Olin Chemical Superfund Site

Wilmington, Massachusetts

Proposed Plan Public Informational Meeting
August 25, 2020

More information: www.epa.gov/superfund/olin

100014400

Agenda

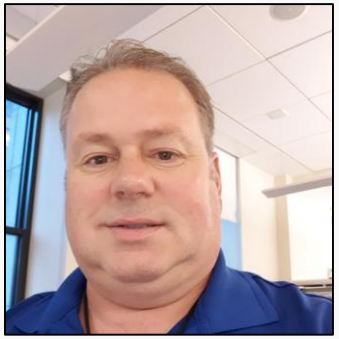
- Case Team Introductions
- Participant Instructions for the Virtual Meeting
- Presentation on EPA's Proposed Cleanup Plan
- How to Submit Formal Comments
- Question-and-Answer Session

Case Team Introductions

Lynne Jennings
EPA, MA Section Chief

Melanie Morash
EPA Project Manager

Josh Fontaine
EPA Project Manager

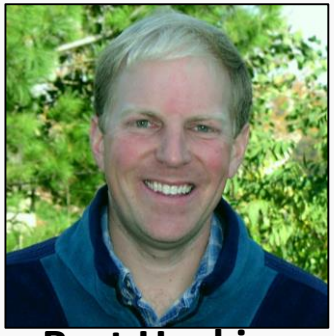


Jim DiLorenzo
EPA Project Manager

Bill Brandon
EPA Hydrogeologist

Chris Kelly
EPA Hydrogeologist

Courtney Carroll
EPA Risk Assessor



Bart Hoskins
EPA Risk Assessor

Case Team Introductions

Sarah White
EPA Community Involvement Coordinator

Man Chak Ng
EPA Case Attorney

Kevin Pechulis
EPA Case Attorney

Garry Waldeck
MassDEP Project Manager

Janet Waldron
MassDEP Project Manager

Suela John
MassDEP Case Attorney

Basic Instructions for Participating

View and listen to the presentation by either:

1) Go to EPA's website and click on link to Adobe Connect

Note: Your computer microphone will be muted.

2) Watch on Wilmington Community Television, WCTV

Comcast Channel 9 or Verizon Channel 37

Participate in the Question and Answer Session

1) **If you Pre-Registered, you received a telephone number and conference code.**

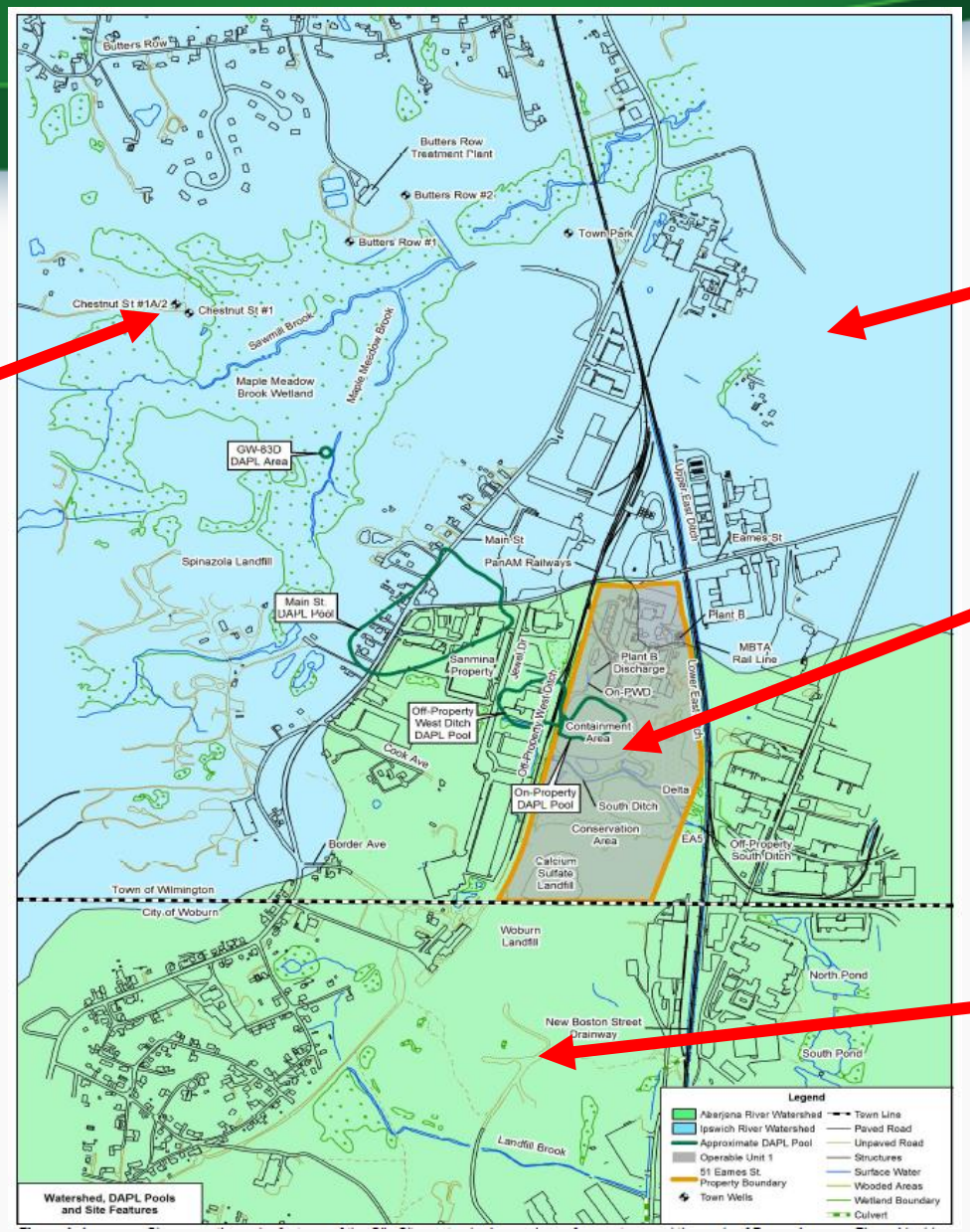
2) **If you did not Pre-Register, Call the number in the upper right window and provide the conference code and your name to the operator.**

If dialing in to participate,

PLEASE MUTE YOUR COMPUTER OR TELEVISION AUDIO

SITE BACKGROUND

Former Water Supply Wells in Maple Meadow Brook Aquifer



Ipswich River Watershed (blue)

Olin Property Location

Aberjona River Watershed (green)

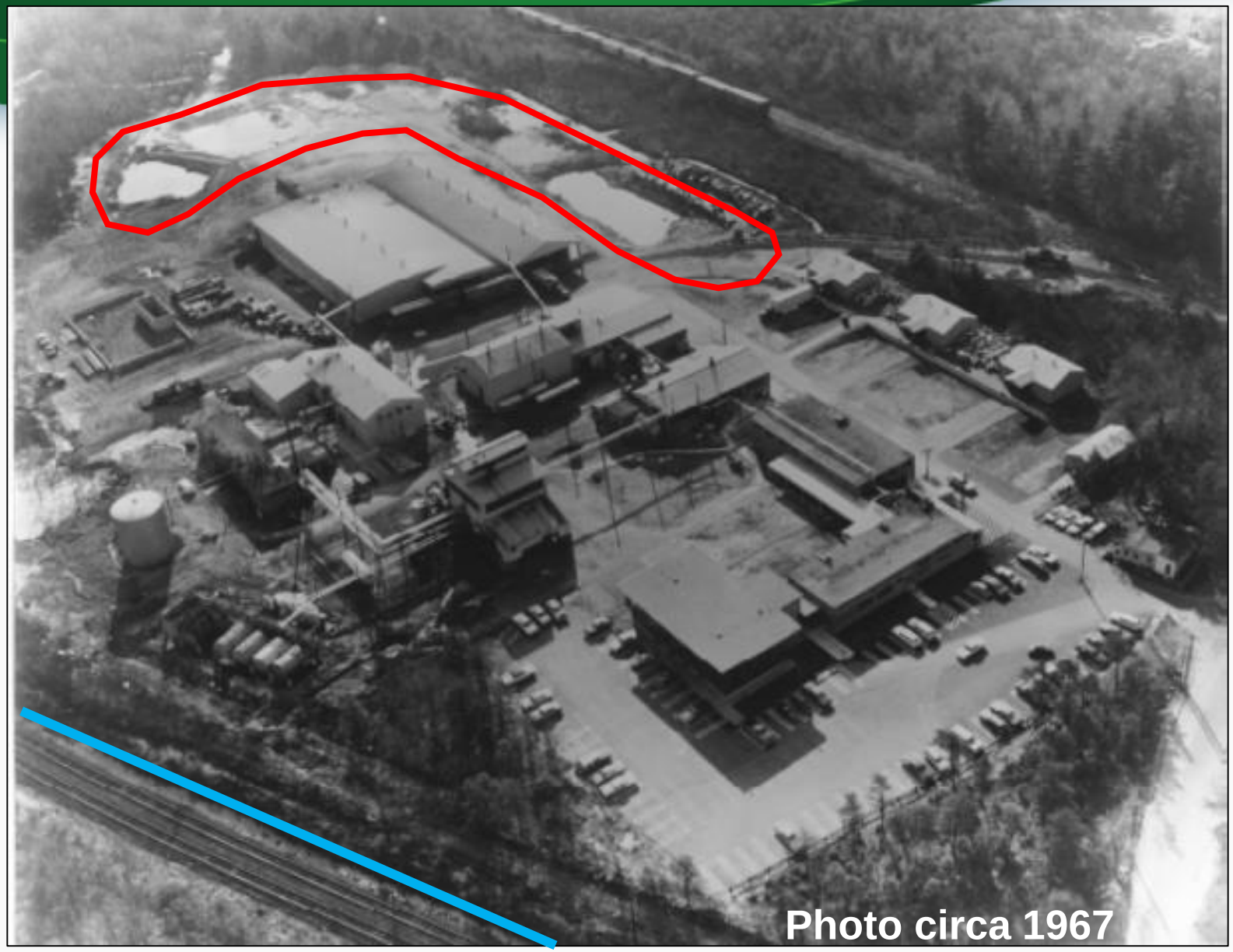
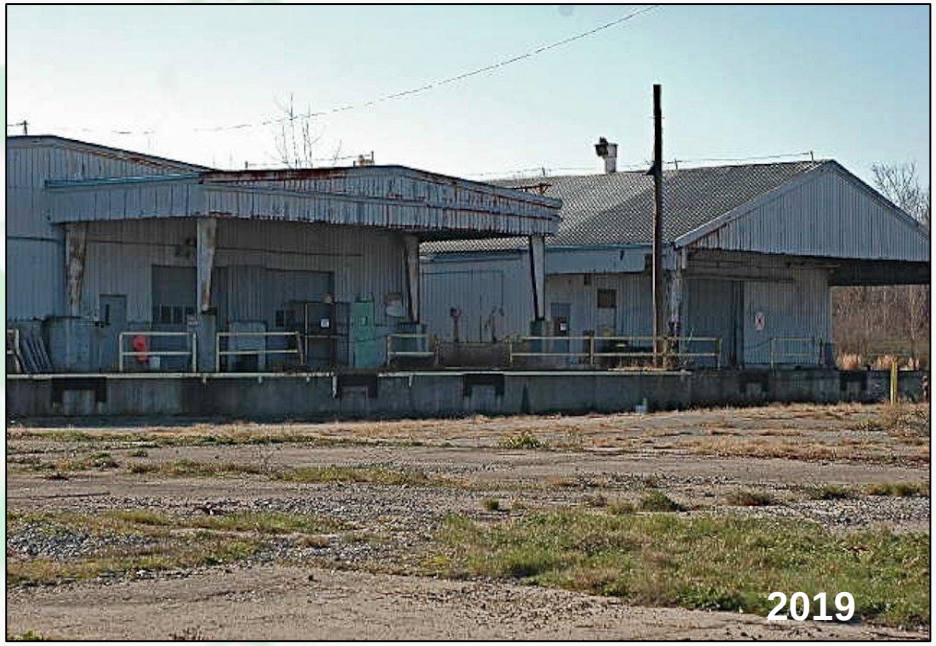
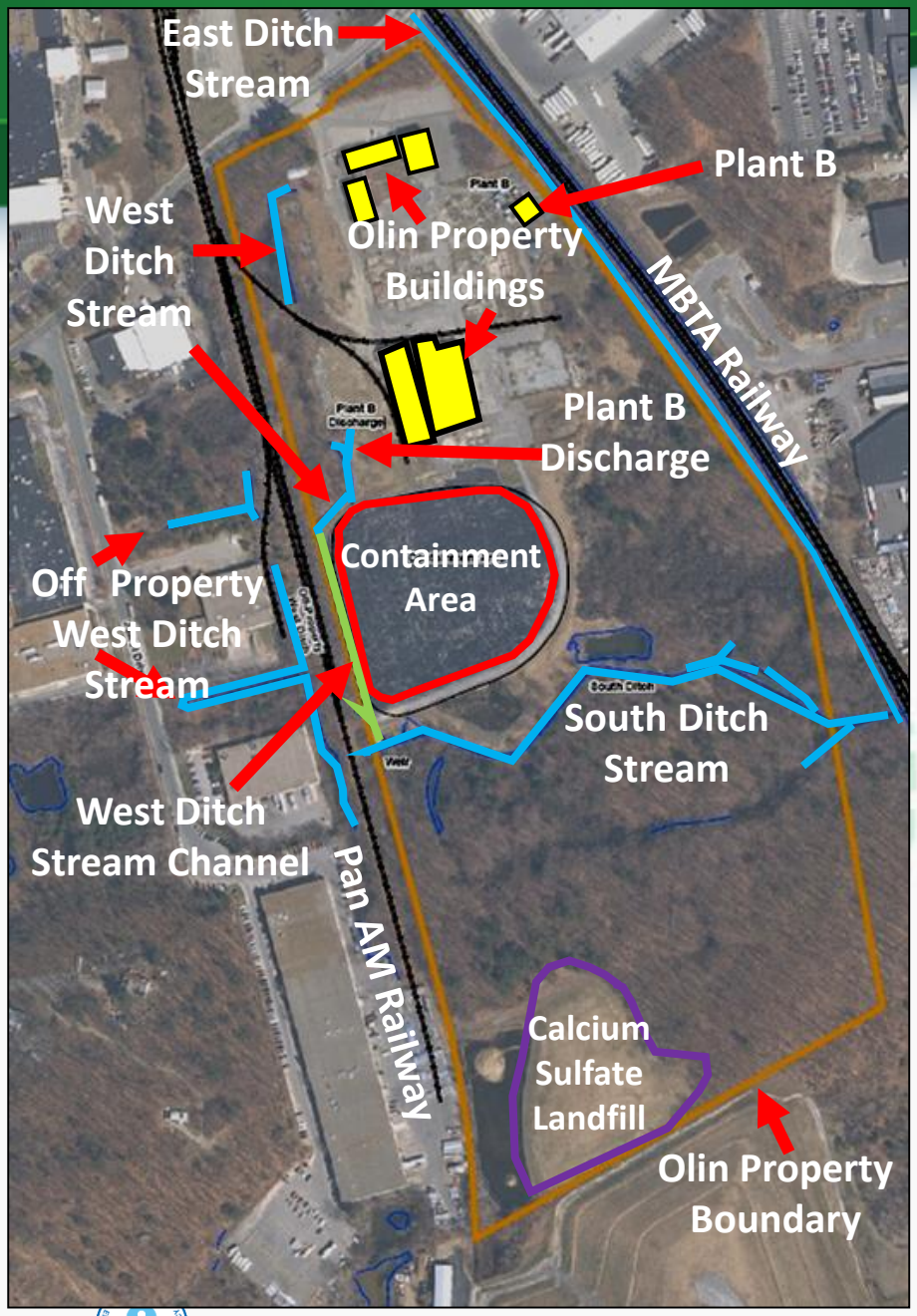


Photo circa 1967

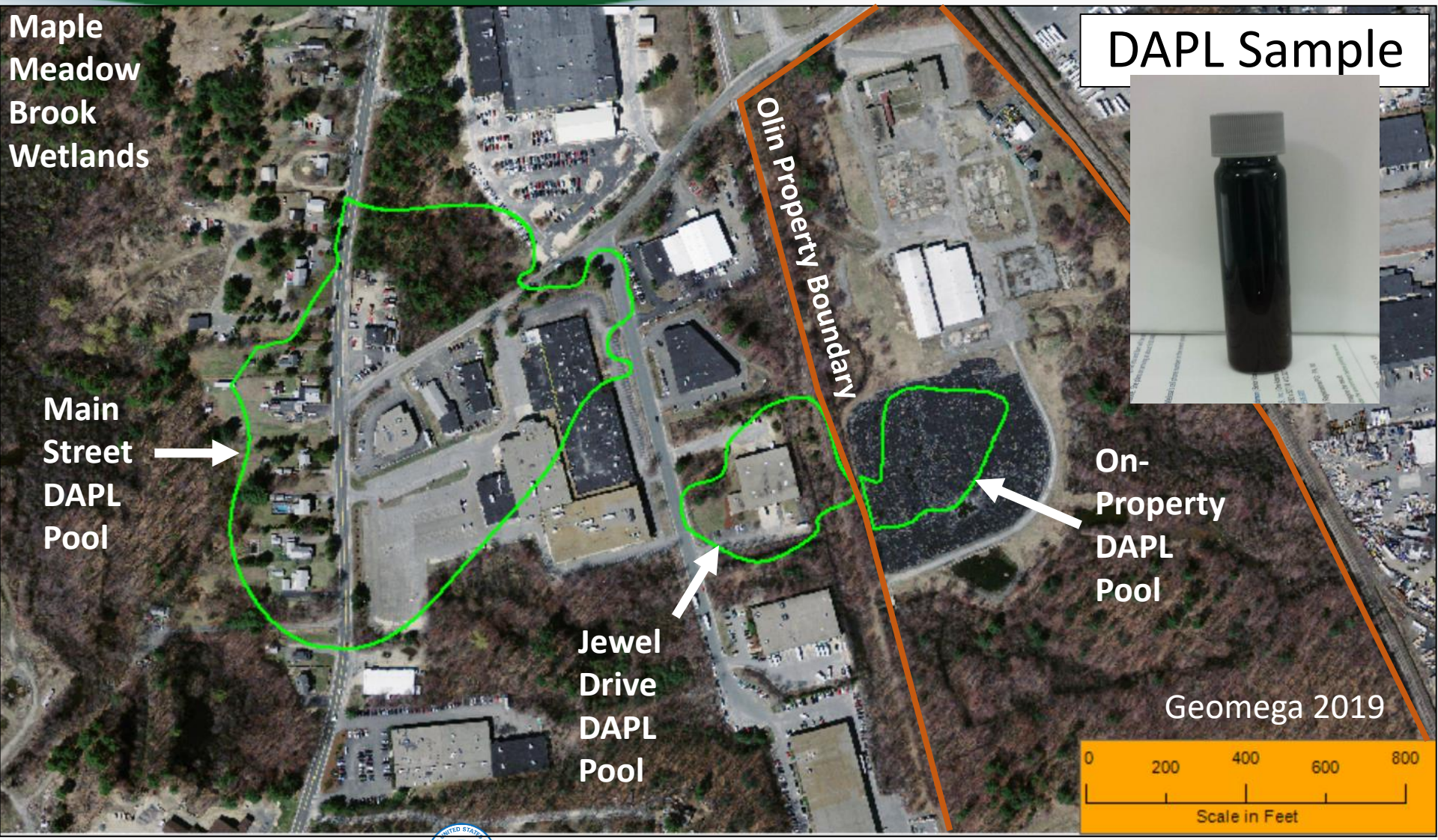

2019

Olin Property Features

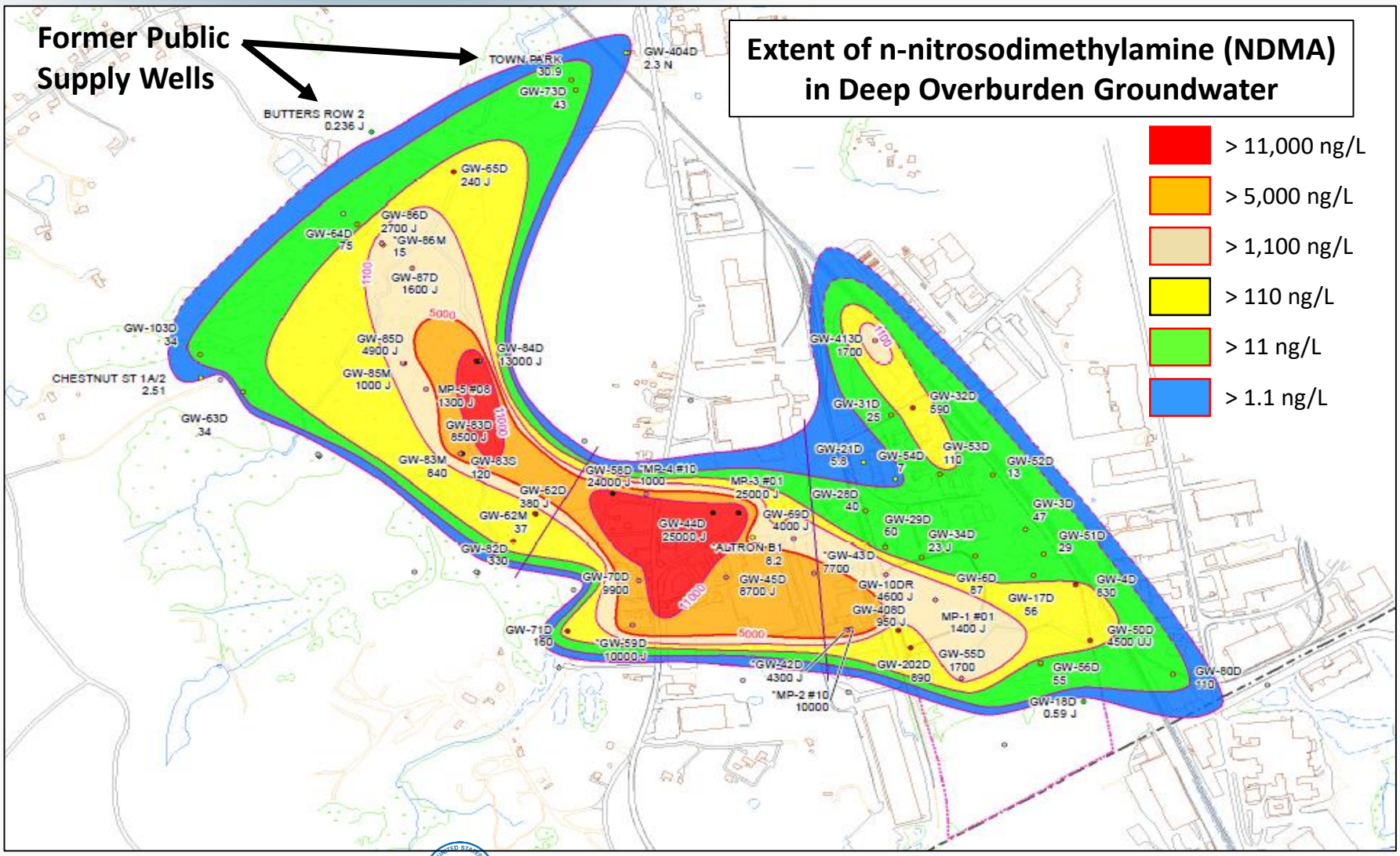


Containment Area Temporary Cap

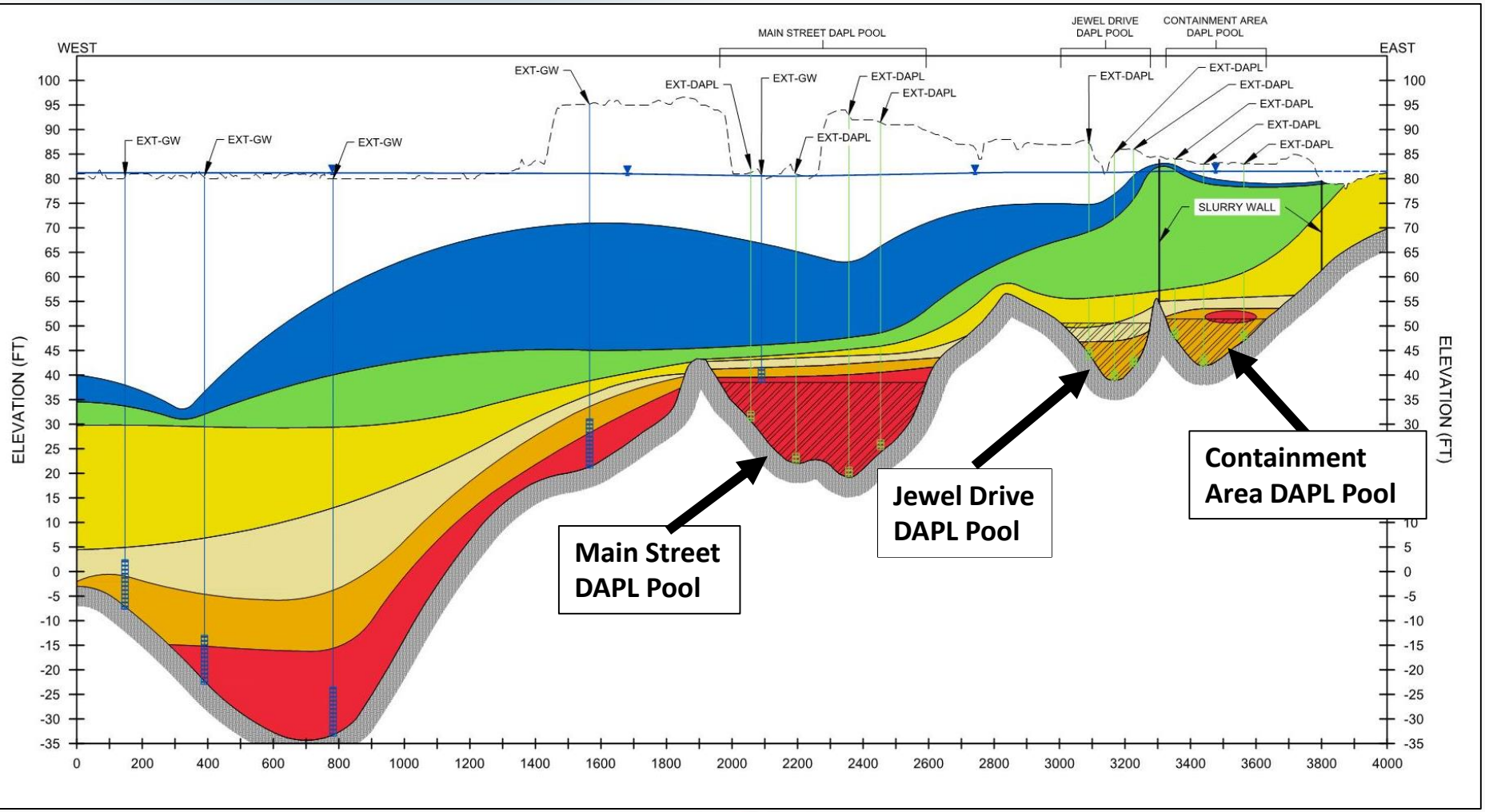
Dense Aqueous Phase Liquid (DAPL) Pools



Extent of Contamination in Groundwater



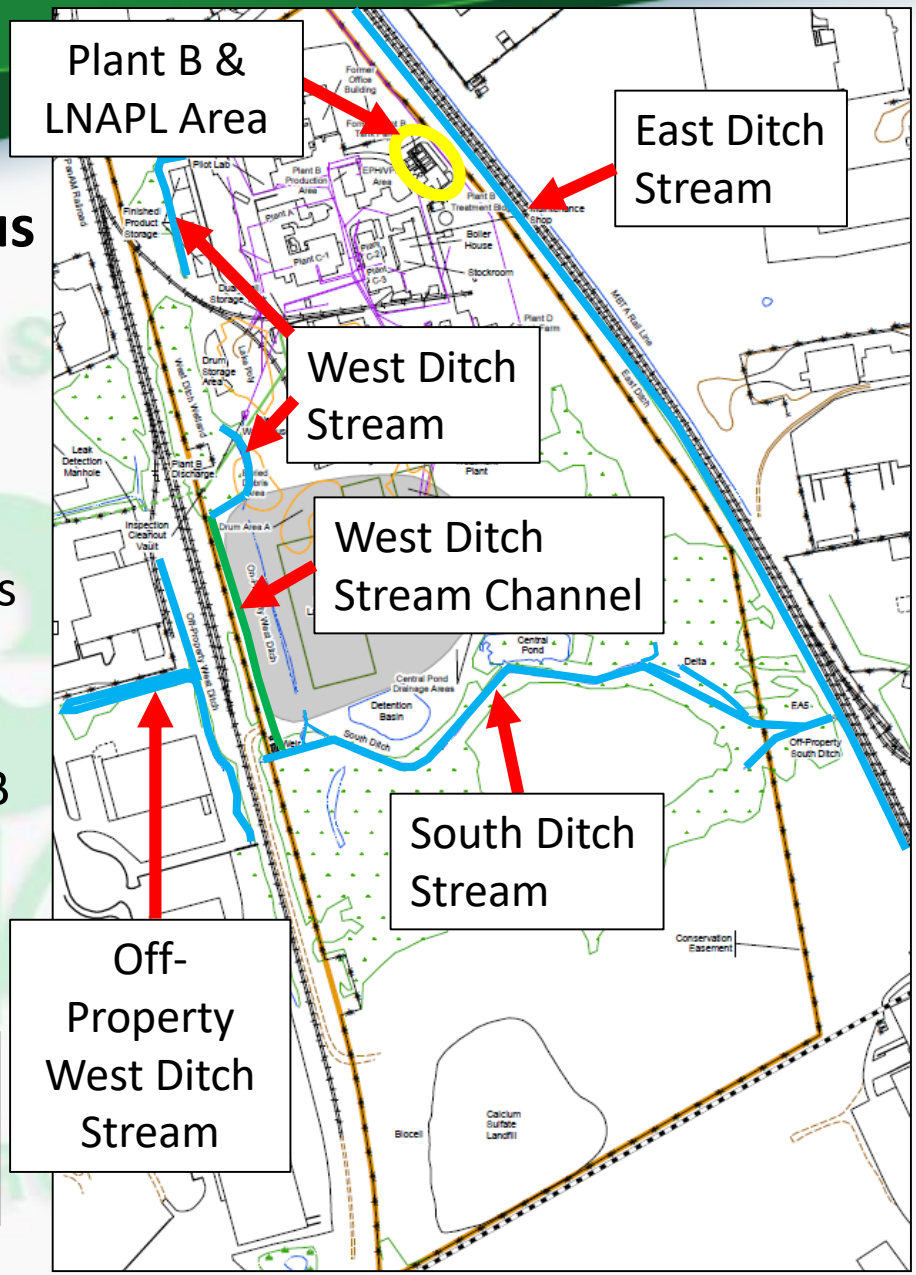
Cross-Section of DAPL Pools and Groundwater Impacts

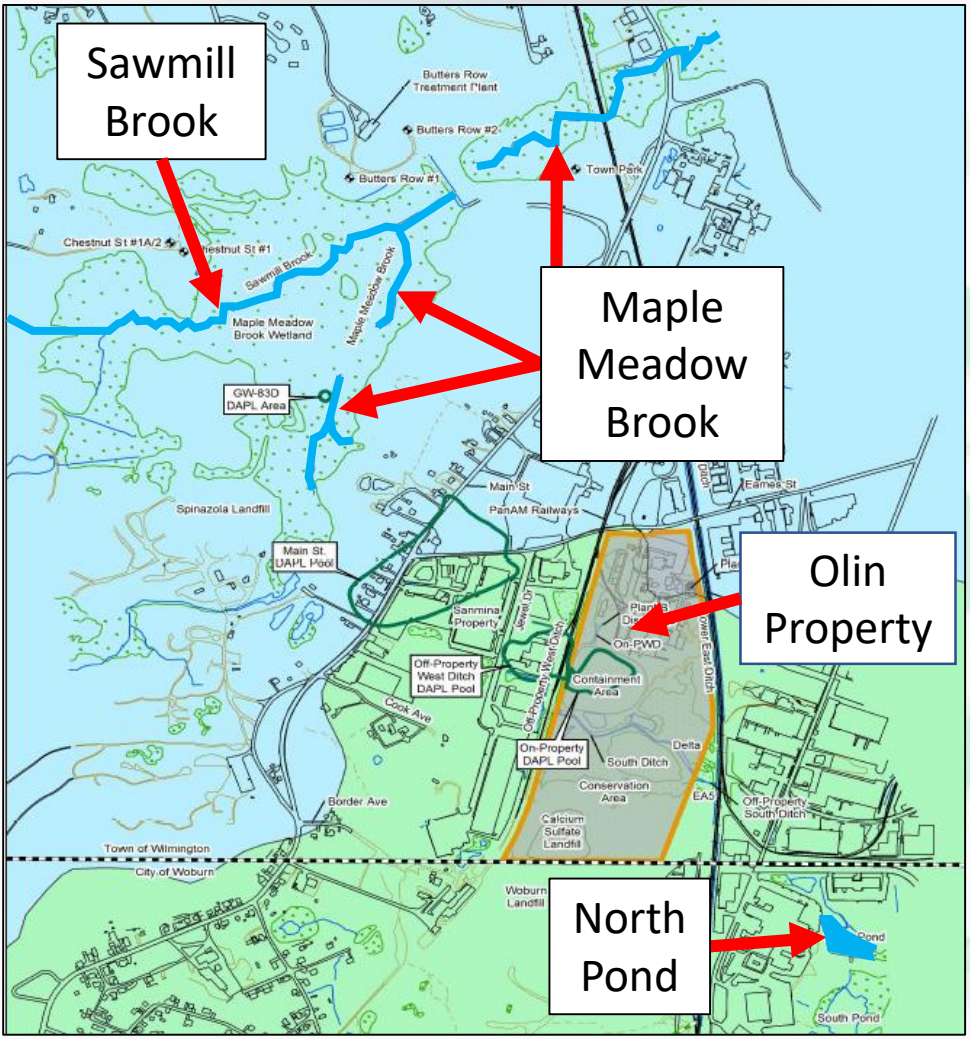


Surface Water & Light Non-Aqueous Phase Liquid (LNAPL) Findings

- Spill of processing oil resulted in contamination of the groundwater
- Contaminated groundwater is discharging into surface water streams on and near the Olin property
- LNAPL also discharged to East Ditch Stream but is now captured by Plant B
- These discharges result in contamination of the streams which poses risks to aquatic organisms

Surface water remedy needs to prevent the discharge of contaminated groundwater and LNAPL to these streams.





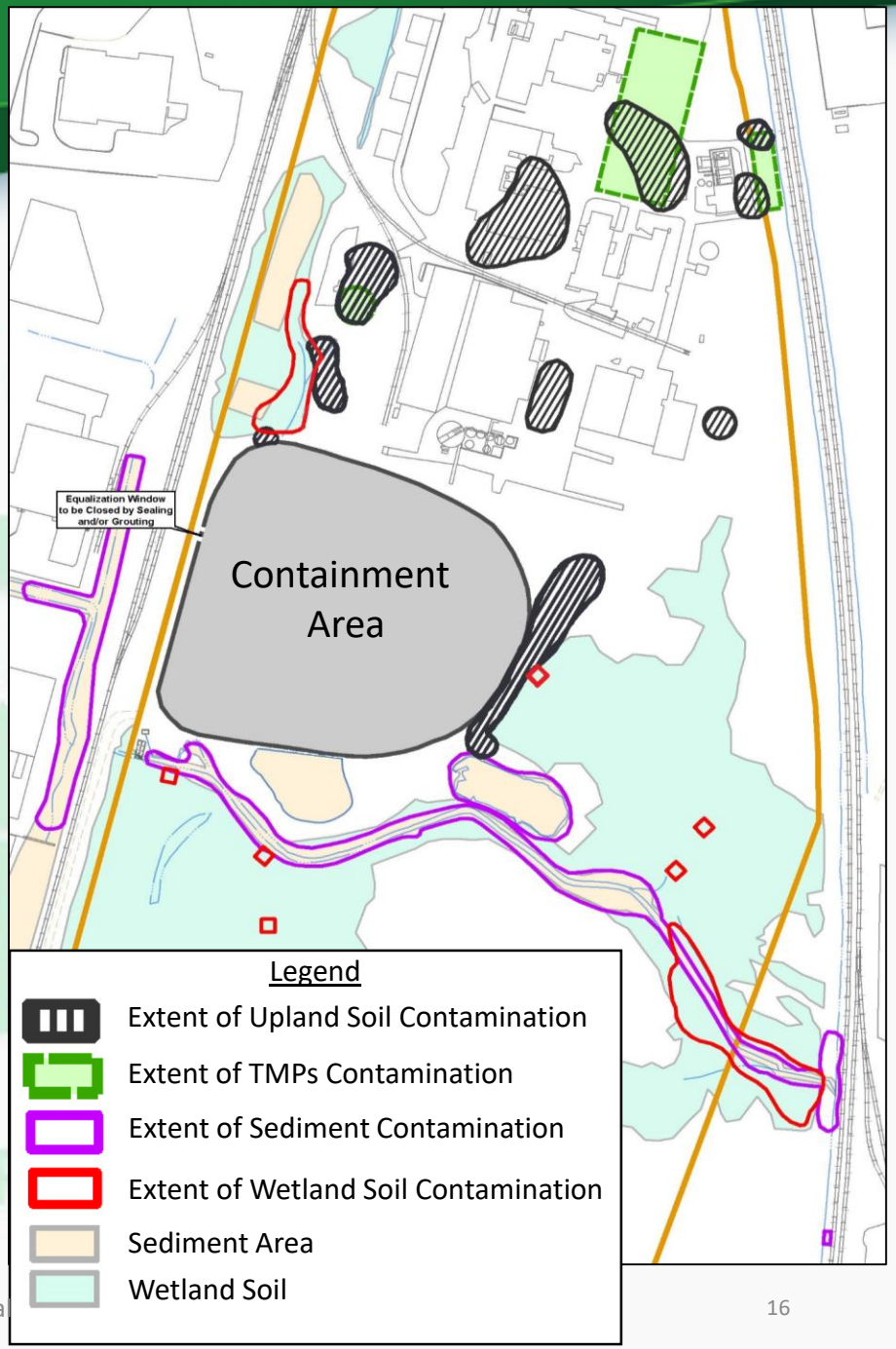
Surface Water Findings

- Other water bodies tested
  - North Pond
  - Maple Meadow Brook
  - Sawmill Brook
- No immediate impacts

Soil & Sediment Findings

- Residual low-level soil contamination throughout the property
- Containment Area
- Upland and wetland soils have elevated metal, polyaromatic hydrocarbons (PAHs) and/or trimethylpentene (TMP) concentrations, human health and ecological risks
- Sediment has elevated chromium and bis-2-ethylhexylphthalate (BEHP) concentrations, ecological risks
- Vapor intrusion concerns

Soil and sediment remedy needs to address vapor intrusion, contaminated upland and wetland soils, sediments, and Containment Area.



Human Health Risks

- **Contaminated groundwater and DAPL pose an unacceptable risk to human health in certain areas of the Site if groundwater is used for drinking water.**
  - NDMA, arsenic, chromium, cobalt, lead, and manganese
- **Soil contaminants on the Olin property pose an unacceptable risk if the property were to be used for residential purposes.**
  - Benzo(a)pyrene, arsenic, chromium, cobalt, lead, and manganese
- **Soil contaminants on the Olin property in certain limited areas also pose an unacceptable risk for indoor air impacts to occupants of future buildings.**
  - Trimethylpentenes
- **Surface water contaminants pose unacceptable risks to trespassers from direct contact in Off-Property West Ditch Stream.**
  - Benzo(a)pyrene

Ecological Risks

- **Contaminated soil in certain areas of the Site pose unacceptable risks to certain birds and small mammals.** (BEHP, chromium)
- **Contaminated sediment in certain stream areas also pose unacceptable risks to aquatic invertebrates and insect-eating birds.** (BEHP, chromium)
- **Surface water also contains contaminants that pose unacceptable risks to aquatic invertebrates.** (Chromium, ammonia)

Northern Short-Tailed Shrew

http://animalia.bio/northern-short-tailed-shrew

American Robin

https://www.audubon.org/field-guide/bird/american-robin

Marsh Wren

https://www.audubon.org/field-guide/bird/marsh-wren

Green Frog

Photo provided by Nobis Engineering, Inc.

Bottom Dwelling Invertebrate Species

https://stroudcent.org/macros/key/

Private Drinking Wells

- 26 wells have been tested
- Quarterly testing since 2009 for 18 wells
- Unacceptable level to protect human health is 47 ng/L
- 72% of samples (438 out of 608) have been non-detect for NDMA (less than 2 ng/L)
- Two wells have had consistent detections of NDMA ranging from non-detect to 57 ng/L

Example
Private Residential Well

What's a nanogram?
10^{-9} grams or 1 trillionth of a gram
or 0.000000001 gram

Alternatives Considered by EPA

- Interim Action - DAPL and Groundwater Hot Spots
- Final Action - LNAPL and Surface Water
- Final Action - Soil and Sediments

Interim Action – DAPL & Groundwater Hot Spot Alternatives

DAPL/GWHS-1: No Action

DAPL/GWHS-2: DAPL extraction (approx. 5 wells), GW Hot Spot extraction targeting 11,000 ng/L NDMA (approx. 2-3 wells) with new treatment system

DAPL/GWHS- 3: DAPL extraction (approx. 20 wells), GW Hot Spot extraction targeting 5,000 ng/L NDMA (approx. 6 wells) with new treatment system

EPA's Preferred Alternative

DAPL/GWHS-4: DAPL extraction (approx. 20 wells), GW Hot Spot extraction targeting 1,100 ng/L NDMA (approx. 12 wells) with new treatment system

Final Action – LNAPL and Surface Water Alternatives

LNAPL/SW-1: No Action

LNAPL/SW-2: Multi-phase extraction (MPE) for LNAPL with treatment at Plant B, groundwater extraction to prevent discharge of contaminants to surface water, on-site treatment at new treatment system

LNAPL/SW-3: Demolition of Plant B, MPE for LNAPL, targeted groundwater extraction to prevent discharge to surface water, on-site treatment at new treatment system **EPA's Preferred Alternative**

LNAPL/SW-4: Excavation of LNAPL with off-site disposal, Permeable Reactive Barrier (PRB) to treat groundwater before discharge into surface water

Final Action – Soil and Sediment Alternatives

Soil/Sed-1: No Action

Soil/Sed-2: Containment Area cap, excavation with off-site disposal of wetland soils and sediments, soil and pavement covers for upland soil, limited action for TMPs including vapor intrusion evaluations or vapor barriers/sub-slab depressurization systems for future buildings **EPA's Preferred Alternative**

Soil/Sed-3: Containment Area cap, excavation with off-site disposal of wetland soil and sediments, excavation (0-1 ft) with off-site disposal and soil and pavement covers for upland soil, air sparging and soil vapor extraction (SVE) for TMPs

Soil/Sed-4: Excavation (0-10 ft) with off-site disposal and clean soil cover for Containment Area and upland soils, excavation with off-site disposal of wetland soils and sediments and soils containing TMPs

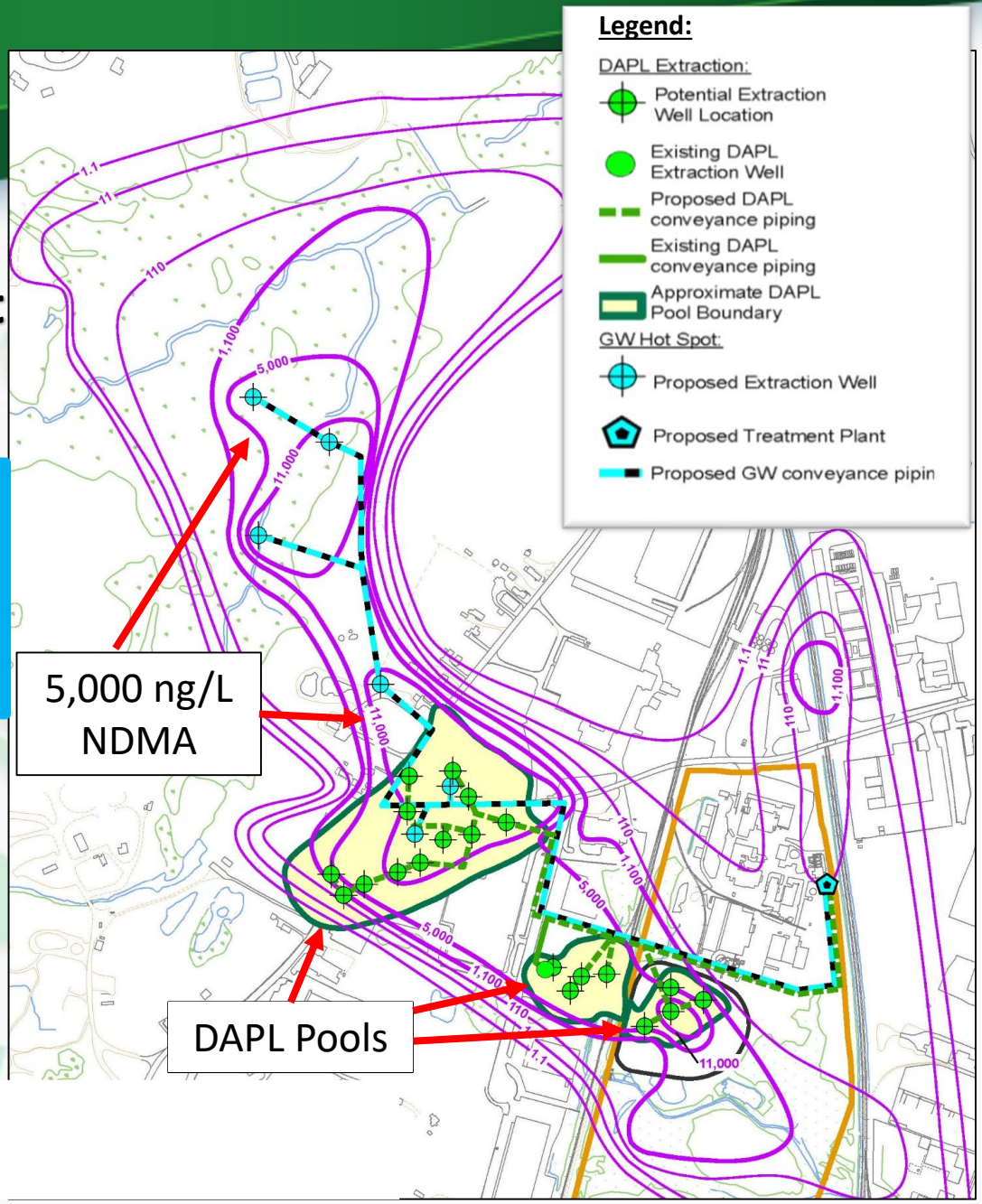
The Nine Criteria for Choosing a Cleanup Plan

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume (TMV) through treatment
5. Short-term effectiveness
6. Implementability
7. Cost
8. State acceptance
9. Community acceptance

Interim Action – DAPL & Groundwater Hot Spot Alternative 3

DAPL/GWHS- 3: DAPL extraction (approx. 20 wells), GW hot spot extraction targeting 5,000 ng/L NDMA (approx. 6 wells)

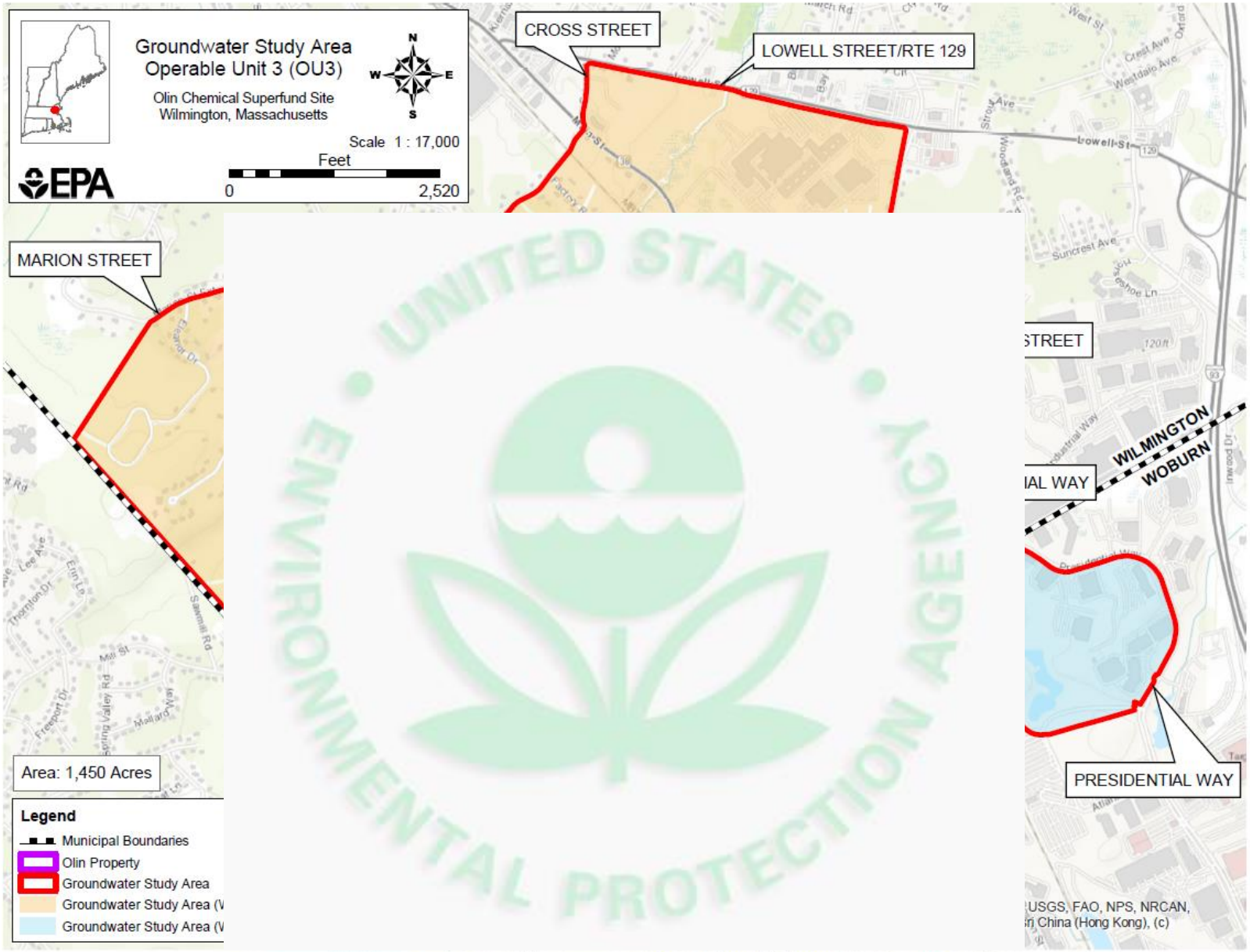
Note:
Well placement may be modified during the remediation design phase



Interim Action – DAPL and Groundwater Hot Spots

✕ Fails	- - Poor
✓ Passes	- Fair
	+ Good
	+ + Very Good

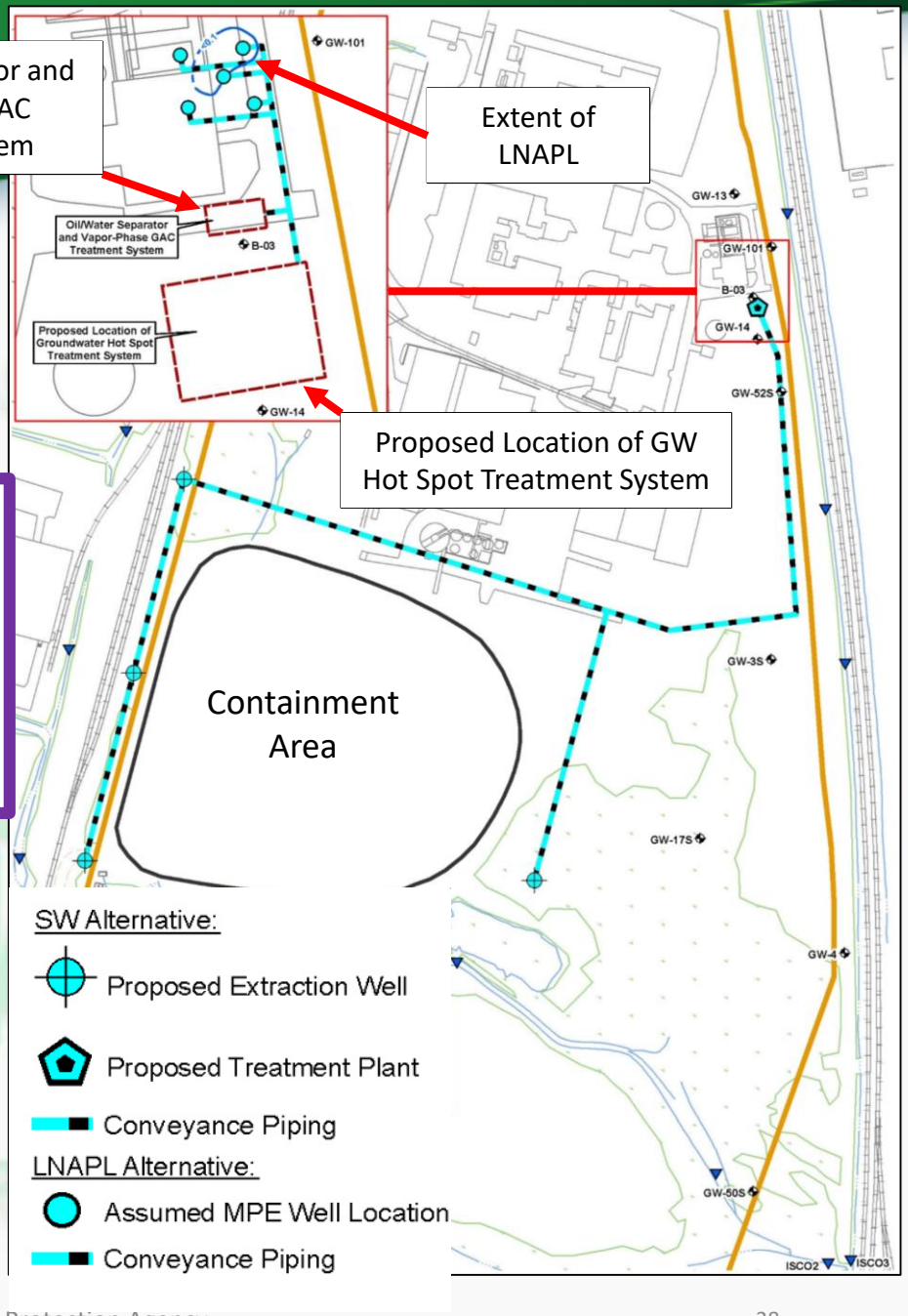
ALTERNATIVES BY MEDIUM	Overall Protection of Human Health & the Environment	Compliance with ARARs	Long Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short Term Effectiveness	Implementability	Cost		
							Capital Cost	O&M Cost	Total (Net Present Value)
Alternative DAPL/GWHS 1: No action alternative	X	X	N/A	N/A	-	+ +	$0	$0	$0
Alternative DAPL/GWHS 2: DAPL extraction (approx. 5 wells), groundwater hot spot extraction targeting 11,000 ng/L (approx. 2 3 wells), on site treatment at new treatment system alternative	✓	✓	-	+	+	+	$10,253,755	$21,701,568	$22,518,229
Alternative DAPL/GWHS 3: DAPL extraction (approx. 20 wells), groundwater hot spot extraction targeting 5,000 ng/L (approx. 6 wells), on site treatment at new treatment system alternative	✓	✓	+	+ +	+	+	$15,625,318	$24,620,268	$35,497,565
Alternative DAPL/GWHS 4: DAPL extraction (approx. 20 wells), groundwater hot spot extraction targeting 1,100 ng/L (approx. 12 wells), on site treatment at new treatment system alternative	✓	✓	+ +	+ +	-	-	$19,289,931	$26,519,632	$40,464,350


Groundwater Study Area
Operable Unit 3 (OU3)
Olin Chemical Superfund Site
Wilmington, Massachusetts
N
W
E
S
Scale 1 : 17,000
Feet
0
2,520
EPA
CROSS STREET
LOWELL STREET/RTE 129
MARION STREET
STREET
WILMINGTON
WOBURN
IAL WAY
PRESIDENTIAL WAY
Area: 1,450 Acres
Legend
Municipal Boundaries
Olin Property
Groundwater Study Area
Groundwater Study Area (V
Groundwater Study Area (V
USGS, FAO, NPS, NRCAN,
China (Hong Kong), (c)

Final Action – LNAPL and Surface Water Alternative 3

LNAPL/SW-3: Demolition of Plant B, MPE for LNAPL, targeted groundwater extraction to prevent discharge to surface water, on-site treatment at new treatment system

Note:
Well placement may be modified during the remediation design phase



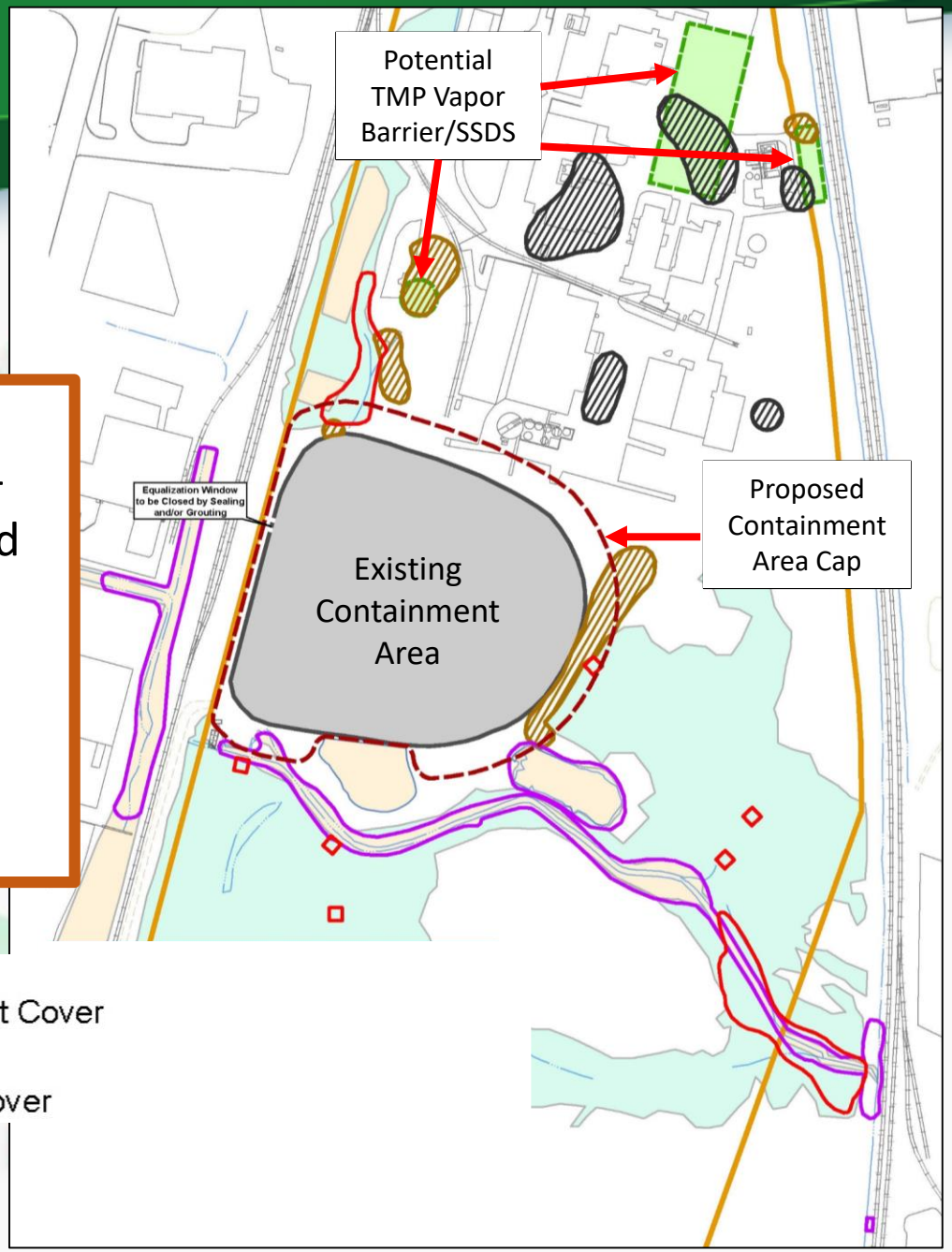
Final Action – LNAPL and Surface Water

✗ Fails	- - Poor
✓ Passes	- Fair
	+ Good
	+ + Very Good

ALTERNATIVES BY MEDIUM	Overall Protection of Human Health & the Environment	Compliance with ARARs	Long Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short Term Effectiveness	Implementability	Cost		
							Capital Cost	O&M Cost	Total (Net Present Value)
Alternative LNAPL SW 1: No action alternative	X	X	N/A	N/A	-	+ +	$0	$0	$0
Alternative LNAPL/SW 2: MPE for LNAPL with treatment at Plant B, groundwater extraction to prevent discharge to surface water, on site treatment at new treatment system alternative	✓	✓	-	+	-	+	$4,638,520	$6,534,000	$9,005,134
Alternative LNAPL/SW 3: Demolition of Plant B, MPE for LNAPL, targeted groundwater extraction to prevent discharge to surface water, on site treatment at new treatment system alternative	✓	✓	+	+ +	+	+ +	$2,278,032	$7,356,000	$6,644,452
Alternative LNAPL/SW 4: Excavation of LNAPL with off site disposal, PRB to treat groundwater before discharge into surface water	✓	✓	+ +	+	- -	-	$5,313,855	$6,726,091	$8,976,238

Final Action –
Soil and Sediment Alternative 2

Soil/Sed-2: Containment Area cap, upland soil covers, excavation with off-site disposal and restoration of wetland soil and sediments, limited action for TMPs (Institutional Controls, including vapor intrusion evaluations or vapor barriers/sub-slab depressurization systems) alternative



Final Action – Soil and Sediments

✕ Fails - - Poor
✓ Passes - Fair
+ Good
+ + Very Good

ALTERNATIVES BY MEDIUM	Overall Protection of Human Health & the Environment	Compliance with ARARs	Long Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short Term Effectiveness	Implementability	Cost		
							Capital Cost	O&M Cost	Total (Net Present Value)
Alternative SOIL/SED 1: No action alternative	X	X	N/A	N/A	-	+ +	$0	$0	$0
Alternative SOIL/SED 2: Containment Area cap, upland soil covers, excavation with off site disposal and restoration of wetland soil and sediments, limited action for TMPs (Institutional Controls, including vapor intrusion evaluations or vapor barriers/sub slab depressurization systems) alternative	✓	✓	+	-	+	+ +	$5,614,205	$1,127,600	$6,072,515
Alternative SOIL/SED 3: Containment Area cap, excavation (0 1 ft) with off site disposal and clean soil cover for upland soil, excavation with off site disposal and restoration of wetland soil and sediments, air sparging and SVE for TMPs alternative	✓	✓	+	-	-	+	$6,686,227	$1,522,200	$7,470,417
Alternative SOIL/SED 4: Excavation (0 10 ft) with off site disposal and clean soil cover for Containment Area and upland soil, excavation with off site disposal and restoration of wetland soil and sediments, excavation and off site disposal for TMPs alternative	✓	✓	+ +	+ +	- -	+	$34,045,584	$330,400	$34,174,675

Submitting Comments on the Proposed Plan:

Comments may be submitted directly to EPA during the 30-day public comment period from **Wednesday, August 26, 2020** to **Friday, September 25, 2020**.

Comments may be submitted via:

1. **Mail** - must be postmarked no later than **Friday, September 25, 2020** and sent to:

   Melanie Morash
   U.S. EPA Region 1 – New England, Mail Code 7-4
   5 Post Office Square
   Boston, MA 02109-3912

2. **E-mail** - sent no later than **Friday, September 25, 2020** to Melanie Morash at morash.melanie@epa.gov.
3. **Phone** – call the dedicated voice mailbox at (617) 918-1880 to leave an oral comment
4. **Virtual Public Hearing** - **Tuesday, September 22, 2020**

EPA will consider and respond in writing to all written and oral comments received during the public comment period, prior to the selection of a final cleanup plan in the Record of Decision (anticipated by the end of 2020).

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