Reserve Silica Reclamation Site

Draft Remedial Investigation Report

Public comment period: May 1 to 30, 2025

Public meeting: May 7, 2025

Welcome to the Reserve Silica Reclamation Site Public Meeting

Alan Noell
Environmental Engineer

Tim O'Connor
Hydrogeologist

Chris Martin
Hydrogeologist

Megan Rounds
Facilitator

Nancy Lui
Public Outreach Specialist

Dave Bennett
Media Relations

Also Joining as Panelists

Jerome Cruz
Public Health –
Seattle & King County

Yolanda Pon
Public Health –
Seattle & King County

Travis Weide
Holcim (US) Inc.

Gary Zimmerman
WSP

Marisa Floyd
Reserve Silica Corporation

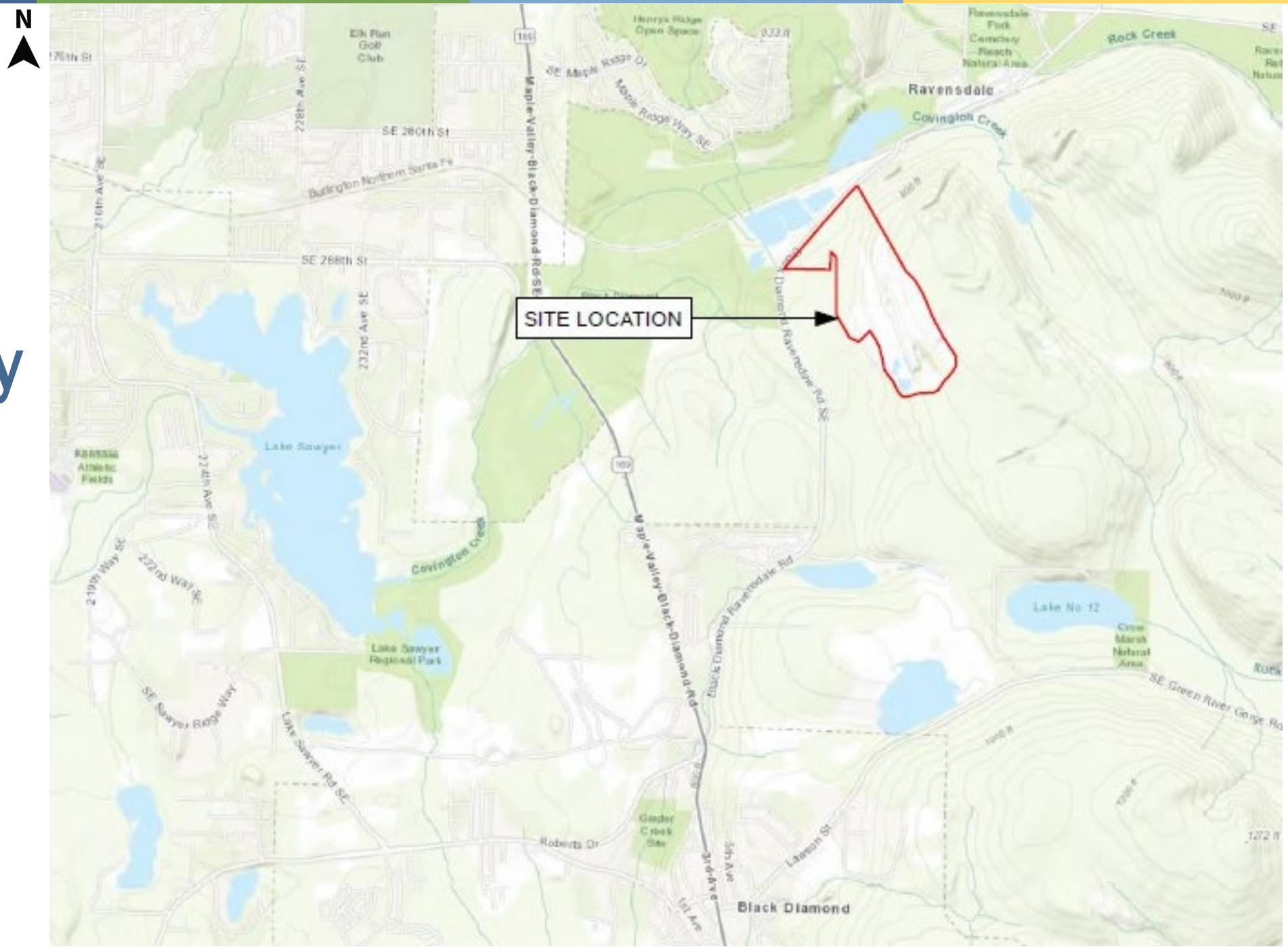
Frank Melfi, Jr.
Reserve Silica Corporation

Carla Brock
Aspect Consulting

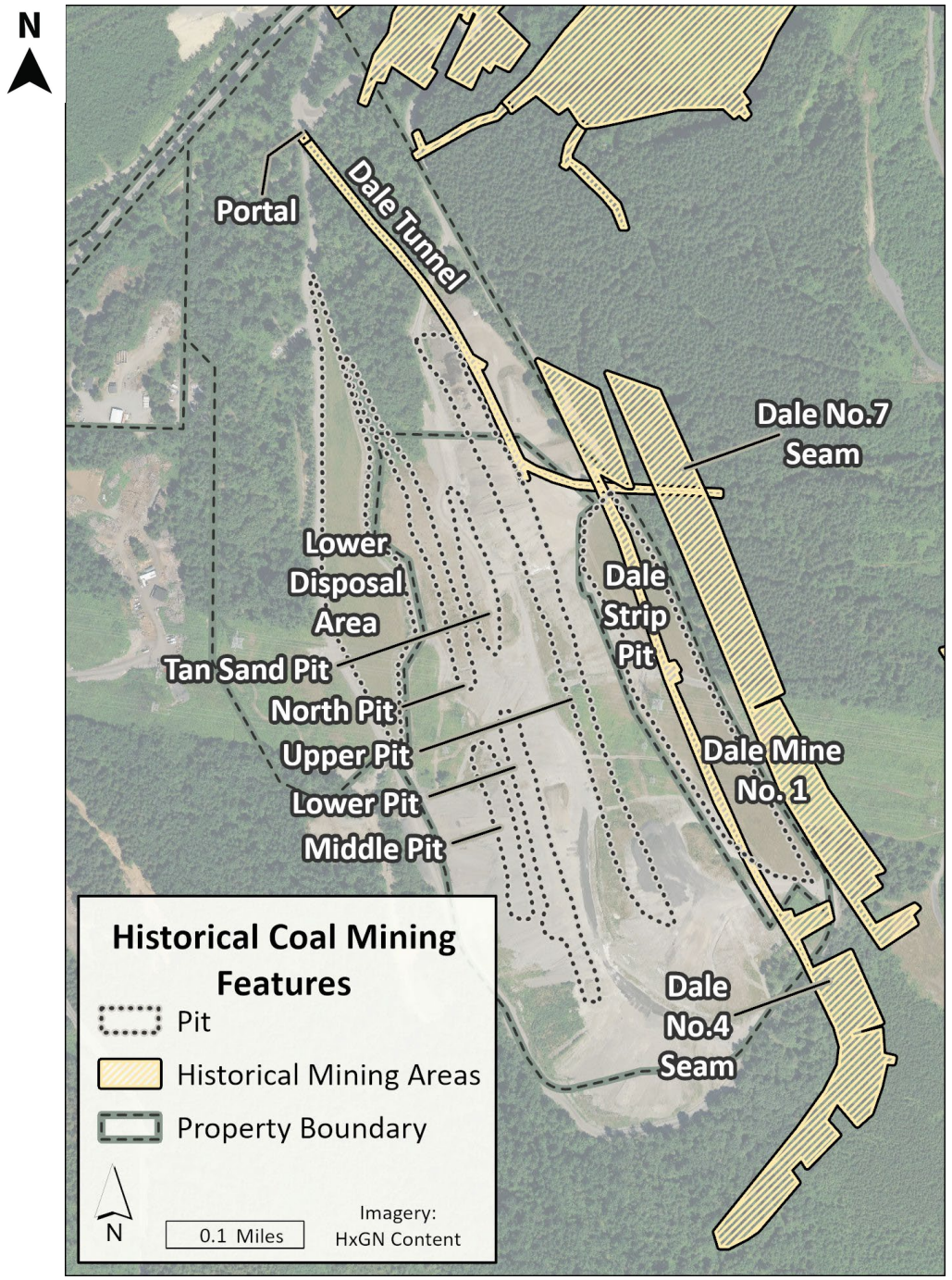
Agenda

- Mining & reclamation history
- Release of contamination & initial cleanup actions
- Permitting & cleanup authorities
- Remedial investigation findings
- Recommendations for feasibility study
- Next steps for public participation

Preliminary Site Boundary



Mining and Reclamation History



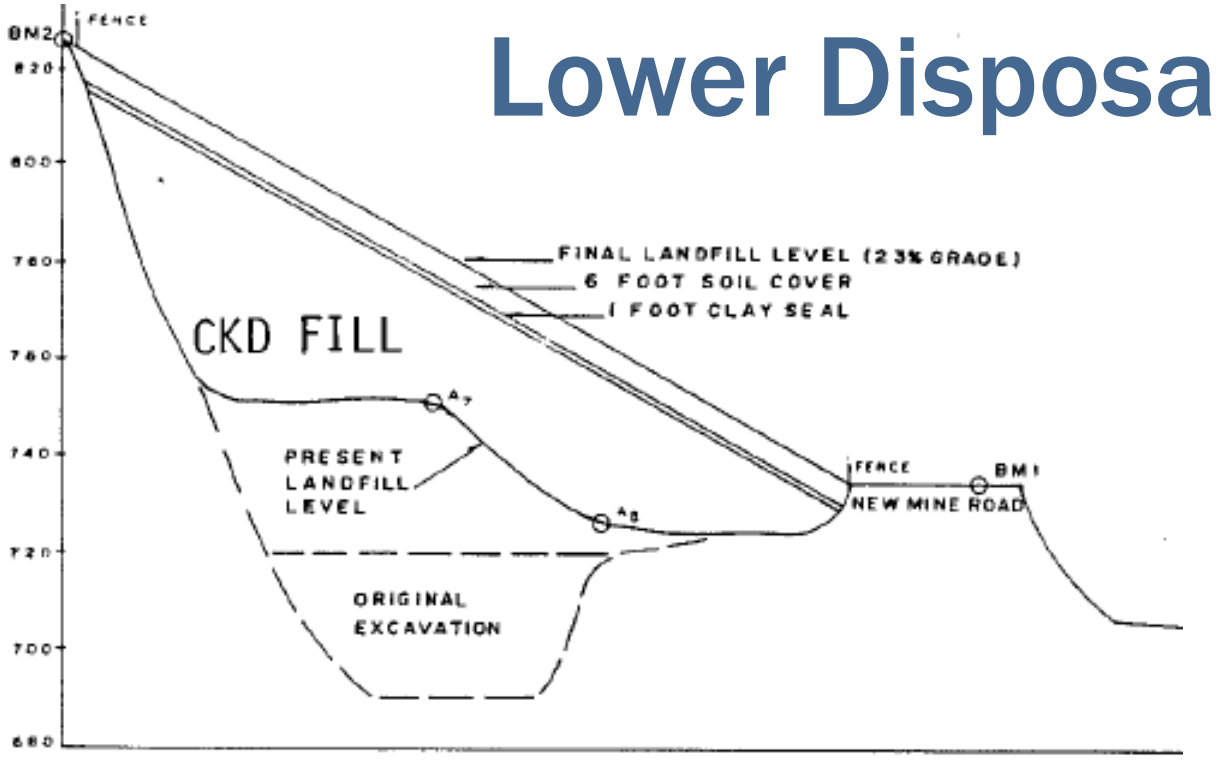
Reclamation fill

- Mine spoils
  - Non-economic rock
- Cement kiln dust
  - Waste product from cement industry
- Inert waste materials
  - Glass and ceramic materials produced from fired clay or porcelain
  - Cured concrete, asphaltic materials, brick and masonry, stainless steel & aluminum, hardy board
  - Clean soil
  - Excludes organic waste and non-cured concrete wastes

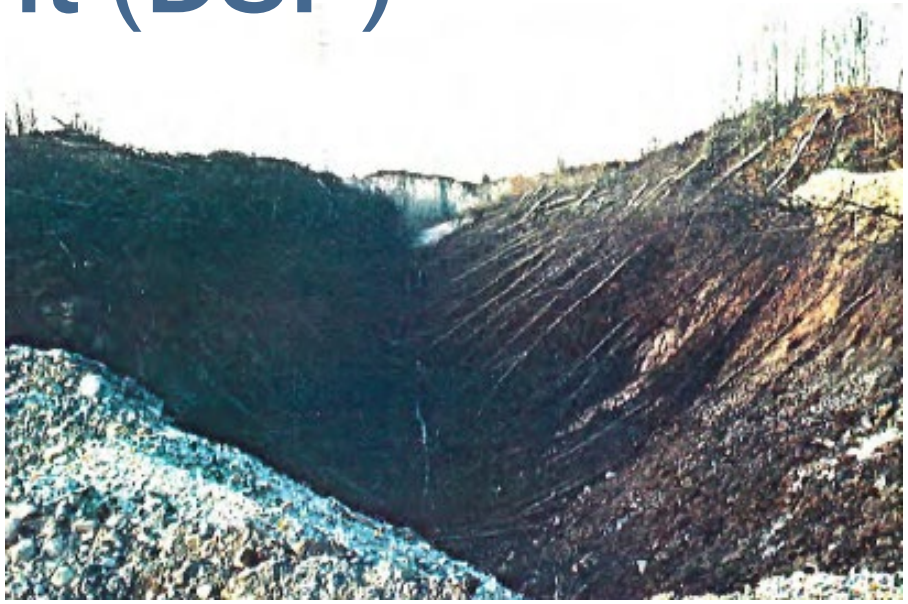
Cement kiln dust (CKD)

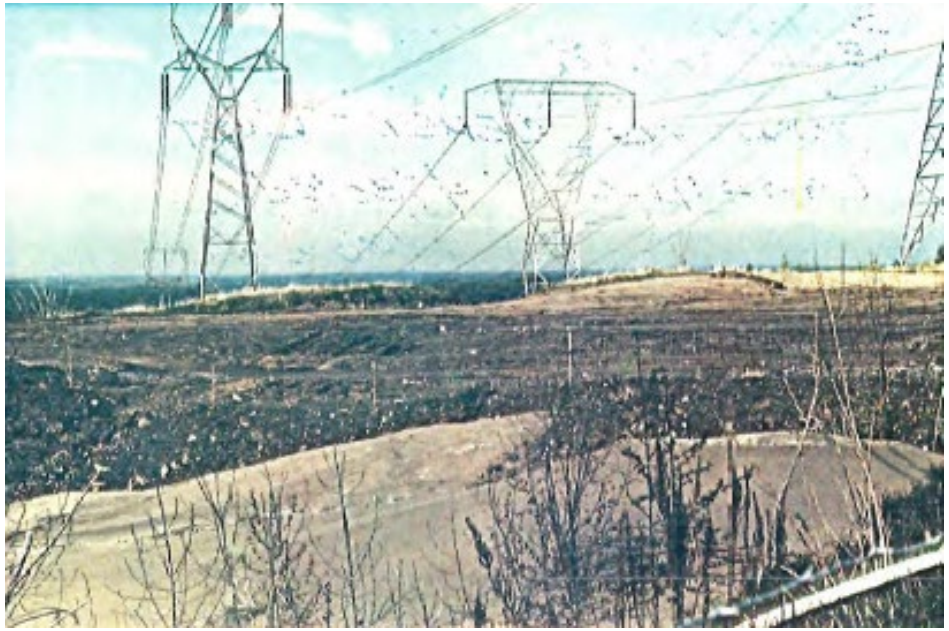
- Waste product from cement kilns
- Fine grained particles, primarily calcium and silica oxides, with concentrated alkalis and heavy metal impurities
- Generates caustic water (pH 12-13) when exposed to water
- Has ability to hydrate and harden
- Disposed in
  - Lower Disposal Area (1979 to 1982)
  - Dale Strip Pit (1982 to 1988)
- Resource Conservation and Recovery Act (RCRA) implementation

Lower Disposal Area (LDA)



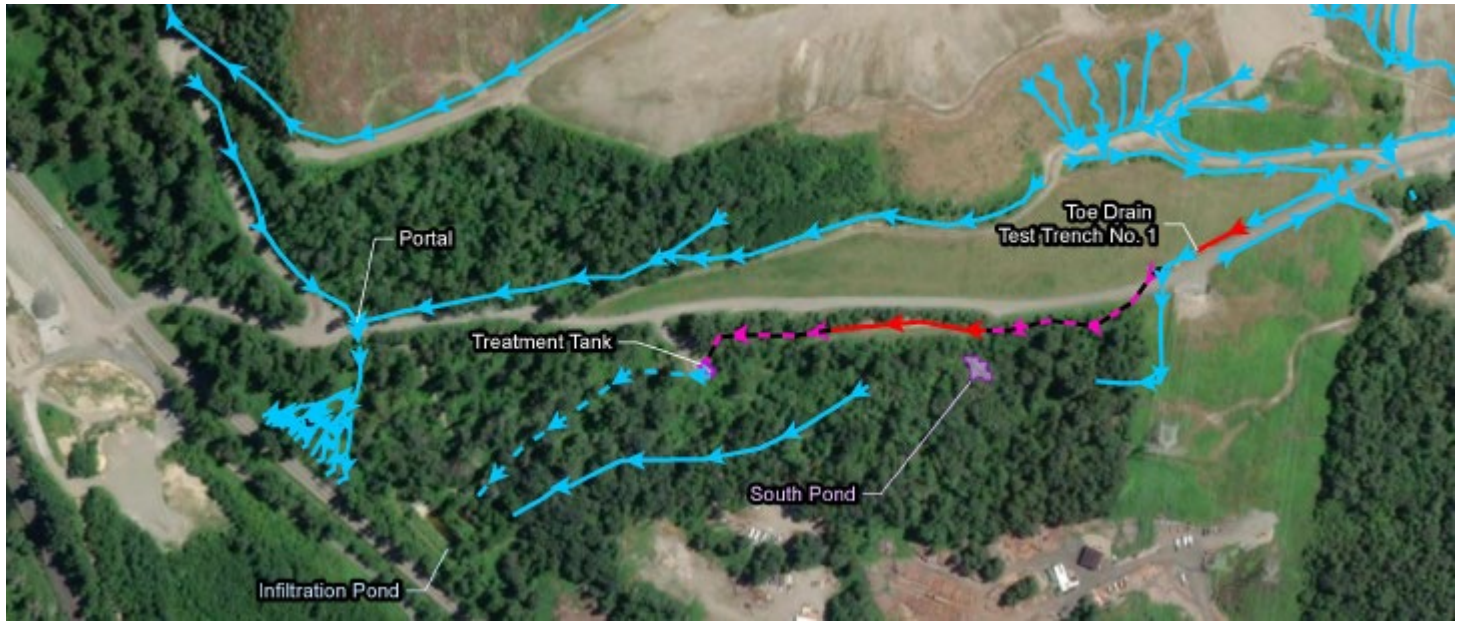
Dale Strip Pit (DSP)





Release of contamination

- Caustic seepage released from LDA since early 1980s.
  - Observed in South Pond.
  - Discharged overland through weir to Infiltration Pond.
  - Neutralized by groundwater.
- Mine water released from Dale Mine Portal.
  - Flows overland and infiltrates into recessional outwash formation.



Cleanup actions so far

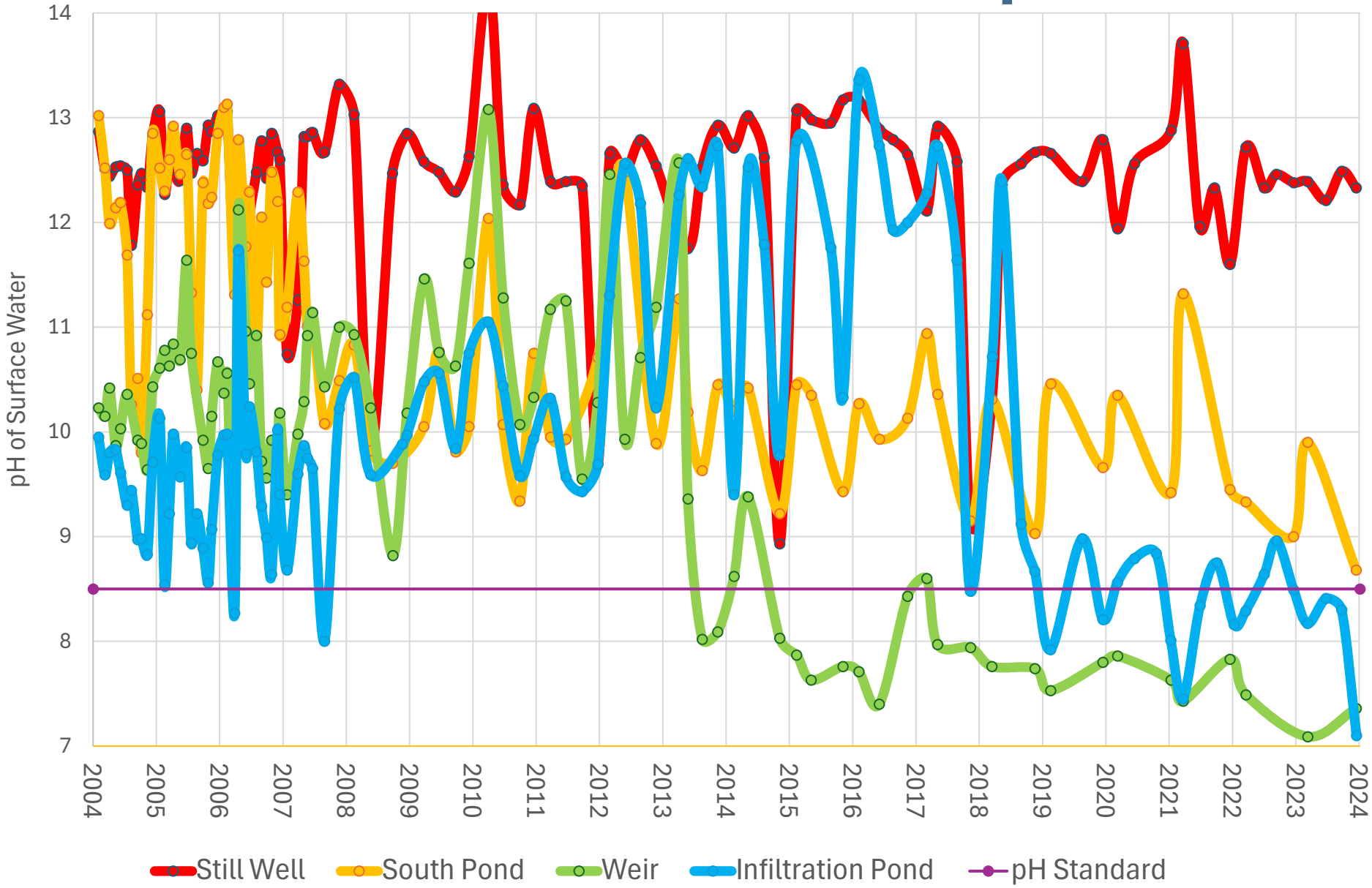
- Quarterly monitoring (2002-Present)
- Landfill cover upgrades (2007, 2010/2011)
- Seepage collection upgrades (2008-2015)
- Groundwater diversion (2013)
- Chain-link fencing (2017-2018)
- Seepage treatment (2018)


Construction of groundwater diversion trench at the southern boundary of Lower Disposal Area


Seepage treatment system that neutralizes the pH and lowers the concentrations of arsenic


Seepage collection ditch along the northwest side of the Lower Disposal Area

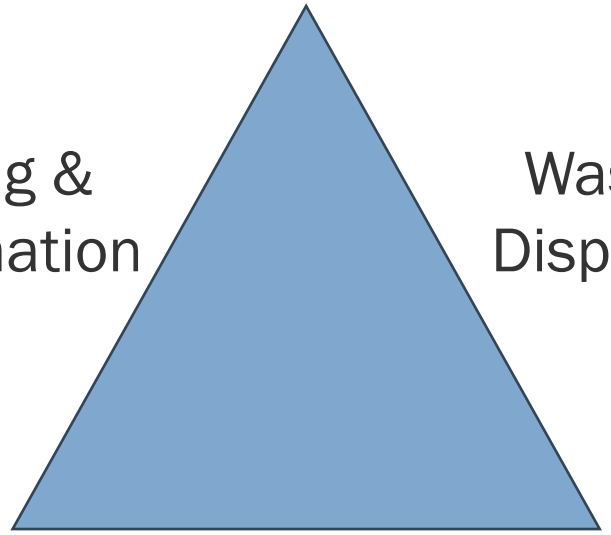
Interim Action Impacts



Sept 2007	LDA cover upgrade
Sept 2008	Seepage collection test trenches
Feb 2013	Seepage collection trench and pipeline
2015	Seepage pipe upgrade
Sept 2018	Seepage treatment initiated
2019	Continuous seepage treatment

Regulatory Authorities

Permitting



Cleanup

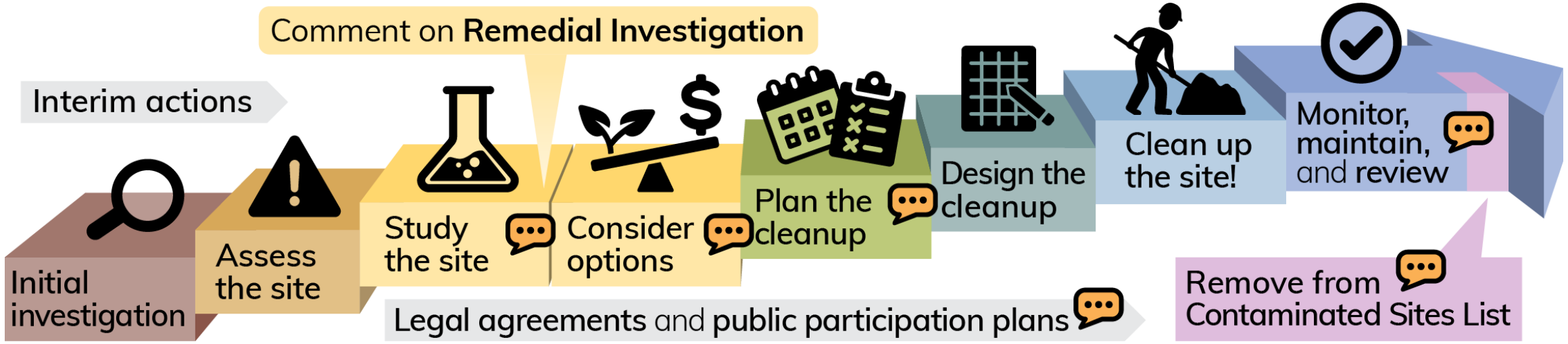
Reserve Silica Reclamation Site
https://apps.ecology.wa.gov/cleanupsearch/site/4728

Sand & Gravel General Permit
http://ecyapwq/paris/Reports/PermitDetailReport.aspx?PermitId=918458
State Waste Discharge Permit
http://ecyapwq/paris/Reports/PermitDetailReport.aspx?PermitId=926774

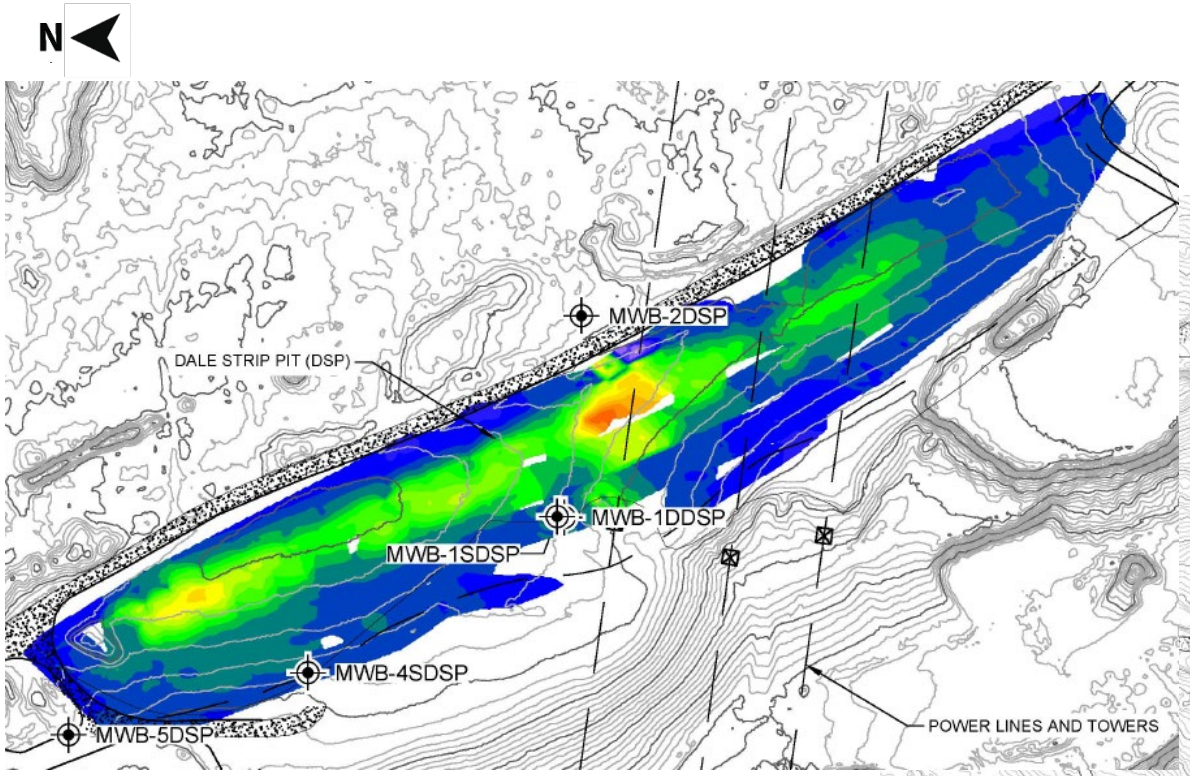
How they work together

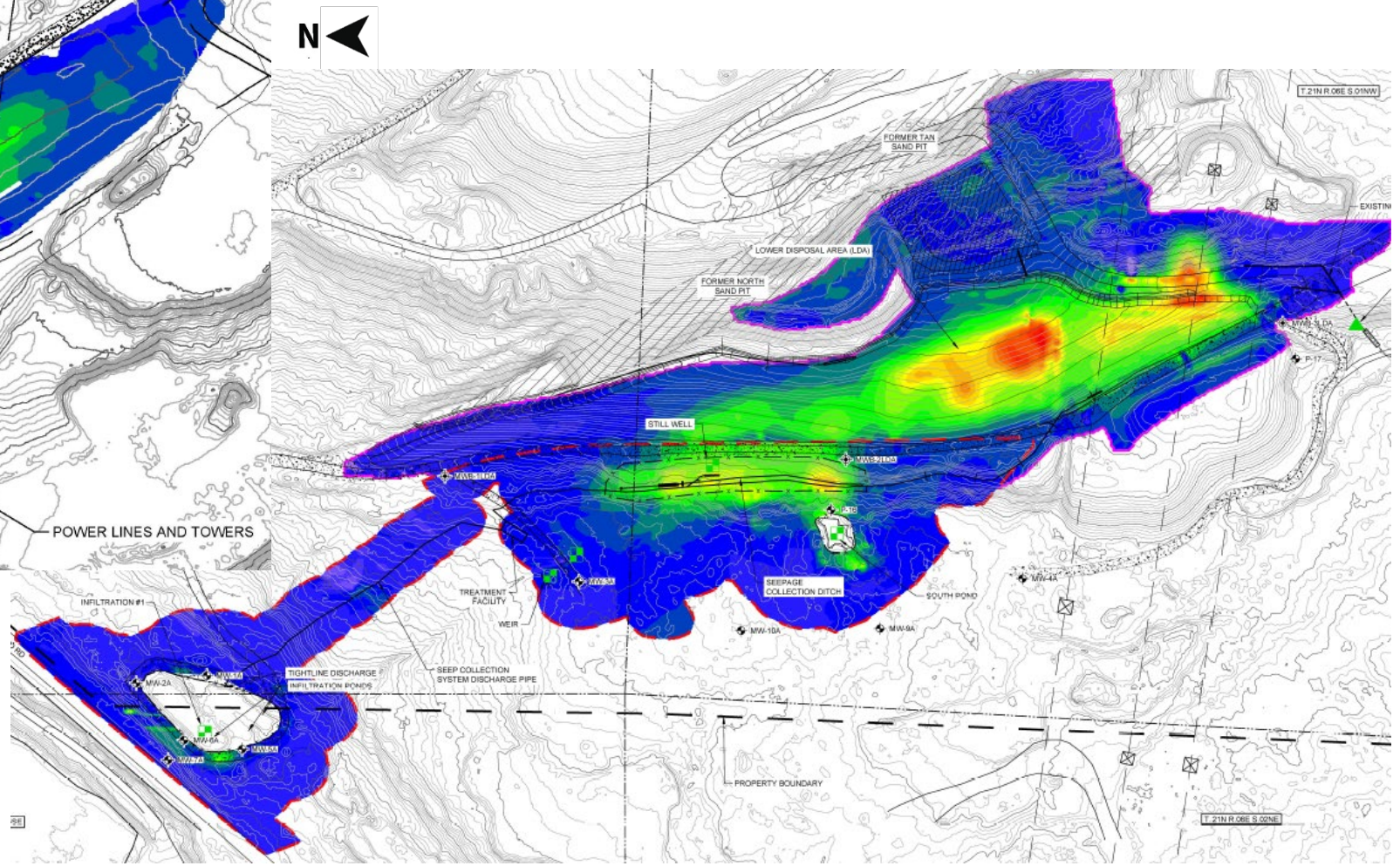
	Solid Waste Management	Cleanup
Regulation	Solid Waste Handling Standards (Limited Purpose Landfills) WAC 173-301 (1972-1985, repealed) WAC 173-304 (1985-2003) WAC 173-350-400 (2003 to Present)	Model Toxics Control Act Cleanup Regulations WAC 173-340
Purpose	Authorizes waste placement	Protects human health & the environment
Objective	Ensure waste containment	Cleanup releases of contamination
Provides	Facility management standards	Site cleanup standards
Types of standards	Location, operating, closure, post-closure care	Cleanup, investigation, remedy selection, public participation
Evolving standards	Superseding regulations, not retroactive	Retroactive
Responsible party	Owner or operator	Potentially Liable Persons (PLPs) Strict, joint & several liability

Formal MTCA Cleanup Process

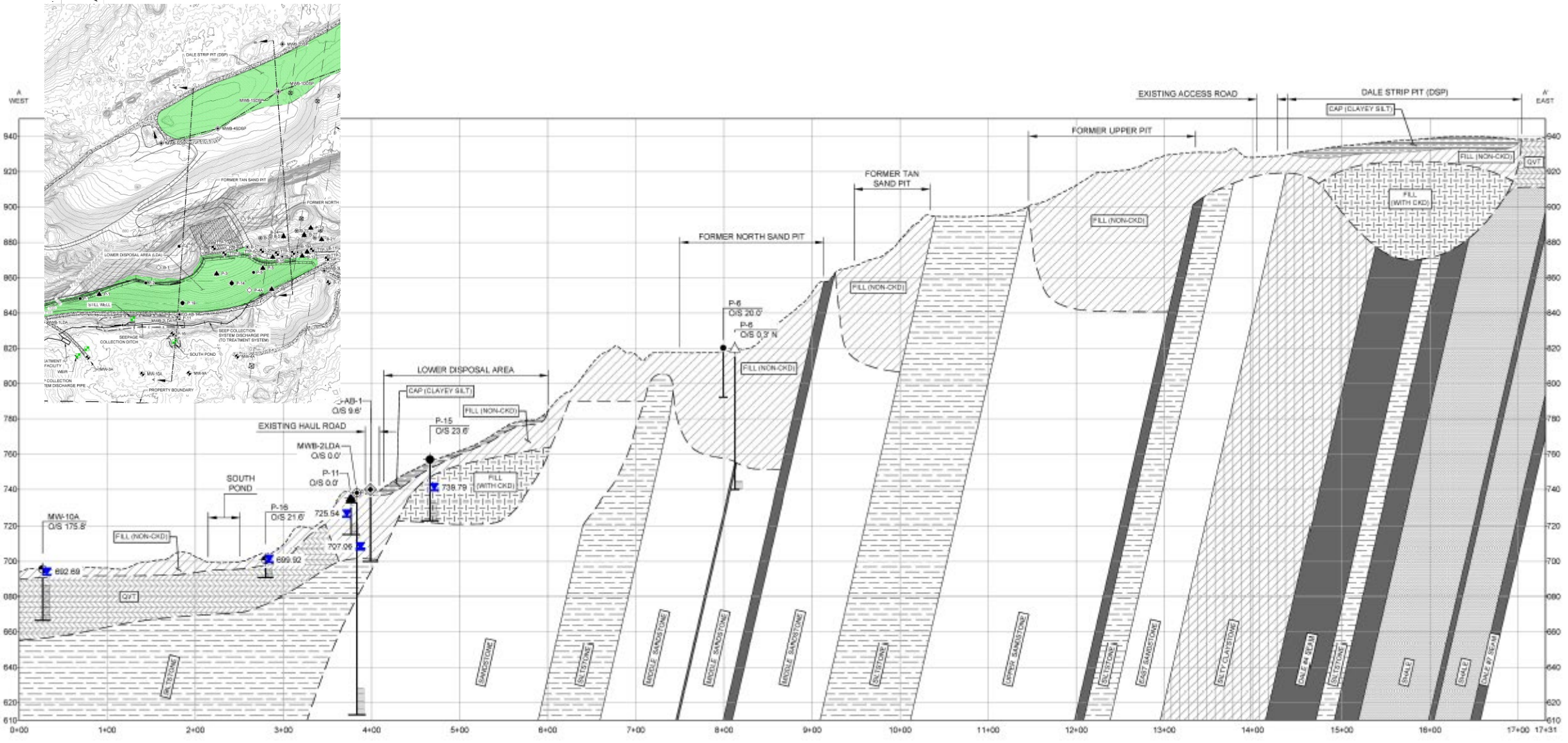


Electromagnetic (EM) Geophysics

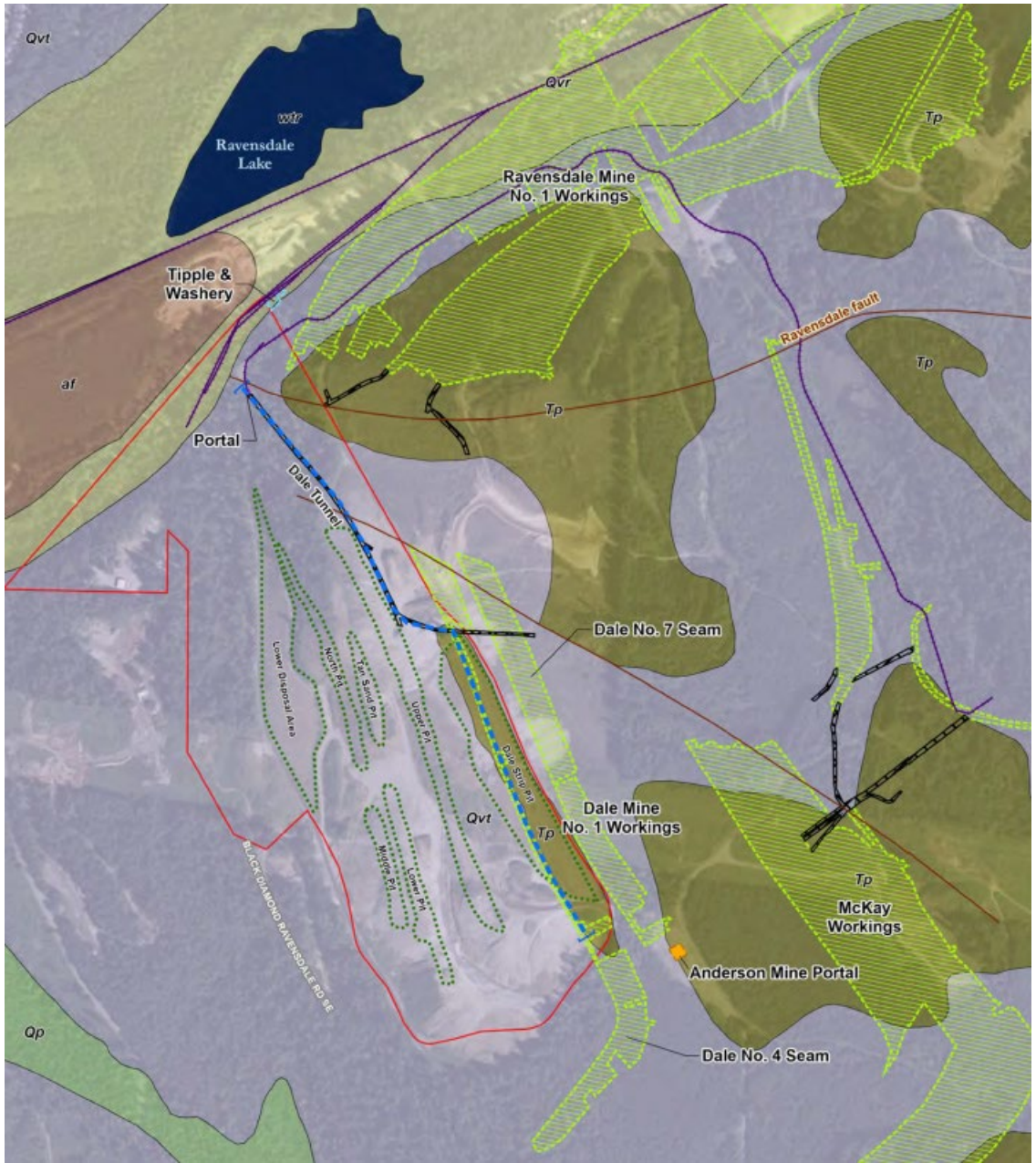




Groundwater & Hydrogeology



Geology & Hydrogeology



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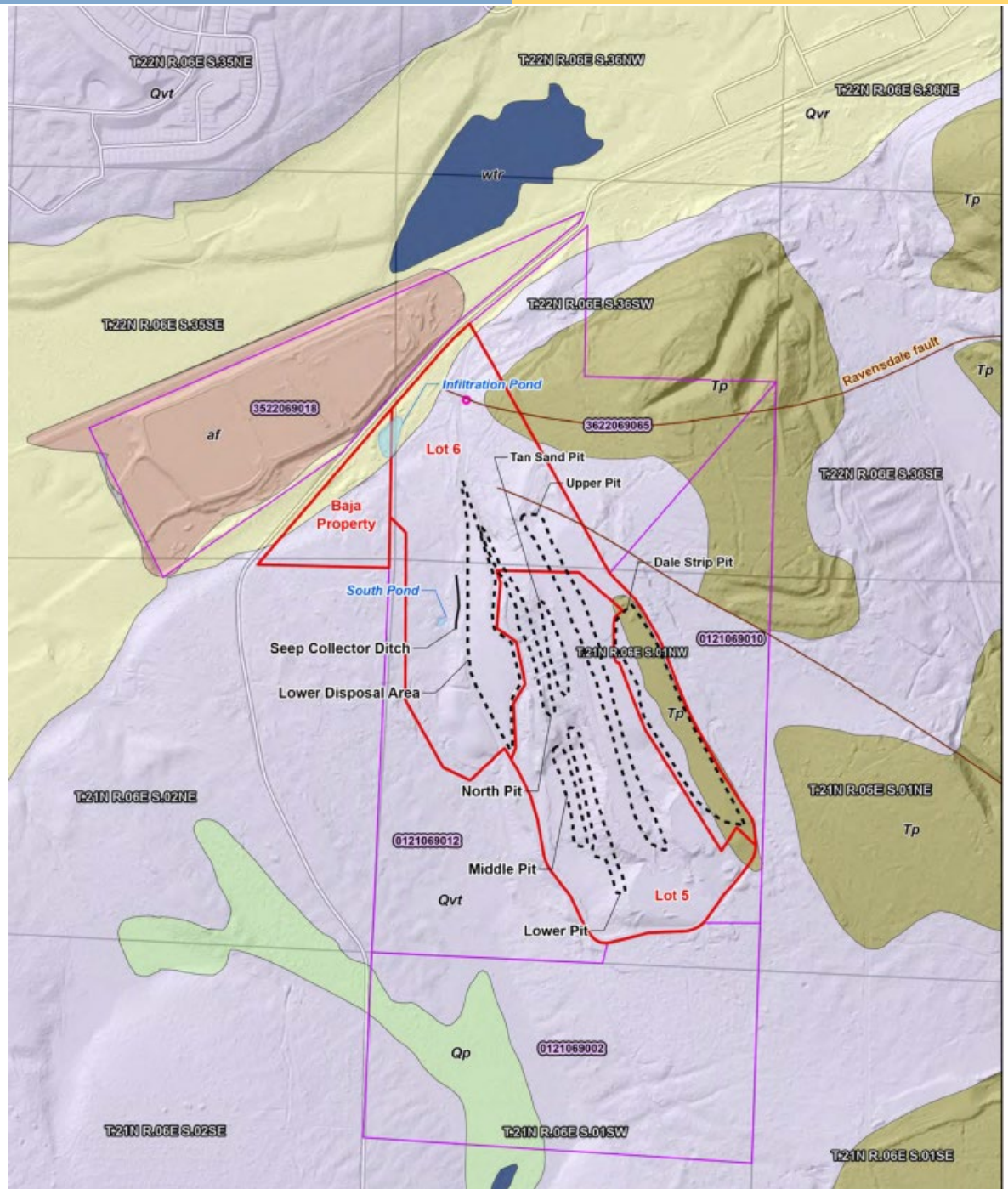
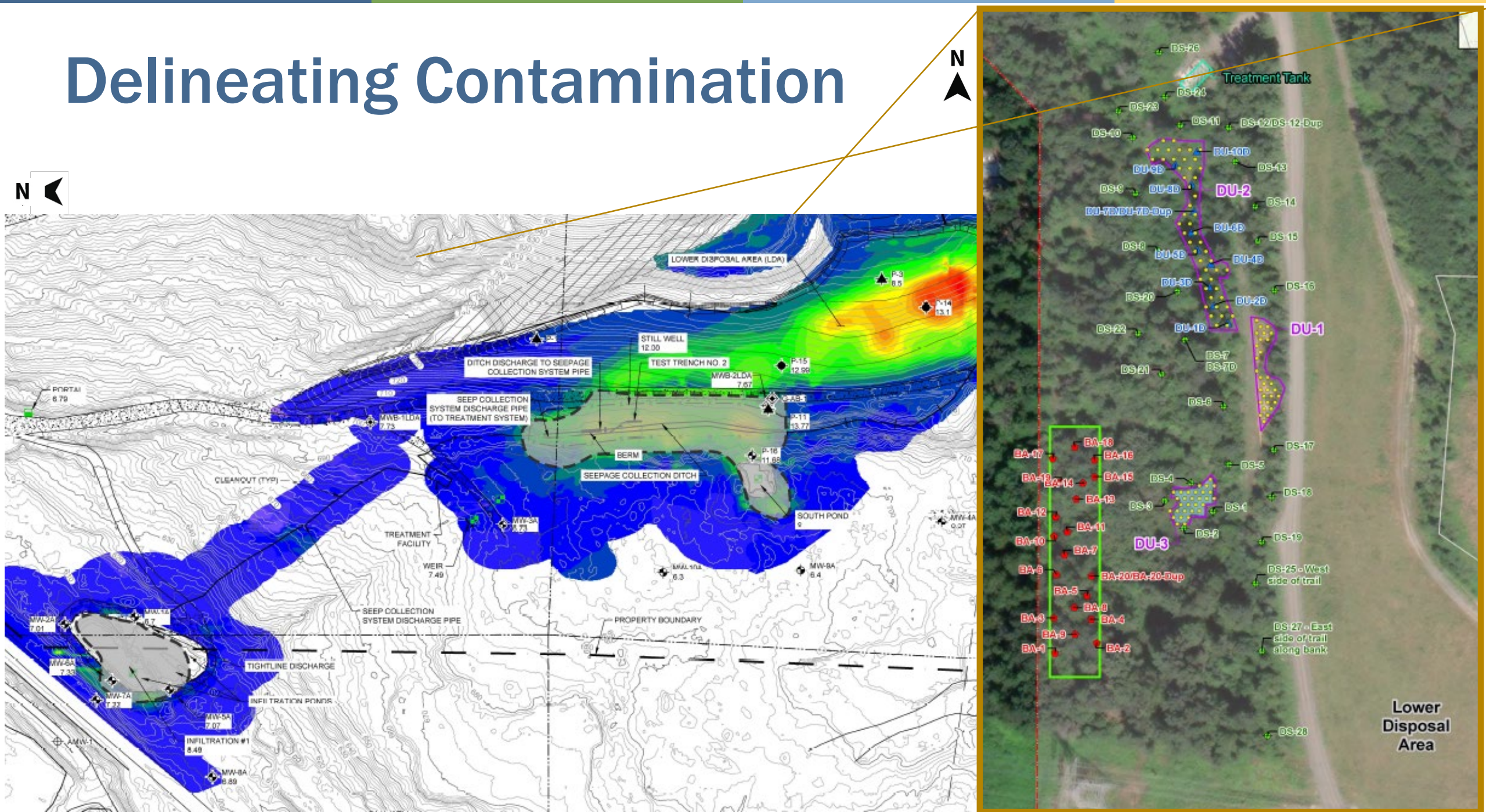


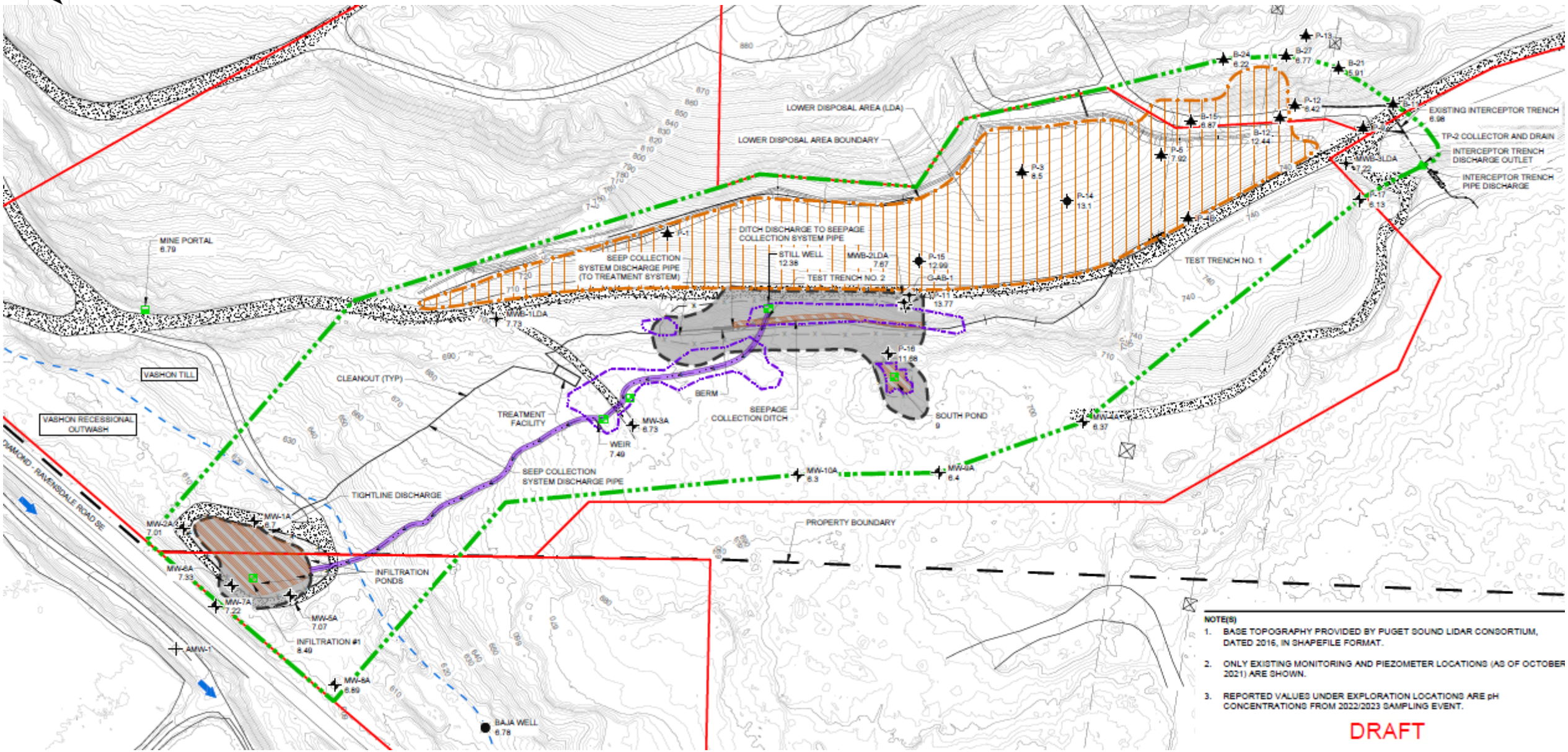
Cleanup Standards

- Contaminants of concern
  - Antimony, arsenic, lead, vanadium, pH
- Cleanup levels
  - Protective of exposure pathways
  - Groundwater, surface water, soil, and sediment
  - Adjusted for background
- Points of compliance
  - Groundwater point of compliance applies beyond the landfill boundary
  - Soil points of compliance for direct contact and ecological exposure

Delineating Contamination

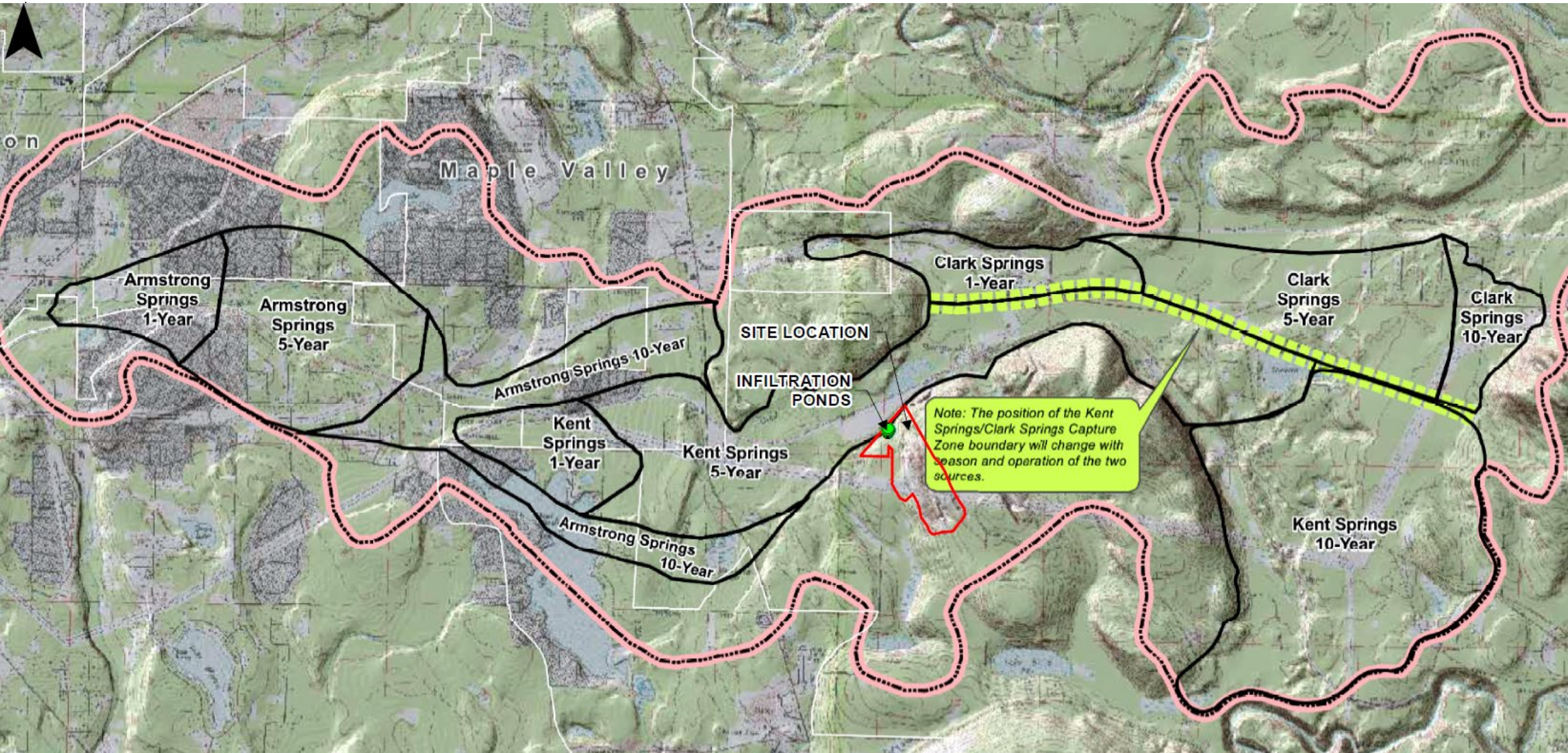


Site Boundary and Features



Wellhead Protection Area

DEPARTMENT OF ECOLOGY
State of Washington



Recommendations for Feasibility Study

- Source of contamination
  - Reduce groundwater flow into LDA
  - Reduce infiltration through LDA cover
  - Reduce, eliminate, and/or capture high pH seepage
- Treatment
  - Reliable and sustainable
- Dispersed contamination
  - Mitigate ecological and human health risks
  - Relevant and appropriate institutional controls
- Monitoring
  - Detection and attenuation
  - Communication

Next Steps under MTCA

- Public participation under MTCA
- Our website: https://apps.ecology.wa.gov/cleanupsearch/site/4728
- Public comment period
- How to comment
- Finalize Remedial Investigation Report
- Prepare Draft Feasibility Study and Draft Cleanup Action Plan and host public comment period.

How to Comment

May 1 - 30, 2025

Submit comments online

go.ecology.wa.gov/ReserveSilicaReclamationRIComments

SCAN ME

Submit by mail or email

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Thank you

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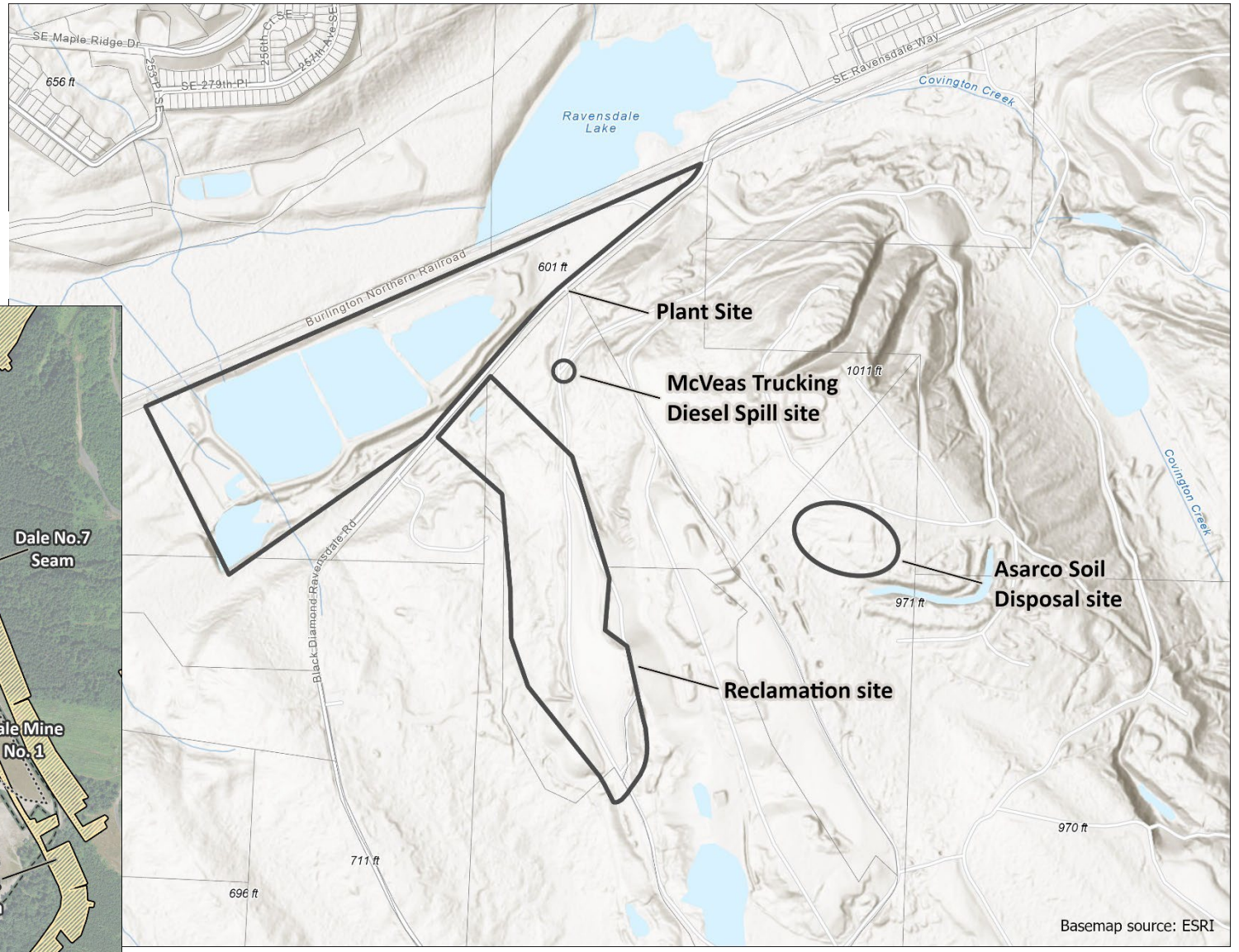
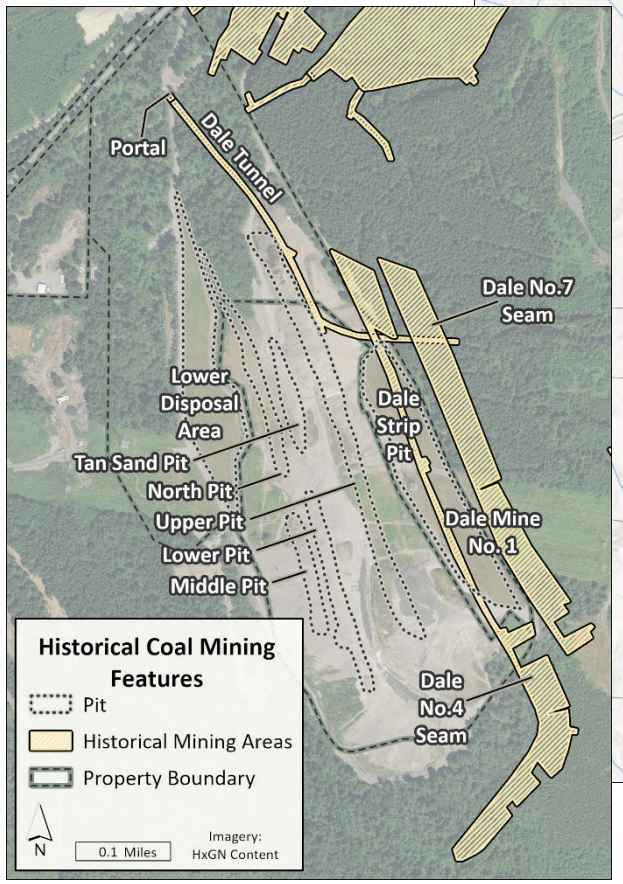
425-389-2695

Cleanup Sites on Reserve Silica Properties





- Reclamation site
  - Formal cleanup
- Plant site
  - Independent cleanup
- Asarco Soil Disposal site
  - No further action
- McVeas Trucking Diesel Spill site
  - No further action