

EHECTIC Meeting

September 30, 2015

**US Environmental Protection Agency
Montana Environmental Custodial Trust**



EHECTIC Meeting Agenda

Introduction

Betsy Burns, USEPA

CERCLA Update

Betsy Burns, USEPA

Construction Progress & Plans

Mark Rhodes, Hydrometrics

Groundwater Update—
Source Area Investigations

Bob Anderson, Hydrometrics

Redevelopment Activities

Cindy Brooks, Custodial Trust

Lewis & Clark County Update

Melanie Reynolds/Kathy Moore
Health Department and WQPD

Site Tour

Betsy Burns, USEPA
Mark Rhodes, Hydrometrics

East Helena CERCLA Overview

US EPA



East Helena Smelter Interim Measures Construction Progress & Plans



ICS2/ET COVER/ PHASE3 DEMOLITION

CONTRACTOR: ENVIROCON

BEGIN: 6/16/15

ANTICIPATED COMPLETION: 11/30/16



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PPC REALIGNMENT

CONTRACTOR: HELENA SAND AND GRAVEL

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East Helena Smelter Source Area Investigations and Groundwater Update

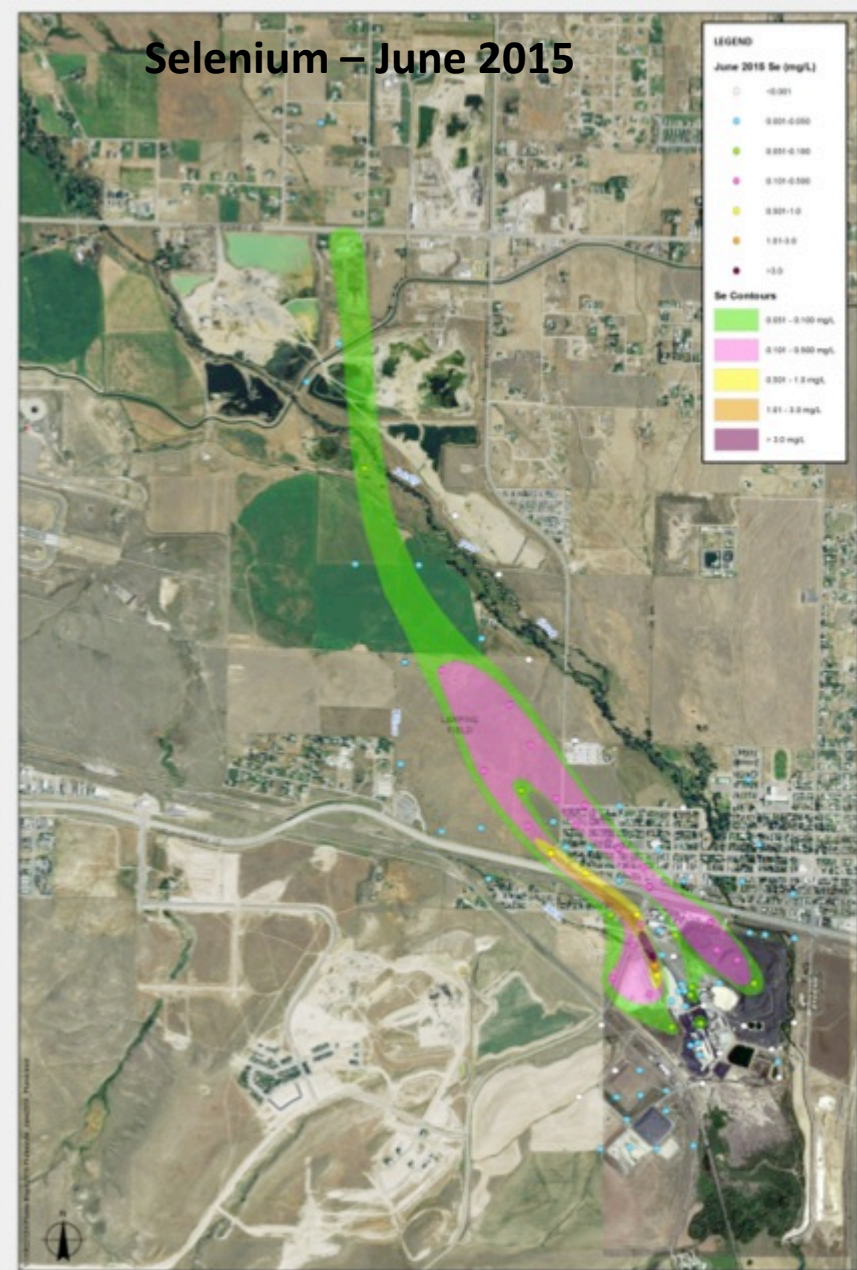
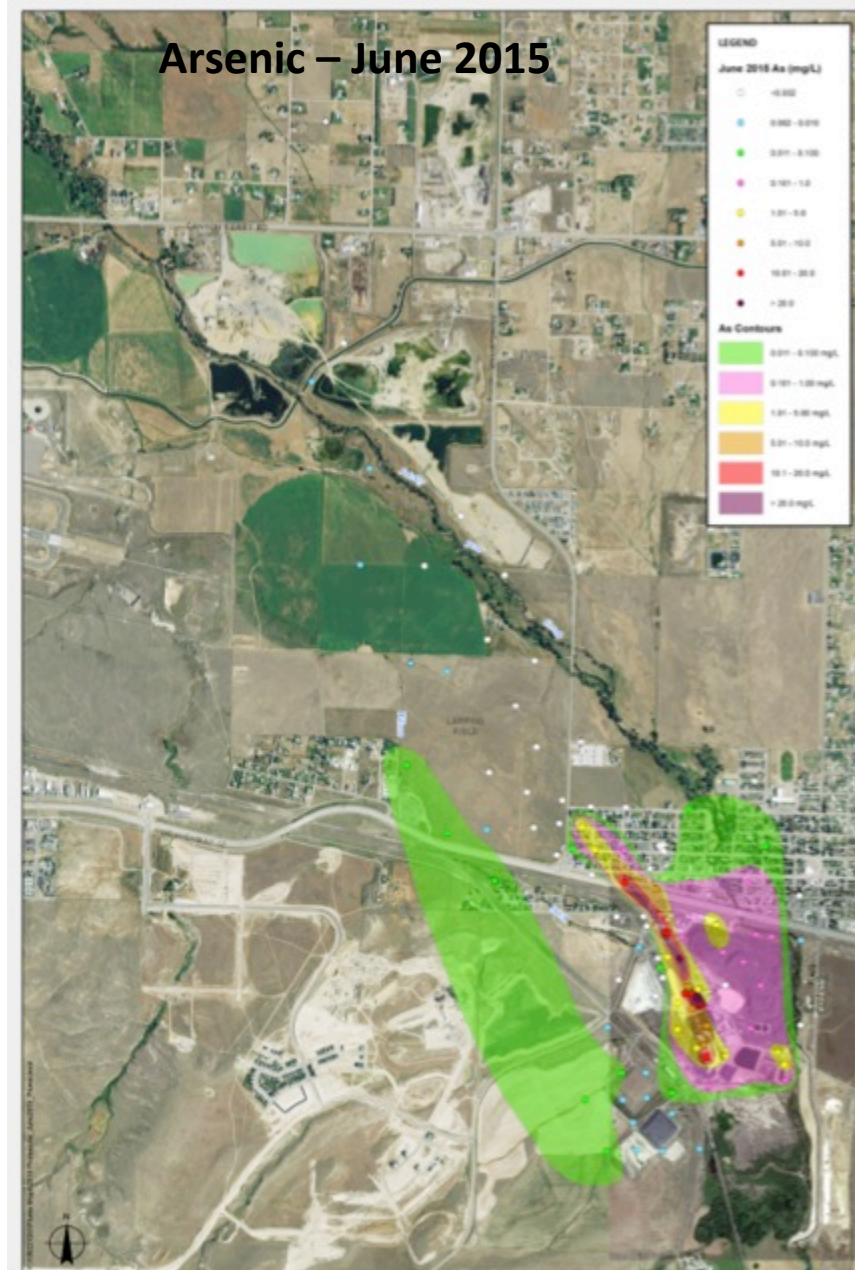




EAST HELENA GROUNDWATER UPDATE

- **Current Conditions/Recent Changes**
- **2014-2015 Source Area Investigation Scope and Results**

CURRENT ARSENIC AND SELENIUM PLUMES



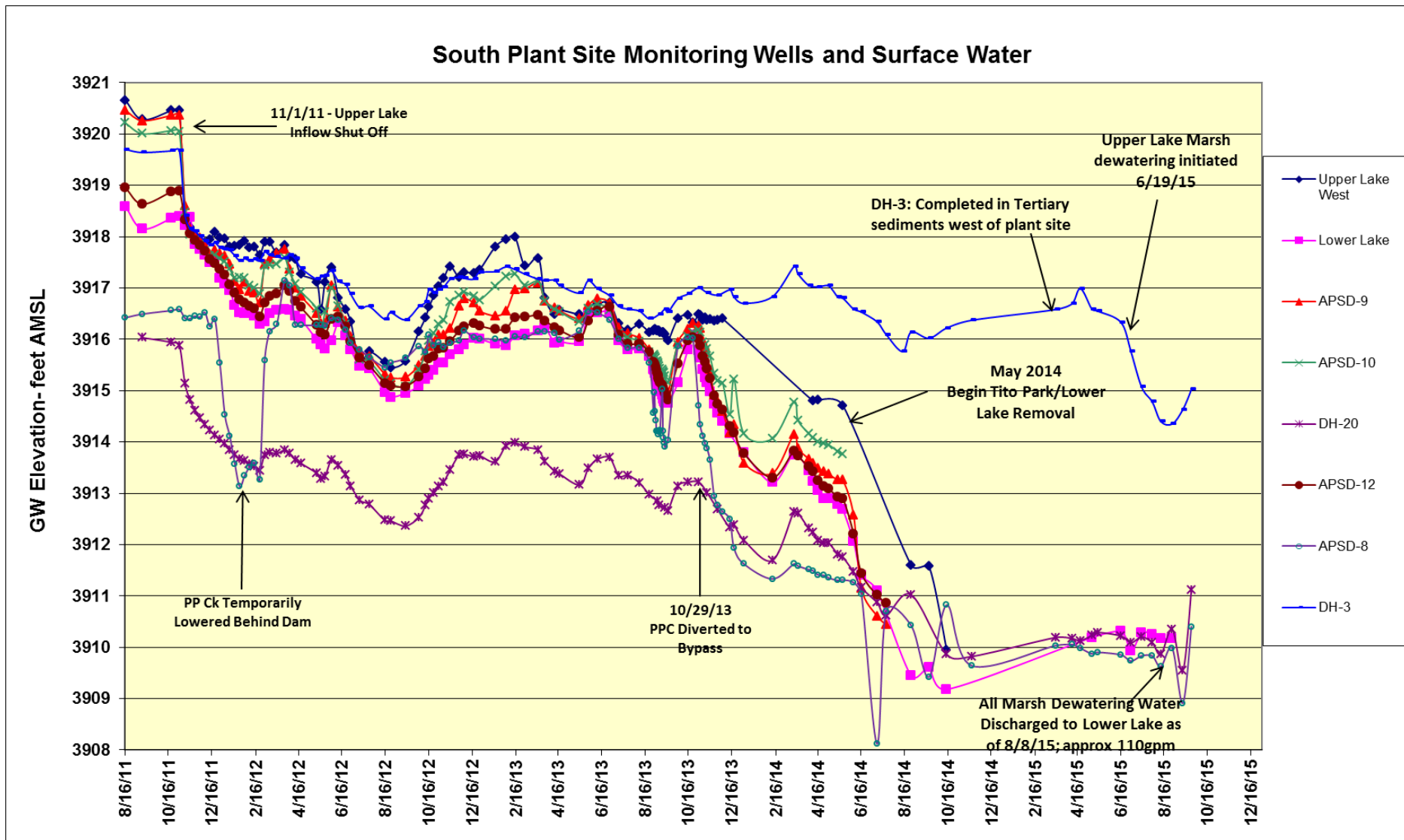
INTERIM MEASURES

- South Plant Hydraulic Control (SPHC)
- Source Removal (Tito Park Area)
- Evapotranspiration (ET) Cap

Key Activities Since 2010



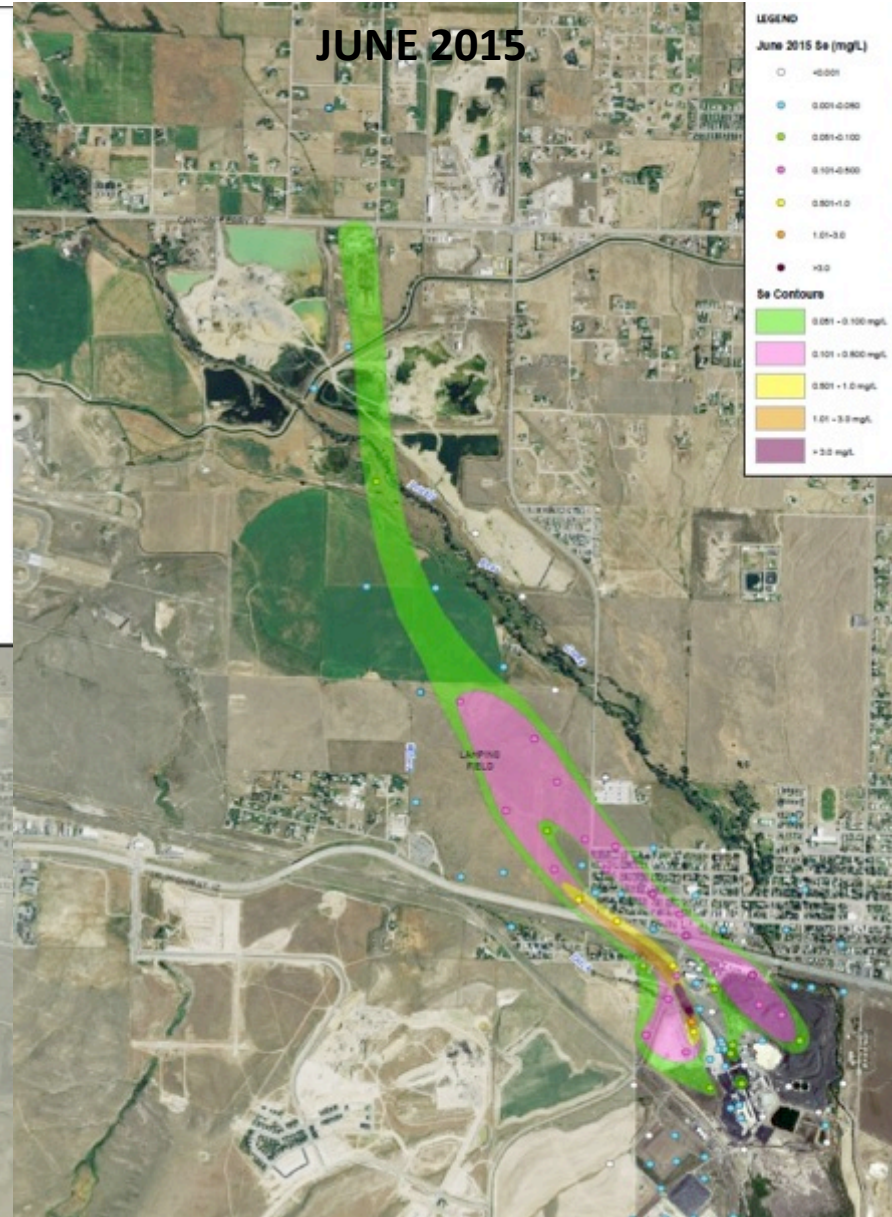
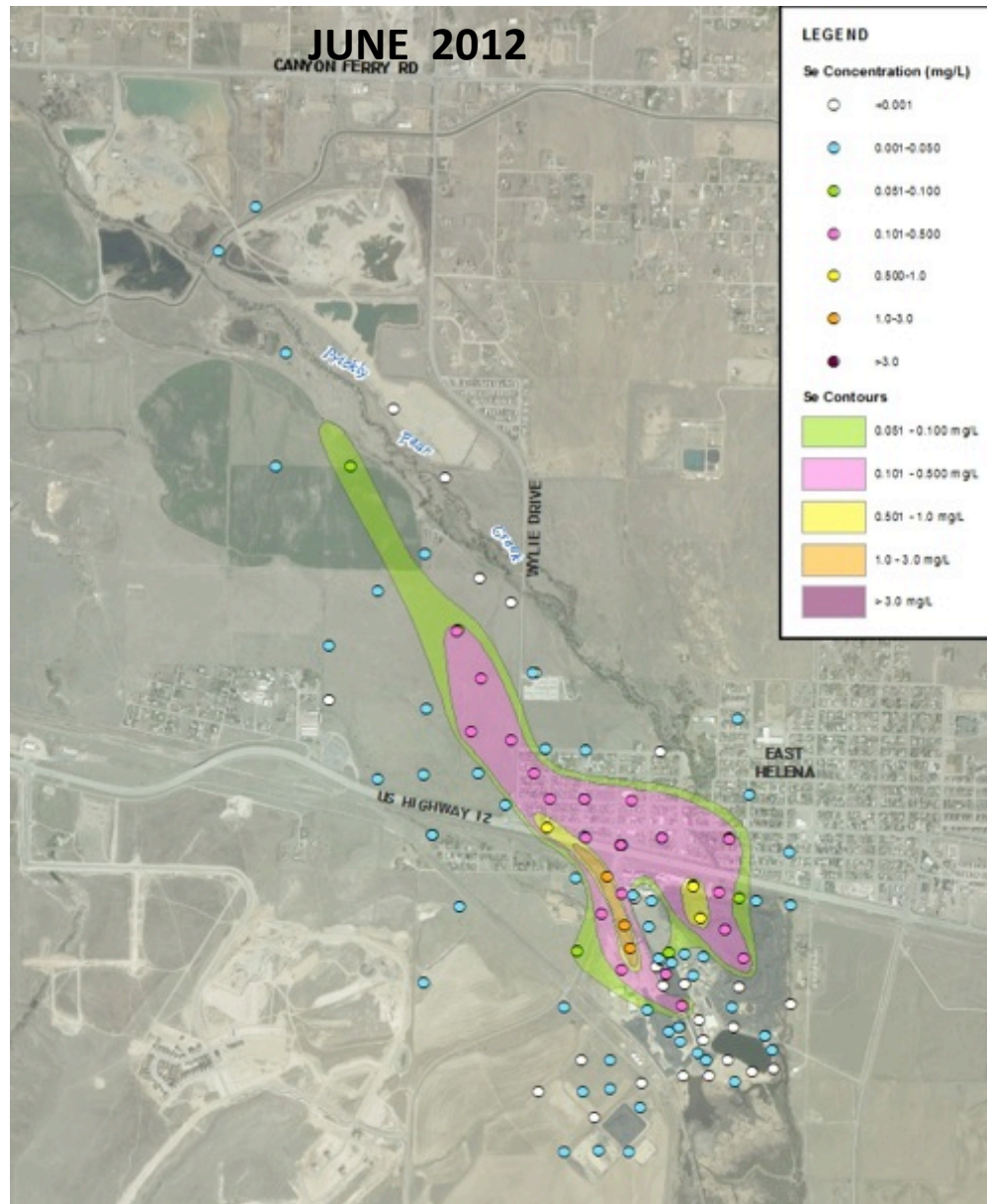
GROUNDWATER LEVEL TRENDS



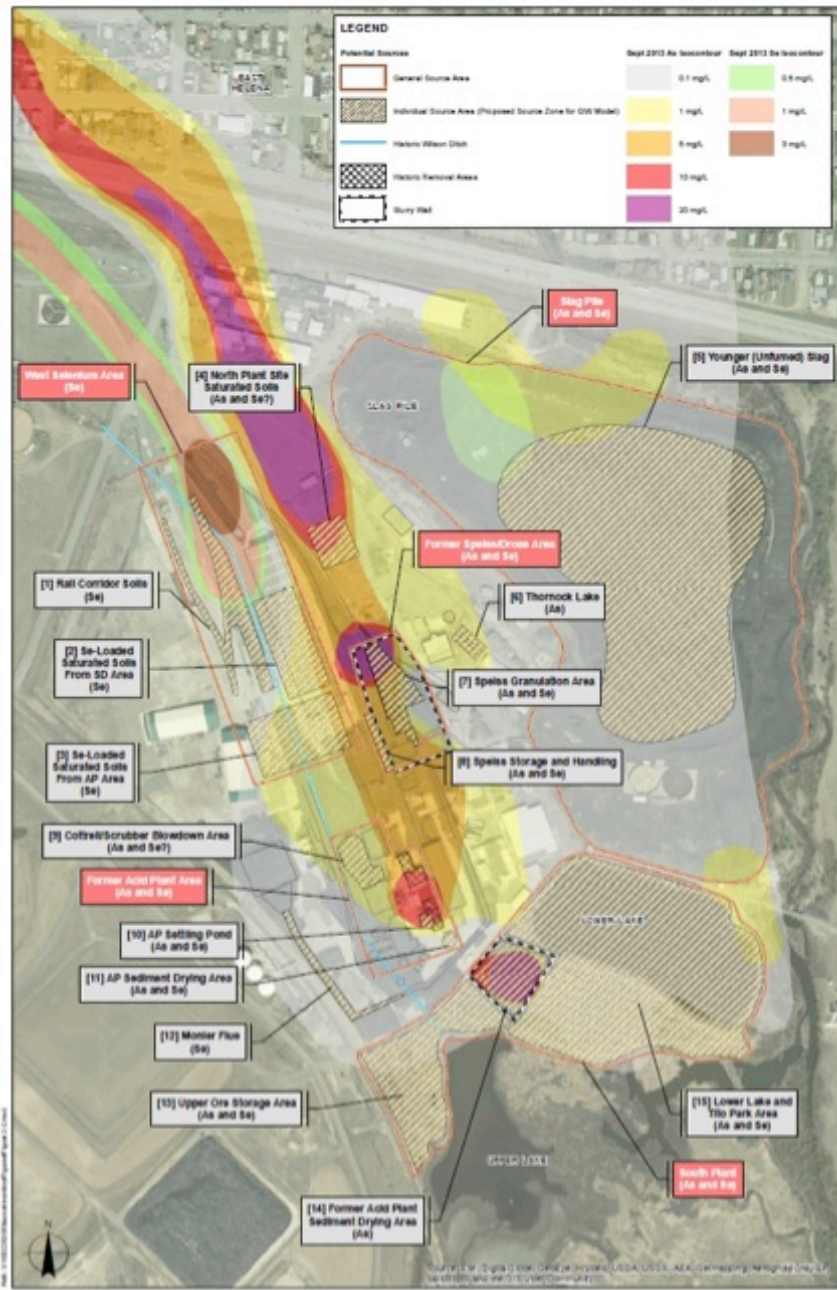


GROUNDWATER LEVEL TRENDS

SELENIUM PLUME TRENDS

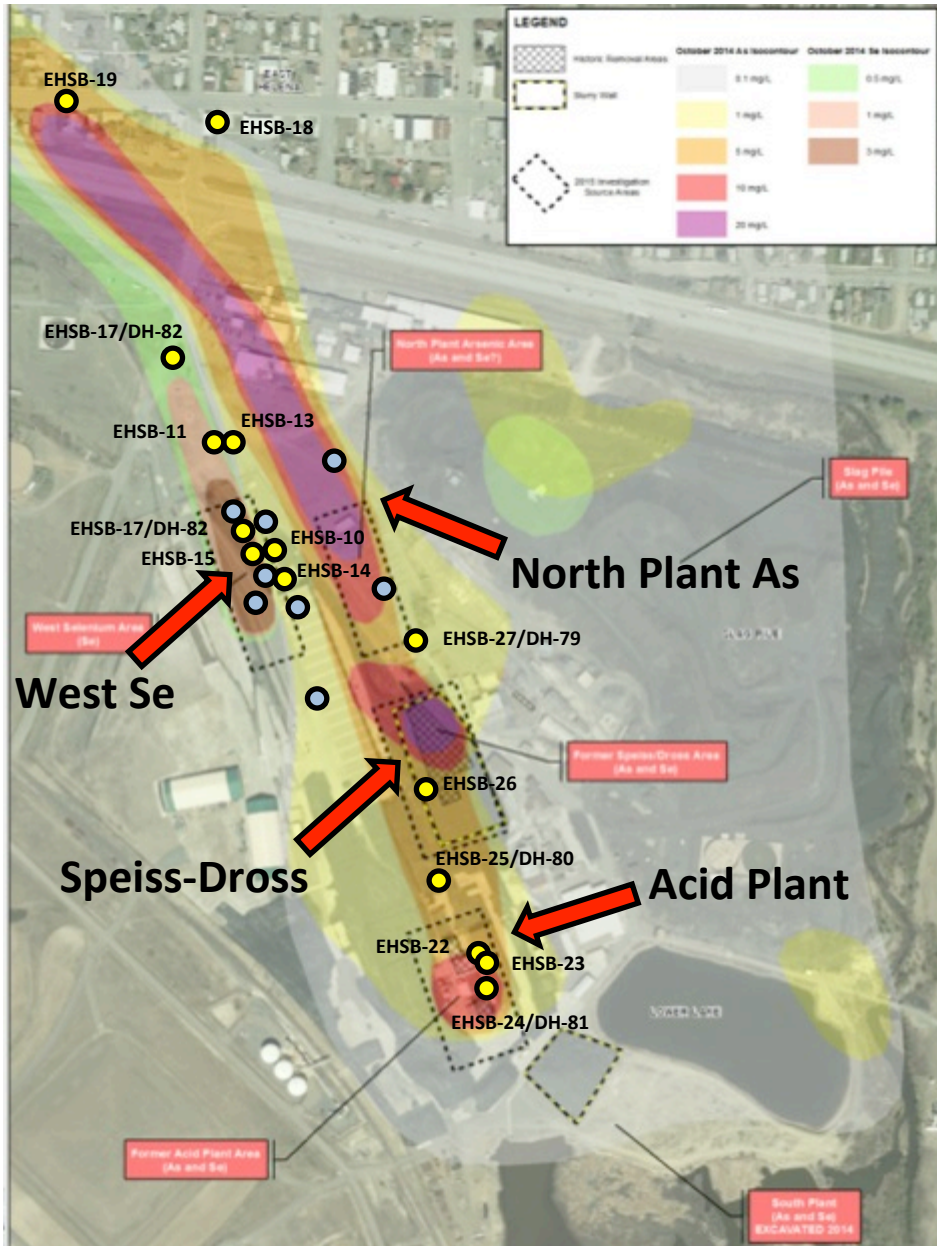


GROUNDWATER CONTAMINANT SOURCE INVENTORY



- Potential historic contaminant source areas and subareas identified through various site investigations since 1980s (RI/FS)
- Primary Areas Include:
 - Former Speiss-Dross Area
 - North Plant Site Arsenic Area
 - Former Acid Plant Area
 - South Plant Area
 - LOSA/West Selenium Area
 - Slag Pile

SOURCE AREA INVESTIGATIONS



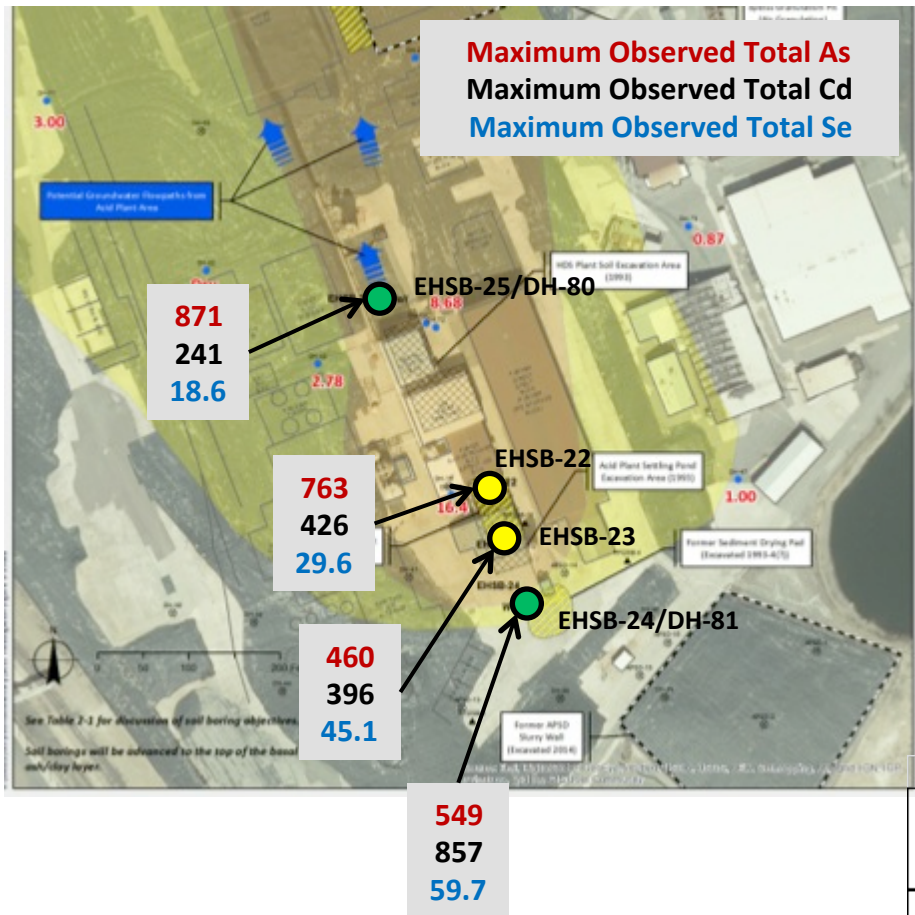
2014 Investigation

- **West Selenium Area**
 - 6 soil borings
 - 2 well completions
- **North Plant Arsenic Area**
 - 2 soil borings

2015 Investigation

- **West Selenium**
 - 7 borings
 - 2 well completions
- **North Plant Arsenic**
 - 2 borings
 - 0 well completion
- **Acid Plant**
 - 4 borings
 - 2 well completions
- **Speiss-Dross Area**
 - 2 borings
 - 1 well completion

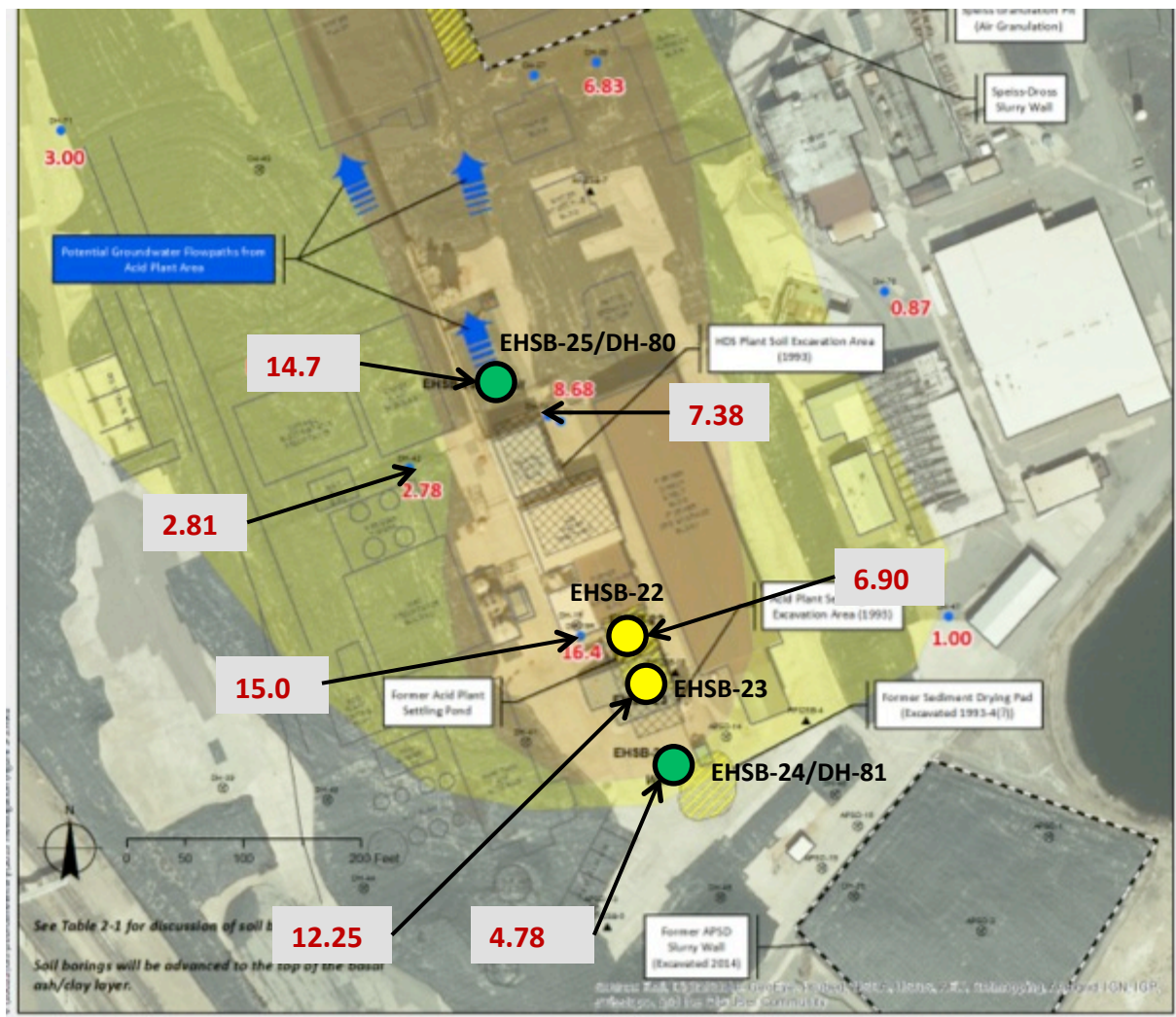
- 2014 Boring/Well
- 2015 Boring/Well



Acid Plant Area - Soils

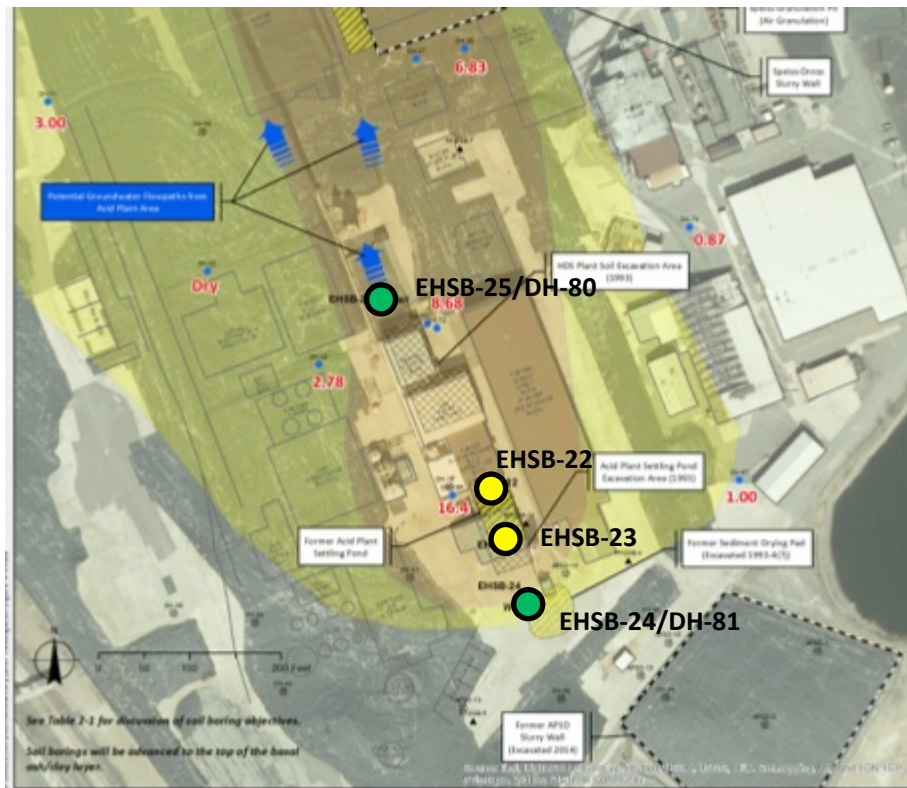
- Saturated zone As at EHSB-22, EHSB-23, EHSB-24 averages 150 to 400 mg/kg
- Unsaturated zone As 635 mg/kg at EHSB-25 (saturated prior to SPHC)
- Total Cd and Se also relatively high in soils – Cd near the highest on the plant site, Se higher than West Se area
- Cd leach concentrations up to 120 mg/L, As up to 15 mg/L, Se up to 3.8 mg/L – highest in former settling pond area, but variable between samples.

		As	Ba	Cd	Se	Zn
EHSB-22 - Settling Pond	Ave-Unsaturated Zone	135	49	137	17	103
	Ave-Saturated Zone	394	135	160	3.2	195
	Ave - Ash	176	84	4	<0.6	68
EHSB-23 - Settling Pond	Ave-Unsaturated Zone	13	53	5	1	82
	Ave-Saturated Zone	151	50	160	28	143
	Ave - Ash	460	86	<1	<0.6	65
EHSB-24 - Upgradient	Ave-Unsaturated Zone	257	112	48	60	121
	Ave-Saturated Zone	316	97	596	10	492
	Ave - Ash	na	na	na	na	na
EHSB-25 - Downgradient	Ave-Unsaturated Zone	635	85	16	10	131
	Ave-Saturated Zone	93	66	159	1	161
	Ave - Ash	2	72	1	<0.6	56



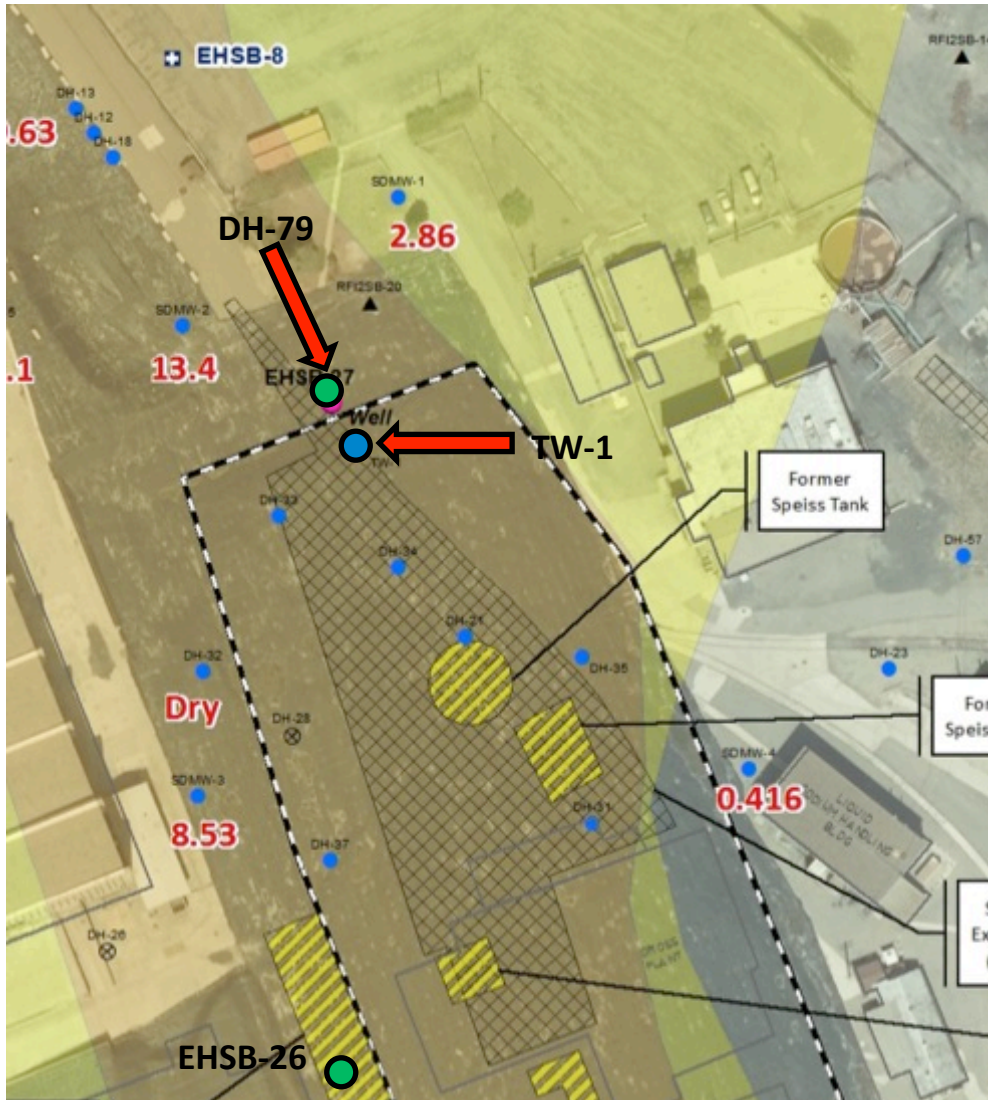
Acid Plant Area - Groundwater

- Groundwater ~20 ft bgs, about 5 ft lower than pre-SPHC
- As spatial concentration trends define source locations
- Cd concentrations elevated at some wells (1 – 4 mg/L)
- Se concentrations low throughout (<0.001 – 0.029 mg/L)



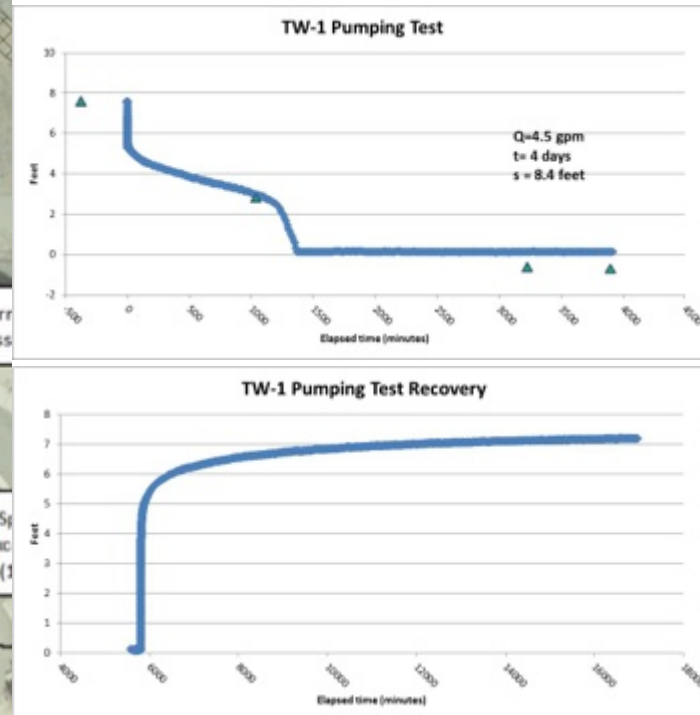
Acid Plant Area Summary

- Soil As, Cd, Se concentrations indicate impacts from historic plant activities
- Cd highly leachable
- Cd in groundwater 1-4 mg/L; Se concentrations <0.05 mg/L
- Current information shows groundwater arsenic concentration/load increase (5 to 15 mg/L) through former settling pond; no apparent arsenic load increases beneath HDS building
- Well DH-81 ~5 mg/L arsenic, 3.5 mg/L cadmium; therefore some loading source to groundwater upgradient of former settling pond

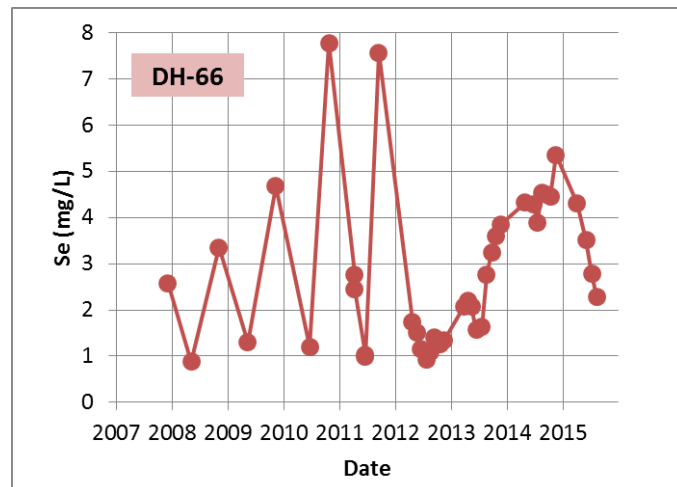
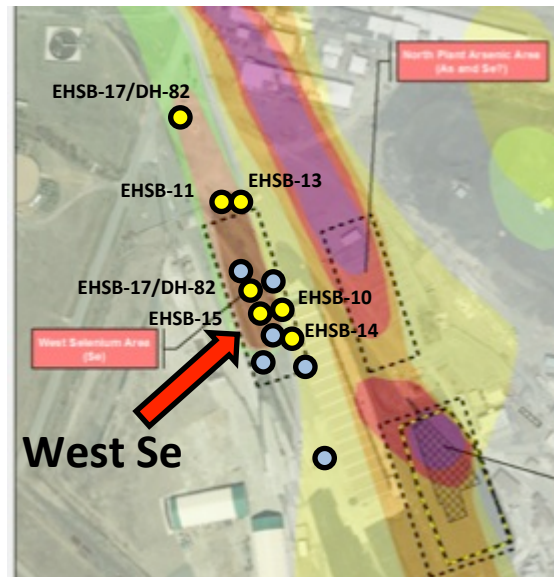


Speiss-Dross Area Summary

- Characterized soils outside of slurry wall
- Evaluated leakage rate from within slurry wall



2015 SOURCE AREA INVESTIGATION



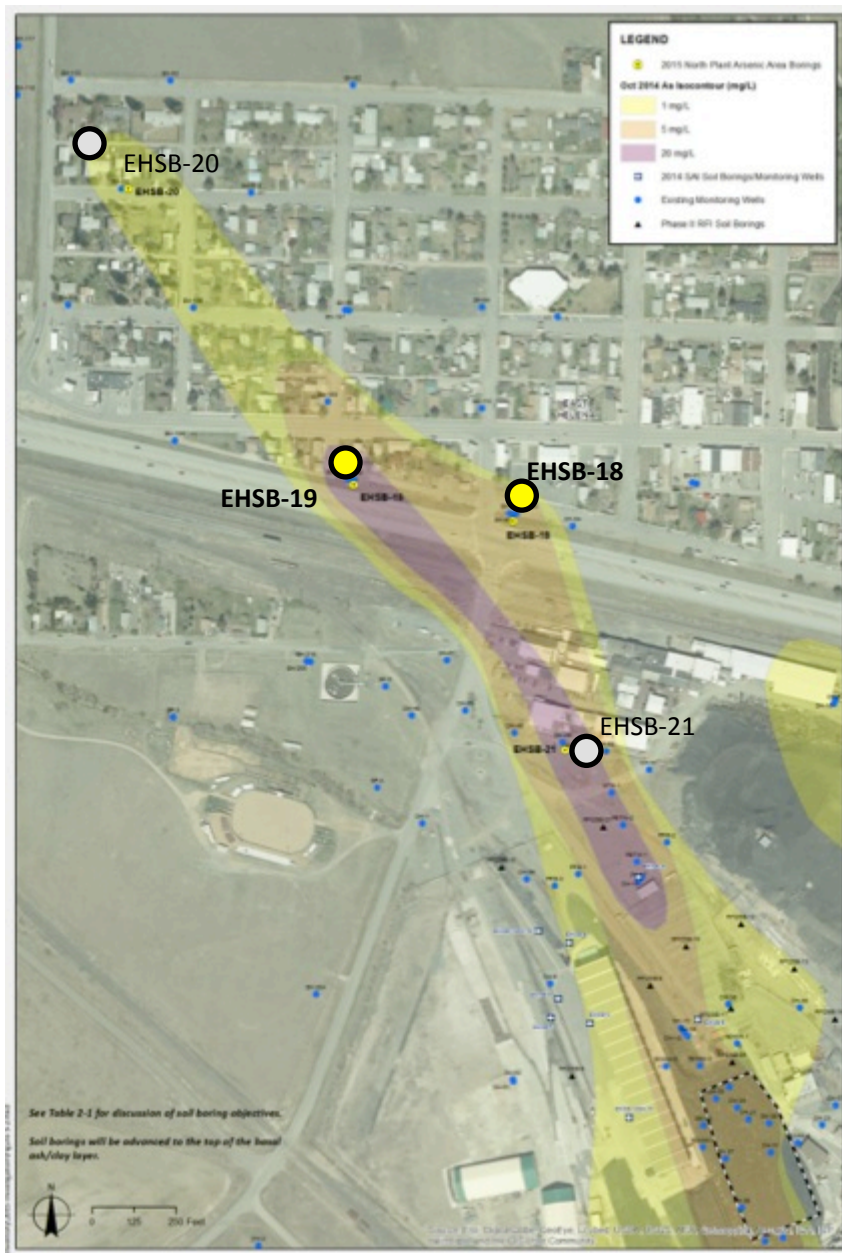
West Se Area – SAI Summary

- 13 soil borings drill in 2014/15
- 2014-2015 investigations have identified unsaturated and saturated zone soils with highly leachable selenium, concentrated near well DH-8
- Investigations have not identified sufficient mass in saturated zone to account for downgradient Se plume despite closely spaced borings
- More Se mass is present in unsaturated zone (maximum concentrations 3-7 times higher in unsaturated zone); however, no identified current mechanism for transport of this mass to groundwater

2015 SOURCE AREA INVESTIGATION

North Plant Arsenic Area Summary

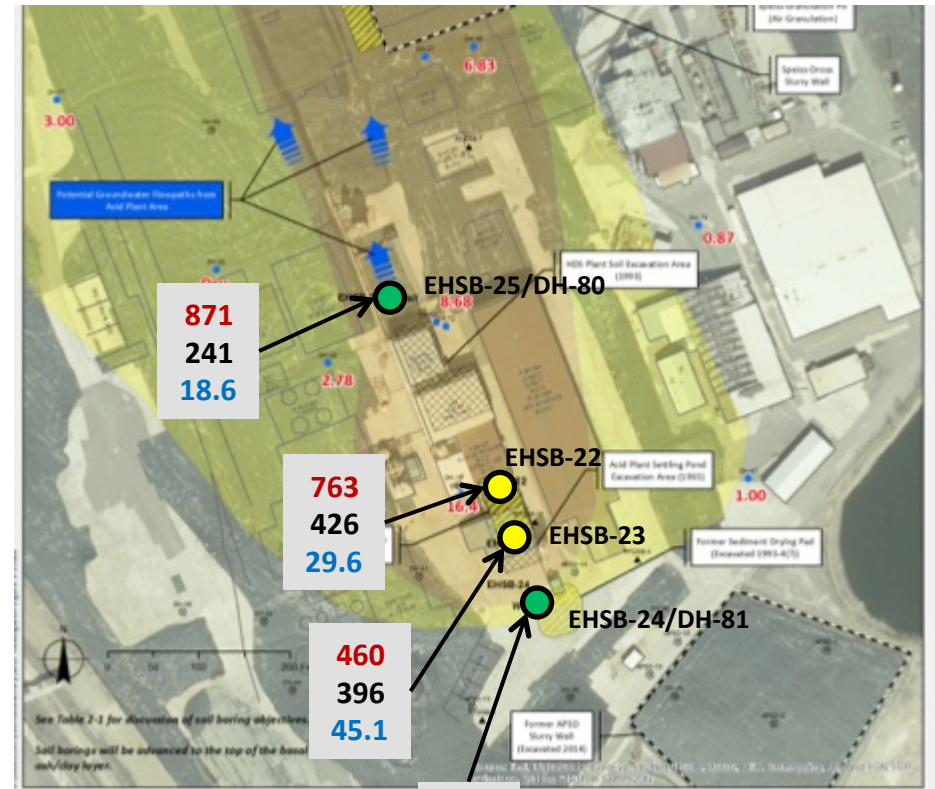
- 2 Soil Borings (EHSB-18 and EHSB-19) in addition to 2-2014 borings
- Adjacent to existing wells
- Testing designed to estimate arsenic adsorptive capacity and evaluate groundwater model assumptions regarding effects of North Plant source control on downgradient plume



SOURCE AREA STATUS/RECOMMENDATIONS

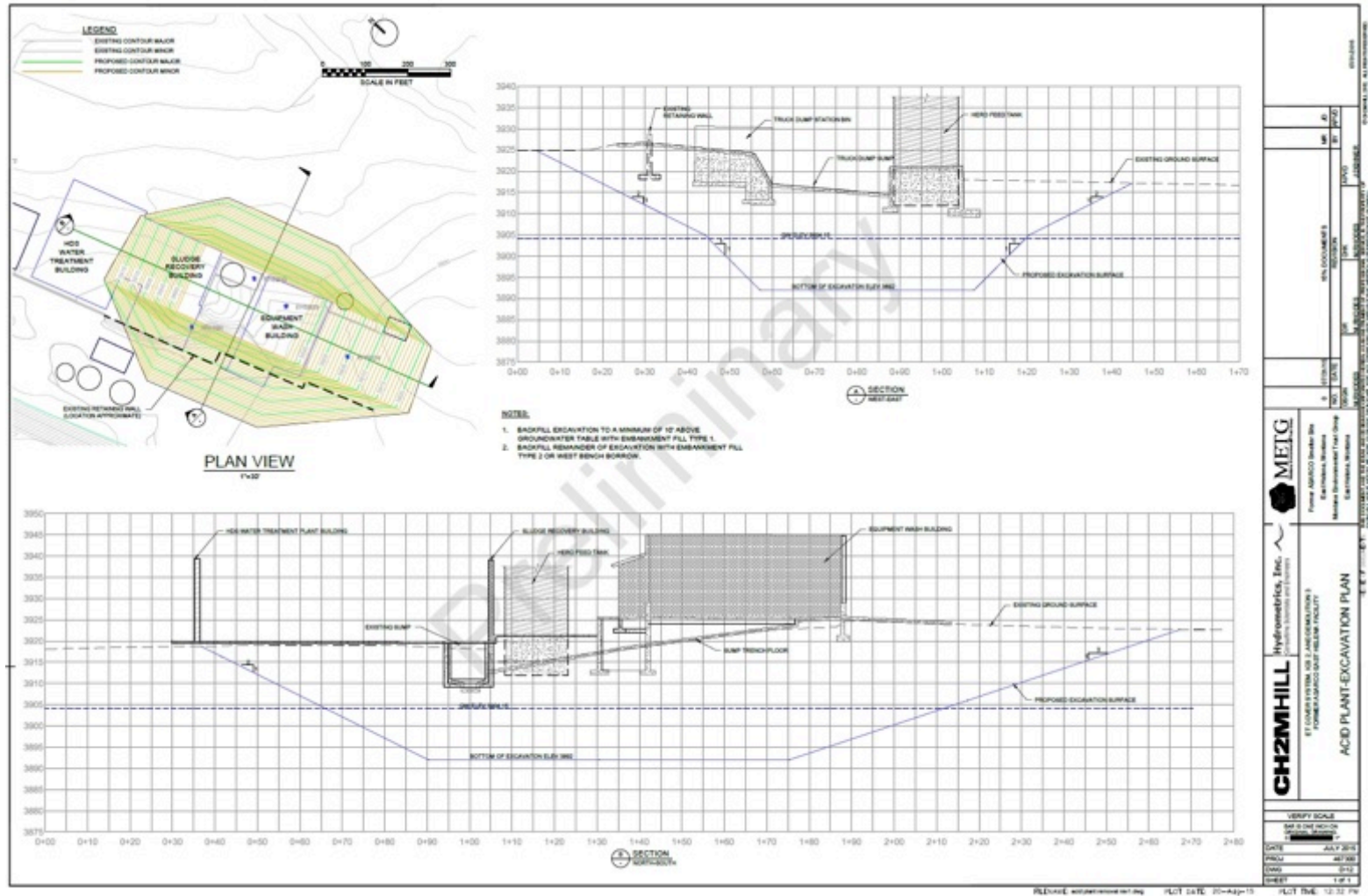
Acid Plant Source Area

- High concentration, localized source area identified at former Acid Plant Settling Pond
- Due to ongoing As and Cd loading, and potential for future Se loading, soil removal action in this area is warranted
- Focus on former settling pond area but include area to south to include additional sources indicated by DH-81 data, and tie in to TPA removal



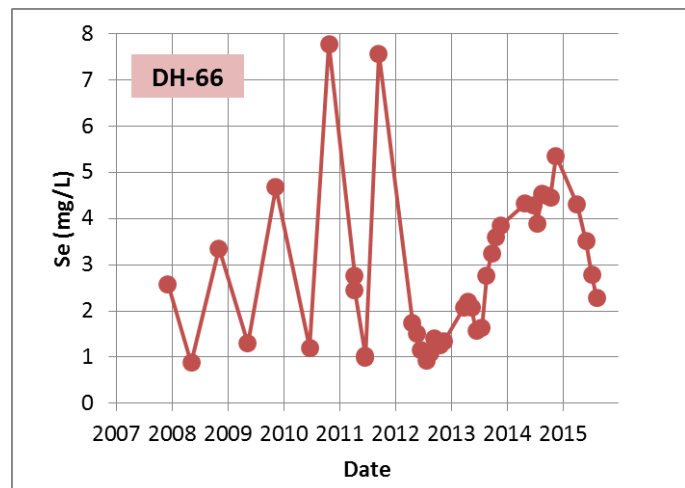
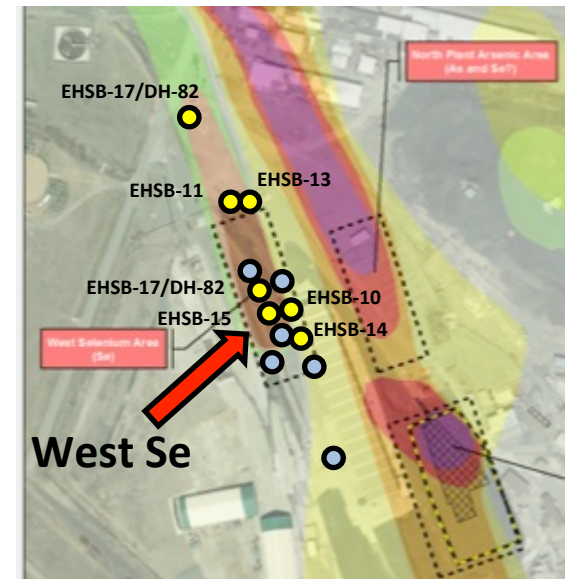
Maximum Observed Total As
Maximum Observed Total Cd
Maximum Observed Total Se

Preliminary Source Removal Plan



WEST SELENIUM AREA

- Based on:
 - Apparent lack of high concentration/ localized soil source;
 - Currently decreasing groundwater levels and selenium concentrations;
- Continue monitoring groundwater levels and selenium concentrations prior to final source control determination
- Develop timeframes and performance monitoring criteria to guide decision-making process



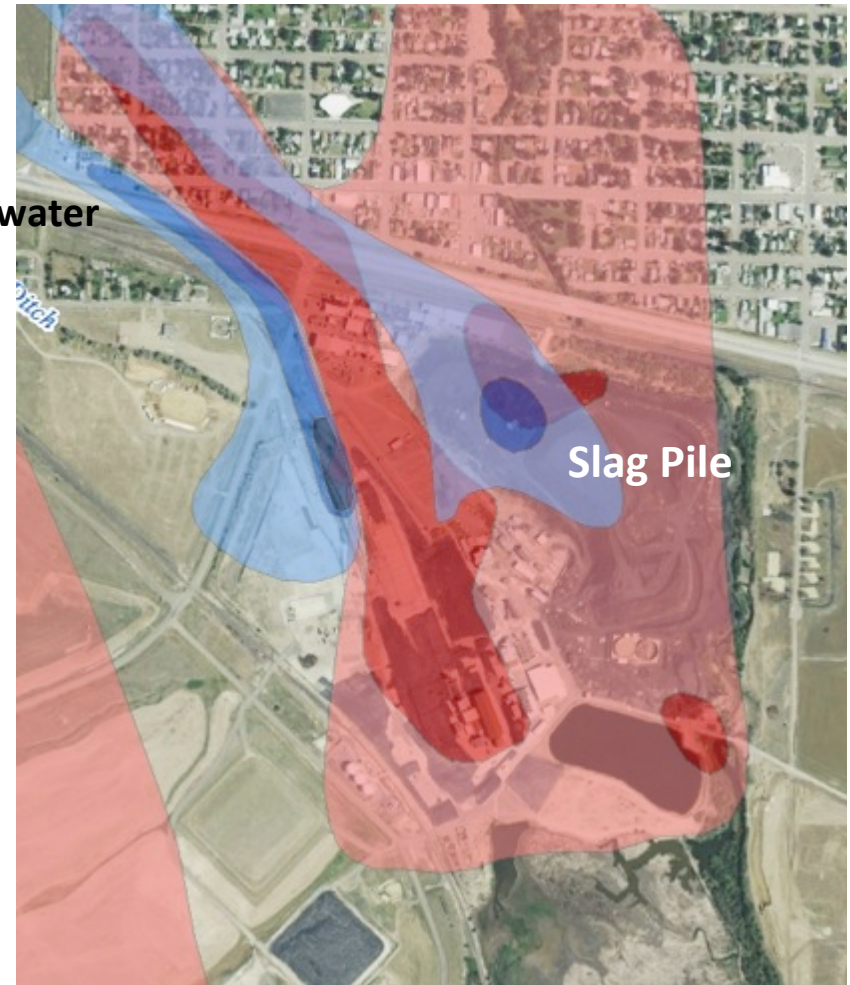
SPEISS-DROSS/NORTH PLANT SITE AREAS

- Significant information and knowledge gained through 2014/15 investigations
- Aquifer testing, soil testing and groundwater modeling still in progress.
- Recommendations for these areas expected before end of 2015



2016 SOURCE AREA INVESTIGATION – SLAG PILE

- Remaining data gap
- Contributes to both As (red) and Se (blue) groundwater plumes
- Scope of Investigation
 1. Slag Pile data summary/history
 2. Soil Borings/Well Completion
 3. Aquifer Testing
 4. Slag/Soil Characterization
 5. Leach Testing



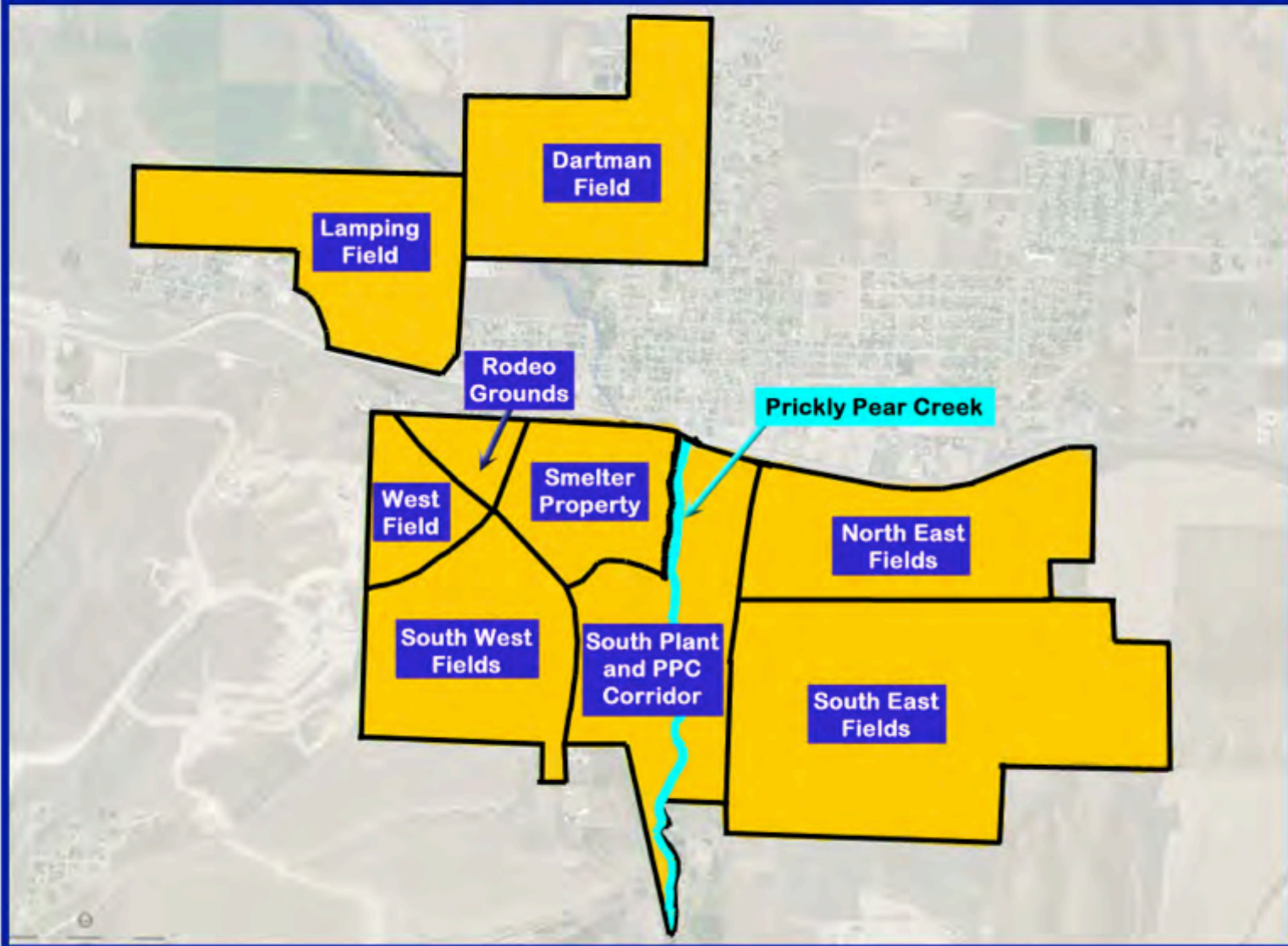
Custodial Trust Redevelopment Activities

- City of East Helena Land Use Regulations
- Lamping Field Reuse
- East Helena Public Schools



Montana Environmental Custodial Trust

East Helena Property



City of East Helena (COEH) Land Use Regulations

- 2014 COEH Growth Policy
- 2015 COEH Zoning Ordinance

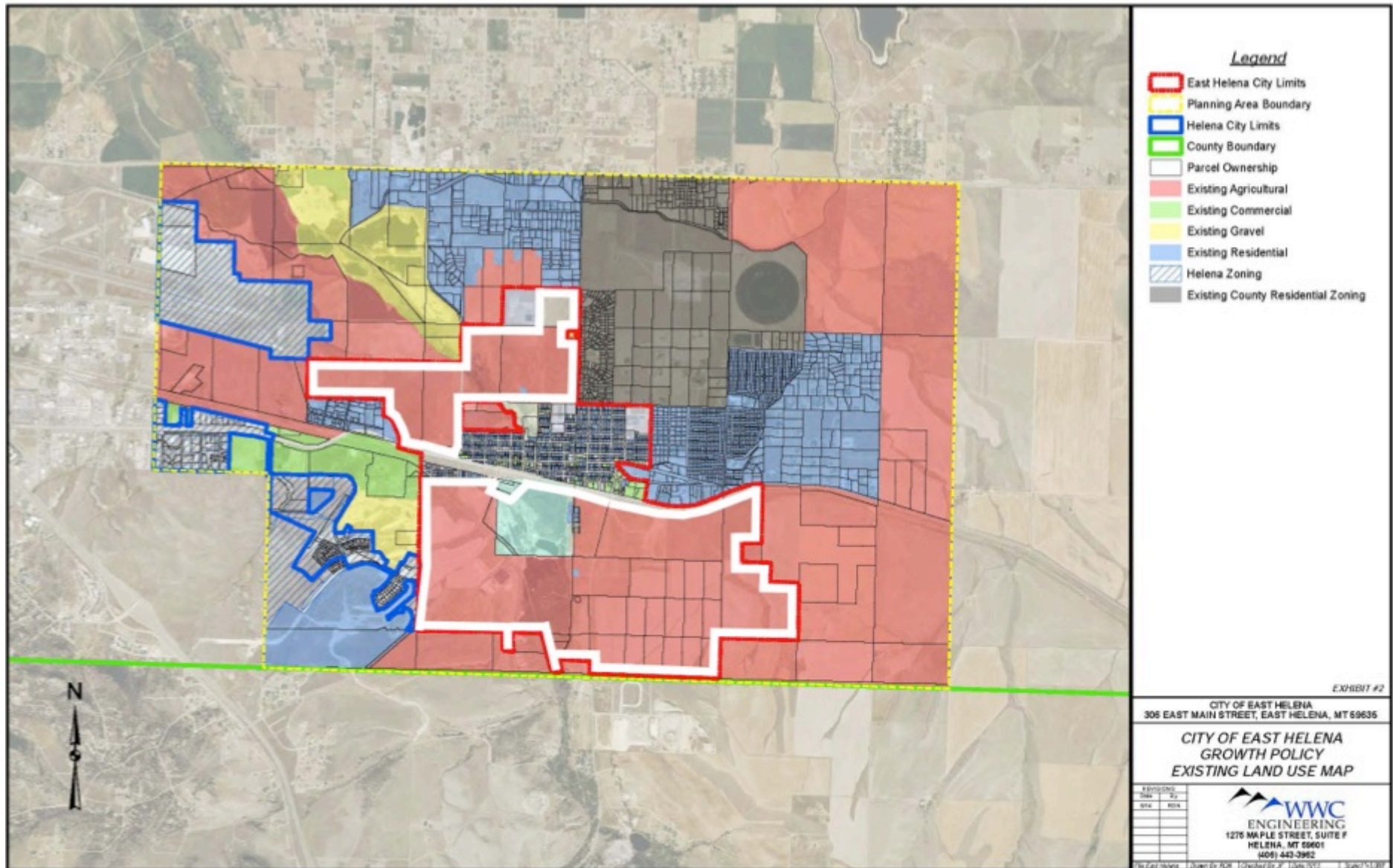


COEH Land Use Regulations— Key Factors/Considerations for Custodial Trust

- COEH/community redevelopment goals and vision
- Custodial Trust strategy: overcome property and reuse challenges
 - ✓ Acreage
 - ✓ Infrastructure
 - ✓ Contamination
 - ✓ Settlement Agreement
 - ✓ Market
- Custodial Trust input: balance challenges with COEH goals

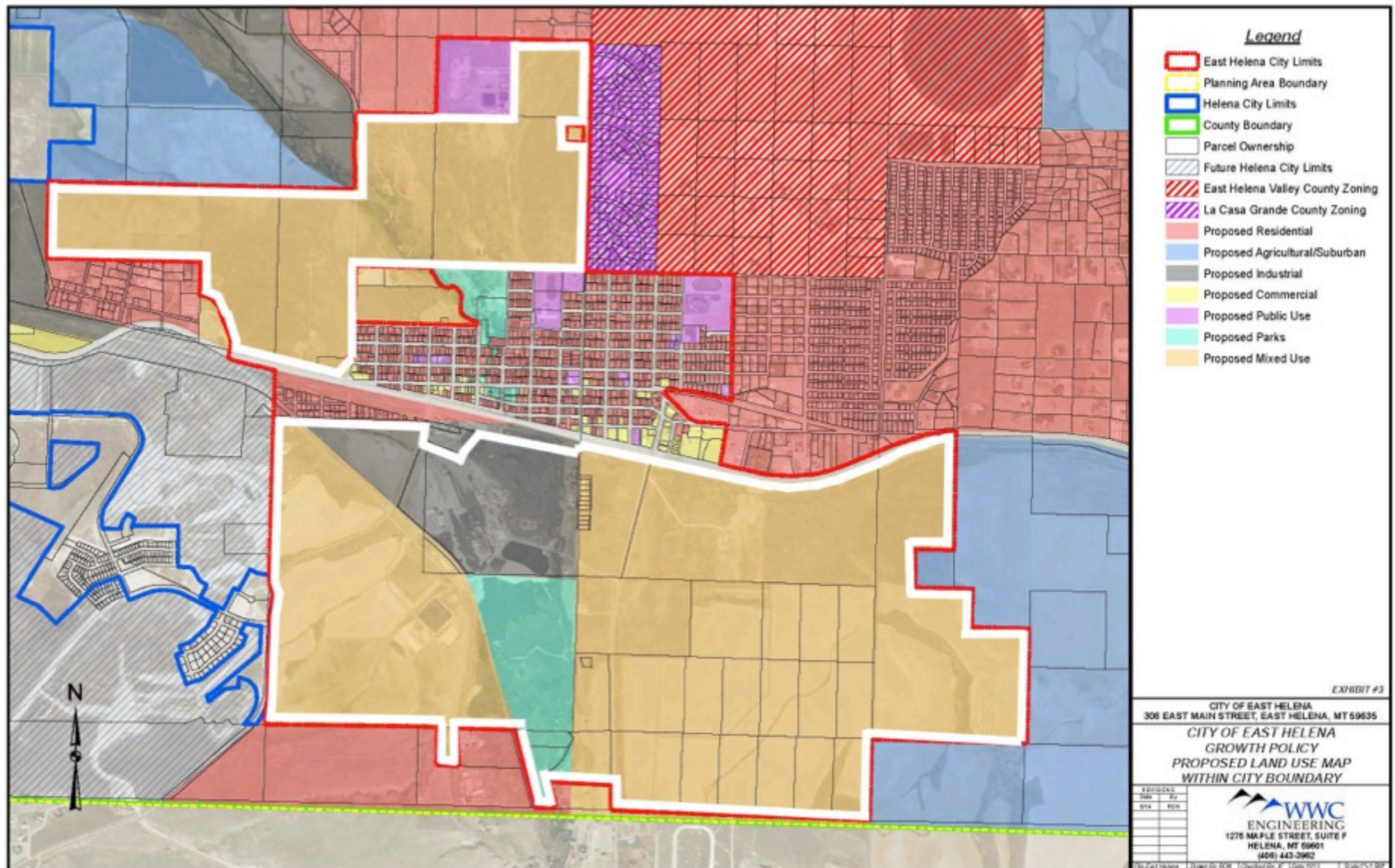


COEH 2014 Growth Policy Current Land Use Map



COEH 2014 Growth Policy

Future Land Use Map



Custodial Trust Input on Draft Zoning Ordinance

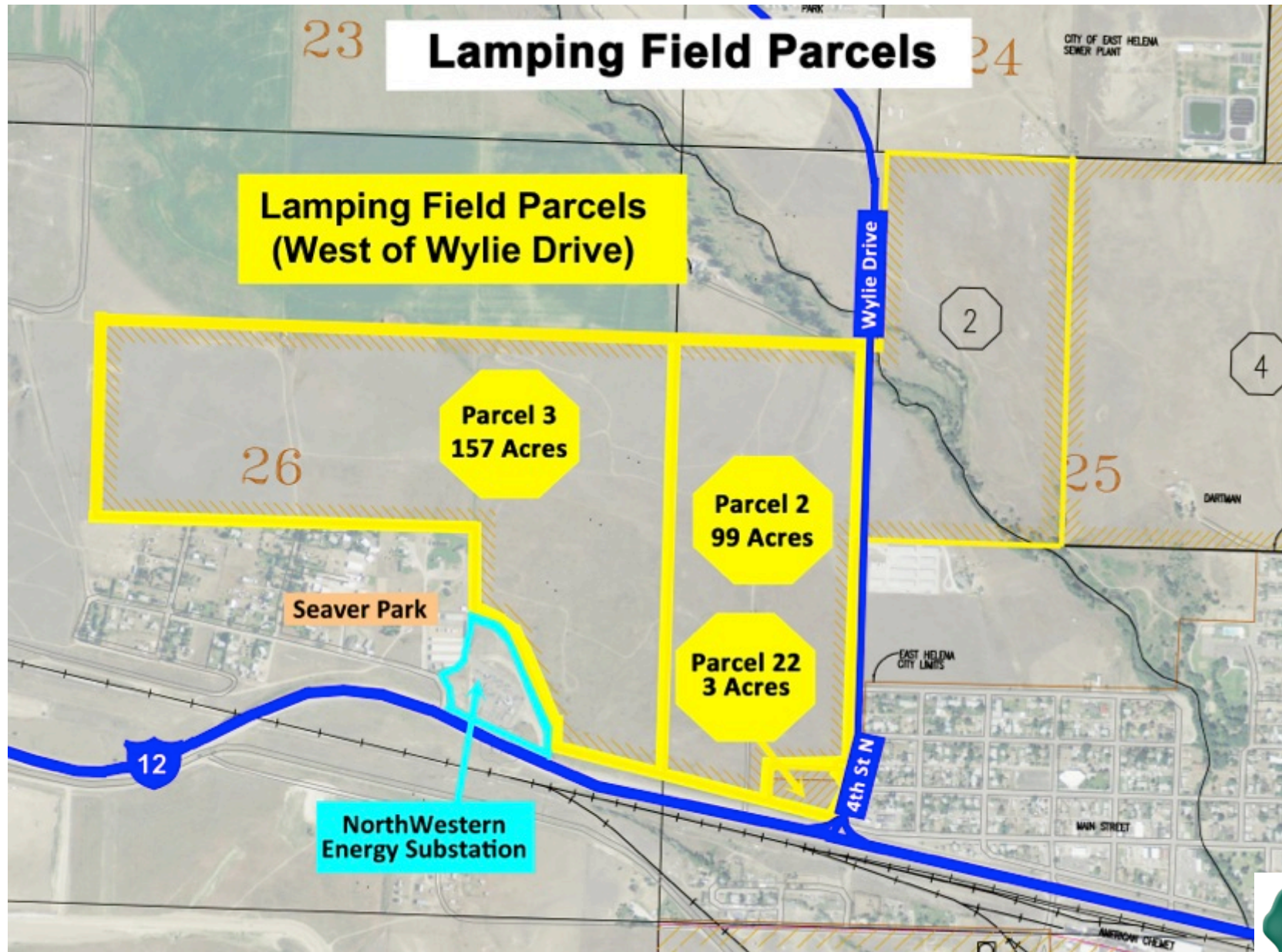
- Zoning classification/districts:
 - ✓ Mixed Use
 - ✓ Commercial/Industrial
 - ✓ Residential
- Authorized uses for each district
 - ✓ Planned Unit Development process
 - ✓ Uses allowed by right
- Other considerations
 - ✓ RCRA IMs
 - ✓ Slag re-processing
 - ✓ Other types of uses



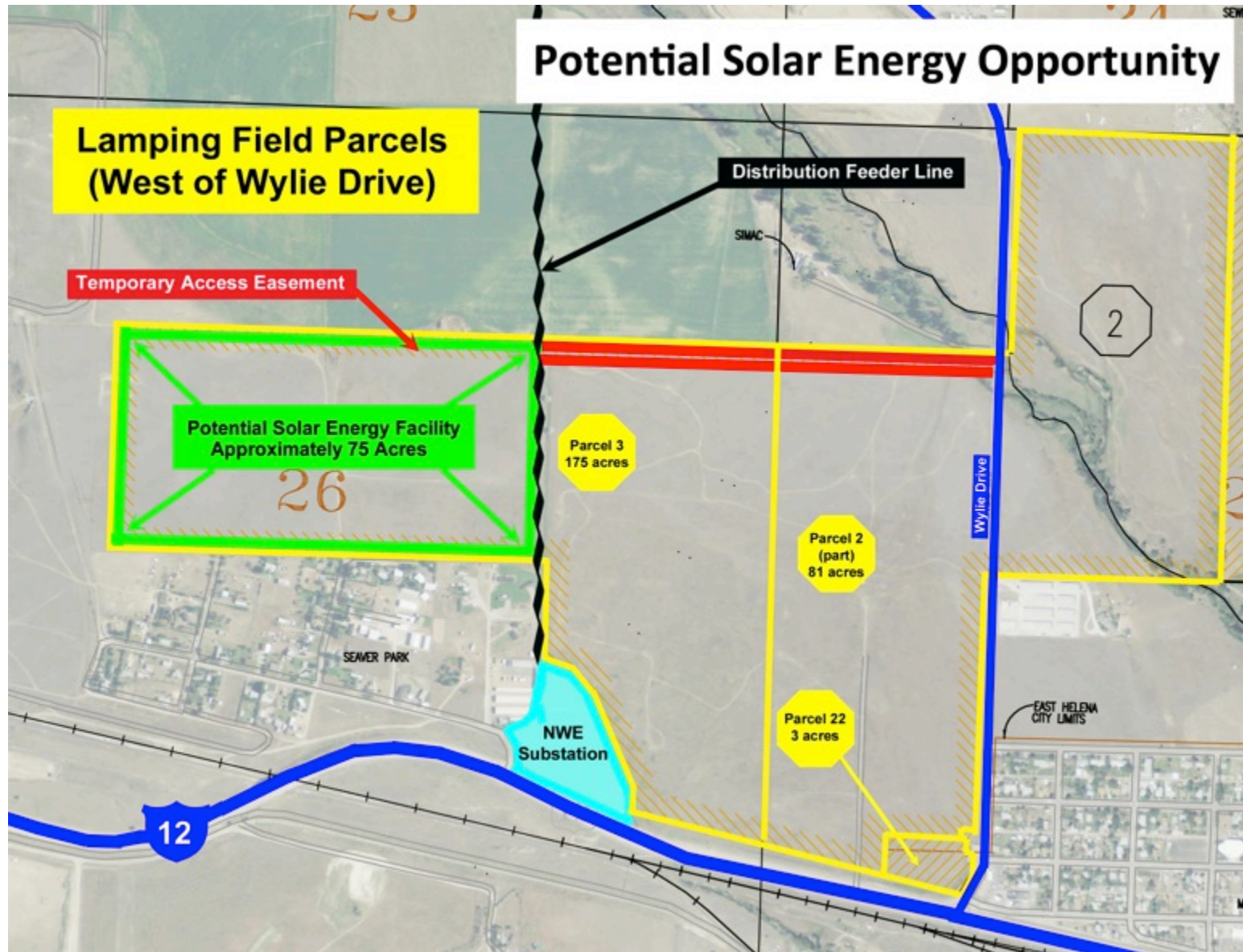
Lamping Field Redevelopment



Lamping Field



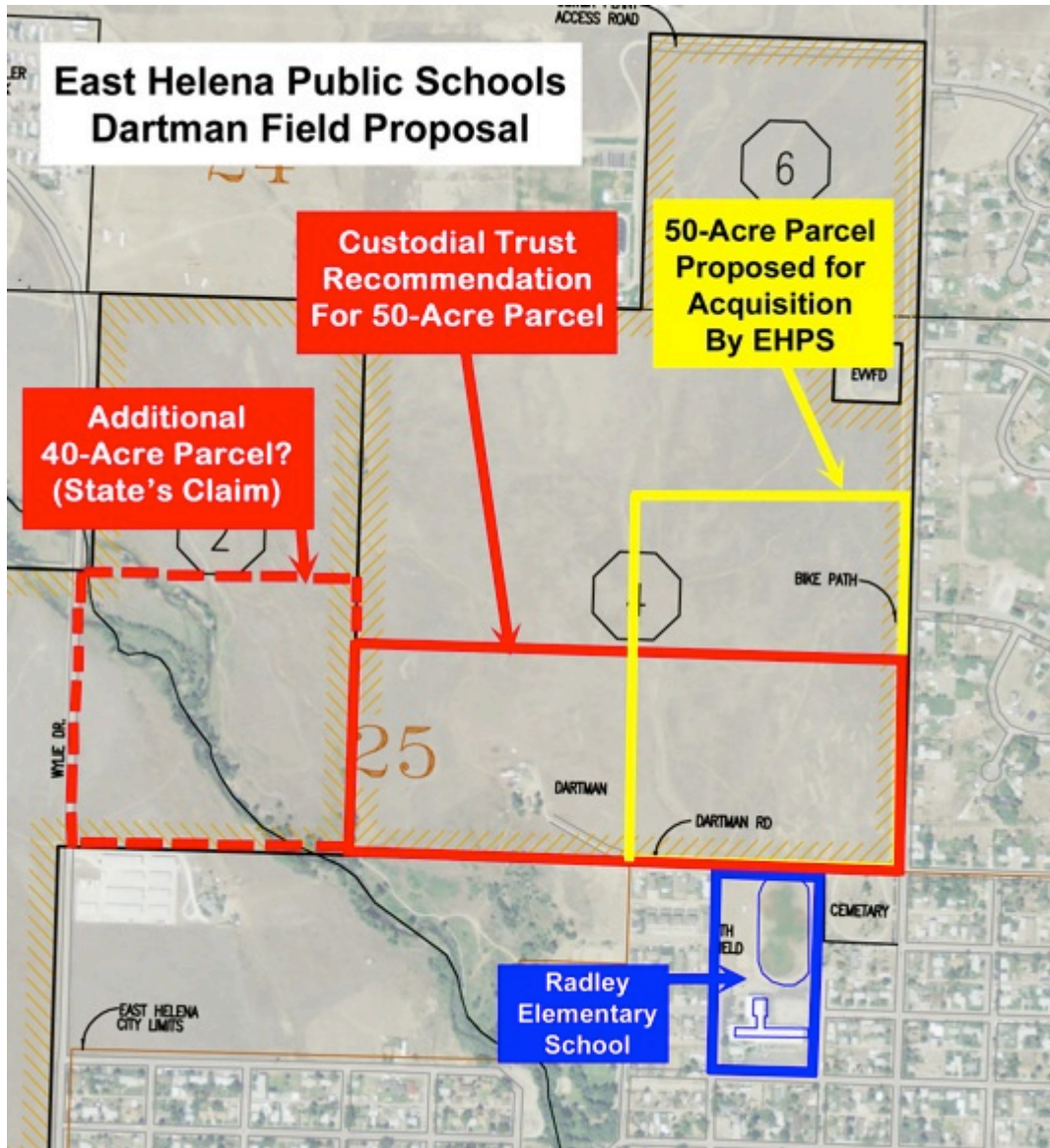
Lamping Field— Potential Redevelopment Opportunity



East Helena Public Schools



East Helena Public Schools (EHPS) Dartman Field Proposal



EHPS Proposal:

- ✓ 50 acres developable land
- ✓ \$3,500 per acre
- ✓ DNRC grant

CT Appraisal

- ✓ 8/2015
- ✓ \$8,000 per acre

CT Recommendation

- ✓ \$3,500 per acre sale price
- ✓ EHPS to remediate soils to residential standard

Status:

- ✓ EPA and State support grant
- ✓ EPA approved sale
- ✓ State requires additional time to resolve soil cleanup



Lewis & Clark County
Health Department &
Water Quality Protection District

