Oregon Department of Environmental Quality

Trace Metals in Soil and Johnson Creek Sediment

October 17, 2017

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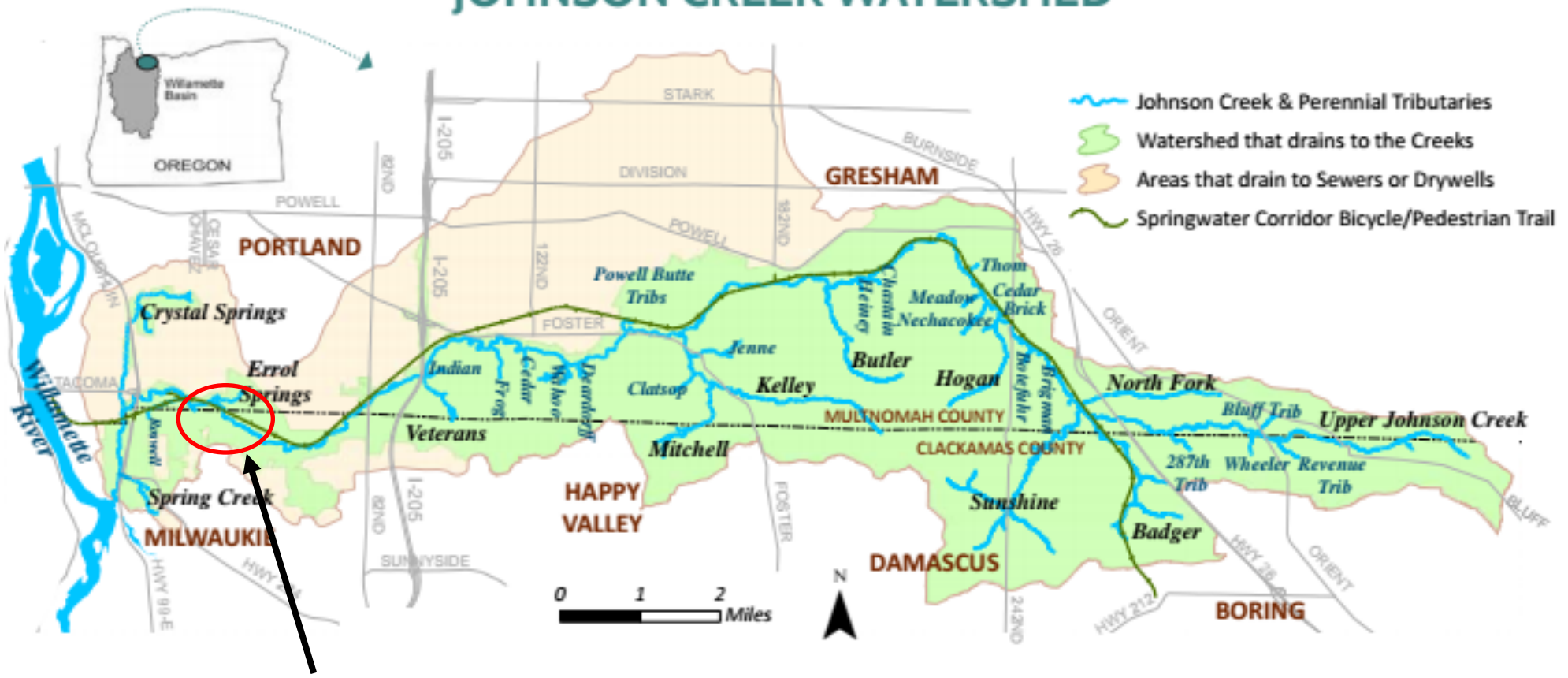
JOHNSON CREEK WATERSHED



Area of Focus

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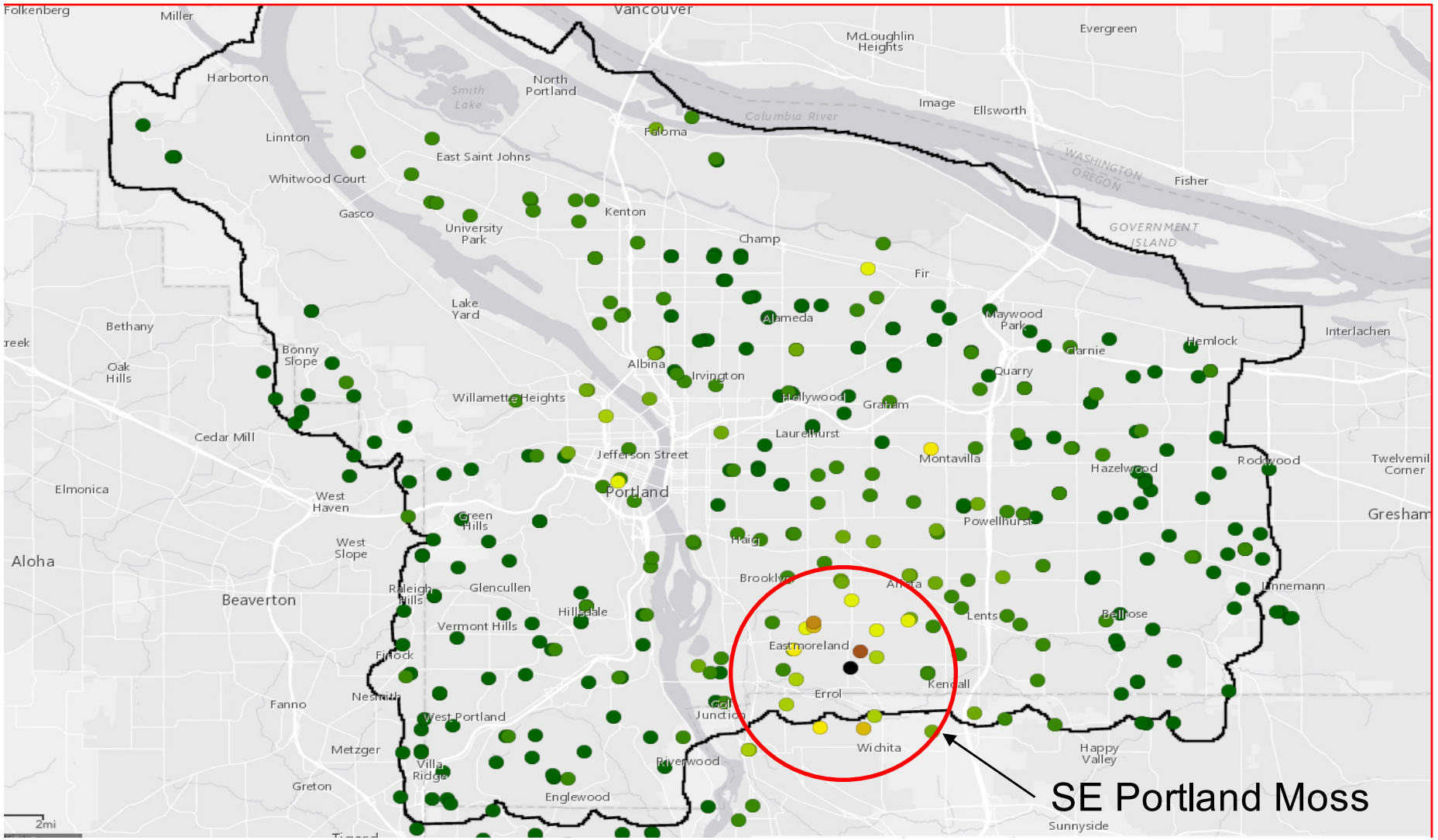
USFS Moss Sampling

- Relatively higher nickel detected in moss in Southeast Portland



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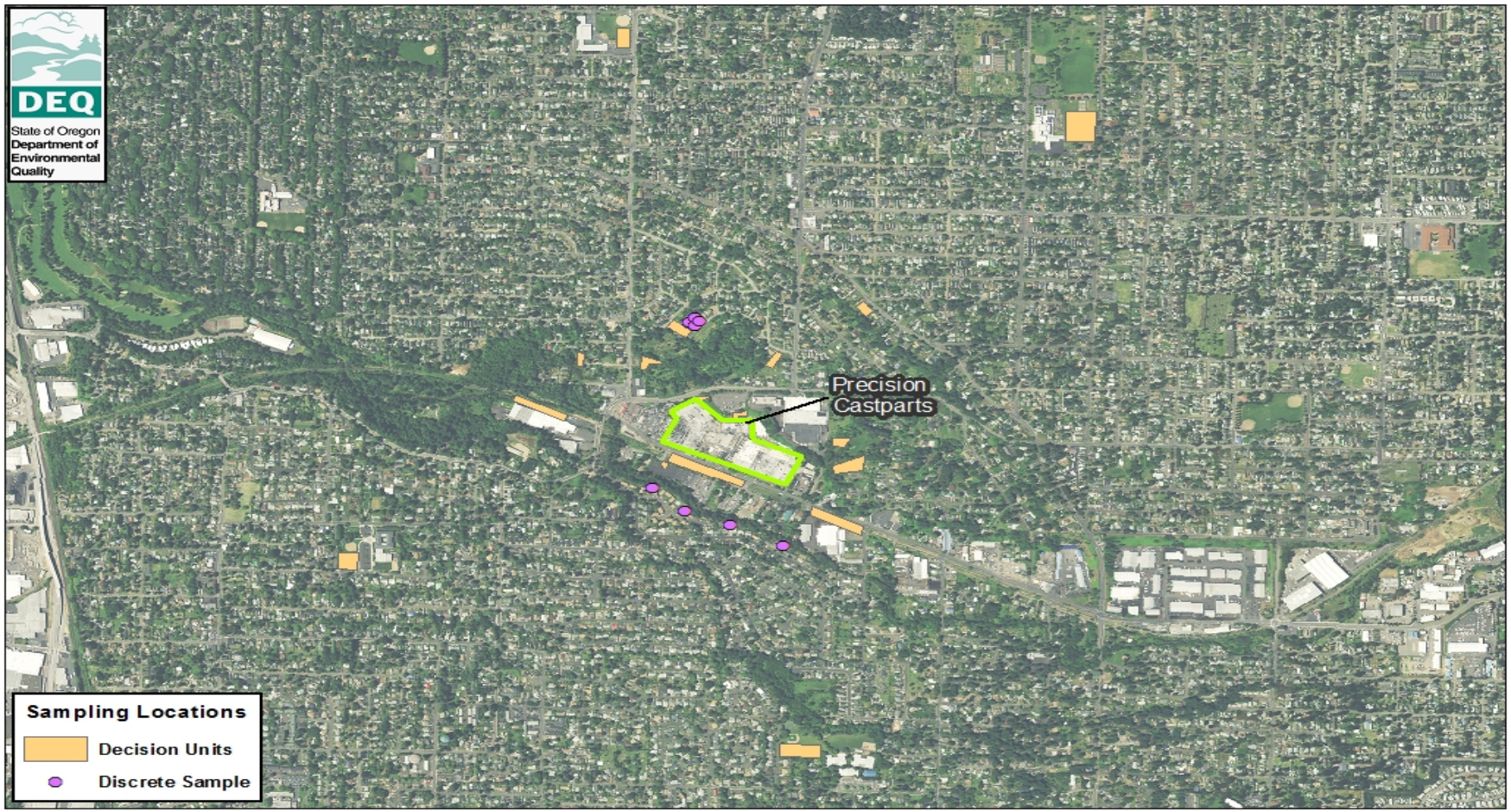
SE Portland Area-Wide Soil Sampling Locations



Sampling Locations identified in collaboration with OHA and with community input.

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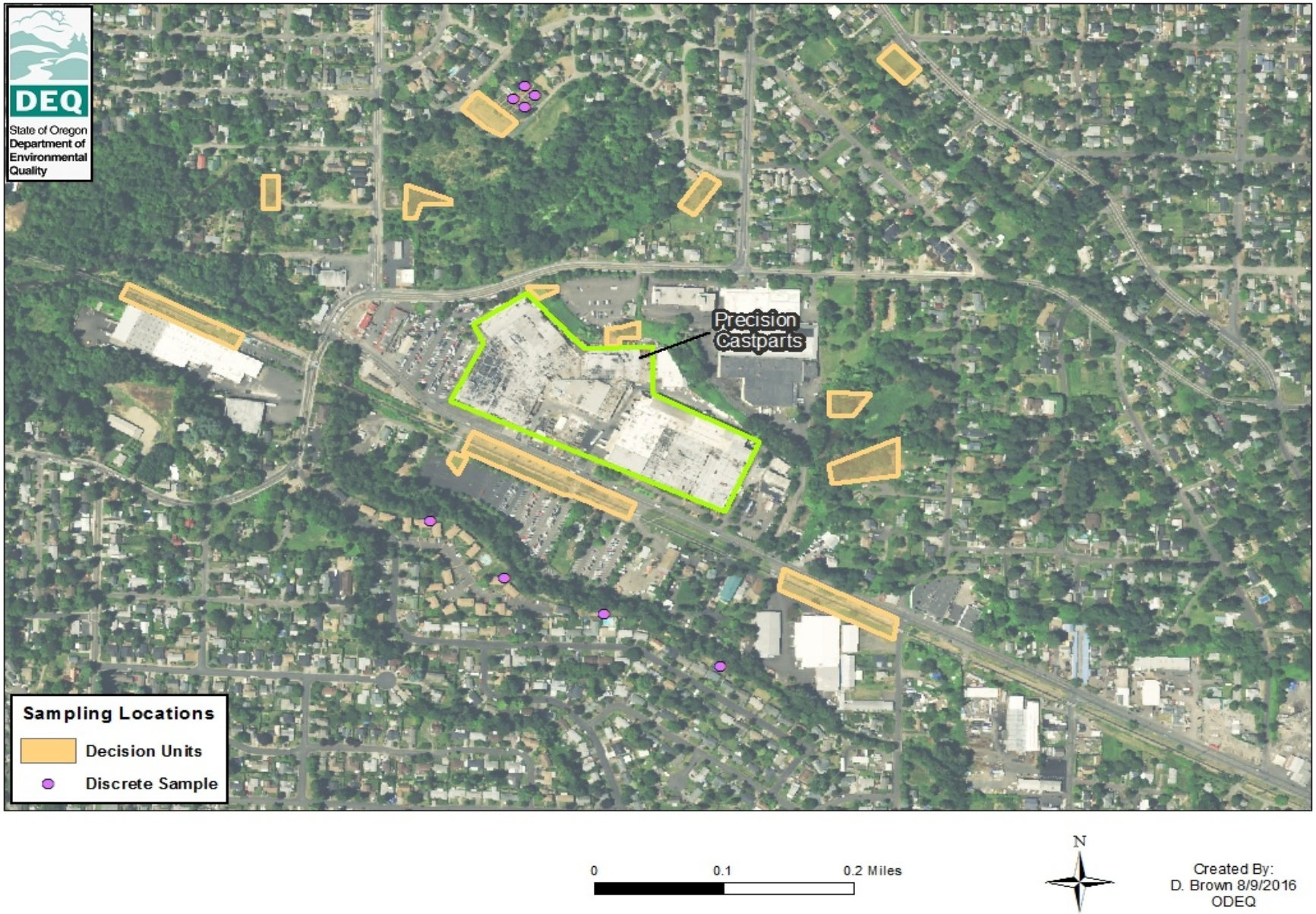
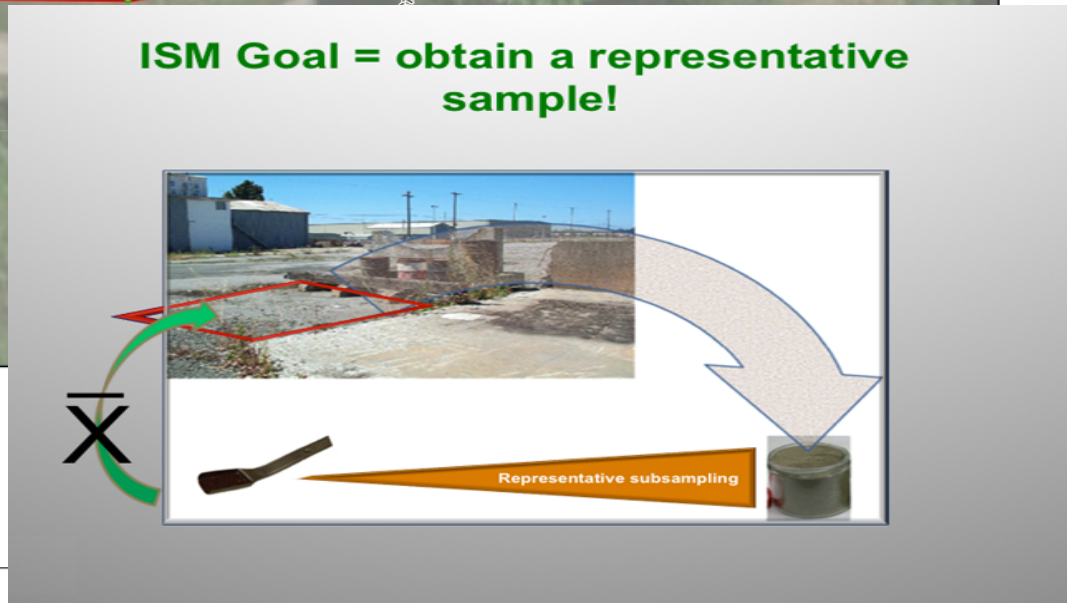
Facility Focused Soil Sampling



Soil Sampling Method - Incremental



Soil Sampling- Results (select metals)

Sample	Total Metals in mg/kg						
	Arsenic	Cadmium	Chromium[1]	Hex Chrome		Cobalt	Nickel
EHCG-DU-1	5.23	0.223	28.8	<0.051	R	15.1	43.2
EHCG-DU-1-Rep1	5.14	0.238	28.0	<0.051	R	15.0	41.2
EHCG-DU-1-Rep2	5.18	0.232	27.7	<0.052	R	15.3	39.7
EHCP-DU-1	3.32	0.241	39.0	<0.052	J	9.98	**64.8**
EHCP-DU-2	4.30	0.428	36.3	<0.052	J	17.7	**66.4**
PCC-DU-1	4.21	0.201	173	<0.051	R	44.8	553
PCC-DU-1-Rep1	4.51	0.202	156.0	<0.051	R	39.9	501
PCC-DU-1-Rep2	4.33	0.219	152	<0.051	R	41.9	486
PCC-DU-2	4.48	0.237	**239**	<0.049	J	**81.0**	**776**
CC-DU-1	3.66	0.155	21.2	<0.051	J	12.7	23.7
CC-DU-2	3.91	0.191	22.3	<0.050	J	14.9	24.5
SWC-DU-1	3.23	0.263	28.1	<0.050	J	13.1	26.7
SWC-DU-2	4.06	0.294	**178**	<0.052	J	**42.3**	**513**
SWC-DU-3	3.87	0.241	32.6	<0.052	J	16.9	45.7
JC-DU-1	4.08	0.256	27.1	<0.049	J	10.4	25.4
HZP-DU-1	3.88	0.356	26.7	<0.052	J	13.8	28.2
LMS-DU-1	4.91	0.185	21.5	<0.050	J	15.4	18.6
MLS-DU-1	5.42	0.222	21.5	<0.051	J	14.8	20.1
AES-DU-1	3.50	0.175	19.6	<0.050	J	11.8	14.6
SLES-DU-1	4.63	0.146	22.6	<0.051	J	13.4	19.4
SLES-DU-1-Rep1	4.58	0.13	22.6	<0.051	J	12.6	19.2
SLES-DU-1-Rep2	4.48	0.153	22.1	<0.050	J	13.2	19.4
EHCG-D1	4.80	0.82	25.5	<0.051	R	10.9	27.8
EHCG-D2	10.9	0.466	27.3	<0.051	R	14.6	24.9
EHCG-D3	4.32	0.560	23.1	<0.051	R	10.6	25.5
EHCG-D4	9.26	0.552	25.2	<0.052	R	12.1	25.9

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Soil Sampling Conclusions

- At most off-site sampling areas, metals concentrations detected in soil were within naturally-occurring background. Hexavalent chromium was not detected in any sample.

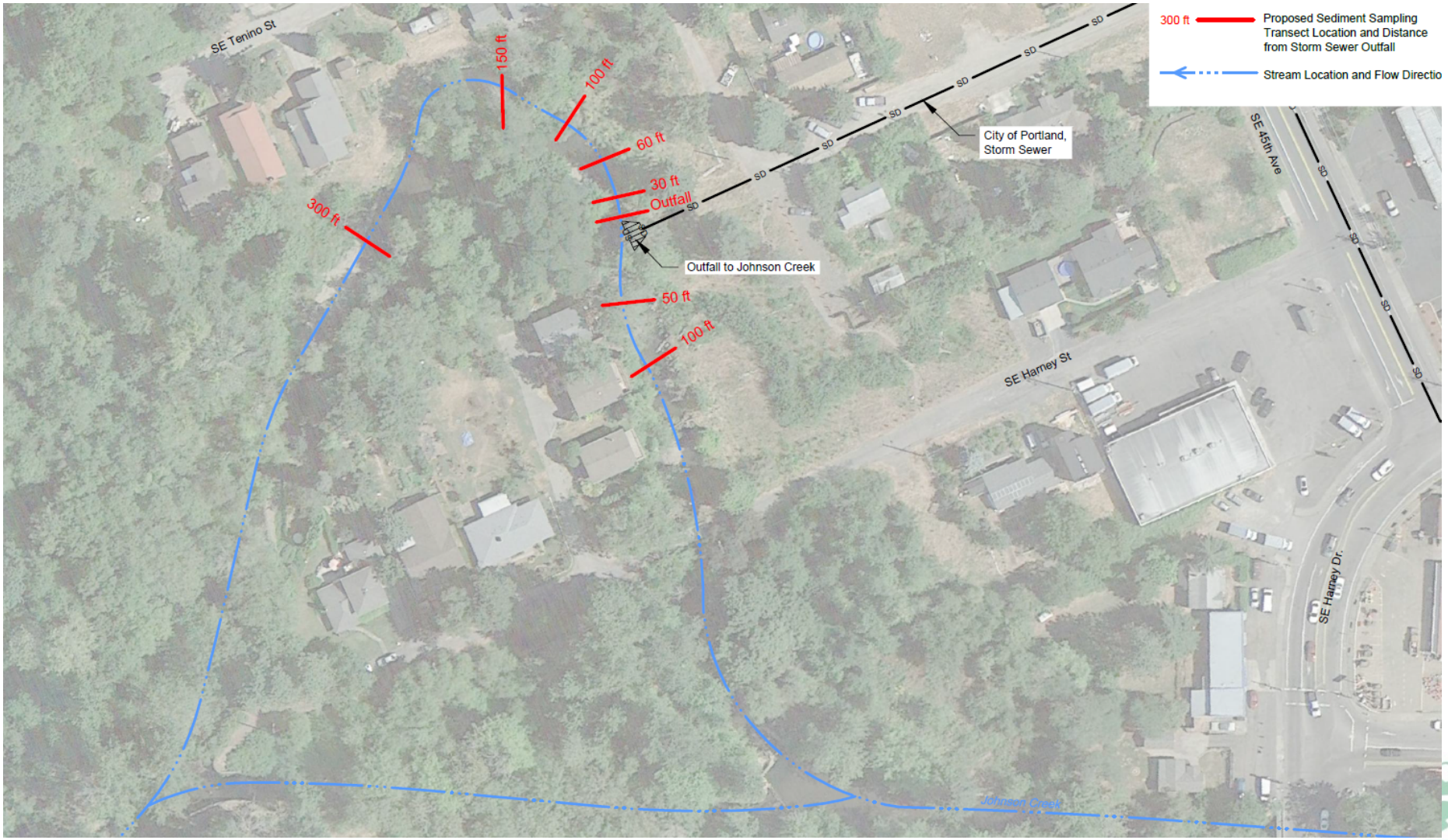
- Concentrations of total chromium, nickel and cobalt were elevated in soil samples collected at the facility and at the closest Springwater Corridor sampling site.

- Sampling method was very effective, producing precise and reproducible results.

PCC Stormwater and JC Sediment

- PCBs and metals were detected in stormwater and PCC site catch basins in 2013- 2014.
- Sampling of Johnson Creek sediment near outfall in 2013-2014 identified an approximately 150 foot section of the creek with elevated PCBs and metals (nickel and total chromium).
- DEQ determined that end-of-pipe stormwater treatment was necessary. Implemented June 2016

Johnson Sediment Sampling 2013-2014



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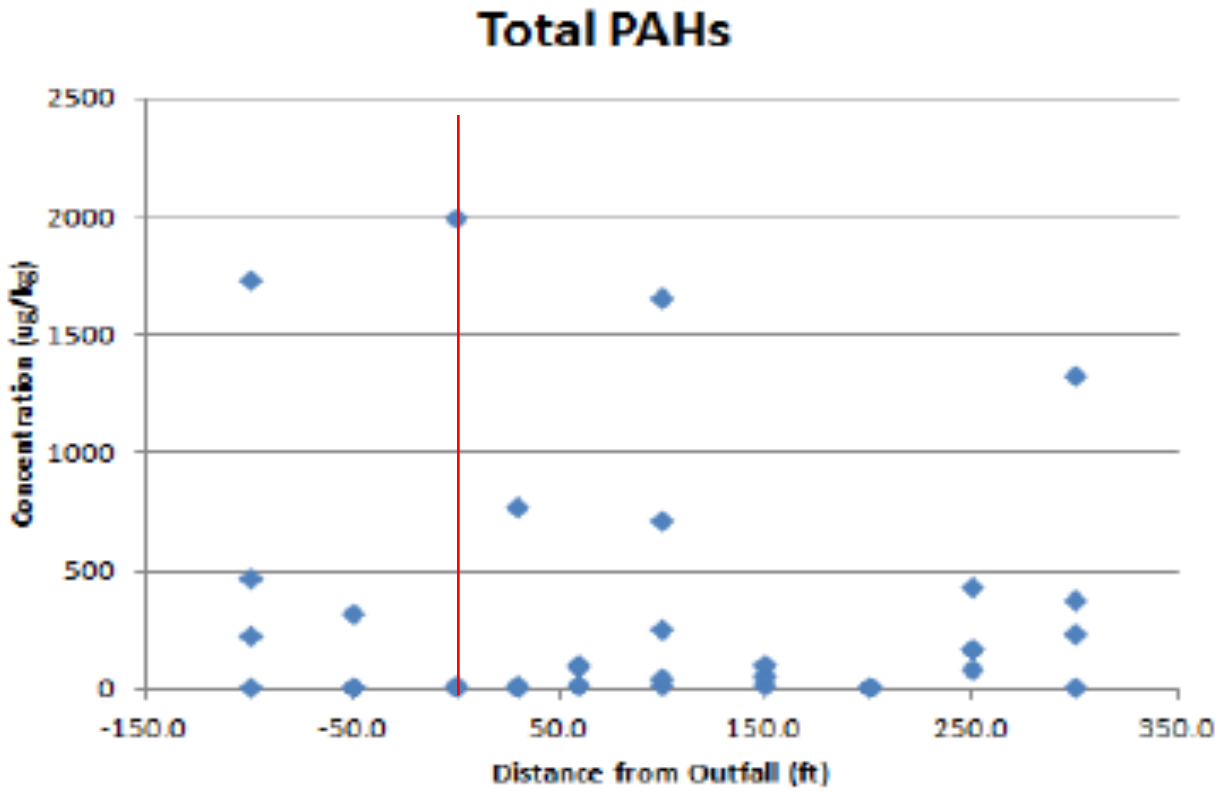
Sediment Sampling Results



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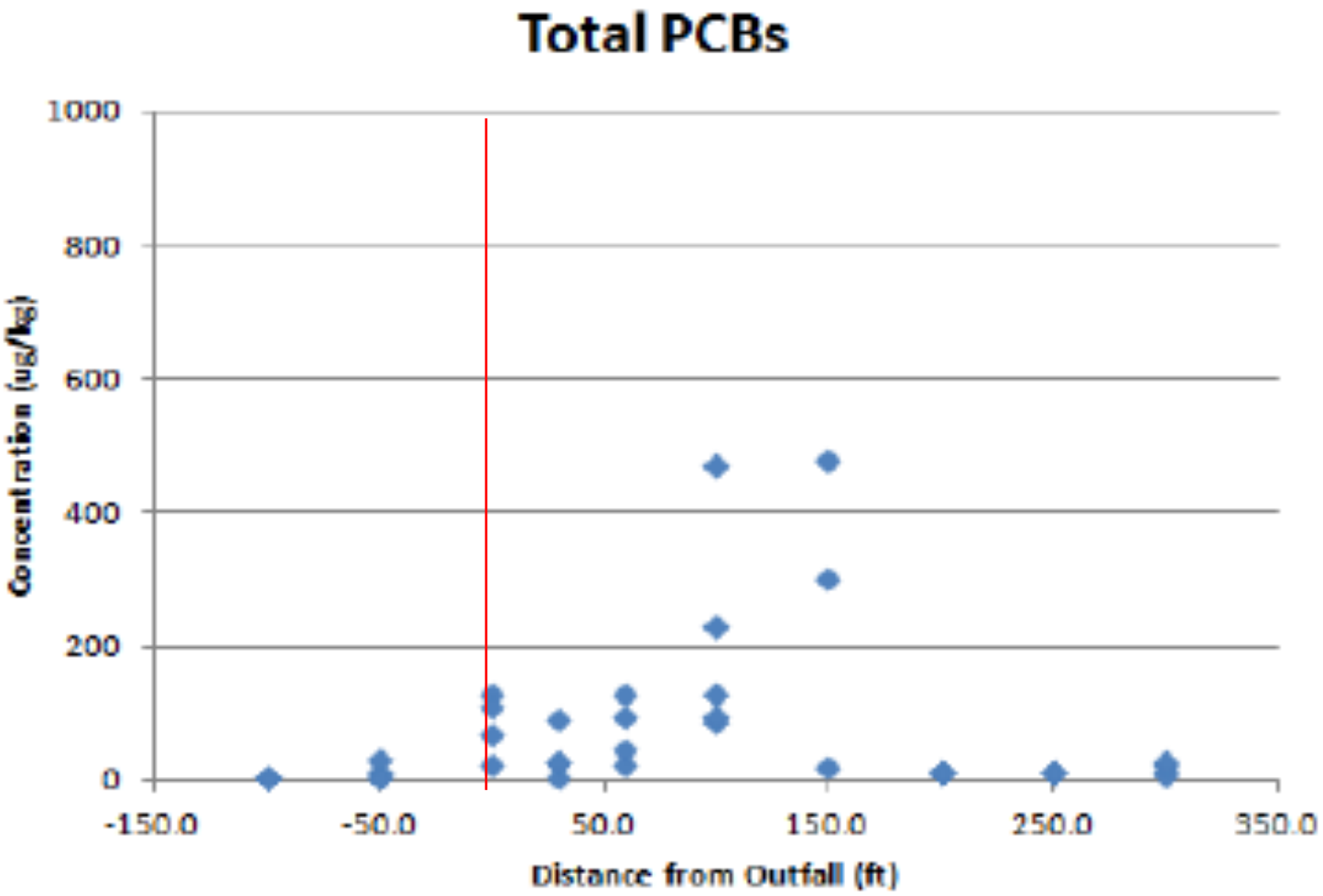

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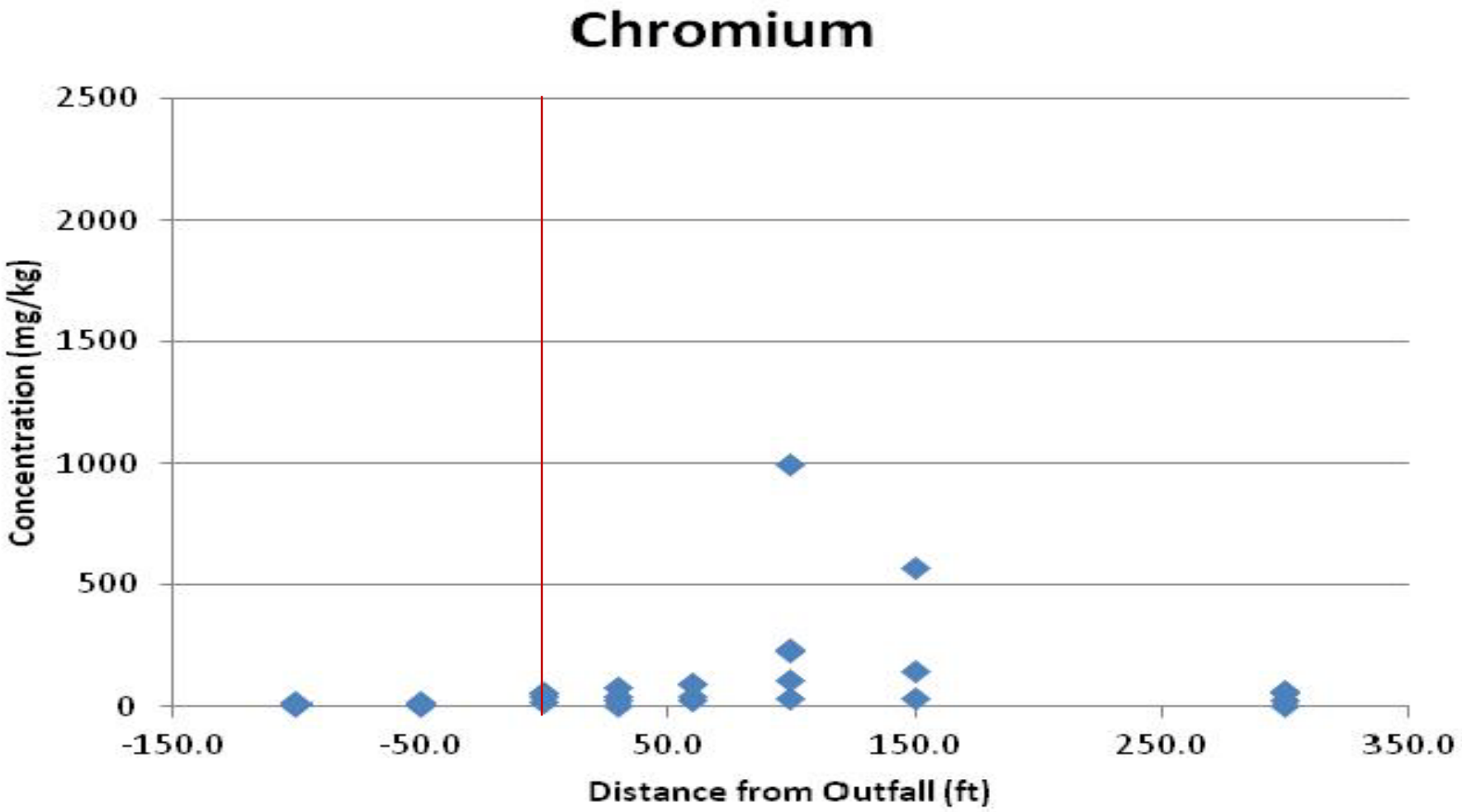

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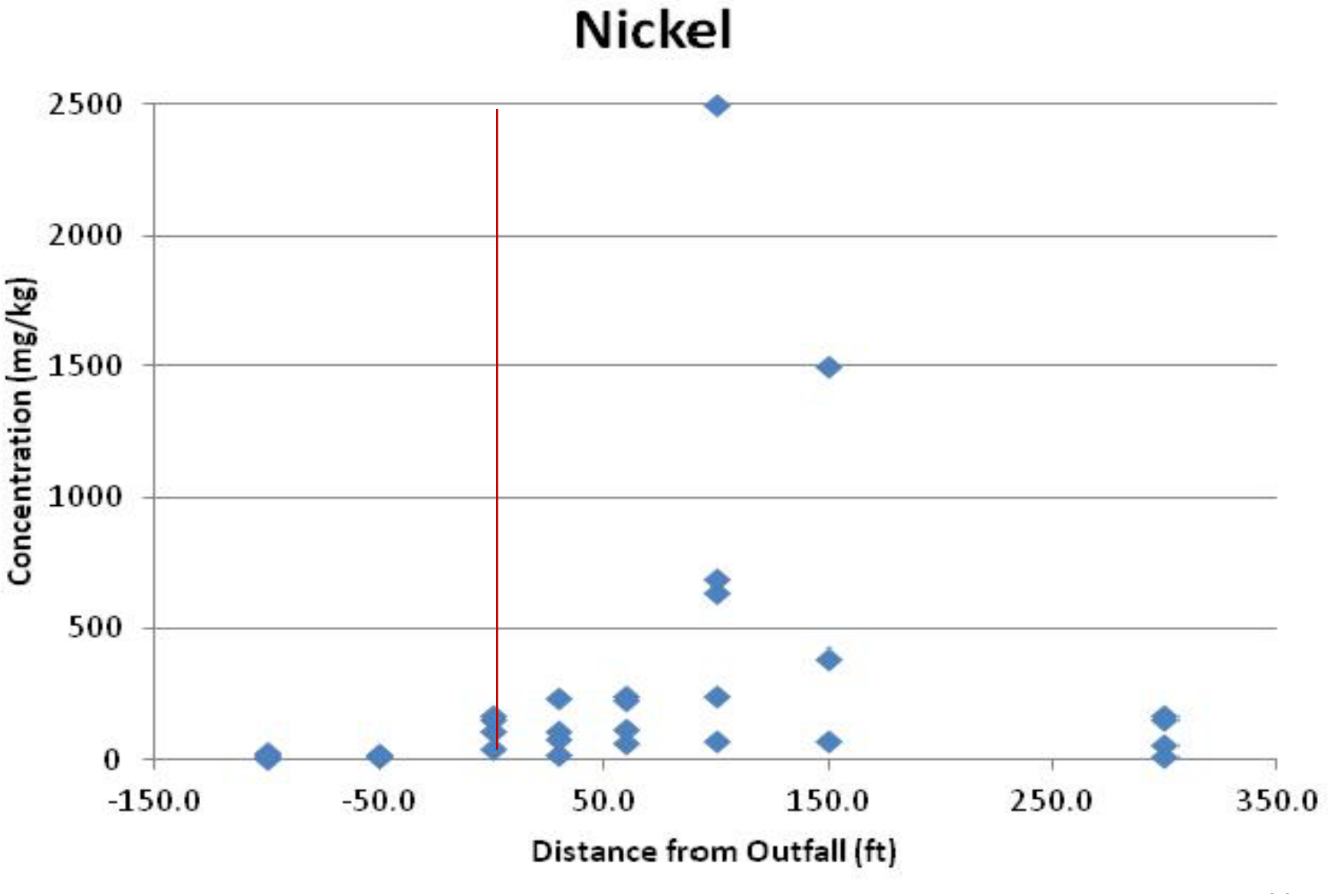

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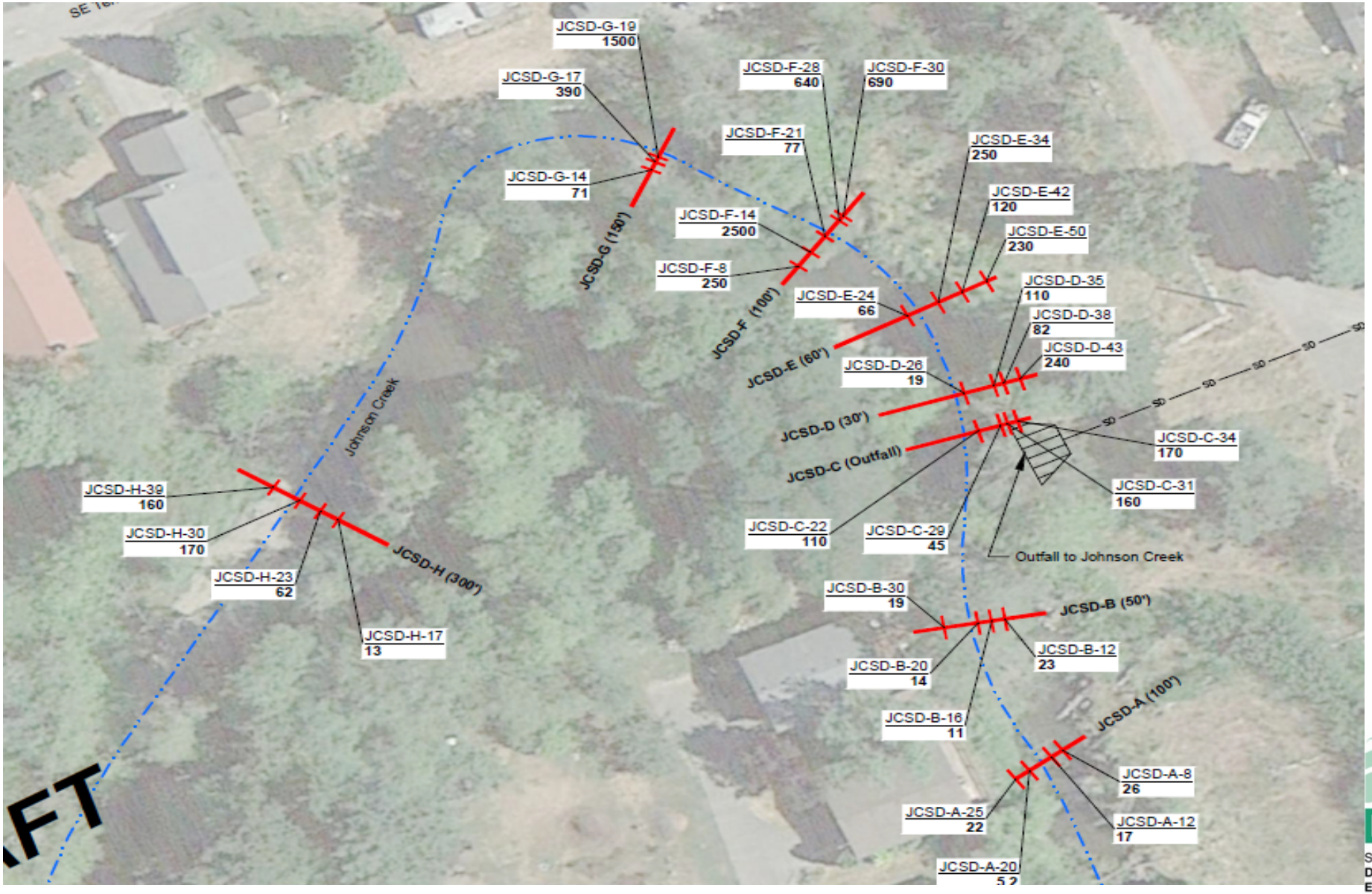
Sediment Sampling Results- Nickel



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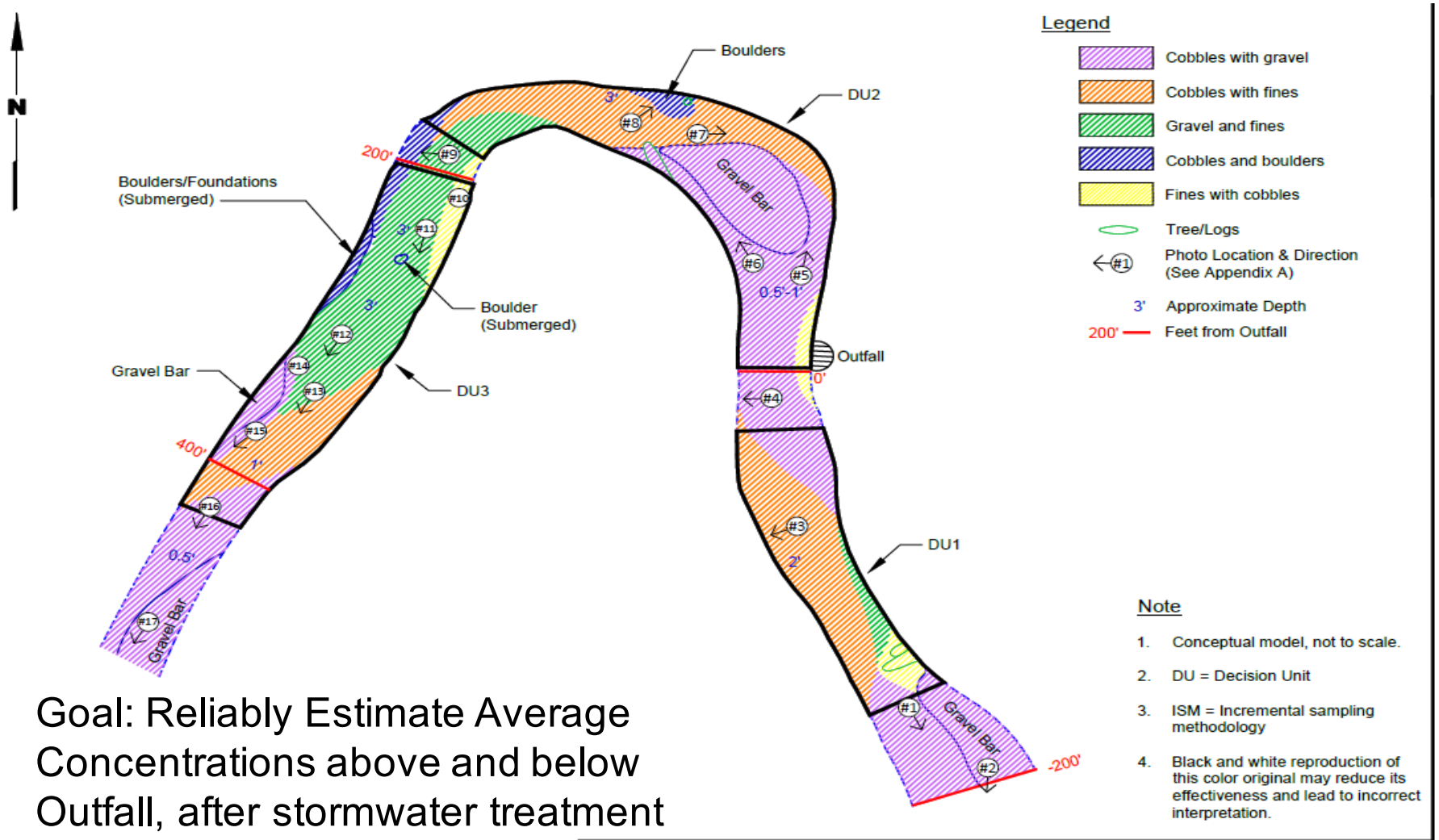
2017 Sediment Sampling



Goal: Reliably Estimate Average Concentrations above and below Outfall, after stormwater treatment

PCC Structurals, Inc. Large Parts Campus Portland, Oregon	**Johnson Creek Streambed Map and Proposed Decision Units for ISM Approach**	Figure 2

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