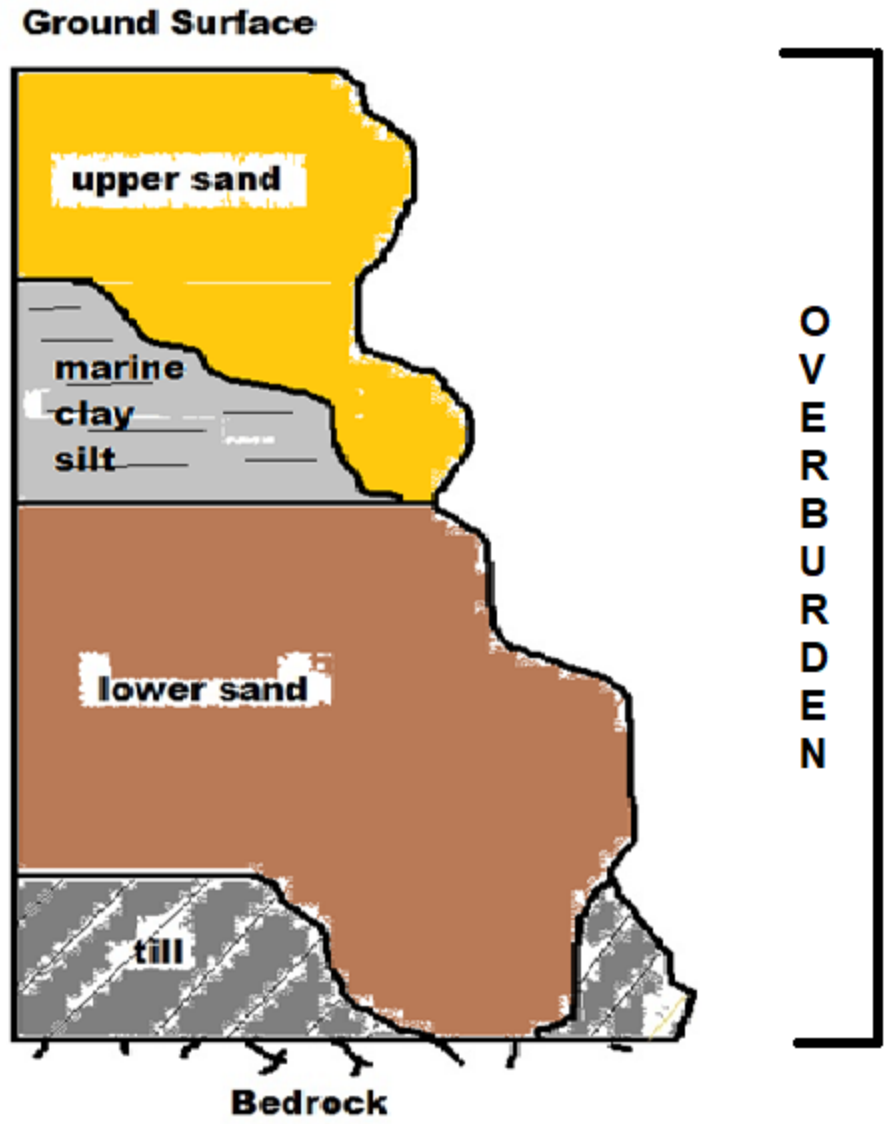




Glacial Deposits

- Outwash is sediment deposited in front of glacier
- Deposited between 125,000 and 11,000 years ago
- At maximum extent it covered the Gulf of Maine

Pease Geology



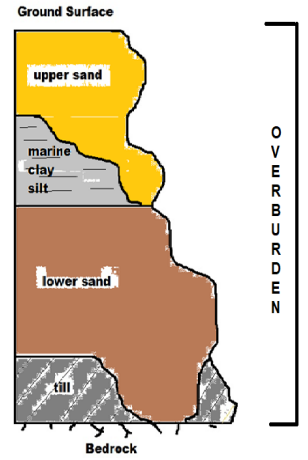
- Overburden (OB) described as Upper Sand (US) and Lower Sand (LS) when layers are separated by the Marine Clay Silt (MCS)
- US and LS are glacial outwash deposits
- MCS marks period when ocean was in contact with glacier.

US and LS can be sand, gravel, or cobbles

Pease Geology

Fine-grained outwash (Sand)

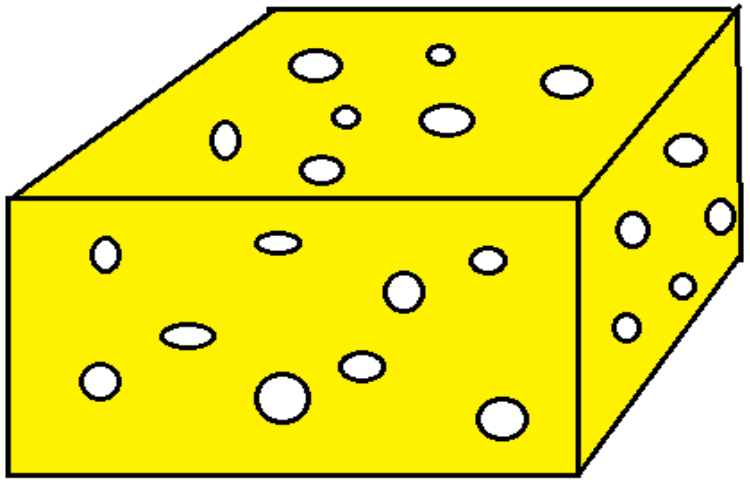
Coarse-grained outwash in braided channels (Sand and gravel) over weathered bedrock



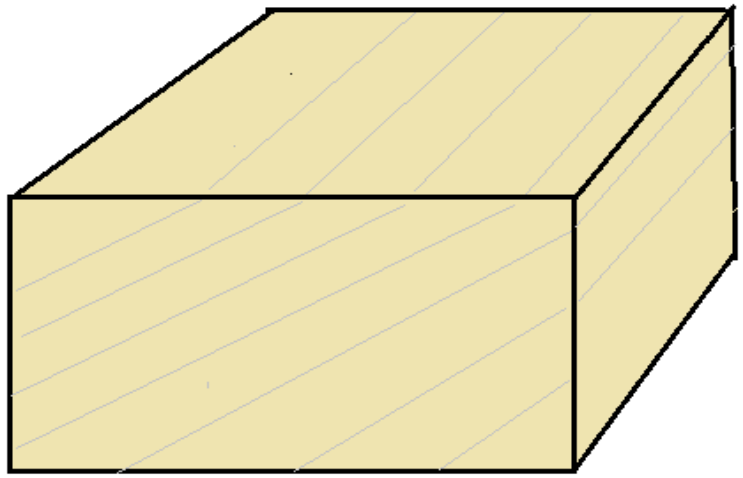
Shallow → Deep

Hydrogeology

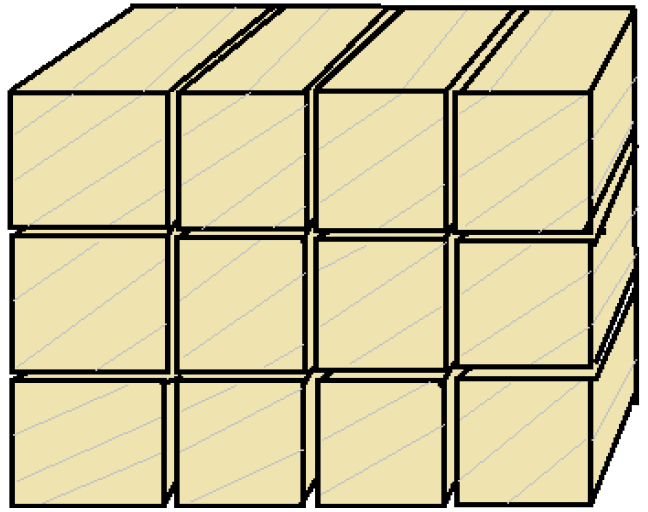
Storage and movement of groundwater in OB and BR



Overburden
(like a sponge)

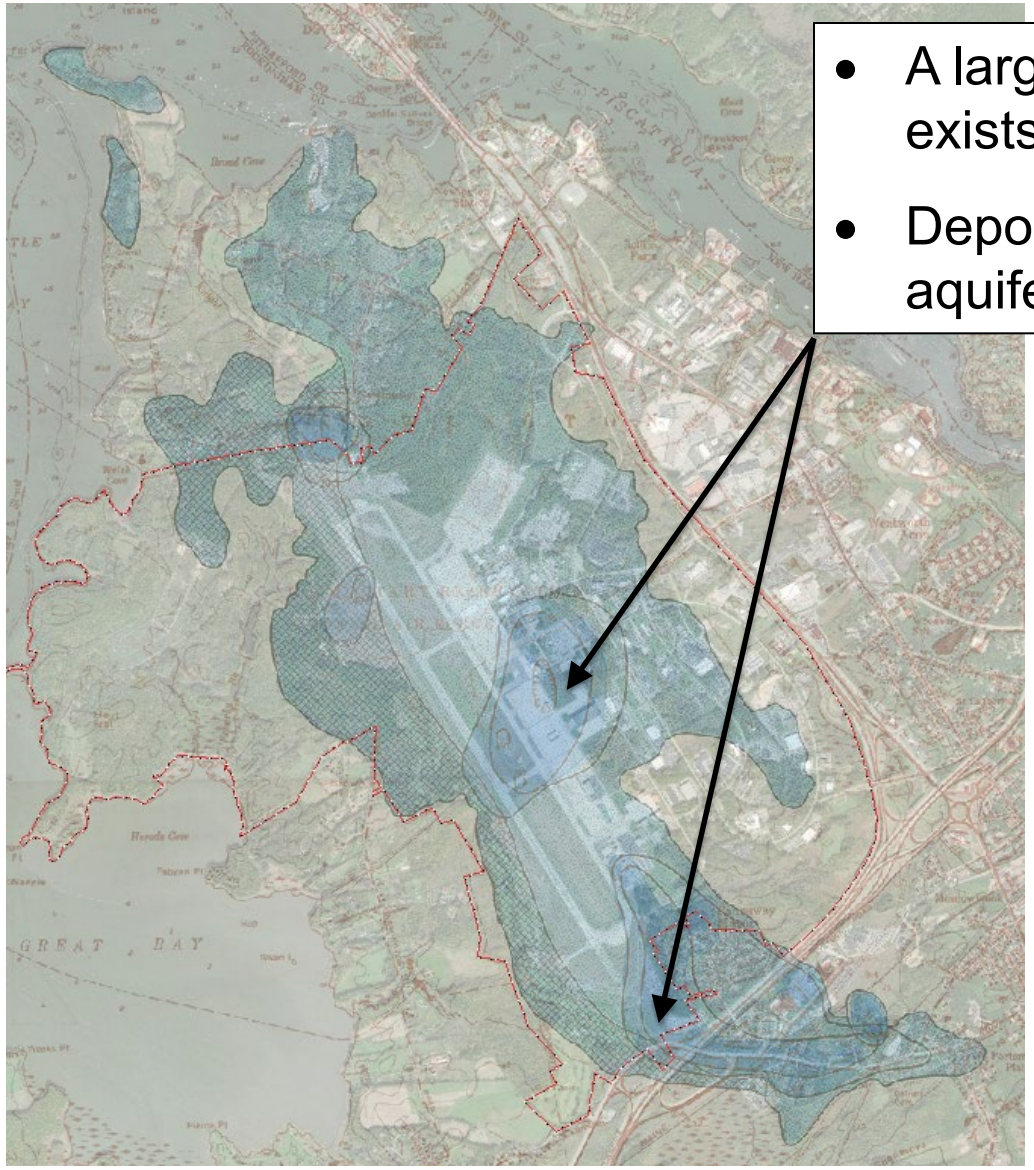


Bedrock
(like a block of wood)

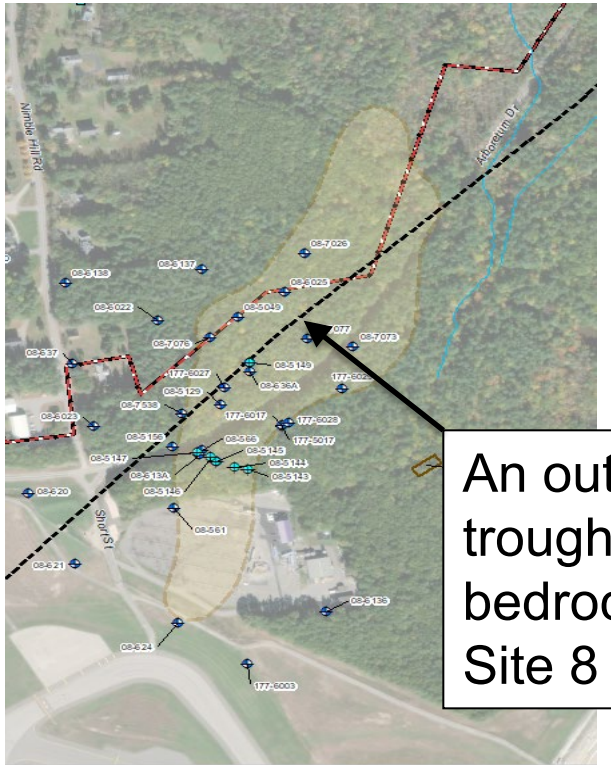


Fractured Bedrock
(like broken blocks of wood)

Pease Hydrogeology - Overburden



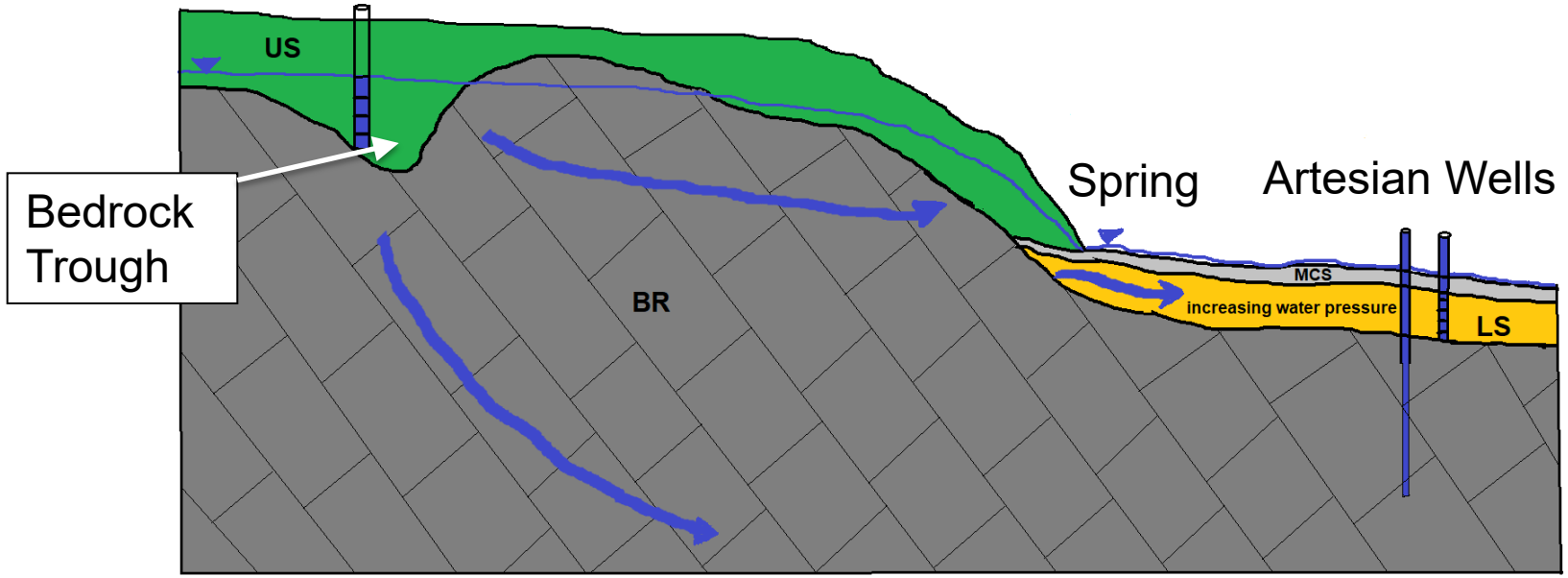
- A large mapped outwash deposit exists beneath the Pease Peninsula
- Deposit serves as the overburden aquifer for the public supply wells

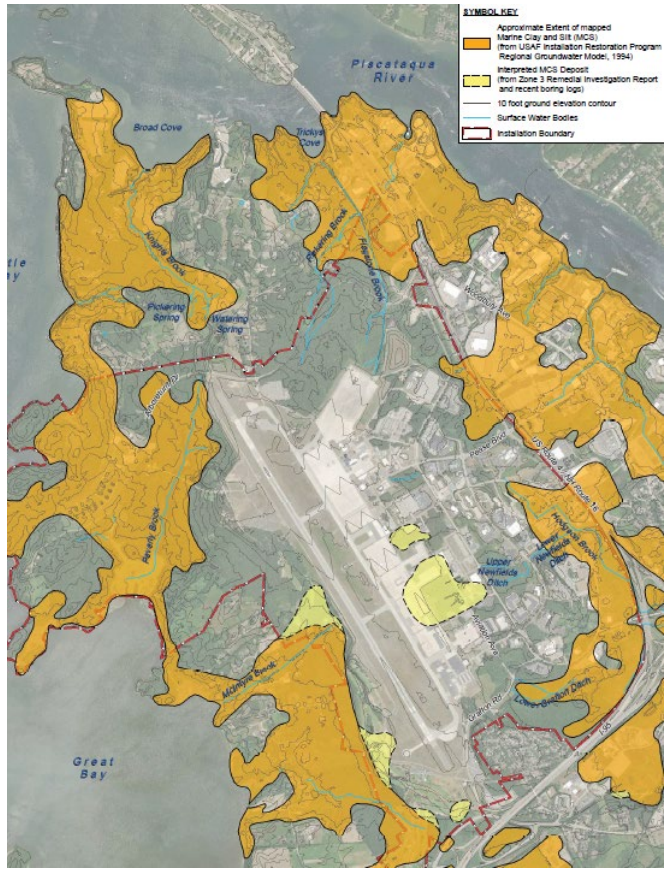


An outwash-filled trough in the bedrock exists at Site 8

Pease Hydrogeology - Overburden

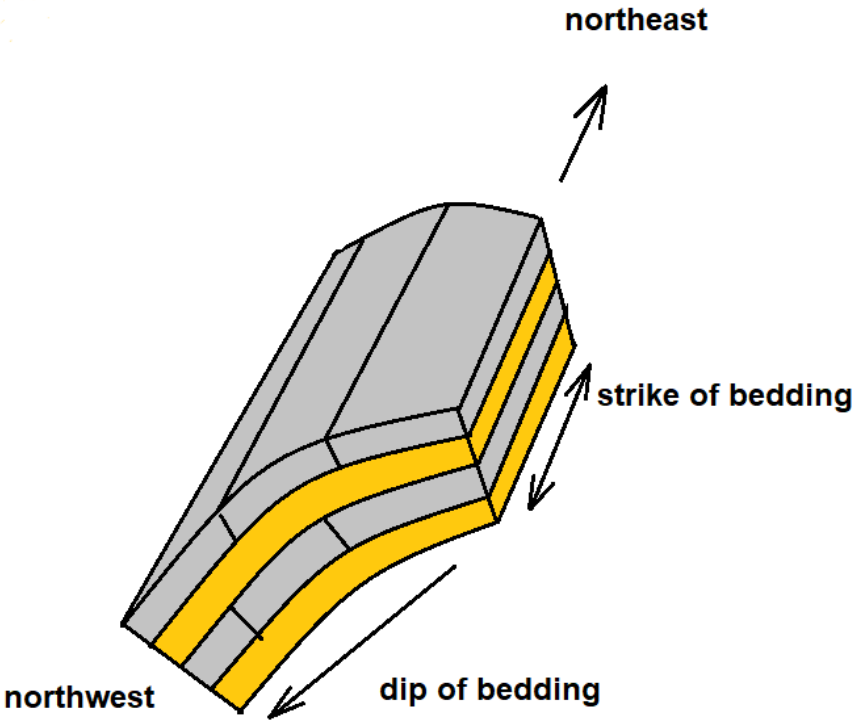
- Flowing surface waters originate as springs
- Examples at Pease are Knights, Pickering, Peverly Brooks

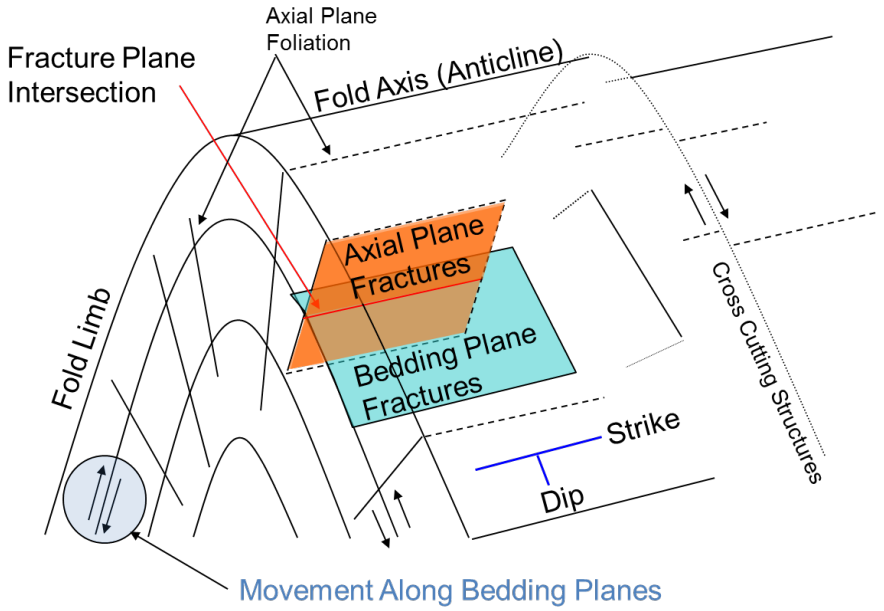


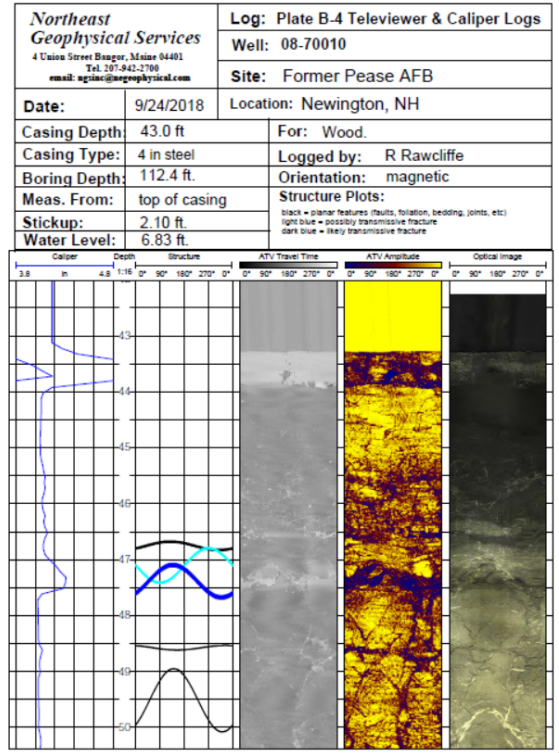


When Marine Clay Silt is present, confining (artesian) conditions and/or springs exist

Pease Hydrogeology - Bedrock

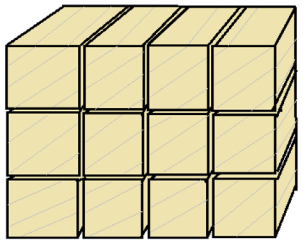






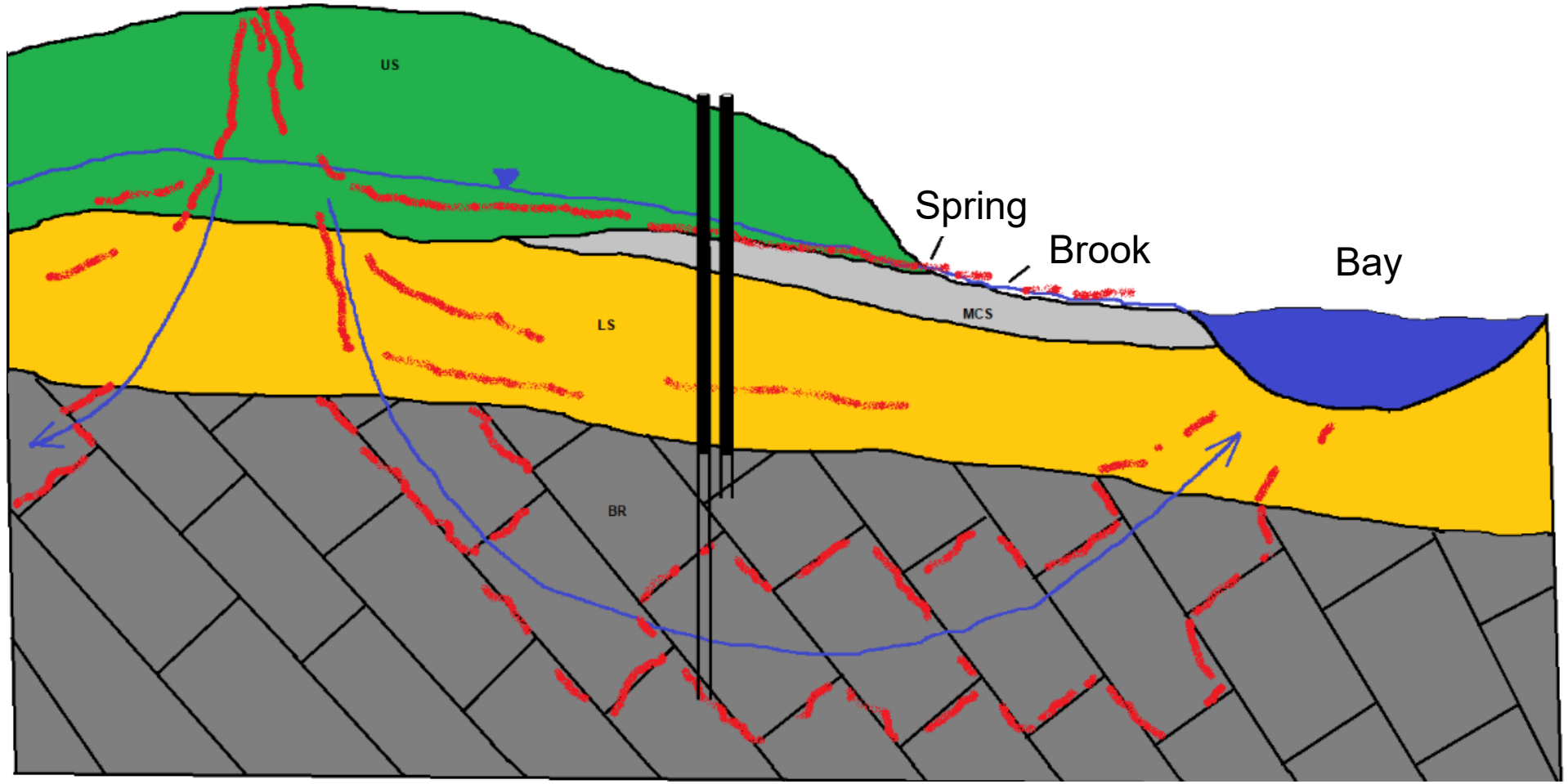
Northeast Geophysical Services	Log: Plate B-4 Televiewer & Caliper Logs
4 Union Street Bangor, Maine 04401 Tel. 207-942-2700 email: ngsinc@negeophysical.com	Well: 08-70010
	Site: Former Pease AFB
Date: 9/24/2018	Location: Newington, NH
Casing Depth: 43.0 ft	For: Wood.
Casing Type: 4 in steel	Logged by: R Rawcliffe
Boring Depth: 112.4 ft.	Orientation: magnetic
Meas. From: top of casing	Structure Plots:
Stickup: 2.10 ft.	black = planar features (faults, foliation, bedding, joints, etc) light blue = possibly transmissive fracture dark blue = likely transmissive fracture
Water Level: 6.83 ft.	

Interconnected fractures and bedding planes provide preferential flow pathways for groundwater in bedrock



Pease PFAS CSM

Former Fire Training Area (Site 8)



PFAS migrating in the environment

Pease ESI Physical CSM Conclusions

- Groundwater
  - On a peninsula-wide scale the OB and BR aquifers are highly connected
  - The primary off-site migration pathway for Site 8 OB groundwater is through the BR trough
  - The bedrock is not porous – flow is through fractures (mostly bedding plane fractures)
  - Overall, PFOS and PFOA with respect to the AGQS in both OB and BR groundwater has been largely defined although some areas of refinement are still needed
- Surface Water
  - Springs in Newington formed when groundwater in the US and underlying MCS was exposed via erosion at ground surface
  - PFOS/PFOA impacts to surface water originate from groundwater discharges at the headwaters of the brooks (springs)
  - The MCS prevents downward vertical migration into groundwater
- Private Wells
  - Private wells on the Pease peninsula are constructed as open-hole BR wells.
  - Hydrogeologic mechanisms for isolated private well impacts is still unclear
  - Likely a combination of well depth, vertical hydraulic gradients, fracture orientation, fracture transmissivity, and/or OB groundwater quality

Public Comment

Goal: Provide opportunity for members of the public to comment.

Process:

- Public members fill out a comment card if you wish to speak.
- 3 min limit per speaker.
- Speakers will be notified when they have 30 seconds remaining & at the 3 min mark.

Open Discussion Time

- **Opportunity for RAB members to discuss additional topics**

RAB Meeting Recap

- Meeting Recap
- Action Items
- Next Steps
- Next meeting – December 5th (proposed)

Adjournment


AIR FORCE CIVIL ENGINEER CENTER