August 31, 2016

U.S. Environmental Protection Agency, Region 9
Water Enforcement Section II
75 Hawthorne Street (ENF 3-2)
San Francisco, CA 94105-3901

Attention: Juliet Hannafin

Subject: Interim Sediment Investigation Results and Proposed Additional Sediment Sampling
Sims Group USA Corporation, Redwood City, California

Dear Ms. Hannafin:

In accordance with Paragraph 12 of the Consent Decree between the United States Environmental Protection Agency (EPA) and Sims Group USA Corporation (Sims), Case 3:14-cv-04209, effective December 1, 2014 ("the Consent Decree"), and the Final Sediment Sampling and Analysis Plan and Quality Assurance Project Plan (SSAP/QAPP), approved by EPA on April 25, 2016, Terraphase Engineering Inc. (Terraphase) has performed characterization of the marine sediment within a portion of Redwood Creek ("the Project Area") to evaluate if the shared-use area underneath and proximate to Sims' ship-loading conveyor ("the Conveyor") located at Wharf 3 at the Port of Redwood City ("the Port") has been affected by total metals and polychlorinated biphenyls (PCBs) associated with Sims' scrap metal ship-loading activities.

Work was completed in general accordance with the Final SSAP/QAPP. Sediment samples were collected between June 6 and June 15, 2016, and analyzed by Eurofins Calscience Environmental Laboratories in Garden Grove, California. After evaluating the results of the primary sediment samples, Sims elected to analyze all contingency sediment samples collected from additional transects to the north and south of the original Project Area. Based on the preliminary evaluation of the primary and contingency data, Sims has determined that additional characterization is warranted pursuant to the Consent Decree objectives, to assess both the lateral and vertical extent of the potentially affected area.

On behalf of Sims, Terraphase has prepared this letter to briefly summarize the key investigation findings and to describe the proposed supplemental site characterization activities. The available data are provided herein, in the attached tables and figures. The laboratory data, as well as sediment sampling logs and photos, can be provided at your request. Sims proposes that the additional sediment characterization proposed herein be completed, and that the new data and information, combined with the results summarized in this letter, be presented in a single comprehensive report. The data evaluation presented in this letter is preliminary in nature, given that additional data collection is proposed. Pending completion of characterization activities, we are reserving judgment on the extent to which any of the sampling results may be attributable to Sims' operations.

KEY FINDINGS

Scrap Metal

Small amounts of scrap metal were observed in sediment from 13 sample locations of the total 52 locations sampled in the Project Area. Most of the locations where scrap metal was observed were limited to an area within 40 feet of the concrete apron. The extent of observed scrap metal impacts in the Project Area has been sufficiently characterized by the completed investigative activities.

Sediment Chemistry

Metals and PCBs were found to be elevated in the Project Area relative to background concentrations. Metal concentrations were consistently higher in the primary area than in the contingency area. Of the metals, copper, lead, and zinc concentrations had the largest relative exceedances of their respective 95% Upper Tolerance Limit (UTL) background concentrations in both the primary and contingency areas.

Lateral Distribution: Concentrations of metals and PCBs were highest in subtidal (i.e., non-riprap) sediment in close proximity to the concrete apron, and along the intertidal riprap shoreline on either side of the concrete apron. Concentrations of metals and PCBs in subtidal sediment generally decreased with distance from the concrete apron, both to the south and north.

With the exception of zinc at one location, the concentrations of metals in the northernmost subtidal contingency sediment samples were below their respective 95%UTL background concentrations. Metals concentrations were also generally below their respective 95%UTL background concentrations in sediments collected from the southernmost contingency sampling locations, with the exception of relatively small exceedances of the lead and zinc 95%UTL background concentrations at selected locations.

Total PCB concentrations were below the 95%UTL background concentrations in most subtidal sediment samples. Total PCB concentrations were below the 95%UTL background concentrations in all contingency subtidal sediment samples to the south of the concrete apron and in the northernmost subtidal sediment samples. Therefore, the lateral extent of PCBs in subtidal sediment in the Project Area has been sufficiently characterized.

Metals and total PCB concentrations in sediment collected from the intertidal (i.e., riprap) area generally exceeded their respective 95%UTL background concentrations. However, the background samples were all collected in subtidal areas near Wharves 2, 4, and 5, and not in intertidal areas, and therefore the background metals and PCB concentrations may not be relevant or appropriate for screening intertidal sediment data from the Project Area.

Vertical Distribution: Three sediment cores were collected in the primary area south of the concrete apron, to depths between 2.1 and 3 feet below the sediment surface (bss). Copper, lead, zinc, and total PCB concentrations show similar vertical trends. At the two locations within approximately 20 feet of the concrete apron, copper, lead, zinc, and PCB concentrations were highest in the intermediate-depth (1.5-to-2-foot-bss) sediment sample. By contrast, copper, lead, zinc, and PCB concentrations in sediment approximately 40 feet south of the concrete apron, were highest in the surface sample and decreased with depth. The copper concentration in the deepest sample at this location was below the 95%UTL

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background concentration, and lead, and zinc concentrations were only slightly above their 95%UTL background concentrations for subsurface sediment.

Total PCB concentrations in all three samples from the core collected 40 feet south of the concrete apron were all below the 95%UTL background concentration.

Comparison with Redwood Creek Reference PCB Concentrations: The range of total PCB concentrations in the background areas was similar to the range found in sediment from reference locations in Redwood Creek. Therefore, the data from the background areas is representative of subtidal conditions in Redwood Creek.

Most of the Project-Area subtidal (i.e., non-riprap) sediment samples also contained total PCB concentrations within the range of total PCB concentrations in the Redwood Creek reference samples. However, most of the project-area intertidal (i.e., riprap) sediment samples contained total PCB concentrations above the range of total PCB concentrations in the Redwood Creek reference samples.

PROPOSED ADDITIONAL SEDIMENT SAMPLING

Based on the results of this investigation, Sims has determined that additional characterization is necessary to achieve the objectives of the Consent Decree. The following section summarizes the proposed supplemental site characterization activities.

Lateral Extent of Metals within the Project Area

The extent of metals exceeding background in surface sediment is generally well established based on the current data. One additional transect of subtidal surface samples is proposed on the both the north and south margins of the Project Area, for a total of five additional subtidal surface samples. The proposed additional surface-sediment sample locations are shown on Figure 17. The samples will be collected using a Ponar sampler and analyzed for Title 22 metals and moisture content, in accordance with methods presented in the Final SSAP/QAPP.

Vertical Extent of Metals and PCBs within the Project Area

Additional sediment coring is proposed to provide characterization of the vertical extent of metals and PCBs in the Project Area. Ten additional sediment coring locations are proposed (Figure 17). The proposed coring locations are coincident with prior sample locations. Three of the proposed coring locations (W3-7, W3-8 and W3-9) were previously cored during the initial investigation to a depth of 3 feet bss. The cores will be advanced to a target depth of 5 feet bss, using the vibracore method.

Subsurface samples will be collected and analyzed for the same constituent suite used for the primary and contingency samples, at depths of 1.5-2.0 feet, 2.5-3.0 feet, 3.5-4.0 feet, and 4.5-5.0 feet bss. At stations W3-7, W3-8 and W3-9, samples will only be collected and analyzed from depths of 3.5-4.0 feet bss, and 4.5-5.0 feet bss, because shallower data at these locations are already available.

Samples collected from sediment cores will be analyzed for Title 22 metals, PCBs (Aroclors), and moisture content, in accordance with methods presented in the Final SSAP/QAPP.

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Intertidal Area Background

All background samples were collected in subtidal areas near Wharves 2, 4, and 5. The currently available background data set may not provide a suitable reference for samples collected in the intertidal portion of the Project Area. Additional surface sediment sampling is proposed in intertidal areas adjacent to the previously sampled background areas near Wharves 2, 4, and 5 to establish background concentrations for the intertidal environment. Six sediment samples will be collected from the riprap in each of the three background areas, for a total of 18 background samples. The locations of additional riprap sediment sample locations are presented on Figures 18a, b, and c. Sediment samples will be analyzed for Title 22 metals, PCBs (Aroclors), and moisture content.

Additional sampling of Project-Area intertidal sediments is not proposed at this time. The existing data will be screened against the 95%UTL background concentrations to be established for intertidal sediment. Additional sampling of Project-Area intertidal sediments may be proposed depending on the outcome of data screening against background.

Sampling and Analysis Plan

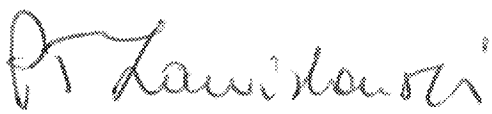
The proposed investigation will be conducted in general accordance with the approved Final SSAP/QAPP. The only deviation in field methods relative to the Final SSAP/QAPP is the proposed use of the vibracore sediment coring method. A standard operating procedure for coring using the vibracore method is attached.

CLOSING

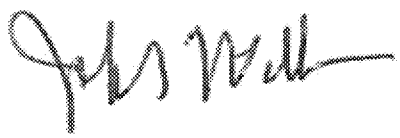
Sims is committed to complying with the objectives of the Consent Decree, and believes that the proposed additional sediment sampling will help achieve the investigation objectives. Terraphase and Sims appreciate the EPA's review of the investigative results to date. We look forward to meeting with you to discuss the proposed approach for the completion of site characterization.

If you have any questions or comments regarding the information in the letter, please contact Peter Zawislanski at peter.zawislanski@terraphase.com or 510-645-1858.

For Terraphase Engineering Inc.



Peter Zawislanski, PG, CHG
Principal Hydrogeologist



Jeff Wallace, PG
Principal Geologist

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cc: Rich Campbell, EPA
Melisa Cohen, Sims Metal Management
Steven Shinn, Sims Metal Management
Scott Miller, Esq., Sims Metal Management
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Enclosures:

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Vibracore Sediment Sampling SOP

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Table 1
Sampling Location Coordinates - Target and Actual
Sediment Investigation Report
Sims Metal Managment, Redwood City, California

terraphase engineering

Area	Sample Location	Target		Actual	
		Easting	Northing	Easting	Northing
Wharf 2	W2-01	6065533.997	2013564.045	6065544.855	2013557.345
	W2-02	6065547.615	2013557.745	6065565.102	2013548.35
	W2-03	6065561.232	2013551.445	6065581.341	2013542.937
	W2-04	6065527.511	2013589.071	6065530.965	2013584.781
	W2-05	6065541.129	2013582.77	6065552.681	2013576.749
	W2-06	6065554.746	2013576.47	6065575.186	2013568.318
	W2-07	6065568.364	2013570.17	6065591.087	2013562.432
	W2-08	6065548.283	2013600.559	6065568.302	2013603.333
	W2-09	6065561.9	2013594.259	6065586.09	2013589.987
	W2-10	6065575.517	2013587.959	6065599.254	2013580.83
Wharf 3	W3-01	6065360.964	2013013.452	6065356.263	2013018.054
	W3-02	6065380.236	2013008.083	6065375.815	2013013.005
	W3-03	6065366.331	2013032.511	6065361.051	2013035.461
	W3-04	6065385.603	2013027.143	6065379.206	2013027.416
	W3-05	6065371.941	2013051.764	6065369.322	2013052.178
	W3-06	6065391.213	2013046.396	6065386.453	2013042.909
	W3-07	6065410.484	2013041.028	6065408.346	2013043.743
	W3-08	6065404.875	2013021.775	6065397.549	2013026.451
	W3-09	6065399.508	2013002.716	6065396.338	2013011.017
	W3-10	6065418.78	2012997.347	6065413.816	2012997.361
	W3-11	6065424.146	2013016.407	6065419.679	2013018.511
	W3-12	6065429.756	2013035.66	6065430.021	2013036.848
	W3-13	6065449.028	2013030.292	6065439.909	2013029.283
	W3-14	6065443.418	2013011.039	6065445.641	2013011.492
	W3-15	6065438.052	2012991.98	6065436.938	2012994.404
	W3-16	6065432.199	2012972.533	6065432.45	2012976.344
	W3-17	6065426.431	2012953.305	6065427.587	2012956.996
	W3-18	6065421.089	2012935.17	6065420.615	2012937.234
	W3-19	6065401.817	2012940.538	6065394.341	2012938.84
	W3-20	6065407.159	2012958.673	6065400.154	2012958.083
	W3-21	6065412.927	2012977.901	6065407.239	2012977.293
	W3-22	6065459.077	2013054.193	6065457.5	2013068.122
	W3-23	6065464.33	2013074.05	6065464.731	2013078.025
	W3-24	6065473.243	2013092.001	6065467.548	2013096.939
	W3-25	6065478.317	2013111.47	6065471.969	2013111.565
	W3-26	6065439.805	2013059.56	6065439.304	2013063.473
	W3-27	6065444.82	2013079.193	6065441.005	2013082.813

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Table 1
Sampling Location Coordinates - Target and Actual
Sediment Investigation Report
Sims Metal Managment, Redwood City, California

Area	Sample Location	Target		Actual	
		Easting	Northing	Easting	Northing
Wharf 3	W3-28	6065453.5	2013097.558	6065448.851	2013102.745
	W3-29	6065458.987	2013116.887	6065453.051	2013122.821
	W3-30	6065472.291	2013161.81	6065466.719	2013164.684
	W3-31	6065490.998	2013156.798	6065487.139	2013161.993
	W3-32	6065344.001	2012956.642	6065341.583	2012960.954
	W3-33	6065349.343	2012974.777	6065345.512	2012975.714
	W3-34	6065355.111	2012994.005	6065350.655	2012996.892
	W3-35	6065363.273	2012951.274	6065353.751	2012952.213
	W3-36	6065368.615	2012969.409	6065361.425	2012970.268
	W3-37	6065374.383	2012988.637	6065367.676	2012991.685
	W3-38	6065382.545	2012945.907	6065374.008	2012947.58
	W3-39	6065387.887	2012964.041	6065380.288	2012965.849
	W3-40	6065393.655	2012983.269	6065389.692	2012988.3
	W3-41	6065381.989	2013075.664	6065378.049	2013080.229
	W3-42	6065387.005	2013095.297	6065385.328	2013104.207
	W3-43	6065401.261	2013070.297	6065397.439	2013079.779
	W3-44	6065406.277	2013089.929	6065402.207	2013094.655
	W3-45	6065414.956	2013108.294	6065410.63	2013113.395
	W3-46	6065420.443	2013127.624	6065416.758	2013133.13
	W3-47	6065420.533	2013064.929	6065413.718	2013067.995
	W3-48	6065425.549	2013084.561	6065423.279	2013089.859
	W3-49	6065434.228	2013102.925	6065430.6	2013110.016
	W3-50	6065439.715	2013122.255	6065434.355	2013127.947
	W3-51	6065433.747	2013172.546	6065429.373	2013172.903
	W3-52	6065453.019	2013167.178	6065445.797	2013172.84
Wharf 4	W4-01	6065273.611	2012583.018	6065267.191	2012587.01
	W4-02	6065292.939	2012577.853	6065289.443	2012583.634
	W4-03	6065312.266	2012572.689	6065312.928	2012579.404
	W4-04	6065258.503	2012607.51	6065254.307	2012614.484
	W4-05	6065277.83	2012602.346	6065271.263	2012603.778
	W4-06	6065297.157	2012597.182	6065299.984	2012600.706
	W4-07	6065316.485	2012592.017	6065321.352	2012597.247
	W4-08	6065283.539	2012622.059	6065283.125	2012632.419
	W4-09	6065302.866	2012616.895	6065300.755	2012631.576
	W4-10	6065322.194	2012611.73	6065319.371	2012627.92

Table 1
Sampling Location Coordinates - Target and Actual
Sediment Investigation Report
Sims Metal Managment, Redwood City, California

Area	Sample Location	Target		Actual	
		Easting	Northing	Easting	Northing
Wharf 5	W5-01	6065265.042	2011858.002	6065253.349	2011864.43
	W5-02	6065283.725	2011850.85	6065273.548	2011851.088
	W5-03	6065302.409	2011843.698	6065292.003	2011838.088
	W5-04	6065254.686	2011884.215	6065250.285	2011900.051
	W5-05	6065273.188	2011876.493	6065280.474	2011880.743
	W5-06	6065291.872	2011869.341	6065293.475	2011875.492
	W5-07	6065310.065	2011862.181	6065312.066	2011863.26
	W5-08	6065280.071	2011895.443	6065288.402	2011906.347
	W5-09	6065298.755	2011888.291	6065310.16	2011897.339
	W5-10	6065317.721	2011880.663	6065327.859	2011888.431

Notes:
Coordinates are in California State Plane, Zone III, ft, NAD 83
NAD = North American Datum

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Table 2
Sediment Sample Analytical Results - Background Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Background Area	Wharf 2									
		Location	W2-1	W2-2	W2-3	W2-4	W2-5			W2-6	W2-7	W2-8
		Sample Date	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/14/2016
		Sample Depth	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	0-0.5
		Field Identification	W2-1-SED-6.8-7.3	W2-2-SED-4.0-4.5	W2-3-SED-2.5-3.0	W2-4-SED-13.5-14.0	W2-5-SED-0-0.5	W2-5-SED-1.5-2.0	W2-5-SED-2.5-3.0	W2-6-SED-5.1-5.6	W2-7-SED-2.7-3.2	W2-8-SED-12.1-12.6
Moisture		%	63	58	52	65	56	51	49	62	57	65
Metals	Aluminum	mg/kg	**26,000**	**29,400**	**21,800**	**33,500**	**30,100**	**32,800**	**32,700**	**20,800**	**20,800**	**25,800B**
	Antimony	mg/kg	<2.08	<1.87	<1.51	<2.16	<1.78	<1.6	<1.53	**4.81B**	<1.75	<2.07
	Arsenic	mg/kg	**10.9**	**11.2**	**8.2**	**11.6**	**14.8**	**10.9**	**10.8**	**6.09**	**5.95**	**10.1B**
	Barium	mg/kg	**67.1**	**73.8**	**65.3**	**68.1**	**77.5**	**57.6**	**54**	**52.1**	**57.4**	**54.8**
	Beryllium	mg/kg	**0.628J**	**0.595J**	**0.45J**	**0.719J**	**0.667**	**0.645**	**0.652**	**0.521J**	**0.468J**	**0.594J**
	Cadmium	mg/kg	<1.39	<1.25	<1.01	<1.44	<1.19	<1.07	<1.02	**0.712J**	<1.16	<1.38
	Chromium	mg/kg	**91.9**	**157**	**111**	**103**	**101**	**93.4**	**94.3**	**84.1**	**117**	**84.6**
	Cobalt	mg/kg	**13.5**	**17.5**	**14.9**	**14.9**	**15.1**	**14.1**	**14.6**	**14.2**	**15.3**	**12.8**
	Copper	mg/kg	**57.4**	**55**	**45.6**	**58.1**	**77.2**	**34.6**	**35.1**	**39.8**	**57.8**	**49B**
	Iron	mg/kg	**41,200B**	**41,200B**	**31,400B**	**45,600B**	**42,700B**	**40,700B**	**43,000B**	**30,600B**	**32,800B**	**39,900B**
	Lead	mg/kg	**34**	**30.5**	**23.4**	**33.3**	**50.2**	**12.6**	**12.6**	**22.2**	**26.3**	**29.1**
	Mercury	mg/kg	**1.89B**	**12.4B**	**2.81B**	**0.318B**	**1.21B**	**0.0894B,J**	**0.0781B,J**	**0.988B**	**1.59B**	**0.406B**
	Molybdenum	mg/kg	**3.98**	**4.64**	**3.57**	**4.23**	**4.74**	**4.15**	**4.52**	<0.634	**3.33**	**3.55**
	Nickel	mg/kg	**97.7**	**178**	**118**	**102**	**109**	**93.2**	**95.1**	**89.2**	**145**	**86.8**
	Selenium	mg/kg	<2.08	<1.87	<1.51	<2.16	<1.78	<1.6	<1.53	<1.9	<1.75	<2.07
	Silver	mg/kg	<0.693	<0.623	<0.504	<0.721	<0.594	<0.534	<0.51	<0.634	<0.582	<0.69
	Thallium	mg/kg	<2.08	<1.87	<1.51	<2.16	<1.78	<1.6	<1.53	<1.9	<1.75	<2.07
	Vanadium	mg/kg	**65.8B**	**68.8B**	**57.2B**	**79.7B**	**73.1B**	**74.7B**	**75B**	**53.4B**	**56.5B**	**63.4**
	Zinc	mg/kg	**158**	**161**	**162**	**154**	**185**	**98.2**	**97.2**	**127**	**135**	**139B**
PCBs	Aroclor 1016	µg/kg	<27	<24	<21	<28	<23	<51	<19	<26	<23	<28
	Aroclor 1221	µg/kg	<27	<24	<21	<28	<23	<51	<19	<26	<23	<28
	Aroclor 1232	µg/kg	<27	<24	<21	<28	<23	<51	<19	<26	<23	<28
	Aroclor 1242	µg/kg	<27	<24	<21	<28	<23	<51	<19	<26	<23	<28
	Aroclor 1248	µg/kg	**25J**	**34**	**28**	<28	**52**	<51	<19	**20J**	**24**	<28
	Aroclor 1254	µg/kg	**58**	**68**	**48**	**22J**	**260**	<51	<19	**37**	**52**	**35**
	Aroclor 1260	µg/kg	**61**	**63**	**46**	**27J**	**140**	**45J**	<19	**35**	**54**	**31**
	Aroclor 1262	µg/kg	<27	<24	<21	<28	<23	<51	<19	<26	<23	<28
	Total PCBs	µg/kg	**144**	**165**	**122**	**49**	**452**	**45**	<19	**92**	**130**	**66**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
Detected concentrations are **bold**
J = estimated below laboratory reporting limit
mg/kg = Milligrams per kilogram
PCB = Polychlorinated biphenyls
Total PCBs summations from Aroclors were calculated using 0 for Non-Detects
µg/kg = micrograms per kilogram

Table 2
Sediment Sample Analytical Results - Background Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Background Area	Wharf 2		Wharf 4							
		Location	W2-9	W2-10	W4-1	W4-2	W4-3	W4-4	W4-5			W4-6
		Sample Date	6/14/2016	6/14/2016	6/10/2016	6/10/2016	6/10/2016	6/9/2016	6/9/2016	6/9/2016	6/9/2016	6/9/2016
		Sample Depth	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5
		Field Identification	W2-9-SED-10.0-10.5	W2-10-SED-6.8-7.3	W4-1-SED-11.8-12.3	W4-2-SED-8.5-9.0	W4-3-SED-4.0-4.5	W4-4-SED-12.8-13.3	W4-5-SED-0-0.5	W4-5-SED-1.5-2.0	W4-5-SED-2.5-3.0	W4-6-SED-7.5-8.0
Moisture		%	63	59	65	64	64	64	60	60	59	65
Metals	Aluminum	mg/kg	**27,300B**	**25,700B**	**28,300B**	**26,000B**	**24,700B**	**27,100B**	**26,600B**	**24,600B**	**27,200B**	**27,100B**
	Antimony	mg/kg	<2.03	<1.91	<2.15	<2.09	<2.04	<2.18	<1.88	<1.97	<1.87	<2.19
	Arsenic	mg/kg	**8.16B**	**6.65B**	**9.91**	**9.47**	**7.21**	**8.65**	**8.37**	**10.1**	**11.2**	**8.32**
	Barium	mg/kg	**61.4**	**61.5**	**64.4**	**59.6**	**75.8**	**60.4**	**61**	**59.5**	**57**	**60.8**
	Beryllium	mg/kg	**0.61J**	**0.503J**	**0.777**	**0.703**	**0.659J**	**0.722J**	**0.715**	**0.677**	**0.721**	**0.742**
	Cadmium	mg/kg	<1.35	<1.27	**0.71J**	**0.74J**	**0.784J**	**0.618J**	**0.857J**	**1.24J**	**1.18J**	**0.709J**
	Chromium	mg/kg	**96.4**	**116**	**106**	**97.5**	**94.6**	**97.7**	**103**	**97.1**	**103**	**99.9**
	Cobalt	mg/kg	**13.6**	**14.5**	**18.6**	**17.6**	**17.5**	**17.9**	**18.4**	**17.9**	**18.6**	**17.8**
	Copper	mg/kg	**52.1B**	**46.1B**	**60.7**	**56.1**	**61.4**	**57.4**	**66.6**	**66.5**	**64**	**57.5**
	Iron	mg/kg	**41,800B**	**34,400B**	**44,000B**	**41,000B**	**38,600B**	**41,100B**	**41,400B**	**39,600B**	**41,200B**	**42,500B**
	Lead	mg/kg	**31.1**	**24**	**33.3**	**30.1**	**38.8**	**37.9**	**40.1**	**53.4**	**48.4**	**31.3**
	Mercury	mg/kg	**0.699B**	**3.04B**	**0.223J**	**0.239**	**0.438**	<0.234	**0.384**	**0.519**	**0.46**	<0.252
	Molybdenum	mg/kg	**4.04**	**3.58**	<0.715	<0.698	<0.679	<0.728	<0.628	<0.658	<0.624	<0.729
	Nickel	mg/kg	**105**	**139**	**107**	**98.8**	**96.3**	**98**	**106**	**98.8**	**110**	**100**
	Selenium	mg/kg	<2.03	<1.91	<2.15	<2.09	<2.04	<2.18	<1.88	<1.97	<1.87	<2.19
	Silver	mg/kg	<0.676	<0.635	**0.384J**	**0.437J**	<0.679	<0.728	**0.622J**	**1.21**	**0.816**	<0.729
	Thallium	mg/kg	<2.03	<1.91	<2.15	<2.09	<2.04	<2.18	<1.88	<1.97	**0.386J**	<2.19
	Vanadium	mg/kg	**65.8**	**61.8**	**80.3**	**73.4**	**69.3**	**75.7**	**75.7**	**75.8**	**79.6**	**75.6**
	Zinc	mg/kg	**147B**	**134B**	**158B**	**148B**	**163B**	**142B**	**166B**	**169B**	**168B**	**146B**
PCBs	Aroclor 1016	µg/kg	<27	<24	<29	<27	<28	<28	<25	<25	<24	<29
	Aroclor 1221	µg/kg	<27	<24	<29	<27	<28	<28	<25	<25	<24	<29
	Aroclor 1232	µg/kg	<27	<24	<29	<27	<28	<28	<25	<25	<24	<29
	Aroclor 1242	µg/kg	<27	<24	<29	<27	<28	<28	<25	<25	<24	<29
	Aroclor 1248	µg/kg	**20J**	**30**	<29	<27	**33**	<28	**86**	**17J**	<24	**18J**
	Aroclor 1254	µg/kg	**84**	**84**	<29	**19J**	**36**	<28	**90**	**22J**	<24	**20J**
	Aroclor 1260	µg/kg	**76**	**86**	**35**	**27J**	**41**	**52**	**43**	**33**	**23J**	**32**
	Aroclor 1262	µg/kg	<27	<24	<29	<27	<28	<28	<25	<25	<24	<29
	Total PCBs	µg/kg	**180**	**200**	**35**	**46**	**110**	**52**	**219**	**72**	**23**	**70**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
Detected concentrations are **bold**
J = estimated below laboratory reporting limit
mg/kg = Milligrams per kilogram
PCB = Polychlorinated biphenyls
Total PCBs summations from Aroclors were calculated using 0 for Non-Detects
µg/kg = micrograms per kilogram

Table 2
Sediment Sample Analytical Results - Background Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Background Area	Wharf 4				Wharf 5					
		Location	W4-7	W4-8	W4-9	W4-10	W5-1	W5-2	W5-3	W5-4	W5-5	
		Sample Date	6/9/2016	6/10/2016	6/10/2016	6/10/2016	6/14/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/15/2016
		Sample Depth	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	1.5-2
		Field Identification	W4-7-SED-4.4-4.9	W4-8-SED-9.6-10.1	W4-9-SED-6.7-7.2	W4-10-SED-2.4-2.9	W5-1-SED-21.4-21.9	W5-2-SED-14.5-15.0	W5-3-SED-9.6-10.1	W5-4-SED-25.8-26.3	W5-5-SED-0-0.5	W5-5-SED-1.5-2.0
Moisture		%	61	66	64	61	65	65	68	66	60	45
Metals	Aluminum	mg/kg	**22,400B**	**25,200B**	**26,500B**	**23,700B**	**32,900B**	**32,400B**	**38,200B**	**27,100**	**28,800**	**26,100**
	Antimony	mg/kg	<1.88	<2.11	<2.20	<1.95	<2.16	<2.14	<2.35	<2.29	<1.95	<1.42
	Arsenic	mg/kg	**7.3**	**8.51**	**7.31**	**7.63**	**9.88B**	**10.3B**	**10.8B**	**9.07**	**8.11**	**4.76**
	Barium	mg/kg	**80**	**56.8**	**58.4**	**95.3**	**68.4**	**66**	**76.1**	**60.5**	**60.1**	**44.5**
	Beryllium	mg/kg	**0.622J**	**0.704J**	**0.706J**	**0.635J**	**0.739**	**0.731**	**0.79**	**0.716J**	**0.699**	**0.634**
	Cadmium	mg/kg	**2.79**	**0.592J**	**0.588J**	**0.918J**	<1.44	<1.43	<1.56	**0.538J**	**0.794J**	**0.607J**
	Chromium	mg/kg	**93.2**	**94.7**	**97.9**	**103**	**103**	**102**	**114**	**99.3**	**102**	**92.7**
	Cobalt	mg/kg	**17.2**	**17.3**	**17.8**	**18.6**	**14.1**	**13.5**	**15.6**	**18.3**	**19.4**	**18.7**
	Copper	mg/kg	**99.6**	**56.7**	**56.7**	**94.9**	**60.8B**	**57.6B**	**62.1B**	**57.6**	**56.3**	**41**
	Iron	mg/kg	**35,900B**	**40,300B**	**41,000B**	**38,000B**	**45,000B**	**44,800B**	**48,900B**	**43,000B**	**43,600B**	**40,500B**
	Lead	mg/kg	**40.3**	**30.2**	**31.6**	**80.3**	**33.7**	**31**	**32.5**	**31.6**	**23.5**	**11.4**
	Mercury	mg/kg	**0.537**	**0.245**	**0.244**	**0.607**	**0.336B**	**0.31B**	**0.305B**	**0.225J**	**0.103J**	**0.0295J**
	Molybdenum	mg/kg	<0.627	<0.705	<0.733	**0.642J**	**4.24**	**4.32**	**5.01**	<0.764	**0.767**	<0.473
	Nickel	mg/kg	**95.6**	**96.2**	**98.5**	**98.6**	**101**	**102**	**111**	**99.2**	**103**	**98.4**
	Selenium	mg/kg	<1.88	<2.11	<2.20	<1.95	<2.16	<2.14	<2.35	<2.29	<1.95	-
	Silver	mg/kg	**0.388J**	<0.705	<0.733	<0.649	<0.718	<0.714	<0.782	<0.764	<0.65	<0.473
	Thallium	mg/kg	<1.88	<2.11	<2.20	<1.95	<2.16	<2.14	<2.35	**0.547J**	<1.95	<1.42
	Vanadium	mg/kg	**65.3**	**71.7**	**73.8**	**69**	**77.9**	**75.6**	**88**	**74.6**	**80**	**73.7**
	Zinc	mg/kg	**169B**	**140B**	**143B**	**200B**	**159B**	**150B**	**161B**	**154B**	**141B**	**106B**
PCBs	Aroclor 1016	µg/kg	<26	<29	<28	<26	<28	<29	<31	<29	<25	<18
	Aroclor 1221	µg/kg	<26	<29	<28	<26	<28	<29	<31	<29	<25	<18
	Aroclor 1232	µg/kg	<26	<29	<28	<26	<28	<29	<31	<29	<25	<18
	Aroclor 1242	µg/kg	<26	<29	<28	<26	<28	<29	<31	<29	<25	<18
	Aroclor 1248	µg/kg	**29**	<29	<28	**52**	<28	<29	<31	<29	**23J**	<18
	Aroclor 1254	µg/kg	**41**	<29	**19J**	**110**	**23J**	**20J**	<31	**21J**	**16J**	<18
	Aroclor 1260	µg/kg	**60**	**34**	**32**	**97**	**46**	**35**	**30J**	**36**	**33**	<18
	Aroclor 1262	µg/kg	<26	<29	<28	<26	<28	<29	<31	<29	<25	<18
	Total PCBs	µg/kg	**130**	**34**	**51**	**259**	**69**	**55**	**30**	**57**	**72**	<18

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
Detected concentrations are **bold**
J = estimated below laboratory reporting limit
mg/kg = Milligrams per kilogram
PCB = Polychlorinated biphenyls
Total PCBs summations from Aroclors were calculated using 0 for Non-Detects
µg/kg = micrograms per kilogram

Table 2
Sediment Sample Analytical Results - Background Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Background Area	Wharf 5					
		Location	W5-5	W5-6	W5-7	W5-8	W5-9	W5-10
		Sample Date	6/15/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/15/2016
		Sample Depth	2-2.25	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification	W5-5-SED-2.0-2.25	W5-6-SED-12.1-12.6	W5-7-SED-9.4-9.9	W5-8-SED-18.3-18.8	W5-9-SED-10.4-10.9	W5-10-SED-6.7-7.2
Moisture		%	46	65	65	65	62	69
Metals	Aluminum	mg/kg	**27,600**	**31,600B**	**35,600B**	**28,000**	**29,700**	**33,000**
	Antimony	mg/kg	<1.39	<2.17	<2.16	<2.27	<2.07	<2.36
	Arsenic	mg/kg	**6.98**	**12B**	**9.88B**	**8.76**	**8.54**	**8.02**
	Barium	mg/kg	**47.1**	**62.6**	**75.2**	**60.8**	**53.2**	**68.5**
	Beryllium	mg/kg	**0.648**	**0.686J**	**0.724**	**0.721J**	**0.735**	**0.83**
	Cadmium	mg/kg	**0.625J**	<1.45	<1.44	**0.678J**	**0.718J**	**0.912J**
	Chromium	mg/kg	**94.2**	**102**	**106**	**101**	**105**	**116**
	Cobalt	mg/kg	**18.8**	**14**	**15**	**18.9**	**19.9**	**21.3**
	Copper	mg/kg	**40.6**	**49.4B**	**55.8B**	**59.8**	**49.6**	**70.5**
	Iron	mg/kg	**42,200B**	**44,500B**	**46,900B**	**44,200B**	**45,800B**	**48,000B**
	Lead	mg/kg	**11.2**	**25.1**	**29.9**	**30.7**	**20.7**	**34.6**
	Mercury	mg/kg	**0.032J**	**0.217B,J**	**0.228B,J**	**0.207J**	**0.115J**	**0.303**
	Molybdenum	mg/kg	<0.463	**4.46**	**4.89**	<0.756	<0.689	<0.786
	Nickel	mg/kg	**98.4**	**101**	**106**	**103**	**108**	**115**
	Selenium	mg/kg	**2.64**	<2.17	<2.16	<2.27	<2.07	<2.36
	Silver	mg/kg	<0.463	<0.723	<0.722	<0.756	**0.24J**	<0.786
	Thallium	mg/kg	<1.39	<2.17	<2.16	<2.27	<2.07	<2.36
	Vanadium	mg/kg	**76.1**	**76.5**	**82**	**75.9**	**80.5**	**87.9**
	Zinc	mg/kg	**104B**	**162B**	**157B**	**167B**	**135B**	**190B**
PCBs	Aroclor 1016	µg/kg	<19	<28	<29	<28	<27	<32
	Aroclor 1221	µg/kg	<19	<28	<29	<28	<27	<32
	Aroclor 1232	µg/kg	<19	<28	<29	<28	<27	<32
	Aroclor 1242	µg/kg	<19	<28	<29	<28	<27	<32
	Aroclor 1248	µg/kg	<19	<28	<29	**19J**	<27	<32
	Aroclor 1254	µg/kg	<19	**48**	**19J**	**23J**	<27	**27J**
	Aroclor 1260	µg/kg	<19	**44**	**29**	**44**	**26J**	**47**
	Aroclor 1262	µg/kg	<19	<28	<29	<28	<27	<32
	Total PCBs	µg/kg	<19	**92**	**48**	**86**	**26**	**74**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
Detected concentrations are **bold**
J = estimated below laboratory reporting limit
mg/kg = Milligrams per kilogram
PCB = Polychlorinated biphenyls
Total PCBs summations from Aroclors were calculated using 0 for Non-Detects
µg/kg = micrograms per kilogram

Table 3

Statistical Evaluation - Background Sediment Data

Sediment Investigation Report

Sims Metal Management, Redwood City, California

terraphase engineering

Parameter	Number of Samples	Number of Detects	Minimum Detect	Maximum	Mean	Standard Deviation	Distribution	UCL Fit	95% UCL	95% UTL
Antimony	36	1	4.8	4.8	--	--	--	--	TFD	TFD
Arsenic	36	36	4.76	14.8	9.07	2.00	Normal	95% Student's-t UCL	9.63	13.37
Barium	36	36	44.5	95.3	63.41	9.906	Normal	95% Student's-t UCL	66.2	84.69
Beryllium	36	36	0.45	0.83	0.669	0.09	Normal	95% Student's-t UCL	0.693	0.85
Cadmium	36	20	0.54	2.79	0.77	0.39	None	95% KM (t) UCL	0.926	2.79
Chromium	36	30	36	157	102.1	12.22	None	95% Modified-t UCL	106	157
Cobalt	36	36	12.8	21.3	16.6	2.221	None	95% Student's-t UCL	17.2	21.30
Copper	36	36	34.6	99.6	57.42	13.53	Lognormal	95% Modified-t UCL	61.3	91.0
Lead	36	36	11.2	80.3	31.69	12.84	None/Lognormal[1]	95% Modified-t UCL	35.4	51.7
Mercury	36	34	0.030	12.4	0.936	2.151	Lognormal	97.5% KM (Chebyshev) UCL	3.077	4.96
Molybdenum	36	18	0.642	5.01	3.814	1.227	None	95% KM (t) UCL	2.69	5.01
Nickel	36	36	86.8	178	105.8	16.86	None	95% Modified-t UCL	110.7	178
Selenium	35	1	2.6	2.6	--	--	--	--	TFD	TFD
Silver	36	7	0.46	1.21	0.59	0.33	Normal	95% KM (t) UCL	0.50	0.806
Thallium	36	2	0.39	0.55	0.467	0.114	--	--	TFD	TFD
Vanadium	36	36	53.4	88	73.03	7.949	Normal	95% Student's-t UCL	75.3	90.11
Zinc	36	36	97.2	200	149.9	23.36	Normal	95% Student's-t UCL	156.5	200
Aluminum	36	36	20,800	38,200	27,975	4,072	Normal	95% Student's-t UCL	29,122	37789
Iron	36	36	30,600	48,900	41,314	4,232	None	95% Student's-t UCL	42,506	48900
Total PCB Aroclors	36	33	26	452	101.7	86.33	Lognormal	95% Adjusted Gamma UCL	157.1	395

Notes:

< = analyte not detected above laboratory reporting limit

-- = not calculated

Metals concentrations in milligrams per kilogram

NC = not calculated due to insufficient detects

PCB concentrations in micrograms per kilogram

PCB = polychlorinated biphenyls

TFD = Too few detects to calculate UCL

Total PCBs summations from Aroclors were calculated using 0 for non-detect results

UCL = upper confidence limit

UTL = upper tolerance limit

95%UCL = 95-percent upper confidence limit on the mean

95%UTL = 95% UTL with 95% Coverage

95%UCL and 95%UTL calculated with using ProUCL 5.0.00 Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations

1 = log-normal distribution after high outlier excluded

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

			95% UCL	95% UTL	Wharf 3					
		Project Area			Wharf 3					
		Location			W3-1	W3-2	W3-3	W3-4	W3-5	W3-6
		Location Type			Primary	Primary	Primary	Primary	Primary	Primary
		Sample Date			6/6/2016	6/6/2016	6/6/2016	6/6/2016	6/6/2016	6/6/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-1-SED-23.2-23.8	W3-2-SED-8.3-8.9	W3-3-SED-21.2-21.8	W3-4-SED-8.8-9.4	W3-5-SED-15.0-15.5	W3-6-SED-6.7-7.3
Moisture		**%**			**66**	**66**	**67**	**70**	**67**	**70**
Metals	Aluminum	mg/kg	**29,122**	37,789	23,000B	24,400B	22,800B	24,000B	26,400B	25,100B
	Antimony	mg/kg	**NC**	NC	0.705B,J	<2.19	1.62B,J	4.98B	2.14B,J	2.48B
	Arsenic	mg/kg	**9.63**	13.37	**12.1**	**17.5**	**12.7**	**17.9**	**20.8**	**13.6**
	Barium	mg/kg	**66.19**	84.69	**88.4**	**217**	55.2	**107**	**86.9**	65
	Beryllium	mg/kg	**0.693**	0.852	**0.697J**	**0.71J**	0.682J	**0.703J**	**0.763**	**0.747J**
	Cadmium	mg/kg	**0.926**	2.79	**<1.45**	**<1.46**	**<1.46**	**<1.74**	0.516J	**<1.65**
	Chromium	mg/kg	**105.7**	157	89.7	101	89.7	93.5	**116**	98.5
	Cobalt	mg/kg	**17.23**	21.3	**19.1**	**20**	**18.3**	**18.9**	**22.2**	**19.6**
	Copper	mg/kg	**61.3**	90.98	**66.6**	**106**	**65.5**	**76**	**458**	**93.3**
	Iron	mg/kg	**42,506**	48,900	**42,800**	**48,600**	**43,600**	**45,600**	**62,800**	**47,500**
	Lead	mg/kg	**35.39**	51.68	**41.7**	**60.8**	**41.5**	**47.5**	**216**	**49.4**
	Mercury	mg/kg	**3.077**	4.958	0.34	0.752	0.389	0.482	0.4	0.347
	Molybdenum	mg/kg	**2.689**	5.01	<0.727	<0.729	<0.730	<0.868	0.989	<0.824
	Nickel	mg/kg	**110.7**	178	103	**114**	98.7	104	**138**	109
	Selenium	mg/kg	**NC**	NC	<2.18	<2.19	<2.19	<2.60	<2.16	1.31J
	Silver	mg/kg	**0.501**	0.806	**0.796**	**1.28**	**0.752**	**1.01**	**1.45**	**0.782J**
	Thallium	mg/kg	**NC**	NC	<2.18	<2.19	<2.19	<2.60	<2.16	<2.47
	Vanadium	mg/kg	**75.27**	90.11	72.3	**75.4**	71.9	74.8	**83.1**	**79**
	Zinc	mg/kg	**156.5**	200.1	**208**	**425**	**202**	**247**	**768**	**273**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<29	<30	<31	<34	<30	<33
	Aroclor 1221	µg/kg	**NC**	NC	<29	<30	<31	<34	<30	<33
	Aroclor 1232	µg/kg	**NC**	NC	<29	<30	<31	<34	<30	<33
	Aroclor 1242	µg/kg	**NC**	NC	<29	<30	<31	<34	<30	<33
	Aroclor 1248	µg/kg	**NC**	NC	44	130	45	56	210	63
	Aroclor 1254	µg/kg	**NC**	NC	34	89	33	40	110	43
	Aroclor 1260	µg/kg	**NC**	NC	45	110	41	39	61	48
	Aroclor 1262	µg/kg	**NC**	NC	<29	<30	<31	<34	<30	<33
	Total PCBs	µg/kg	**157.1**	395	123	**329**	119	135	**381**	154

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
J = estimated below laboratory reporting limit
mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

			95% UCL	95% UTL									
		Project Area			Wharf 3								
		Location			W3-7			W3-8			W3-9		
		Location Type			Primary			Primary			Primary		
		Sample Date			6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016
		Sample Depth			0-0.5	1.5-2	2-2.1	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3
		Field Identification			W3-7-SED-0-0.5	W3-7-SED-1.5-2	W3-7-SED-2.0-2.1	W3-8-SED-0-0.5	W3-8-SED-1.5-2	W3-8-SED-2.5-3	W3-9-SED-0-0.5	W3-9-SED-1.5-2	W3-9-SED-2.5-3
Moisture		**%**			**52**	**63**	**59**	**60**	**58**	**53**	**54**	**52**	**54**
Metals	Aluminum	mg/kg	**29,122**	37,789	18,900B	12,500B	12,800B	25,100B	21,500B	18,700B	22,100B	19,200B	23,000B
	Antimony	mg/kg	**NC**	NC	9.64	93.1	30.6	<1.83	<1.79	<1.63	<1.70	<1.58	<1.68
	Arsenic	mg/kg	**9.63**	13.37	**47.6**	**68.9**	**76**	**31.4**	**42.2**	**23.3**	**19.9**	**14.9**	**14.4**
	Barium	mg/kg	**66.19**	84.69	**203**	**1290**	**909**	**195**	**247**	**190**	**147**	**83.7**	62.7
	Beryllium	mg/kg	**0.693**	0.852	0.487J	<1.34	<1.15	0.662	0.602	0.538J	0.622	0.596	0.648
	Cadmium	mg/kg	**0.926**	2.79	**5**	**103**	**34.2**	**2.93**	**9.75**	**5.63**	**2.29**	**1.65**	**1.49**
	Chromium	mg/kg	**105.7**	157	**780**	**264**	**205**	**128**	**170**	**147**	**126**	**116**	**120**
	Cobalt	mg/kg	**17.23**	21.3	**38.7**	**25.6**	**32**	**25.8**	**29**	**25.6**	**23.8**	**19.9**	**22.5**
	Copper	mg/kg	**61.3**	90.98	**2280**	**3280**	**621**	**360**	**534**	**349**	**416**	**146**	**80.5**
	Iron	mg/kg	**42,506**	48,900	**85,500**	**157,000**	**164,000**	**67,800**	**79,200**	**57,200**	**52,700**	38,100	41,500
	Lead	mg/kg	**35.39**	51.68	**312**	**3080**	**1650**	**217**	**484**	**424**	**277**	**184**	**70.6**
	Mercury	mg/kg	**3.077**	4.958	1.02	1.58	1.95	1.37	1.15	1.69	1.4	2.69	**3.64**
	Molybdenum	mg/kg	**2.689**	5.01	**19.3B**	**25.2B**	**20.9B**	**3.65B**	**7.05B**	**2.82B**	1.68B	0.444B,J	<0.561
	Nickel	mg/kg	**110.7**	178	**931**	**959**	**404**	**352**	**237**	**292**	**161**	**159**	**164**
	Selenium	mg/kg	**NC**	NC	<1.63	<4.02	<3.46	<1.83	<1.79	<1.63	<1.70	<1.58	<1.68
	Silver	mg/kg	**0.501**	0.806	**1.16**	**10**	**2.45**	**0.894**	**0.773**	**1.59**	0.402J	**1.76**	**1.58**
	Thallium	mg/kg	**NC**	NC	<1.63	<4.02	<3.46	<1.83	<1.79	<1.63	<1.70	<1.58	<1.68
	Vanadium	mg/kg	**75.27**	90.11	73.9	59.2	70.9	**82.2**	**78.1**	68.8	75.2	64.8	73.7
	Zinc	mg/kg	**156.5**	200.1	**3340**	**6560**	**4270**	**1940**	**5680**	**1270**	**1060**	**248**	**246**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<210	<270	<240	<120	<240	<21	<22	<21	<22
	Aroclor 1221	µg/kg	**NC**	NC	<210	<270	<240	<120	<240	<21	<22	<21	<22
	Aroclor 1232	µg/kg	**NC**	NC	<210	<270	<240	<120	<240	<21	<22	<21	<22
	Aroclor 1242	µg/kg	**NC**	NC	<210	<270	<240	<120	<240	<21	<22	<21	<22
	Aroclor 1248	µg/kg	**NC**	NC	1500	920	1100	730	1800	200	95	83	47
	Aroclor 1254	µg/kg	**NC**	NC	650	2600	2700	900	870	150	84	19J	63
	Aroclor 1260	µg/kg	**NC**	NC	360	3100	2400	380	390	140	190	39	71
	Aroclor 1262	µg/kg	**NC**	NC	<210	<270	<240	<120	<240	<21	<22	<21	<22
	Total PCBs	µg/kg	**157.1**	395	**2510**	**6620**	**6200**	**2010**	**3060**	**490**	**369**	141	**181**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
J = estimated below laboratory reporting limit
mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Project Area			Wharf 3								
		Location	95% UCL	95% UTL	W3-10	W3-11	W3-12	W3-13	W3-14	W3-15	W3-16	W3-17
		Location Type			Primary	Primary	Primary	Primary	Primary	Primary	Contingency	Contingency
		Sample Date			6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-10-SED-0-0.5	W3-11-SED-0-0.5	W3-12-SED-0-0.5	W3-13-SED-0-0.5	W3-14-SED-0-0.5	W3-15-SED-0-0.5	W3-16-SED-0-0.5	W3-17-SED-0-0.5
Moisture		**%**			**67**	**54**	**58**	**65**	**56**	**54**	**54**	**53**
Metals	Aluminum	mg/kg	**29,122**	37,789	24,600B	13,800B	15,400B	12,100B	14,300B	14,600B	20,300	18,000
	Antimony	mg/kg	**NC**	NC	4.21B	11.6B	0.507B,J	<2.12	10.9B	10.2B	<1.57	<1.61
	Arsenic	mg/kg	**9.63**	13.37	**32**	**79.5**	**56.2**	**19.1**	**103**	**73.1**	**15.9**	**19.7**
	Barium	mg/kg	**66.19**	84.69	**151**	**182**	**141**	**204**	**491**	**591**	**346**	**421**
	Beryllium	mg/kg	**0.693**	0.852	0.676J	0.357J	0.45J	**<0.706**	<0.588	0.468J	0.554	0.447J
	Cadmium	mg/kg	**0.926**	2.79	**4.02**	**5.94**	**2.52**	**7.49**	**13.9**	**10.6**	**5.43**	**4.46**
	Chromium	mg/kg	**105.7**	157	**120**	**461**	**261**	**228**	**261**	**184**	**155**	**137**
	Cobalt	mg/kg	**17.23**	21.3	**34.6**	**31.8**	**33.5**	**36.3**	**64.4**	**46.2**	**34.9**	**31**
	Copper	mg/kg	**61.3**	90.98	**365**	**2320**	**2230**	**1640**	**1950**	**2790**	**981**	**1070**
	Iron	mg/kg	**42,506**	48,900	**60,200**	**164,000**	**141,000**	**193,000**	**181,000**	**104,000**	**74,800**	**74,100**
	Lead	mg/kg	**35.39**	51.68	**171**	**379**	**1120**	**469**	**1570**	**1110**	**507**	**568**
	Mercury	mg/kg	**3.077**	4.958	1.7	1.27	0.448	0.641	1.51	2.7	1.28	1.68
	Molybdenum	mg/kg	**2.689**	5.01	2.54	**20.2**	**25**	**30.8**	**37.2**	**12.5**	**6.34**	**6.88**
	Nickel	mg/kg	**110.7**	178	**705**	**222**	**218**	**688**	**459**	**348**	**241**	**180**
	Selenium	mg/kg	**NC**	NC	<2.31	<1.71	<1.73	1.41J	2.21	<1.59	1.17J	<1.61
	Silver	mg/kg	**0.501**	0.806	**1.38**	**6**	**1.84**	**1.28**	**5.45**	**3.54**	**1.75**	**1.24**
	Thallium	mg/kg	**NC**	NC	<2.31	<1.71	<1.73	<2.12	<1.76	<1.59	<1.57	<1.61
	Vanadium	mg/kg	**75.27**	90.11	**83.3**	**82.3**	**80.9**	60.4	64.9	61.7	69.3	60.6
	Zinc	mg/kg	**156.5**	200.1	**1770**	**4740**	**3120**	**4910**	**11,200**	**7600**	**4250**	**4310**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<31	<110	<120	<140	<230	<220	<220	<210
	Aroclor 1221	µg/kg	**NC**	NC	<31	<110	<120	<140	<230	<220	<220	<210
	Aroclor 1232	µg/kg	**NC**	NC	<31	<110	<120	<140	<230	<220	<220	<210
	Aroclor 1242	µg/kg	**NC**	NC	<31	<110	<120	<140	<230	<220	<220	<210
	Aroclor 1248	µg/kg	**NC**	NC	100	540	710	990	1100	1400	2200	4200
	Aroclor 1254	µg/kg	**NC**	NC	64	800	490	600	1800	1900	1600	2500
	Aroclor 1260	µg/kg	**NC**	NC	140	330	470	350	650	880	540	820
	Aroclor 1262	µg/kg	**NC**	NC	<31	<110	<120	<140	<230	<220	<220	<210
	Total PCBs	µg/kg	**157.1**	395	**304**	**1670**	**1670**	**1940**	**3550**	**4180**	**4340**	**7520**

Notes:
< = analyte not detected above laboratory reporting limit
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mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Project Area			Wharf 3								
		Location	95% UCL	95% UTL	W3-18	W3-19	W3-20	W3-21	W3-22	W3-23	W3-24	W3-25
		Location Type			Contingency	Contingency	Contingency	Contingency	Primary	Primary	Primary	Contingency
		Sample Date			6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-18-SED-0-0.5	W3-19-SED-0-0.5	W3-20-SED-0-0.5	W3-21-SED-0-0.5	W3-22-SED-0-0.5	W3-23-SED-0-0.5	W3-24-SED-0-0.5	W3-25-SED-0-0.5
Moisture		**%**			**53**	**63**	**63**	**64**	**45**	**40**	**46**	**45**
Metals	Aluminum	mg/kg	**29,122**	37,789	21,800	25,400	27,700	28,600	7320B	8440B	10,100B	13,700
	Antimony	mg/kg	**NC**	NC	<1.62	<2.04	<1.96	<2.17	16.9B	22.3B	16.7B	<1.39
	Arsenic	mg/kg	**9.63**	13.37	**37.5**	**12.8**	**20.5**	**11.7**	**158**	**118**	**82.9**	**12**
	Barium	mg/kg	**66.19**	84.69	**321**	**148**	**120**	**99.7**	**594**	**778**	**769**	**442**
	Beryllium	mg/kg	**0.693**	0.852	**0.736**	0.677J	**0.709**	**0.742**	<0.477	<0.417	0.352J	0.317J
	Cadmium	mg/kg	**0.926**	2.79	**2.3**	**1.56**	**3.51**	**1.55**	**17.4**	**11.4**	**10.9**	**3.1**
	Chromium	mg/kg	**105.7**	157	**169**	101	**122**	**107**	**163**	**249**	**280**	**113**
	Cobalt	mg/kg	**17.23**	21.3	**30.2**	**21.6**	**25**	**22.7**	**49.1**	**64.3**	**51.3**	**30**
	Copper	mg/kg	**61.3**	90.98	**379**	**238**	**185**	**132**	**1310**	**3330**	**3110**	**1270**
	Iron	mg/kg	**42,506**	48,900	**50,600**	41,500	**54,100**	**46,300**	**199,000**	**195,000**	**146,000**	**71,000**
	Lead	mg/kg	**35.39**	51.68	**311**	**106**	**152**	**76.9**	**1450**	**1820**	**1620**	**712**
	Mercury	mg/kg	**3.077**	4.958	0.761	0.526	0.798	1.45	**3.92**	**4.19**	**3.44**	1.78
	Molybdenum	mg/kg	**2.689**	5.01	**12.9**	**3.13**	**4.43**	2.43	**26.2**	**35**	**21.2**	**18.8**
	Nickel	mg/kg	**110.7**	178	**166**	108	**130**	**124**	**609**	**658**	**591**	**189**
	Selenium	mg/kg	**NC**	NC	2.2	<2.04	<1.96	<2.17	<1.43	2.8	<1.45	<1.39
	Silver	mg/kg	**0.501**	0.806	**0.907**	0.403J	0.402J	**0.522J**	**4.52**	**4.19**	**3.06**	**1.13**
	Thallium	mg/kg	**NC**	NC	1.13J	<2.04	<1.96	<2.17	<1.43	<1.25	<1.45	<1.39
	Vanadium	mg/kg	**75.27**	90.11	68.4	74.2	**80.1**	**81.4**	44.2	54.4	56.7	50.6
	Zinc	mg/kg	**156.5**	200.1	**2340**	**541**	**955**	**572**	**28,500**	**22,800**	**9390**	**5440**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<210	<130	<54	<28	<360	<330	<370	<360
	Aroclor 1221	µg/kg	**NC**	NC	<210	<130	<54	<28	<360	<330	<370	<360
	Aroclor 1232	µg/kg	**NC**	NC	<210	<130	<54	<28	<360	<330	<370	<360
	Aroclor 1242	µg/kg	**NC**	NC	<210	<130	<54	<28	<360	<330	<370	<360
	Aroclor 1248	µg/kg	**NC**	NC	1100	430	580	240	3400	300J	2100	4300
	Aroclor 1254	µg/kg	**NC**	NC	790	590	370	180	2100	2200	1700	2700
	Aroclor 1260	µg/kg	**NC**	NC	470	270	100	120	1300	1100	1000	760
	Aroclor 1262	µg/kg	**NC**	NC	<210	<130	<54	<28	<360	<330	<370	<360
	Total PCBs	µg/kg	**157.1**	395	**2360**	**1290**	**1050**	**540**	**6800**	**3600**	**4800**	**7760**

Notes:
< = analyte not detected above laboratory reporting limit
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PCB = polychlorinated biphenyls
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Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

			95% UCL	95% UTL	Wharf 3							
		Project Area										
		Location			W3-26	W3-27	W3-28	W3-29	W3-30	W3-31	W3-32	W3-33
		Location Type			Primary	Primary	Primary	Contingency	Contingency	Contingency	Contingency	Contingency
		Sample Date			6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/8/2016	6/9/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-26-SED-0-0.5	W3-27-SED-0-0.5	W3-28-SED-0-0.5	W3-29-SED-0-0.5	W3-30-SED-0-0.5	W3-31-SED-0-0.5	W3-32-SED-27-27.5	W3-33-SED-19.0-19.5
Moisture		**%**			**62**	**59**	**55**	**52**	**61**	**29**	**56**	**58**
Metals	Aluminum	mg/kg	**29,122**	37,789	20,700B	13,100B	18,000B	16,900	26,800	13,000	26,200	27,400
	Antimony	mg/kg	**NC**	NC	5.71B	6.13B	6.75B	<1.48	<1.88	<1.09	0.382J	<1.89
	Arsenic	mg/kg	**9.63**	13.37	**23.4**	**68.7**	**46.7**	**16.8**	**12.8**	**14.6**	**10.4**	9.58
	Barium	mg/kg	**66.19**	84.69	**80.1**	**219**	**243**	**158**	**92.3**	**296**	**92**	65.3
	Beryllium	mg/kg	**0.693**	0.852	0.618J	<0.647	0.553	0.448J	**0.706**	0.319J	**0.748**	**0.736**
	Cadmium	mg/kg	**0.926**	2.79	0.555J	**3.33**	**5.38**	**1.33**	0.644J	**1.96**	0.804J	0.504J
	Chromium	mg/kg	**105.7**	157	104	**488**	**161**	**114**	95.7	**141**	**106**	97.9
	Cobalt	mg/kg	**17.23**	21.3	**21.1**	**73.8**	**26.7**	**18.3**	**20.8**	**18.8**	**19.5**	**19.2**
	Copper	mg/kg	**61.3**	90.98	**212**	**3970**	**623**	**579**	**77.7**	**358**	**73.8**	**68.2**
	Iron	mg/kg	**42,506**	48,900	**75,300**	**128,000**	**81,700**	**46,200**	**45,100**	**48,600**	41,900	**43,500**
	Lead	mg/kg	**35.39**	51.68	**77.2**	**614**	**447**	**147**	**51.1**	**569**	**96.9**	**36.8**
	Mercury	mg/kg	**3.077**	4.958	0.323	0.562	0.672	0.507	0.338	0.434	0.375	0.353
	Molybdenum	mg/kg	**2.689**	5.01	2.42	**42.7**	**7.55**	**3.95**	<0.628	**5.04**	<0.569	<0.629
	Nickel	mg/kg	**110.7**	178	**122**	**371**	**180**	98.7	101	**386**	103	99.3
	Selenium	mg/kg	**NC**	NC	<2.02	<1.94	4.3	1.5	1.12J	<1.09	<1.71	<1.89
	Silver	mg/kg	**0.501**	0.806	**1.24**	**2.54**	**1.5**	**0.729**	0.431J	0.345J	0.288J	0.262J
	Thallium	mg/kg	**NC**	NC	<2.02	<1.94	<1.62	<1.48	0.922J	<1.09	0.576J	<1.89
	Vanadium	mg/kg	**75.27**	90.11	72.5	**97.8**	**79.8**	54.5	74.3	54	74.8	74
	Zinc	mg/kg	**156.5**	200.1	**913**	**3610**	**2670**	**919**	**342**	**1470**	**459**	**191**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<26	<120	<110	<100	<25	<140	<23	<24
	Aroclor 1221	µg/kg	**NC**	NC	<26	<120	<110	<100	<25	<140	<23	<24
	Aroclor 1232	µg/kg	**NC**	NC	<26	<120	<110	<100	<25	<140	<23	<24
	Aroclor 1242	µg/kg	**NC**	NC	<26	<120	<110	<100	<25	<140	<23	<24
	Aroclor 1248	µg/kg	**NC**	NC	60	1100	540	740	93	520	30	39
	Aroclor 1254	µg/kg	**NC**	NC	52	620	340	560	85	530	45	35
	Aroclor 1260	µg/kg	**NC**	NC	41	290	190	200	64	340	41	28
	Aroclor 1262	µg/kg	**NC**	NC	<26	<120	<110	<100	<25	<140	<23	<24
	Total PCBs	µg/kg	**157.1**	395	153	**2010**	**1070**	**1500**	**242**	**1390**	116	102

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
J = estimated below laboratory reporting limit
mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

			95% UCL	95% UTL	Wharf 3						
		Project Area									
		Location			W3-34	W3-35	W3-36	W3-37	W3-38	W3-39	W3-40
		Location Type			Contingency	Contingency	Contingency	Contingency	Contingency	Contingency	Contingency
		Sample Date			6/9/2016	6/9/2016	6/9/2016	6/9/2016	6/9/2016	6/9/2016	6/9/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-34-SED-21.5-22.0	W3-35-SED-11.4-11.9	W3-36-SED-9.4-9.9	W3-37-SED-8.3-8.8	W3-38-SED-5.4-5.9	W3-39-SED-5.0-5.5	W3-40-SED-4.7-5.2
Moisture		**%**			**55**	**62**	**53**	**60**	**61**	**63**	**62**
Metals	Aluminum	mg/kg	**29,122**	37,789	22,000	25,700	24,800	26,100	24,000	25,900	25,400
	Antimony	mg/kg	**NC**	NC	<1.74	<2.03	<1.61	<1.89	<1.93	<2.04	<1.96
	Arsenic	mg/kg	**9.63**	13.37	6.78	9.02	**9.7**	9.57	6.89	7.68	7.93
	Barium	mg/kg	**66.19**	84.69	**91.5**	61.7	**86**	**73.5**	**101**	**67.1**	**81**
	Beryllium	mg/kg	**0.693**	0.852	0.681	**0.696**	**0.713**	**0.75**	0.676	**0.759**	**0.707**
	Cadmium	mg/kg	**0.926**	2.79	0.593J	0.58J	**0.974J**	0.692J	0.872J	0.502J	0.823J
	Chromium	mg/kg	**105.7**	157	82.4	92.2	**109**	99.7	**110**	103	**106**
	Cobalt	mg/kg	**17.23**	21.3	16.5	**17.9**	**19.5**	**19.5**	**19.2**	**18.9**	**18.8**
	Copper	mg/kg	**61.3**	90.98	**534**	56.7	**80.7**	**76.2**	**68.5**	**67.8**	**77.8**
	Iron	mg/kg	**42,506**	48,900	36,800	40,900	42,100	**44,300**	39,600	**42,900**	42,500
	Lead	mg/kg	**35.39**	51.68	**41.2**	34.7	**53.4**	**44.4**	**52.2**	**40.4**	**154**
	Mercury	mg/kg	**3.077**	4.958	<0.181	0.374	0.531	0.529	0.855	0.0613J	0.616
	Molybdenum	mg/kg	**2.689**	5.01	0.414J	<0.677	**5.05**	<0.63	<0.644	<0.681	<0.653
	Nickel	mg/kg	**110.7**	178	88.5	93.3	**142**	**112**	**118**	107	110
	Selenium	mg/kg	**NC**	NC	<1.74	<2.03	<1.61	<1.89	<1.93	<2.04	<1.96
	Silver	mg/kg	**0.501**	0.806	0.23J	0.417J	0.363J	0.356J	0.262J	0.455J	0.258J
	Thallium	mg/kg	**NC**	NC	0.512B,J	<2.03	<1.61	<1.89	<1.93	<2.04	<1.96
	Vanadium	mg/kg	**75.27**	90.11	63.2	68.9	72.5	74.4	69.1	74.8	70.6
	Zinc	mg/kg	**156.5**	200.1	**228**	**163**	**266**	**245**	**243**	**200**	**250**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<22	<26	<21	<24	<25	<27	<26
	Aroclor 1221	µg/kg	**NC**	NC	<22	<26	<21	<24	<25	<27	<26
	Aroclor 1232	µg/kg	**NC**	NC	<22	<26	<21	<24	<25	<27	<26
	Aroclor 1242	µg/kg	**NC**	NC	<22	<26	<21	<24	<25	<27	<26
	Aroclor 1248	µg/kg	**NC**	NC	160	21J	91	82	100	34	240
	Aroclor 1254	µg/kg	**NC**	NC	140	25J	61	75	96	45	100
	Aroclor 1260	µg/kg	**NC**	NC	72	26J	32	37	69	28	52
	Aroclor 1262	µg/kg	**NC**	NC	<22	<26	<21	<24	<25	<27	<26
	Total PCBs	µg/kg	**157.1**	395	**372**	72	**184**	**194**	**265**	107	**392**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
J = estimated below laboratory reporting limit
mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

			95% UCL	95% UTL							
		Project Area			Wharf 3						
		Location			W3-41	W3-42	W3-43	W3-44	W3-45	W3-46	W3-47
		Location Type			Primary	Primary	Primary	Primary	Primary	Contingency	Primary
		Sample Date			6/9/2016	6/10/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-41-SED-9.2-9.7	W3-42-SED-17.2-17.7	W3-43-SED-7.5-8.0	W3-44-SED-9.4-9.9	W3-45-SED-11.2-11.7	W3-46-SED-10.8-11.3	W3-47-SED-5.1-5.6
Moisture		**%**			**61**	**64**	**64**	**65**	**64**	**56**	**67**
Metals	Aluminum	mg/kg	**29,122**	37,789	21,200B	27,100B	**33,900**	**30,000**	**35,200**	22,600	**37,100**
	Antimony	mg/kg	**NC**	NC	<1.98	<2.00	<2.01	<2.14	<2.13	<1.81	<2.18
	Arsenic	mg/kg	**9.63**	13.37	**15.8**	8.35	**20.2**	**17.3**	**15.2**	7.81	**21.4**
	Barium	mg/kg	**66.19**	84.69	**132**	**75**	**173**	**117**	**95.1**	**86.3**	**103**
	Beryllium	mg/kg	**0.693**	0.852	0.581J	**0.727**	**0.716**	0.626J	**0.781**	0.598J	**0.754**
	Cadmium	mg/kg	**0.926**	2.79	**5.49**	**1.07J**	**2.59**	0.741J	0.531J	0.739J	**<1.46**
	Chromium	mg/kg	**105.7**	157	**149**	104	**159**	95	**108**	87.7	**155**
	Cobalt	mg/kg	**17.23**	21.3	**23.4**	**18.2**	**17.4**	12.6	14.4	17	15.6
	Copper	mg/kg	**61.3**	90.98	**458**	**113**	**511**	**117**	**89.1**	**73.2**	**1710**
	Iron	mg/kg	**42,506**	48,900	**80,400B**	**44,600B**	**58,400B**	**42,800B**	**47,900B**	38,500	**64,800B**
	Lead	mg/kg	**35.39**	51.68	**2240**	**54.2**	**114**	**63.8**	**53.6**	**40.2**	**63.3**
	Mercury	mg/kg	**3.077**	4.958	0.434	0.309	0.443B	0.549B	0.876B	0.688	0.456B
	Molybdenum	mg/kg	**2.689**	5.01	**3.99**	0.884	**6.91**	**4.52**	**4.48**	<0.602	**13.7**
	Nickel	mg/kg	**110.7**	178	**160**	106	**118**	96.3	107	96.3	**131**
	Selenium	mg/kg	**NC**	NC	<1.98	<2.00	<2.01	<2.14	<2.13	<1.81	<2.18
	Silver	mg/kg	**0.501**	0.806	**3.8**	**<0.666**	0.309J	0.37J	0.439J	0.218J	**<0.728**
	Thallium	mg/kg	**NC**	NC	<1.98	<2.00	<2.01	<2.14	<2.13	<1.81	<2.18
	Vanadium	mg/kg	**75.27**	90.11	71.3	**78.6**	**84.5B**	70.2B	**80.1B**	64	**86.8B**
	Zinc	mg/kg	**156.5**	200.1	**1700B**	**334B**	**780**	**390**	**275**	**232**	**572**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<26	<28	<28	<28	<28	<23	<30
	Aroclor 1221	µg/kg	**NC**	NC	<26	<28	<28	<28	<28	<23	<30
	Aroclor 1232	µg/kg	**NC**	NC	<26	<28	<28	<28	<28	<23	<30
	Aroclor 1242	µg/kg	**NC**	NC	<26	<28	<28	<28	<28	<23	<30
	Aroclor 1248	µg/kg	**NC**	NC	450	140	260	210	69	60	200
	Aroclor 1254	µg/kg	**NC**	NC	270	76	220	130	56	53	96
	Aroclor 1260	µg/kg	**NC**	NC	270	65	230	120	48	36	60
	Aroclor 1262	µg/kg	**NC**	NC	<26	<28	<28	<28	<28	<23	<30
	Total PCBs	µg/kg	**157.1**	395	**990**	**281**	**710**	**460**	**173**	149	**356**

Notes:
< = analyte not detected above laboratory reporting limit
B = analyte was present in an associated method blank
J = estimated below laboratory reporting limit
mg/kg = milligrams per kilogram
NC = Not calculated
PCB = polychlorinated biphenyls
UCL = upper confidence limit
UTL = upper tolerance limit
µg/kg = Micrograms per kilogram
Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 4
Sediment Sample Analytical Results - Primary and Contingency Locations
Sediment Investigation Report
Sims Metal Management, Redwood City, California

		Project Area	95% UCL	95% UTL	Wharf 3				
		Location			W3-48	W3-49	W3-50	W3-51	W3-52
		Location Type			Primary	Primary	Contingency	Contingency	Contingency
		Sample Date			6/10/2016	6/10/2016	6/13/2016	6/13/2016	6/13/2016
		Sample Depth			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
		Field Identification			W3-48-SED-2.5-3.0	W3-49-SED-2.5-3.0	W3-50-SED-7.6-8.1	W3-51-SED-13.0-13.5	W3-52-SED-8.0-8.5
Moisture		**%**			**59**	**63**	**58**	**64**	**59**
Metals	Aluminum	mg/kg	**29,122**	37,789	22,500B	24,900B	21,500	19,800	22,900
	Antimony	mg/kg	**NC**	NC	<1.75	<1.96	<1.71	<2.14	<1.87
	Arsenic	mg/kg	**9.63**	13.37	**16.5**	**12.1**	**11.7**	7.18	8.93
	Barium	mg/kg	**66.19**	84.69	**254**	**156**	**152**	64.7	**72.4**
	Beryllium	mg/kg	**0.693**	0.852	0.607	0.665	0.615	0.611J	0.642
	Cadmium	mg/kg	**0.926**	2.79	**5.12**	**2.38**	**1.22**	0.701J	0.734J
	Chromium	mg/kg	**105.7**	157	**169**	**115**	**115**	79.6	90.5
	Cobalt	mg/kg	**17.23**	21.3	**25**	**20.4**	**20**	**20.8**	**17.3**
	Copper	mg/kg	**61.3**	90.98	**3120**	**217**	**237**	58.6	**68**
	Iron	mg/kg	**42,506**	48,900	**78,000B**	**50,000B**	**44,400**	35,200	37,200
	Lead	mg/kg	**35.39**	51.68	**186**	**103**	**103**	33.9	**44.5**
	Mercury	mg/kg	**3.077**	4.958	**10.5**	0.484	0.371	0.379	0.252
	Molybdenum	mg/kg	**2.689**	5.01	**9.07**	1.32	1.63	<0.714	<0.624
	Nickel	mg/kg	**110.7**	178	**182**	**120**	**121**	91.6	97.2
	Selenium	mg/kg	**NC**	NC	2.17	<1.96	<1.71	<2.14	<1.87
	Silver	mg/kg	**0.501**	0.806	**0.779**	**1.16**	0.476J	**<0.714**	0.269J
	Thallium	mg/kg	**NC**	NC	<1.75	<1.96	<1.71	<2.14	<1.87
	Vanadium	mg/kg	**75.27**	90.11	**77.4**	**75.7**	66.6	61.4	66
	Zinc	mg/kg	**156.5**	200.1	**2180B**	**658B**	**591**	**173**	**227**
PCBs	Aroclor 1016	µg/kg	**NC**	NC	<240	<27	<24	<27	<24
	Aroclor 1221	µg/kg	**NC**	NC	<240	<27	<24	<27	<24
	Aroclor 1232	µg/kg	**NC**	NC	<240	<27	<24	<27	<24
	Aroclor 1242	µg/kg	**NC**	NC	<240	<27	<24	<27	<24
	Aroclor 1248	µg/kg	**NC**	NC	780	250	430	37	61
	Aroclor 1254	µg/kg	**NC**	NC	410	180	260	38	73
	Aroclor 1260	µg/kg	**NC**	NC	860	130	110	32	40
	Aroclor 1262	µg/kg	**NC**	NC	<240	<27	<24	<27	<24
	Total PCBs	µg/kg	**157.1**	395	**2050**	**560**	**800**	107	**174**

Notes:
< = analyte not detected above laboratory reporting limit
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mg/kg = milligrams per kilogram
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PCB = polychlorinated biphenyls
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Concentrations in bold exceed the 95% UCL
Concentrations in highlighted gray exceed the 95% UTL

Table 5
Statistical Evaluation - Primary and Contingency Sediment Data
Sediment Investigation Report
Sims Metal Management, Redwood City, California

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Parameter	Sample Depth	Area	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Standard Deviation	Fit	95% UCL
Antimony	Surface	Primary	29	17	0.51	22.3	5	5.9	95% KM (t) UCL	6.9
		Contingency	23	1	0.38	0.38	0.87	0.17	--	TFD
		Combined Areas	52	18	0.38	**22.3**	3.2	4.8	95% KM (Percentile Bootstrap) UCL	4.2
	Subsurface	Combined Areas	6	2	30.6	**93.1**	21	37	--	TFD
Arsenic	Surface	Primary	29	29	8.4	158	41	37	95% Chebyshev (Mean, Sd) UCL	71.0
		Contingency	23	23	6.8	37.5	12	6.7	95% Adjusted Gamma UC	14.9
		Combined Areas	52	52	6.8	**158**	28	31	95% Chebyshev (Mean, Sd) UCL	47.3
	Subsurface	Combined Areas	6	6	14.4	**76**	40	27	95% Student's-t UCL	62.3
Barium	Surface	Primary	29	29	55.2	778	231	205	95% H-UCL	304.5
		Contingency	23	23	61.7	442	154	120	95% Chebyshev (Mean, Sd) UCL	263
		Combined Areas	52	52	55.2	**778**	197	175	95% Chebyshev (Mean, Sd) UCL	303.1
	Subsurface	Combined Areas	6	6	62.7	**1,290**	464	511	95% Student's-t UCL	884.5
Beryllium	Surface	Primary	29	24	0.35	0.78	0.57	0.17	95% KM (t) UCL	0.64
		Contingency	23	23	0.32	0.76	0.63	0.13	95% Student's-t UCL	0.68
		Combined Areas	52	47	0.32	**0.78**	0.6	0.16	95% KM (Chebyshev) UCL	0.70
	Subsurface	Combined Areas	6	4	0.54	**0.65**	0.6	0.05	95% Student's-t UCL	0.64
Cadmium	Surface	Primary	29	23	0.52	17.4	4.4	4.5	95% Adjusted Gamma KM-UCL	6.3
		Contingency	23	23	0.50	5.4	1.5	1.4	95% Chebyshev (Mean, Sd) UCL	2.8
		Combined Areas	52	46	0.50	**17.4**	3.1	3.7	95% KM (Chebyshev) UCL	5.4
	Subsurface	Combined Areas	6	6	1.49	**103**	26	40	95% Student's-t UCL	58.6
Chromium	Surface	Primary	29	29	89.7	780	194	151	95% Chebyshev (Mean, Sd) UCL	316.6
		Contingency	23	23	79.6	169	110	22	95% Adjusted Gamma UCL	118.8
		Combined Areas	52	52	79.6	**780**	157	121	95% Modified-t UCL	186.5
	Subsurface	Combined Areas	6	6	116	**264**	170	57	95% Student's-t UCL	216.9
Cobalt	Surface	Primary	29	29	12.6	73.8	31	16	95% H-UC	36.2
		Contingency	23	23	16.5	34.9	22	5.1	95% Modified-t UCL	23.5
		Combined Areas	52	52	12.6	**73.8**	27	13	95% Modified-t UCL	29.80
	Subsurface	Combined Areas	6	6	19.9	**32**	26	4.3	95% Student's-t UCL	29.3
Copper	Surface	Primary	29	29	65.5	3,970	1,176	1,229	95% Adjusted Gamma UCL	1805
		Contingency	23	23	56.7	1,270	296	358	95% Chebyshev (Mean, Sd) UCL	621.5
		Combined Areas	52	52	56.7	**3,970**	787	1,039	95% Chebyshev (Mean, Sd) UCL	1,415
	Subsurface	Combined Areas	6	6	80.5	**3,280**	835	1,216	95% Adjusted Gamma UCL	5012
Lead	Surface	Primary	29	29	41.5	2,240	517	643	95% Adjusted Gamma UCL	800.4
		Contingency	23	23	33.9	712	173	207	95% Chebyshev (Mean, Sd) UCL	361.4
		Combined Areas	52	52	33.9	**2,240**	365	525	95% Chebyshev (Mean, Sd) UCL	682
	Subsurface	Combined Areas	6	6	70.6	**3,080**	982	1,173	95% Student's-t UCL	1,947
Mercury	Surface	Primary	29	29	0.31	10.5	1.4	2.1	95% Chebyshev (Mean, Sd) UCL	3.1
		Contingency	23	22	0.06	1.8	0.65	0.47	95% Adjusted Gamma KM-UCL	0.86
		Combined Areas	52	51	0.06	**10.5**	1.1	1.6	95% KM (Chebyshev) UCL	2.1
	Subsurface	Combined Areas	6	6	1.2	**3.6**	2.1	0.90	95% Student's-t UCL	2.9

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Table 5
Statistical Evaluation - Primary and Contingency Sediment Data
Sediment Investigation Report
Sims Metal Management, Redwood City, California

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Parameter	Sample Depth	Area	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Standard Deviation	Fit	95% UCL
Molybdenum	Surface	Primary	29	24	0.88	42.7	12	13	95% KM (Chebyshev) UCL	22.1
		Contingency	23	12	0.41	18.8	3.2	4.6	95% Adjusted Gamma KM-UCL	5.9
		Combined Areas	52	36	0.41	**42.7**	7.9	11	95% Approximate Gamma KM-UCL	11.1
	Subsurface	Combined Areas	6	5	0.44	**25.2**	9.4	11	95% KM (t) UCL	18.6
Nickel	Surface	Primary	29	29	96.3	931	286	238	95% Chebyshev (Mean, Sd) UCL	479.1
		Contingency	23	23	88.5	386	135	66	95% Modified-t UCL	160
		Combined Areas	52	52	88.5	**931**	219	197	95% Chebyshev (Mean, Sd) UCL	338.4
	Subsurface	Combined Areas	6	6	159	**959**	369	303	95% Student's-t UCL	618.4
Selenium	Surface	Primary	29	6	1.3	4.3	1.3	0.75	95% KM (Percentile Bootstrap) UCL	1.8
		Contingency	23	4	1.1	2.2	1	0.32	95% KM (t) UCL	1.4
		Combined Areas	52	10	1.1	**4.3**	1.2	0.60	95% KM (Percentile Bootstrap) UCL	1.6
	Subsurface	Combined Areas	6	0	<1.58	<4.02	--	--	--	TFD
Silver	Surface	Primary	29	27	0.31	6	1.8	1.6	95% KM (Chebyshev) UCL	3.126
		Contingency	23	22	0.22	1.8	0.52	0.38	95% KM (Chebyshev) UCL	0.875
		Combined Areas	52	49	0.22	**6**	1.2	1.4	95% KM (Chebyshev) UCL	2.1
	Subsurface	Combined Areas	6	6	0.77	**10**	3	3.5	95% Adjusted Gamma UCL	10.9
Thallium	Surface	Primary	29	0	<1.09	<2.6	--	--	--	TFD
		Contingency	23	4	0.51	1.1	0.88	0.17	95% KM (t) UCL	0.99
		Combined Areas	52	4	0.51	**1.1**	0.93	0.17	95% KM (t) UCL	0.99
	Subsurface	Combined Areas	6	0	<1.58	<4.02	--	--	--	TFD
Vanadium	Surface	Primary	29	29	44.2	97.8	74	11	95% Student's-t UCL	77.6
		Contingency	23	23	50.6	81.4	68	8.1	95% Student's-t UCL	71.1
		Combined Areas	52	52	44.2	**97.8**	72	10	95% Student's-t UCL	73.9
	Subsurface	Combined Areas	6	6	59.2	**78.1**	69	6.7	95% Student's-t UCL	74.7
Zinc	Surface	Primary	29	29	202	28,500	4,020	6,659	95% Adjusted Gamma UCL	6,492
		Contingency	23	23	163	5,440	1,070	1,525	95% Chebyshev (Mean, Sd) UCL	2,456
		Combined Areas	52	52	163	**28,500**	2,715	5,248	95% Chebyshev (Mean, Sd) UCL	5,887
	Subsurface	Combined Areas	6	6	246	**6,560**	3,046	2,815	95% Student's-t UCL	5,361
Aluminum	Surface	Primary	29	29	7,320	37,100	21,247	7,685	95% Student's-t UCL	23,675
		Contingency	23	23	13,000	28,600	22,891	4,314	95% Student's-t UCL	24,436
		Combined Areas	52	52	7,320	**37,100**	21,974	6,414	95% Student's-t UCL	23,464
	Subsurface	Combined Areas	6	6	12,500	**23,000**	17,950	4,392	95% Student's-t UCL	21,563
Iron	Surface	Primary	29	29	42,800	199,000	90,759	52,730	95% Chebyshev (Mean, Sd) UCL	133,440
		Contingency	23	23	35,200	74,800	47,048	11,284	95% Modified-t UCL	51,229
		Combined Areas	52	52	35,200	**199,000**	71,425	45,409	95% Modified-t UCL	82,234
	Subsurface	Combined Areas	6	6	38,100	**164,000**	89,500	56,924	95% Student's-t UCL	136,328
Total PCBs Aroclors	Surface	Primary	29	29	119	6,800	1,499	1,681	95% Adjusted Gamma UCL	2,236
		Contingency	23	23	72	7,760	1,349	2,214	95% Chebyshev (Mean, Sd) UCL	3,361
		Combined Areas	52	52	72	**7,760**	1,432	1,916	95% Chebyshev (Mean, Sd) UCL	2,590
	Subsurface	Combined Areas	6	6	141	**6,620**	2,782	3,016	95% Student's-t UCL	5,263

ED_013190_00000291-00023

Table 5
Statistical Evaluation - Primary and Contingency Sediment Data
Sediment Investigation Report
Sims Metal Management, Redwood City, California

Parameter	Sample Depth	Area	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Standard Deviation	Fit	95% UCL

Notes:
< = analyte not detected above laboratory reporting limit
-- = not calculated
Metals concentrations in milligrams per kilogram
PCB concentrations in micrograms per kilogram
PCB = polychlorinated biphenyls
TFD = Too few detects to calculate UCL
Total PCBs summations from Aroclors were calculated using 0 for non-detect results
UCL = upper confidence limit
95%UCL = 95-percent upper confidence limit on the mean
95%UCL calculated with using ProUCL 5.0.00 Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations

ED_013190_00000291-00024

Table 6
Reference Area PCB Data
Sims Metal Management, Redwood City, California

Reference Area	Number of Samples	Number of NDs	Min	Max	SD	Mean	95% UCL	90th Percentile 90% UTL (2015 Ambient Value)	99th Percentile 90% UTL[1]
USACE Redwood Creek, 2014[2] (-32.0 to -32.5-Z)	12	0	43	356	93.03	126.9	197	--	--
USACE Redwood Creek, 2015[3] (-30.0 to -30.5-Z)	12	0	2.09	30.1	7.219	13.64	17.39	--	--
USACE Redwood Creek, 2015[3] (-31.0 to -31.5-Z)	12	0	4.56	28.3	7.241	15.26	19.01	--	--
USACE Redwood Creek, 2015[3] (-32.0 to -32.5-Z)	12	0	1.22	132.4	38.43	37.68	73.61	--	--
San Francisco Bay Area Sediments calculated from data between 2002 and 2014[4]	--	--	--	--	--	--	N/A	18.2	29.5

Notes:
PCB = polychlorinated biphenyls
PCB concentrations in micrograms per kilogram
Total PCB from summation of PCB congeners
-- not calculated
1 = 99th percentile required only for PCBs. Indicates approximate (non-outlier) upper limit for other constituents
2 = United States of Army Corp. of Engineers (USACE), San Francisco District. 2015. Redwood City Harbor Navigation Improvement Feasibility Report and Integrated EIS/EIR. HydroPlan LLC, in collaboration with GAIA and Moffatt and Nichol
3 = Data provide by United States Environmental Protection Agency staff during meeting with Sims and Terraphase representatives on March 8, 2016
4 = San Francisco Estuary Institute (SFEI). 2016. Technical Memorandum, Updated Ambient Concentrations of Toxic Chemicals in the San Francisco Bay Area Sediments
(-30.0 to -30.5-Z) = sample depth shown as elevation relative to Mean Lower Low Water

ED_013190_00000291-00025

SAFETY FIRST	CLIENT: Sims Metal Management	**DRAFT**
terraphase engineering	PROJECT: Sediment Investigation Report	**Site Location Map**
	PROJECT NUMBER: **0012.001.007**	**FIGURE 1**

File Name: Figure 1 – Site Location Map Prepared by: ptz Checked by: jrr

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_2_Project Area_0012-001-006.mxd Created by: DJR/JK Checked by: DCR

N

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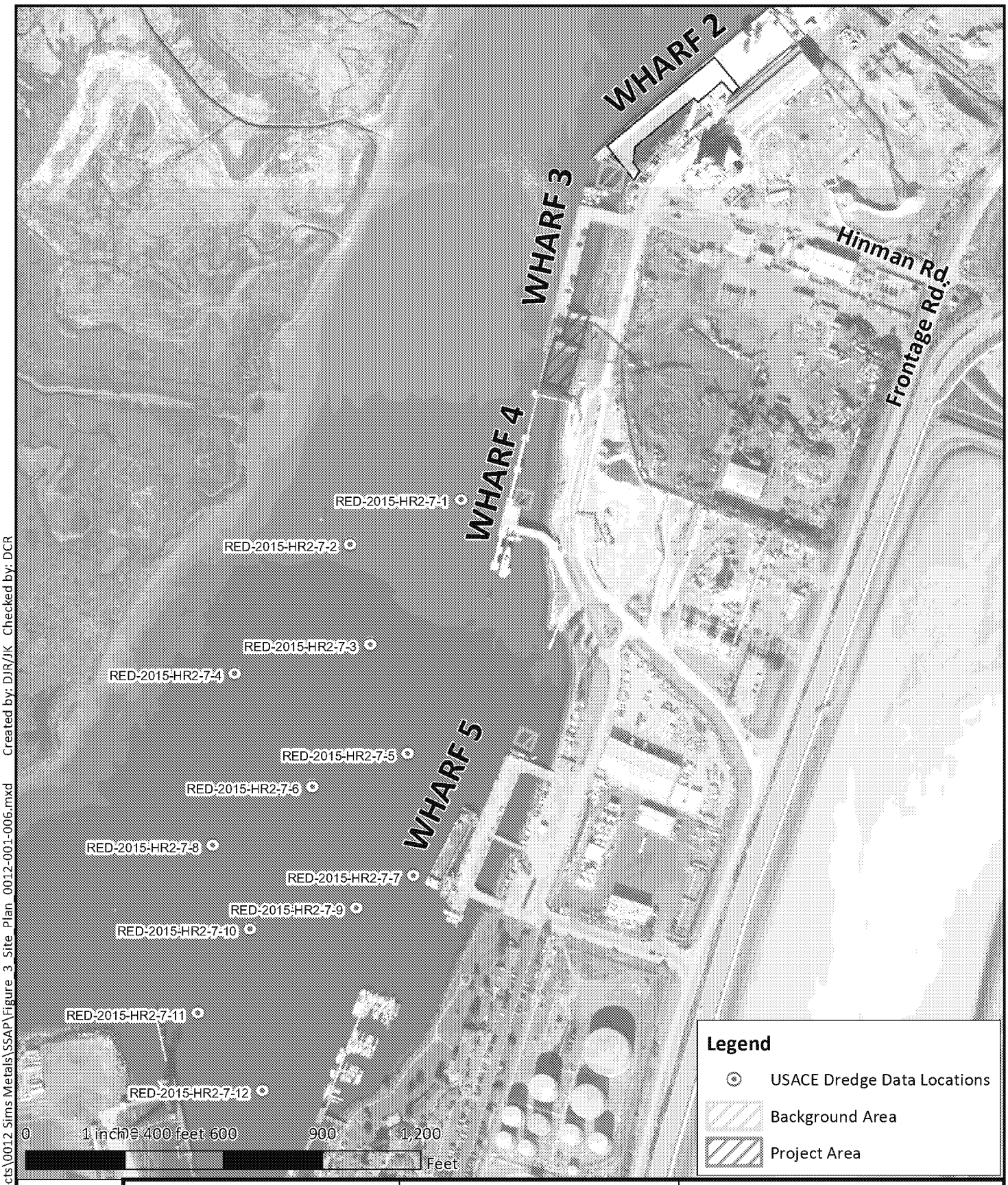
CLIENT: Sims Metal Management	Project Area
PROJECT: Sediment Sampling and Analysis Plan	
PROJECT NUMBER: 0012.001.006	FIGURE 2



File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_3_Site_Plan_0012-001-006.mxd Created by: DJR/JK Checked by: DCR

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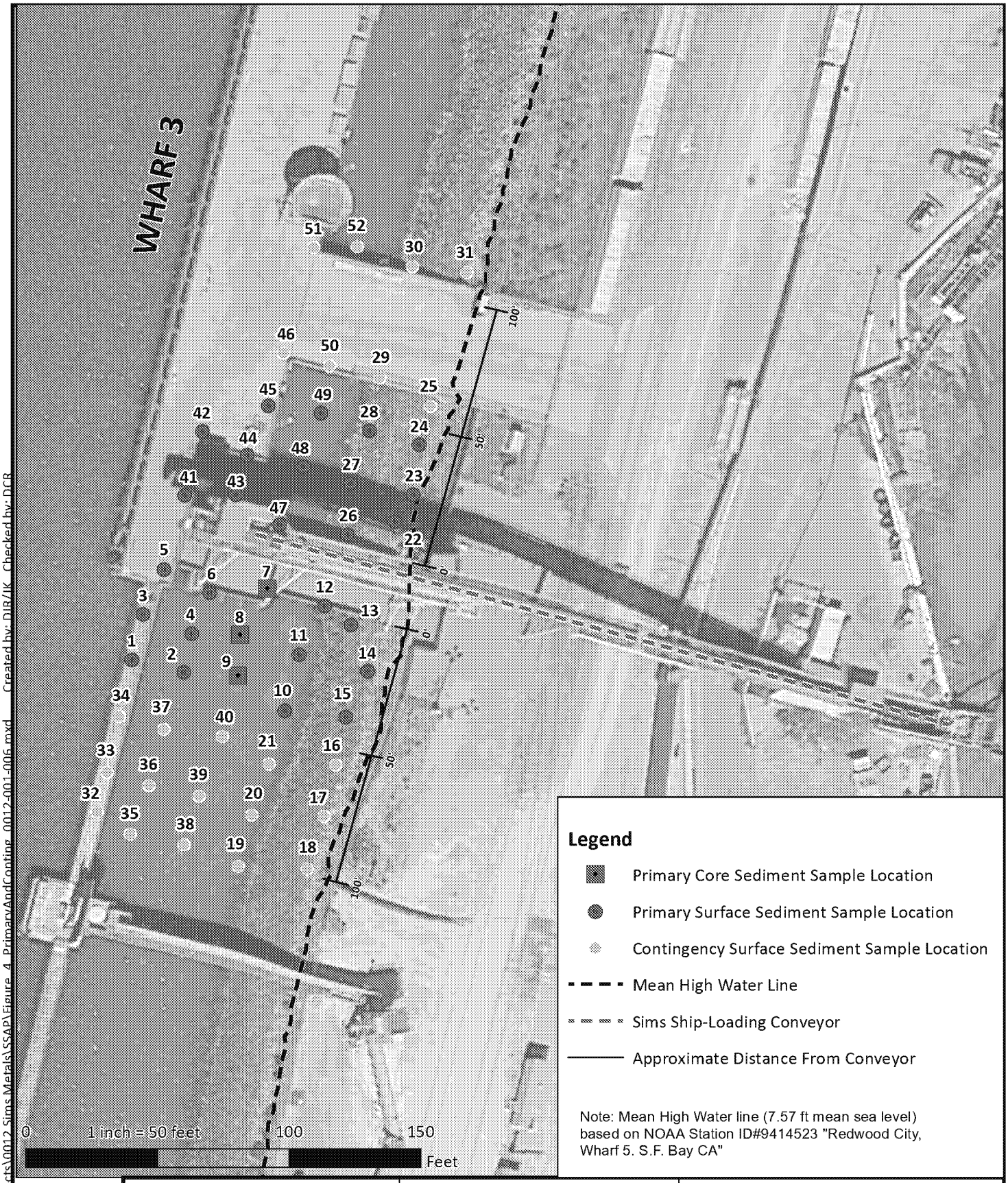
CLIENT: Sims Metal Management	**Overview of Sediment Sampling Locations**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.006	**FIGURE 3**



N

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CLIENT: Sims Metal Management	**Primary and Contingency Sediment Sample Locations - Wharf 3**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 4**

File: C:\GIS_Local\Projects\0012_Sims Metal\SSAP\Figure_4_PrimaryAndContingent_0012-001-006.mxd Created by: DJR/JK Checked by: DCR

File: J:\GIS Backup\GIS Data\0012 Sims Metals\SSAP\Figure_5a_Wharf2_0012-001-006.mxd Created by: DJR Checked by: DCR

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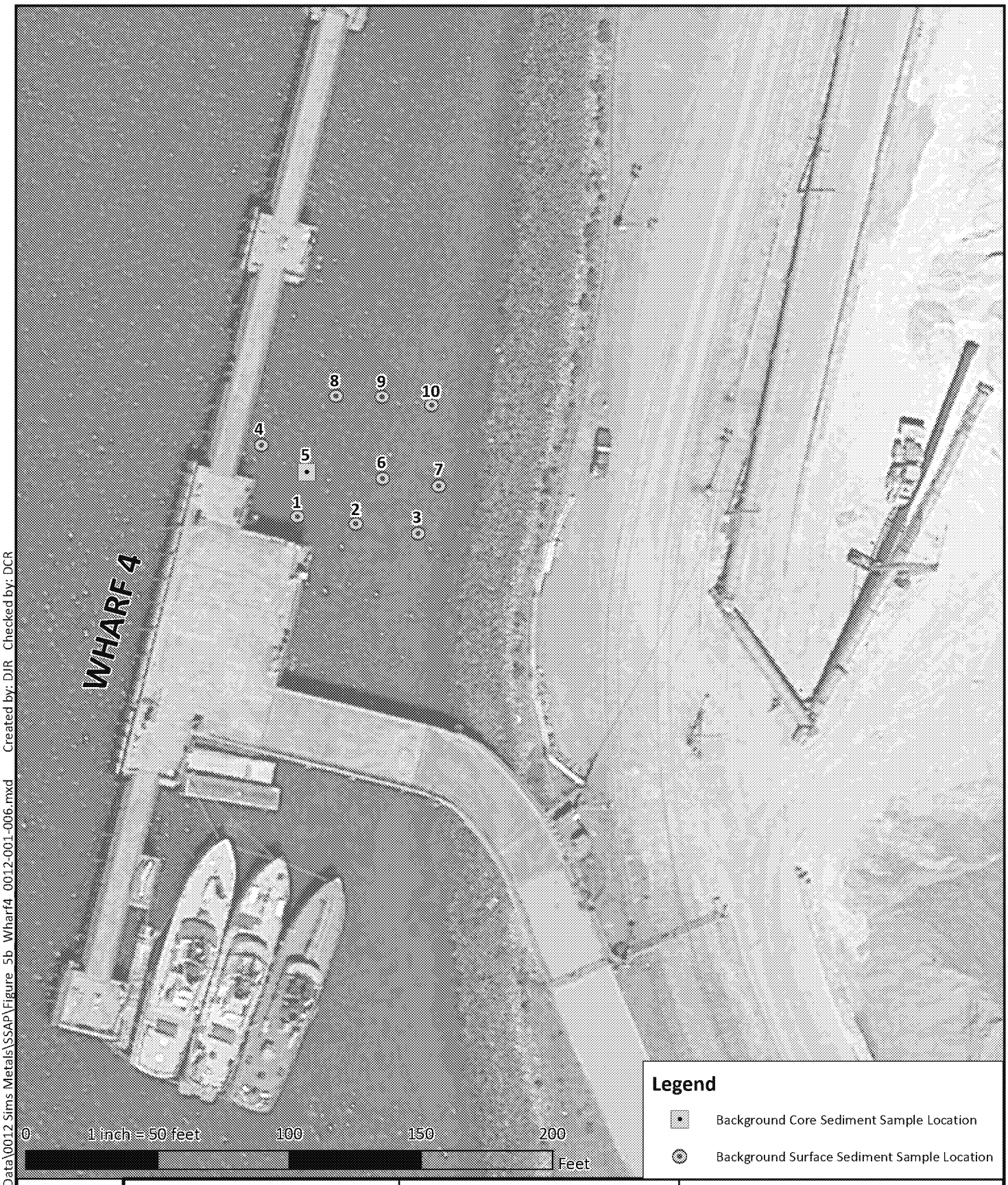
CLIENT: Sims Metal Management	Background Sediment Sample Locations - Wharf 2
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	FIGURE 5a



File: J:\GIS Backup\GIS Data\0012 Sims Metals\SSAP\Figure_5b_Wharf4_0012-001-006.mxd Created by: DJR Checked by: DCR

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CLIENT: Sims Metal Management	Background Sediment Sample Locations - Wharf 4
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	FIGURE 5b

File: J:\GIS Backup\GIS Data\0012 Sims Metals\SSAP\Figure_5c_Wharf5_0012-001-006.mxd Created by: DJR Checked by: DCR

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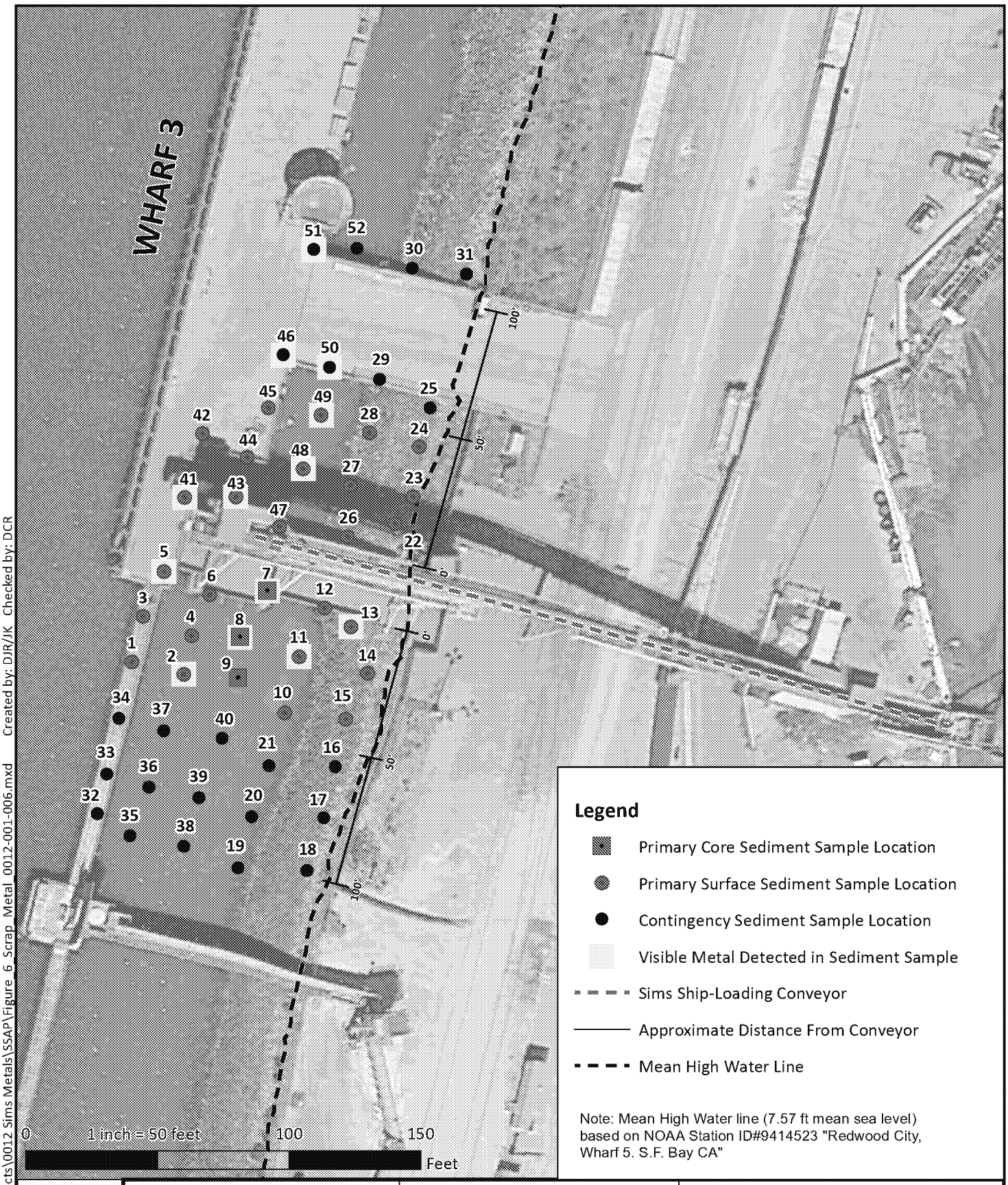
CLIENT: Sims Metal Management	**Background Sediment Sample Locations - Wharf 5**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 5c**



File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_6_Scrap_Metal_0012-001-006.mxd Created by: DJR/JK Checked by: DCR

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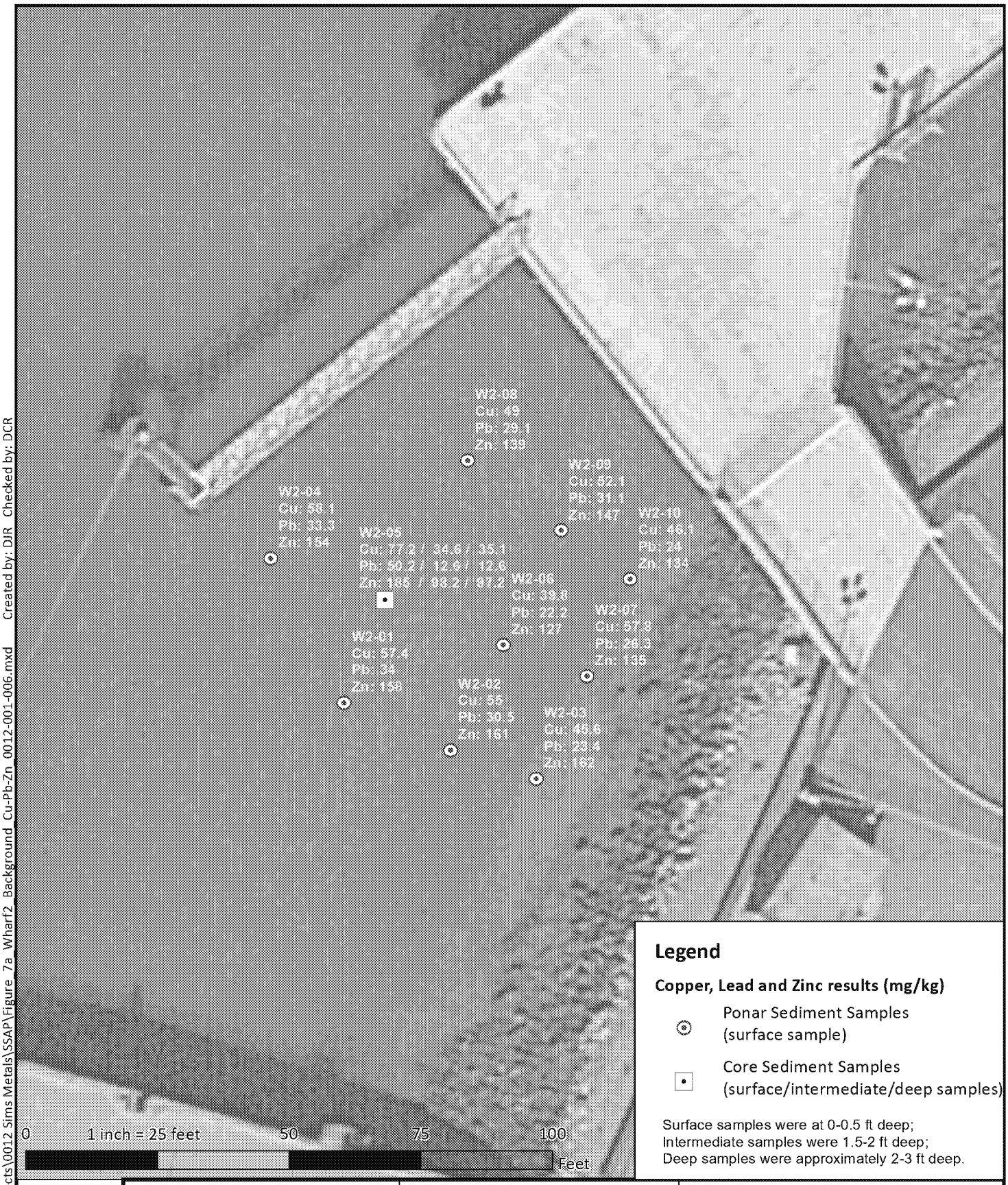
CLIENT:	Sims Metal Management
PROJECT:	Sediment Investigation Report
PROJECT NUMBER:	0012.001.007

Scrap Metal Observations in Project-Area Sediment Samples

FIGURE 6



Legend

Copper, Lead and Zinc results (mg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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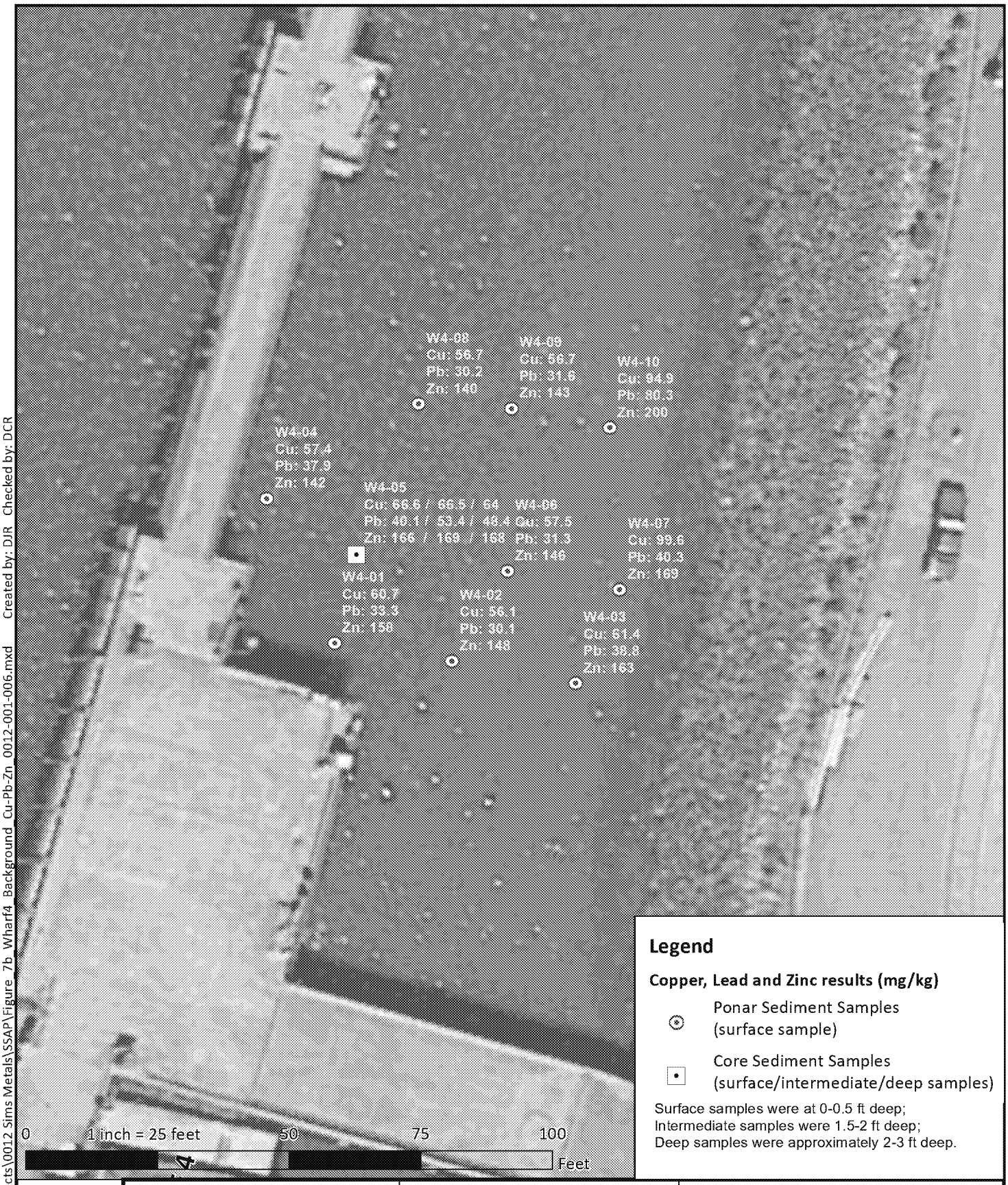
CLIENT: Sims Metal Management	**Copper, Lead and Zinc Concentrations in Background Sediment - Wharf 2**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 7a**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_7a_Wharf2_Background_Cu-Pb-Zn_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Copper, Lead and Zinc results (mg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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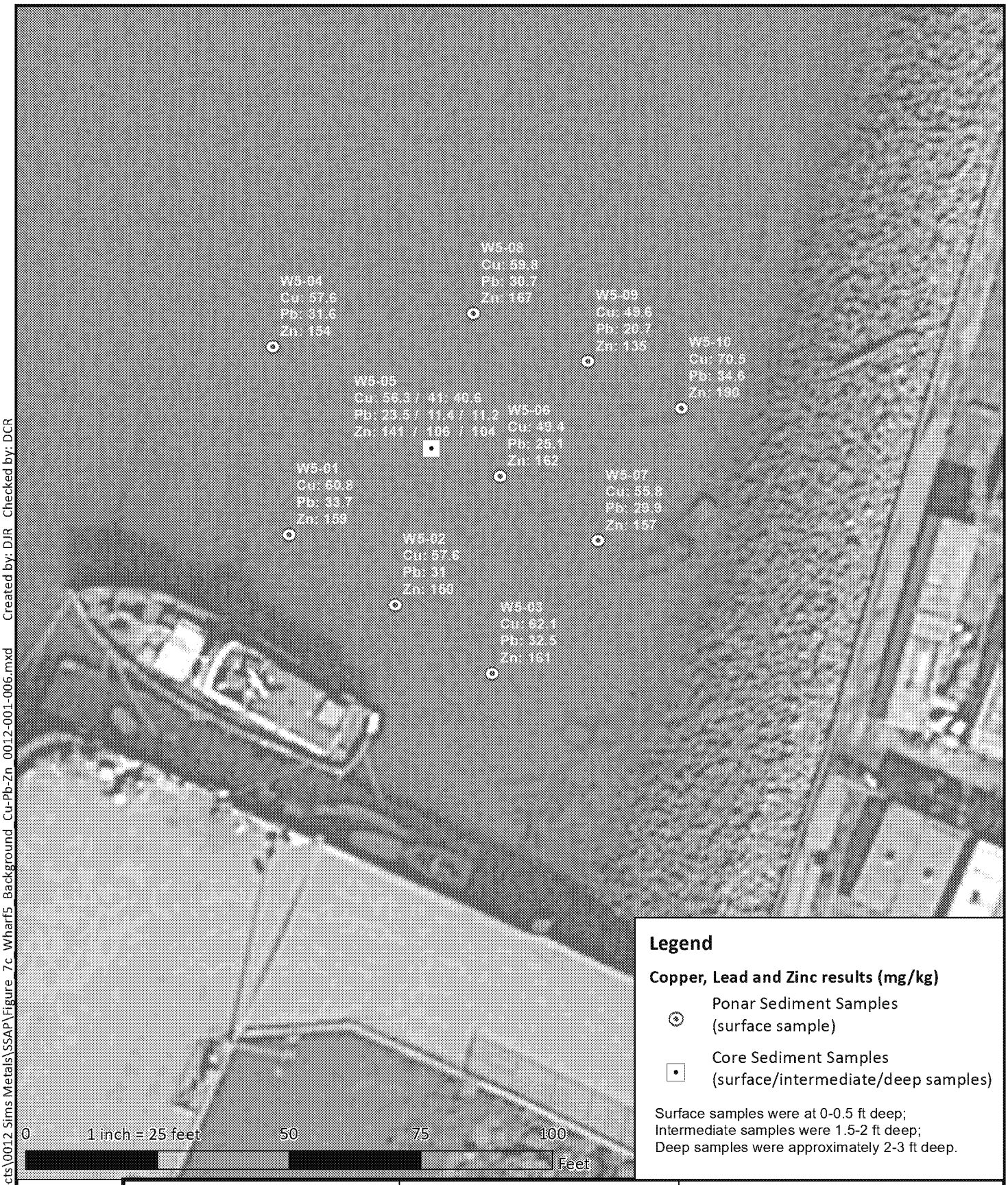
CLIENT: Sims Metal Management	**Copper, Lead and Zinc Concentrations in Background Sediment - Wharf 4**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 7b**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_7b_Wharf4_Background_Cu-Pb-Zn_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Copper, Lead and Zinc results (mg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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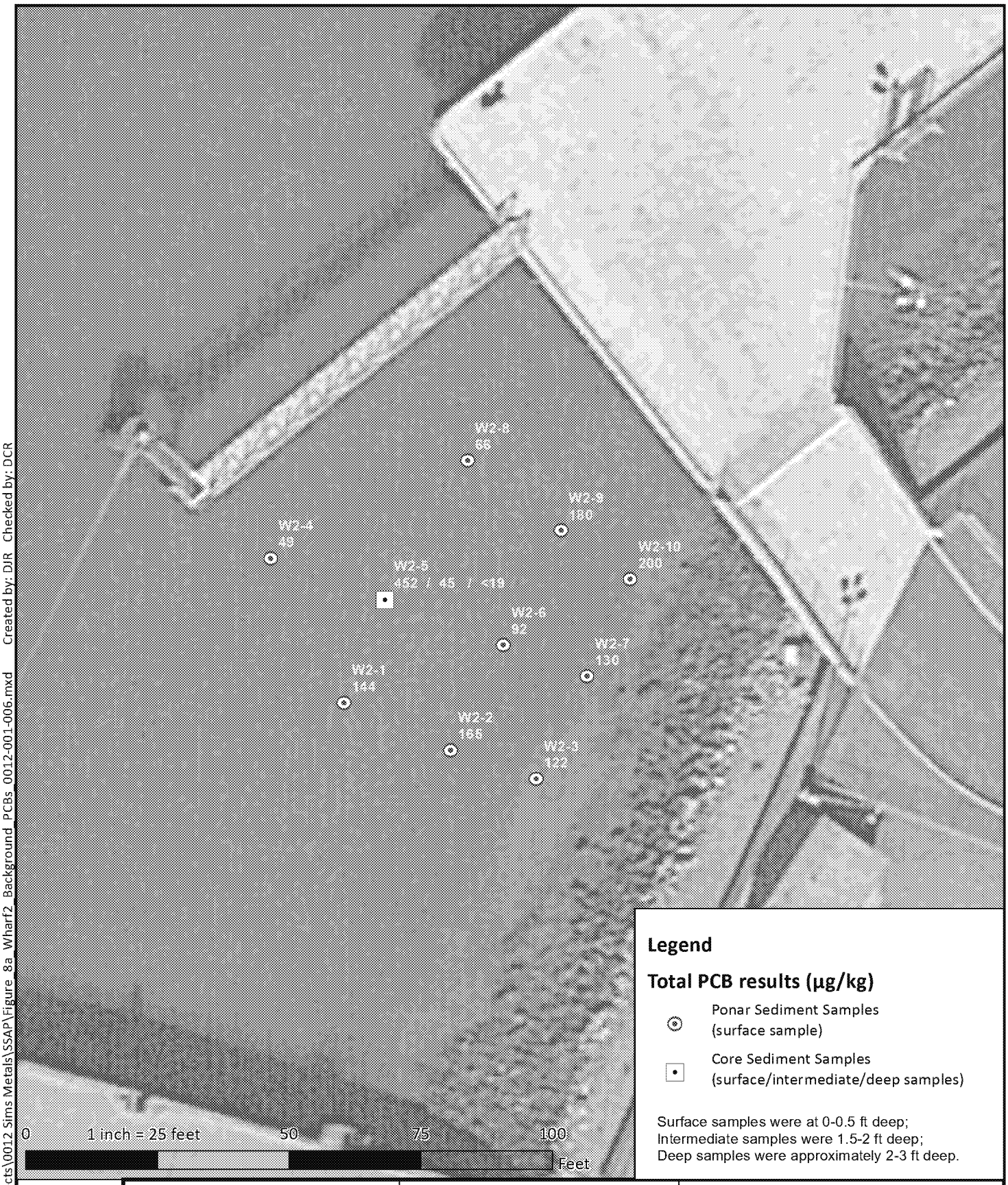
CLIENT: Sims Metal Management	**Copper, Lead and Zinc Concentrations in Background Sediment - Wharf 5**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 7c**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_7c_Wharf5_Background_Cu-Pb-Zn_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Total PCB results (µg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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CLIENT: Sims Metal Management	**Total PCB Concentrations in Background Sediment - Wharf 2**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 8a**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_8a_Wharf2_Background_PCBs_0012-001-006.mxd Created by: DJR Checked by: DCR

Legend

Total PCB results (µg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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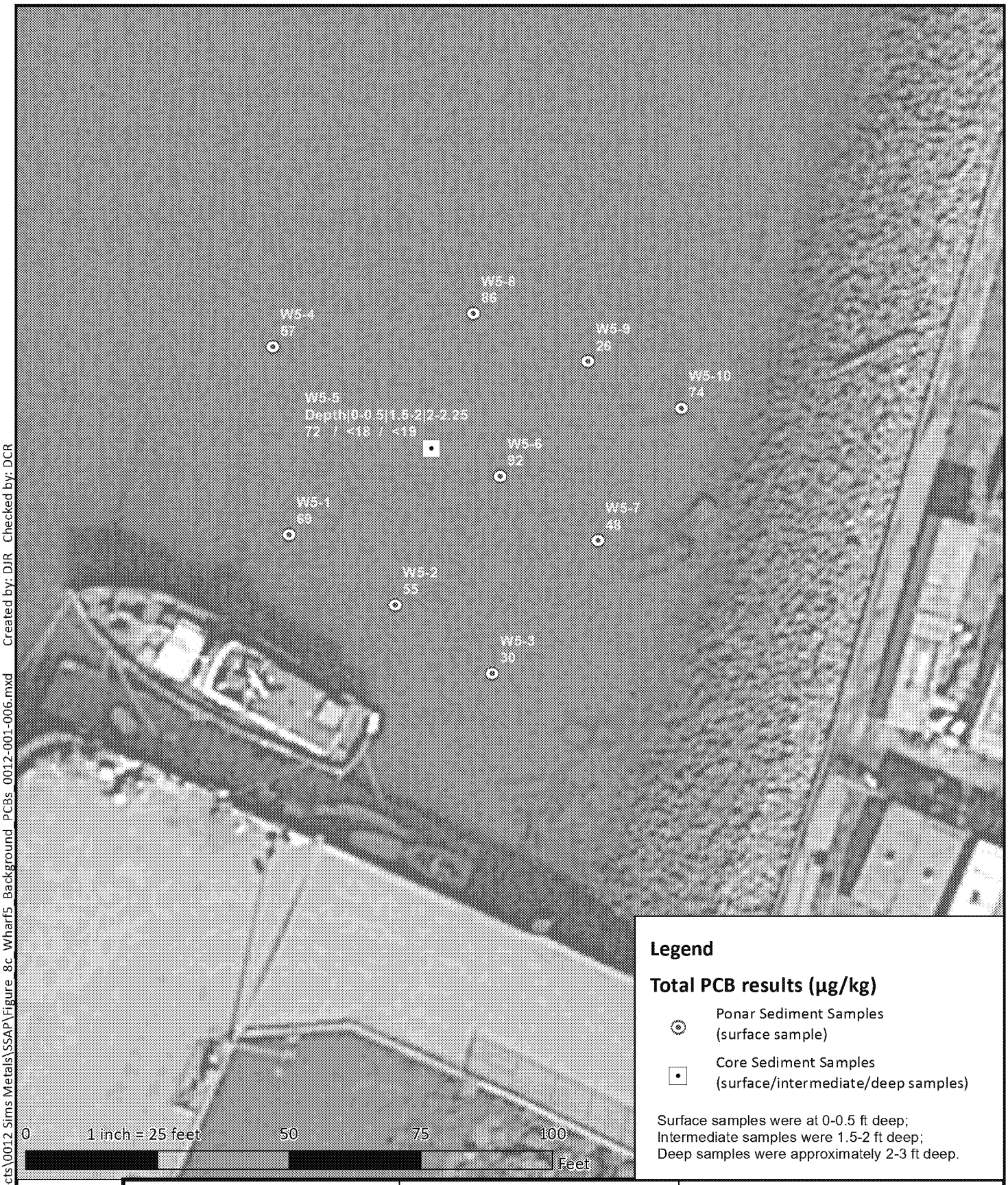
CLIENT:	Sims Metal Management
PROJECT:	Sediment Investigation Report
PROJECT NUMBER:	0012.001.007

Total PCB Concentrations in Background Sediment - Wharf 4

FIGURE 8b

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_8b_Wharf4_Background_PCBs_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Total PCB results (µg/kg)

Ponar Sediment Samples (surface sample)

Core Sediment Samples (surface/intermediate/deep samples)

Surface samples were at 0-0.5 ft deep;
Intermediate samples were 1.5-2 ft deep;
Deep samples were approximately 2-3 ft deep.

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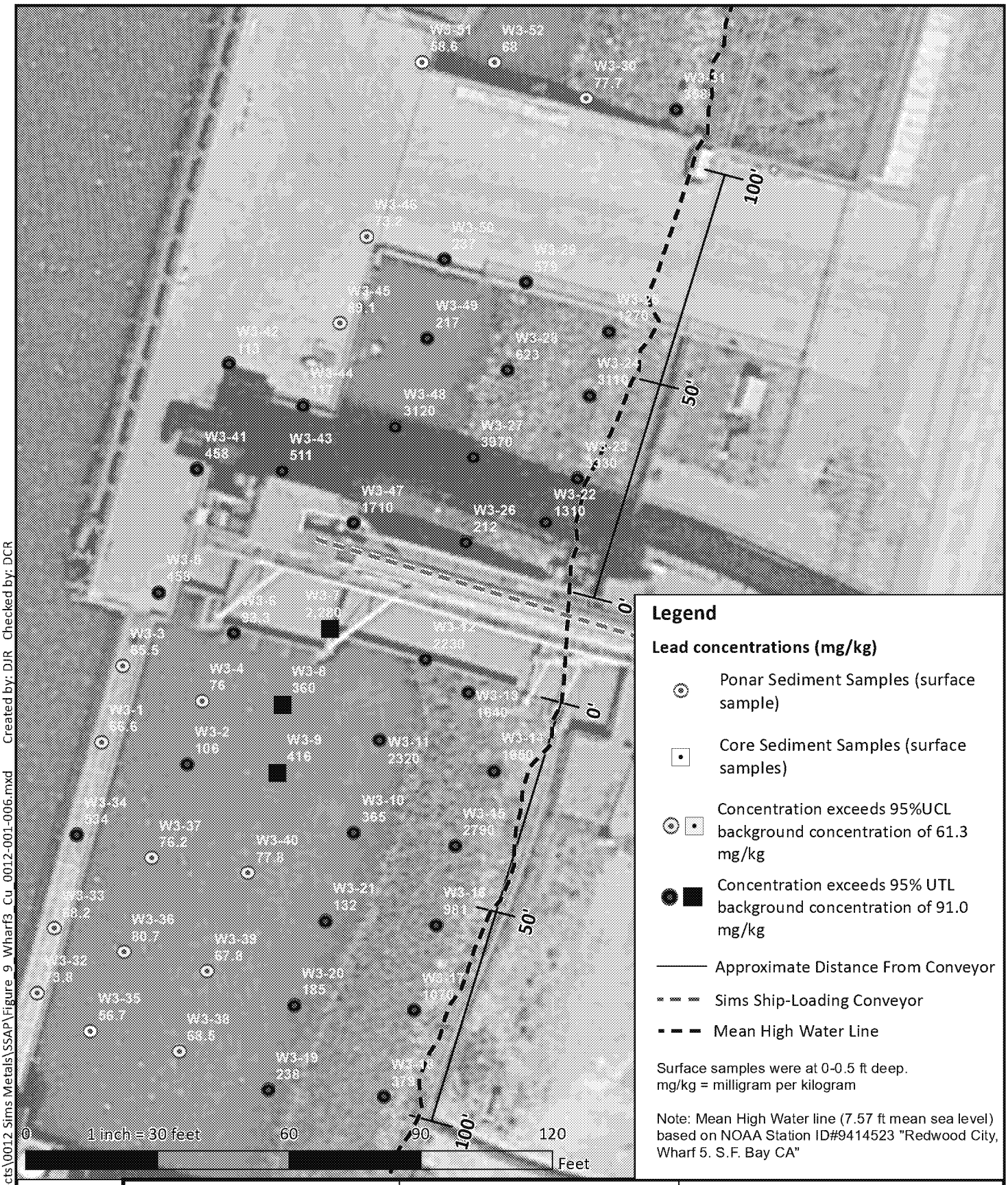
CLIENT: Sims Metal Management	**Total PCB Concentrations in Background Sediment - Wharf 5**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 8c**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_8c_Wharf5_Background_PCBs_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Lead concentrations (mg/kg)

- Ponar Sediment Samples (surface sample)
- Core Sediment Samples (surface samples)
- Concentration exceeds 95%UCL background concentration of 61.3 mg/kg
- Concentration exceeds 95% UTL background concentration of 91.0 mg/kg
- Approximate Distance From Conveyor
- Sims Ship-Loading Conveyor
- Mean High Water Line

Surface samples were at 0-0.5 ft deep.
mg/kg = milligram per kilogram

Note: Mean High Water line (7.57 ft mean sea level) based on NOAA Station ID#9414523 "Redwood City, Wharf 5. S.F. Bay CA"

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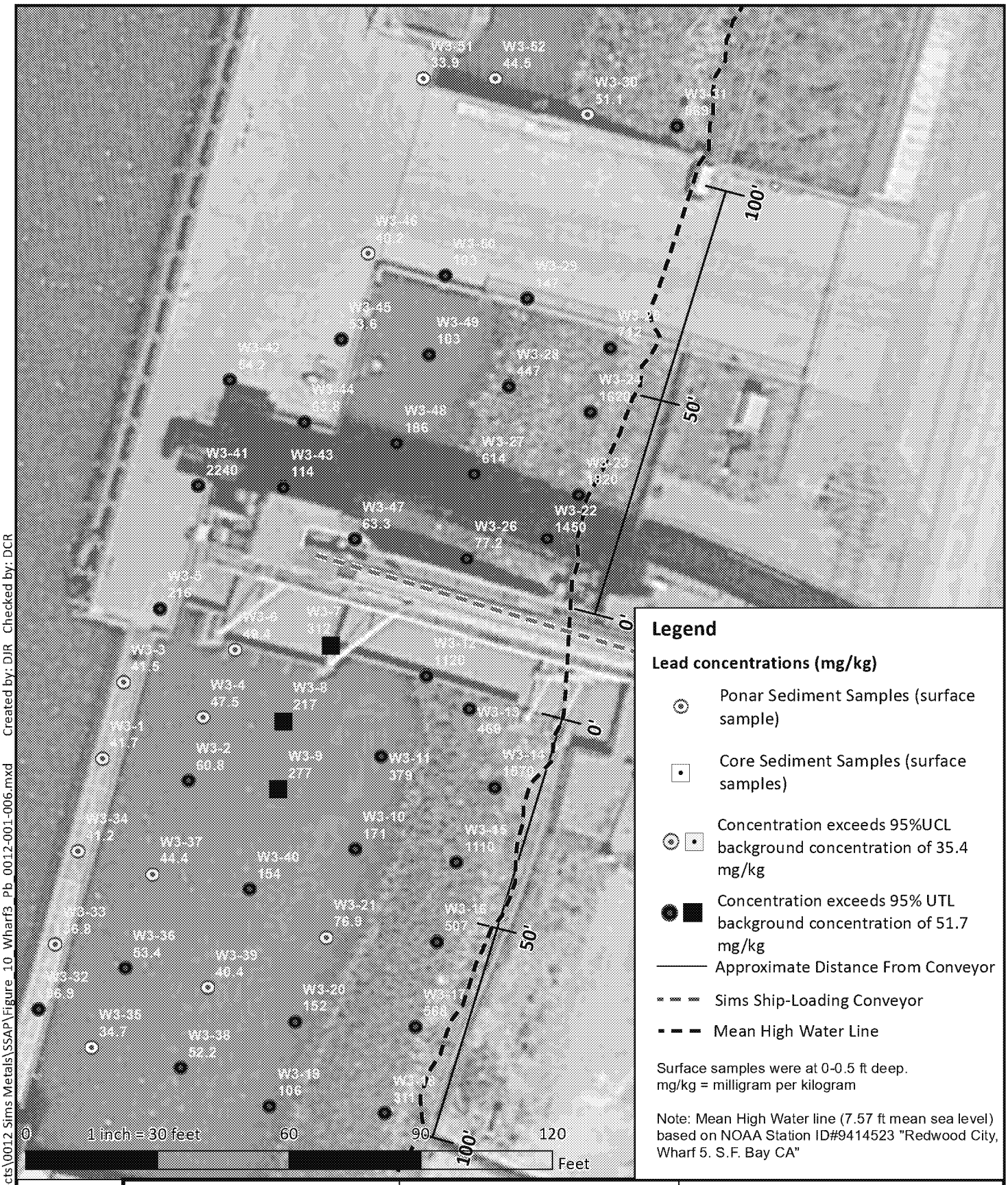
CLIENT:	Sims Metal Management
PROJECT:	Sediment Investigation Report
PROJECT NUMBER:	0012.001.007

Copper Concentrations in Project-Area Surface Sediment

FIGURE 9

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_9_Wharf3_Cu_0012-001-006.mxd Created by: DJR Checked by: DCR



File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_10_Wharf3_Pb_0012-001-006.mxd Created by: DJR Checked by: DCR

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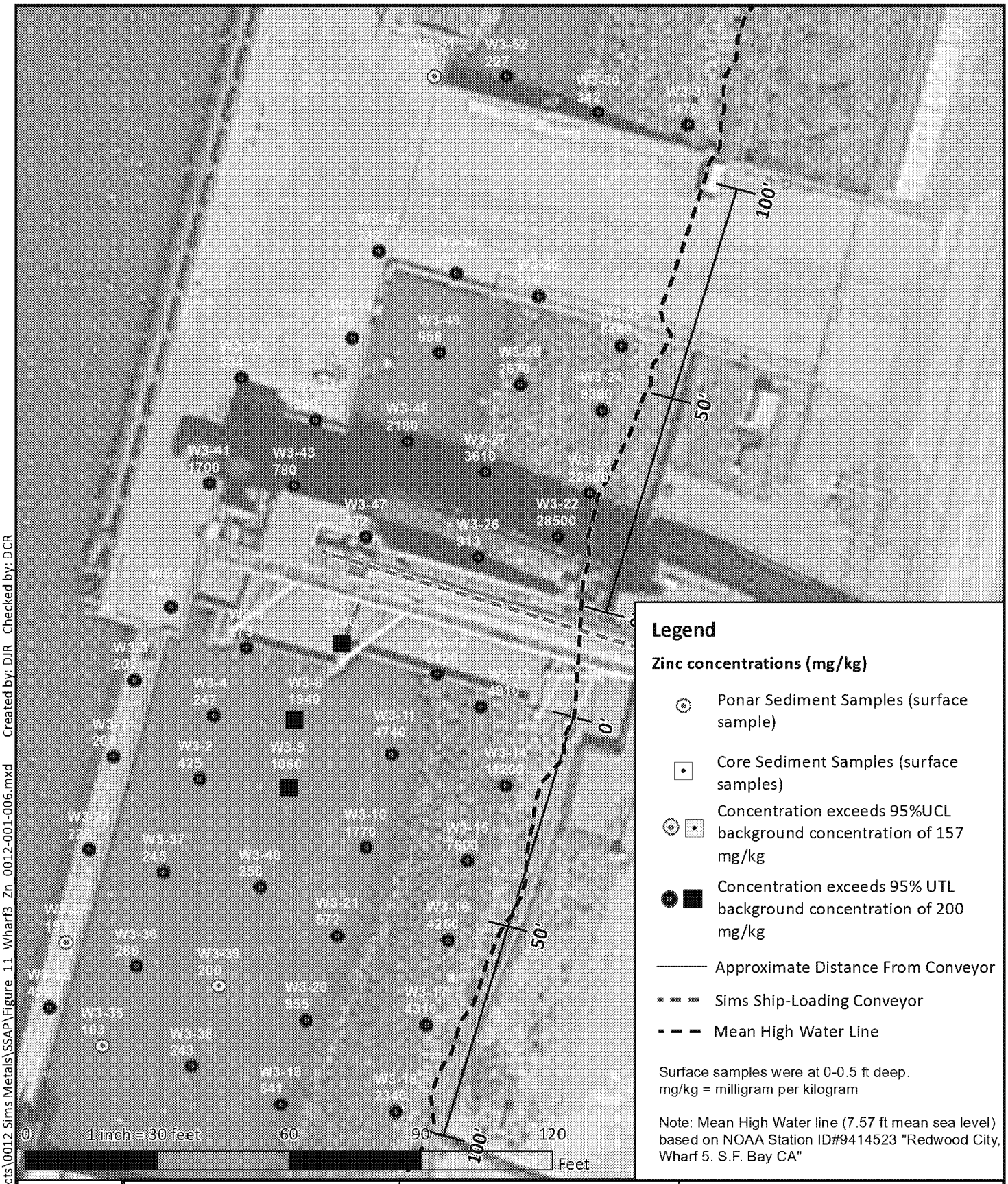
CLIENT: Sims Metal Management	**Lead Concentrations in Project-Area Surface Sediment**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 10**



Legend

Zinc concentrations (mg/kg)

- Ponar Sediment Samples (surface sample)
- Core Sediment Samples (surface samples)
- Concentration exceeds 95%UCL background concentration of 157 mg/kg
- Concentration exceeds 95% UTL background concentration of 200 mg/kg
- Approximate Distance From Conveyor
- Sims Ship-Loading Conveyor
- Mean High Water Line

Surface samples were at 0-0.5 ft deep.
mg/kg = milligram per kilogram

Note: Mean High Water line (7.57 ft mean sea level) based on NOAA Station ID#9414523 "Redwood City, Wharf 5. S.F. Bay CA"

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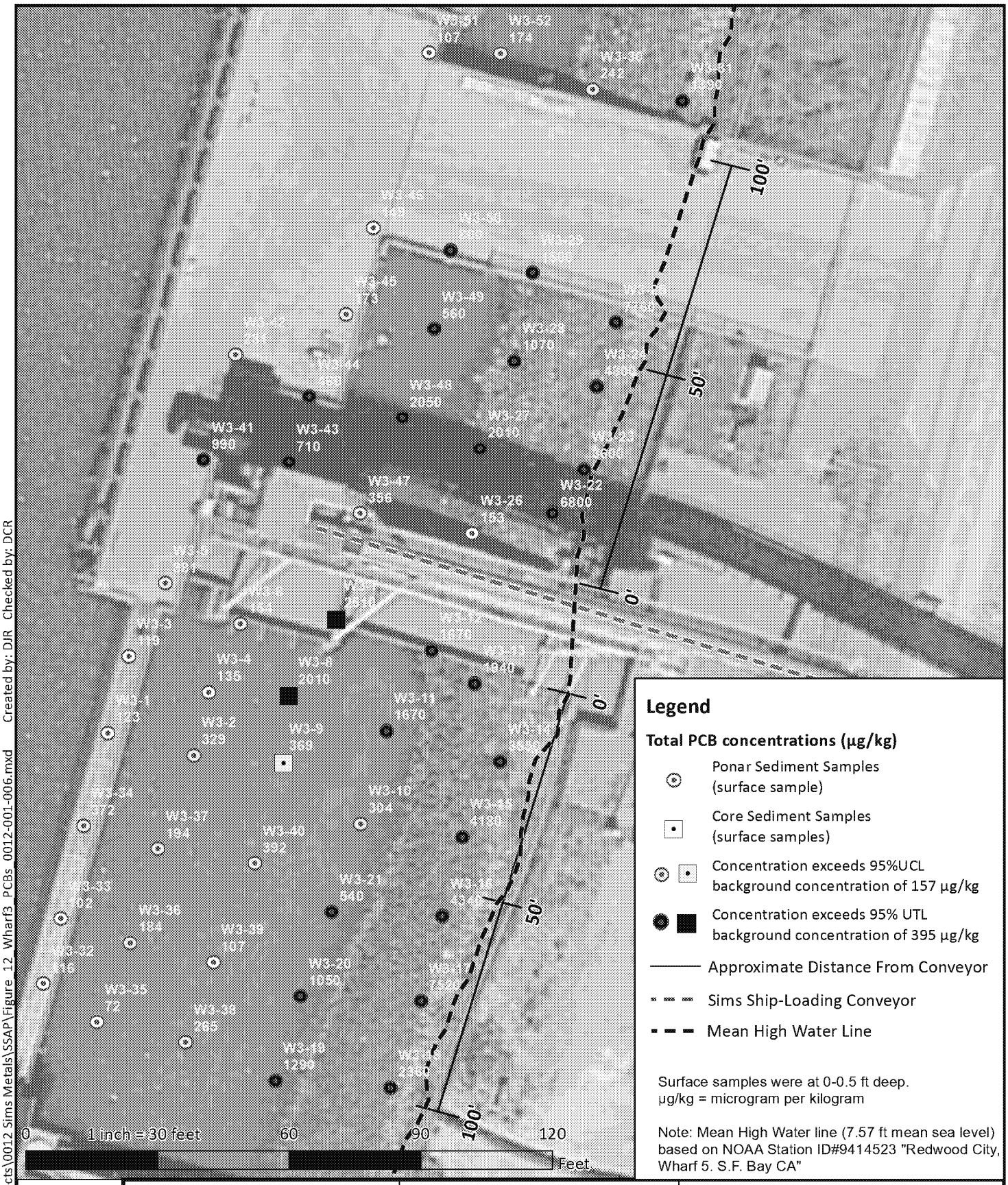
CLIENT:	Sims Metal Management
PROJECT:	Sediment Investigation Report
PROJECT NUMBER:	0012.001.007

Zinc Concentrations in Project-Area Surface Sediment

FIGURE 11

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_11_Wharf3_Zn_0012-001-006.mxd Created by: DJR Checked by: DCR



Legend

Total PCB concentrations (µg/kg)

- Ponar Sediment Samples (surface sample)
- Core Sediment Samples (surface samples)
- Concentration exceeds 95%UCL background concentration of 157 µg/kg
- Concentration exceeds 95% UTL background concentration of 395 µg/kg
- Approximate Distance From Conveyor
- Sims Ship-Loading Conveyor
- Mean High Water Line

Surface samples were at 0-0.5 ft deep.
µg/kg = microgram per kilogram

Note: Mean High Water line (7.57 ft mean sea level) based on NOAA Station ID#9414523 "Redwood City, Wharf 5. S.F. Bay CA"

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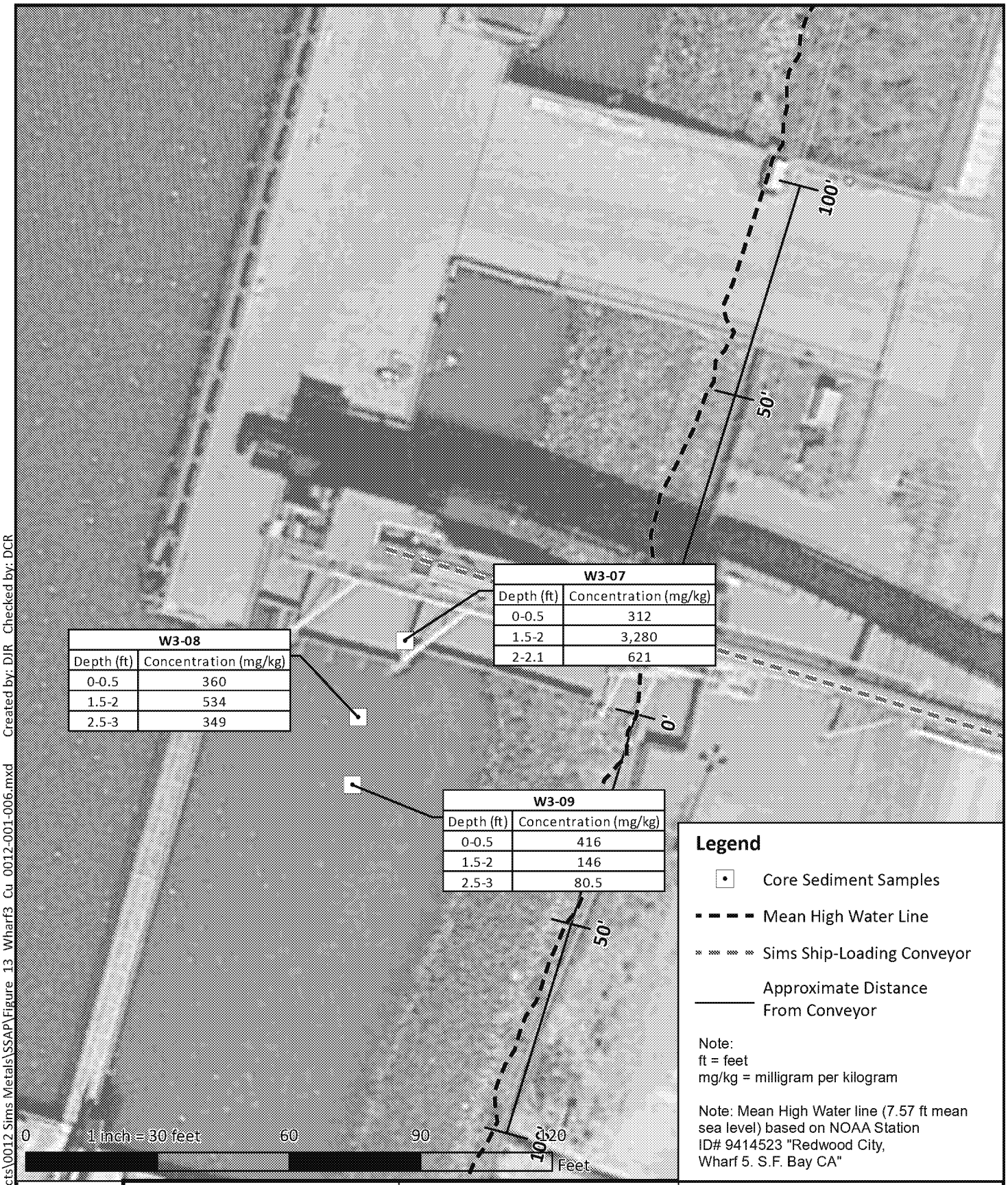
CLIENT:	Sims Metal Management
PROJECT:	Sediment Investigation Report
PROJECT NUMBER:	0012.001.007

Total PCB Concentrations in Project-Area Surface Sediment

FIGURE 12

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_12_Wharf3_PCBs_0012-001-006.mxd Created by: DJR Checked by: DCR



W3-07	
Depth (ft)	Concentration (mg/kg)
0-0.5	312
1.5-2	3,280
2-2.1	621

W3-08	
Depth (ft)	Concentration (mg/kg)
0-0.5	360
1.5-2	534
2.5-3	349

W3-09	
Depth (ft)	Concentration (mg/kg)
0-0.5	416
1.5-2	146
2.5-3	80.5

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CLIENT: Sims Metal Management

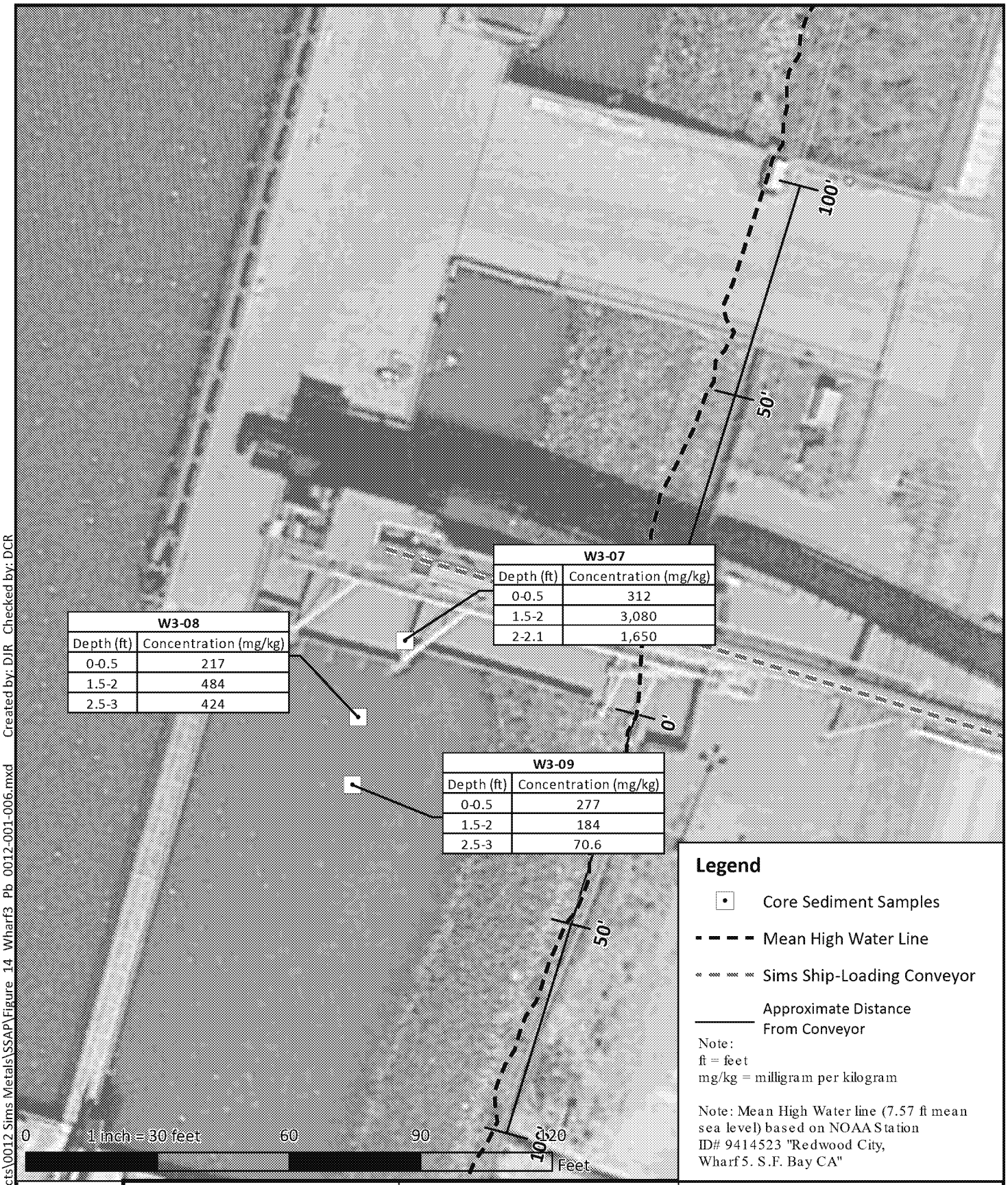
PROJECT: Sediment Investigation Report

PROJECT NUMBER: 0012.001.007

Copper Concentrations in Project-Area Sediment Cores

FIGURE 13

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_13_Wharf3_Cu_0012-001-006.mxd Created by: DJR Checked by: DCR



W3-07	
Depth (ft)	Concentration (mg/kg)
0-0.5	312
1.5-2	3,080
2-2.1	1,650

W3-08	
Depth (ft)	Concentration (mg/kg)
0-0.5	217
1.5-2	484
2.5-3	424

W3-09	
Depth (ft)	Concentration (mg/kg)
0-0.5	277
1.5-2	184
2.5-3	70.6

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CLIENT: Sims Metal Management

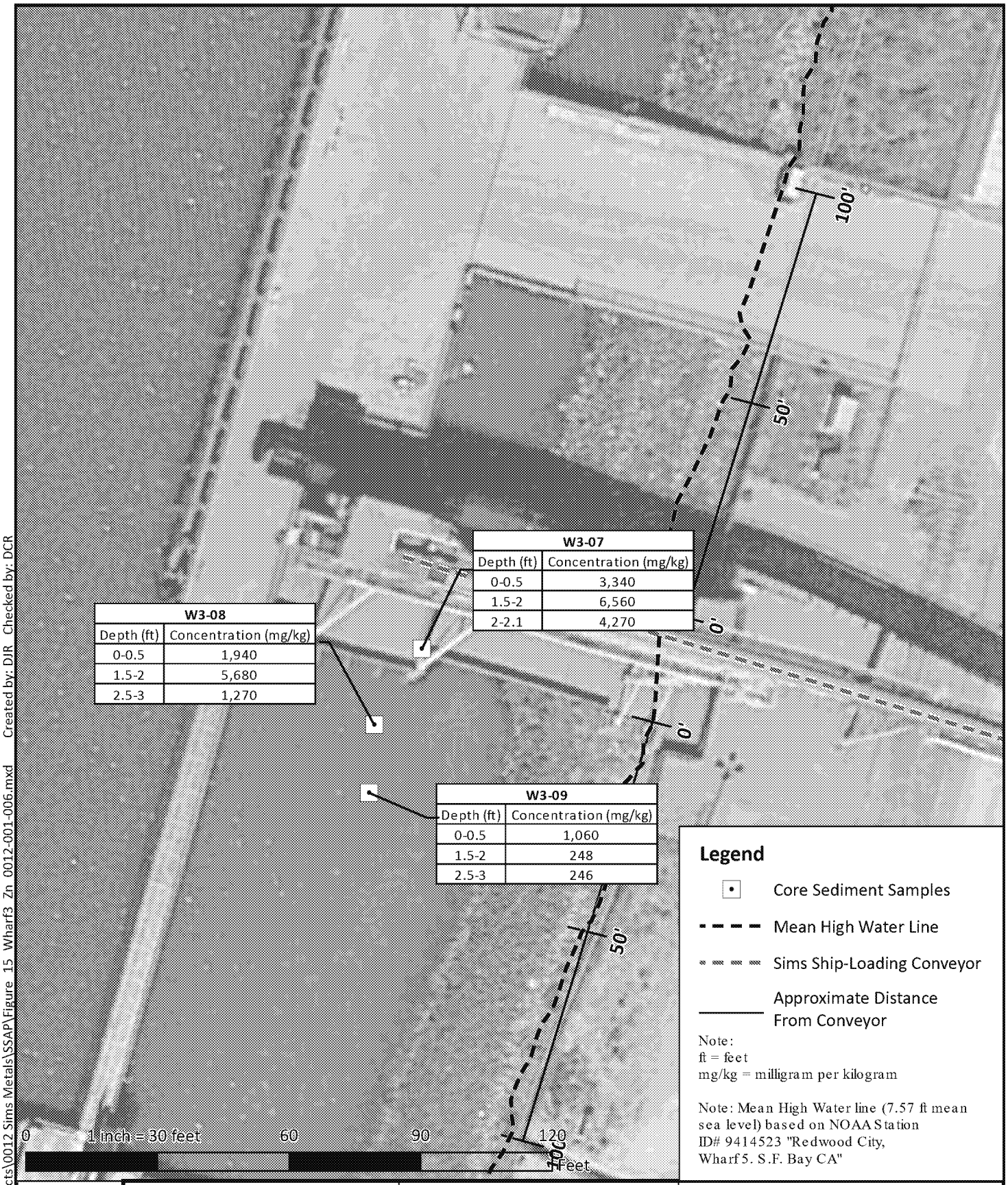
PROJECT: Sediment Investigation Report

PROJECT NUMBER: 0012.001.007

Lead Concentrations in Project-Area Sediment

FIGURE 14

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_14_Wharf3_Pb_0012-001-006.mxd Created by: DJR Checked by: DCR



W3-07	
Depth (ft)	Concentration (mg/kg)
0-0.5	3,340
1.5-2	6,560
2-2.1	4,270

W3-08	
Depth (ft)	Concentration (mg/kg)
0-0.5	1,940
1.5-2	5,680
2.5-3	1,270

W3-09	
Depth (ft)	Concentration (mg/kg)
0-0.5	1,060
1.5-2	248
2.5-3	246

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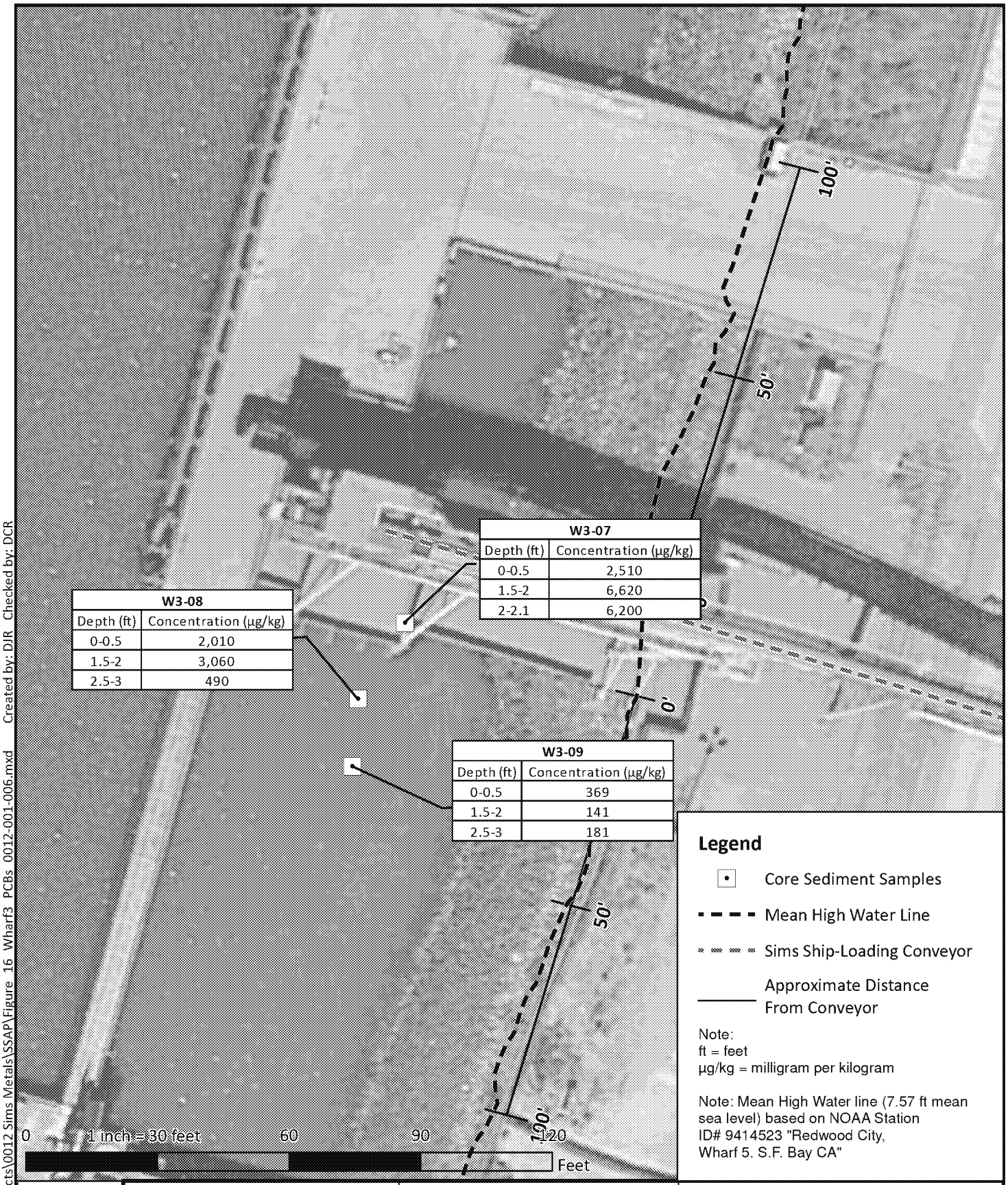
PROJECT: Sediment Investigation Report

PROJECT NUMBER: 0012.001.007

Zinc Concentrations in Project-Area Sediment Cores

FIGURE 15

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_15_Wharf3_Zn_0012-001-006.mxd Created by: DJR Checked by: DCR



W3-07	
Depth (ft)	Concentration (µg/kg)
0-0.5	2,510
1.5-2	6,620
2-2.1	6,200

W3-08	
Depth (ft)	Concentration (µg/kg)
0-0.5	2,010
1.5-2	3,060
2.5-3	490

W3-09	
Depth (ft)	Concentration (µg/kg)
0-0.5	369
1.5-2	141
2.5-3	181

Legend

- Core Sediment Samples
- Mean High Water Line
- Sims Ship-Loading Conveyor
- Approximate Distance From Conveyor

Note:
ft = feet
µg/kg = milligram per kilogram

Note: Mean High Water line (7.57 ft mean sea level) based on NOAA Station ID# 9414523 "Redwood City, Wharf 5. S.F. Bay CA"

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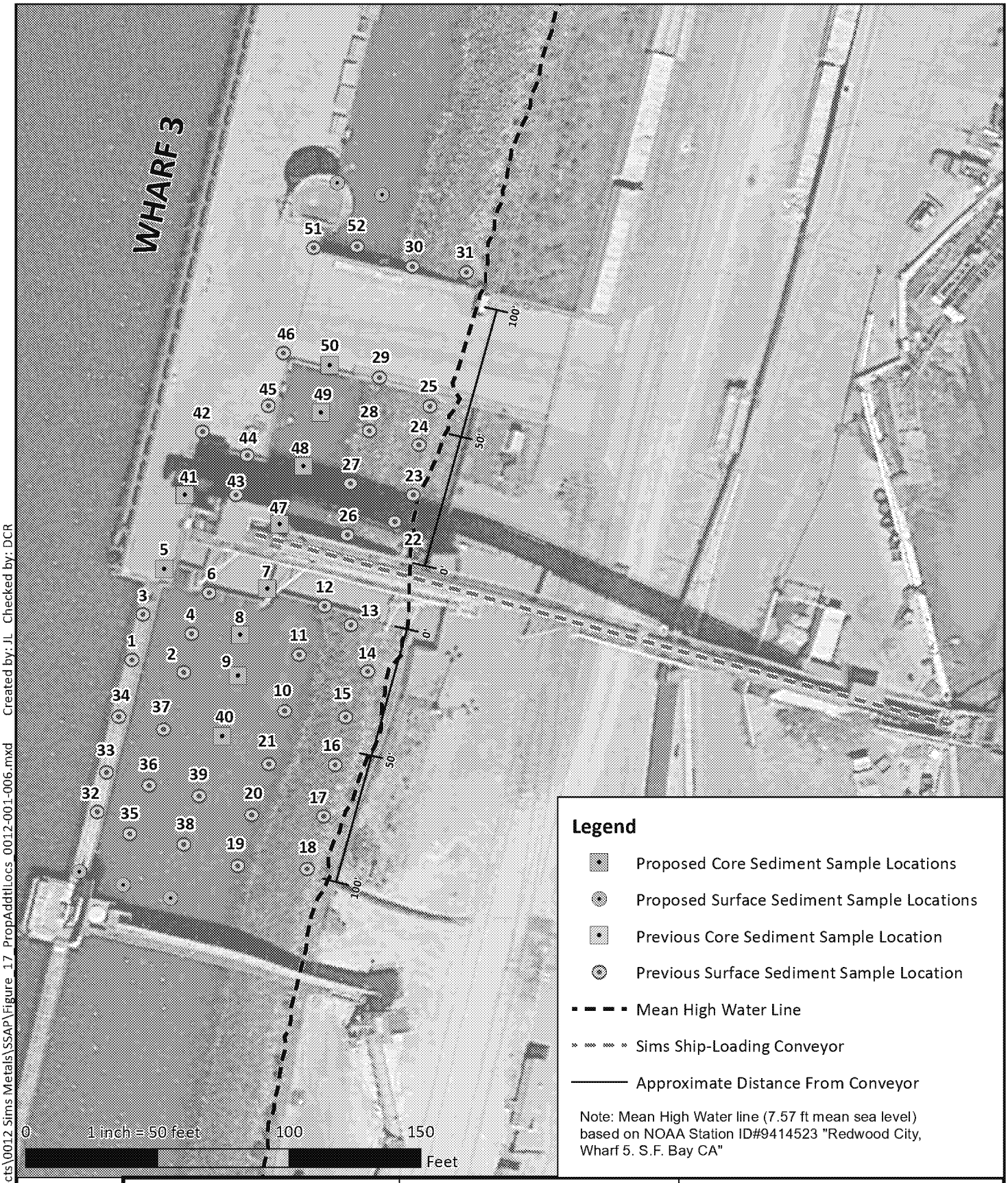
Total PCB Concentrations in Project-Area Sediment Cores

FIGURE 16

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_16_Wharf3_PCBs_0012-001-006.mxd Created by: DJR Checked by: DCR



File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_17_PropAddtlLocs_0012-001-006.mxd Created by: JL Checked by: DCR

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CLIENT: Sims Metal Management	**Proposed Additional Surface and Coring Sediment Locations - Wharf 3**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 17**

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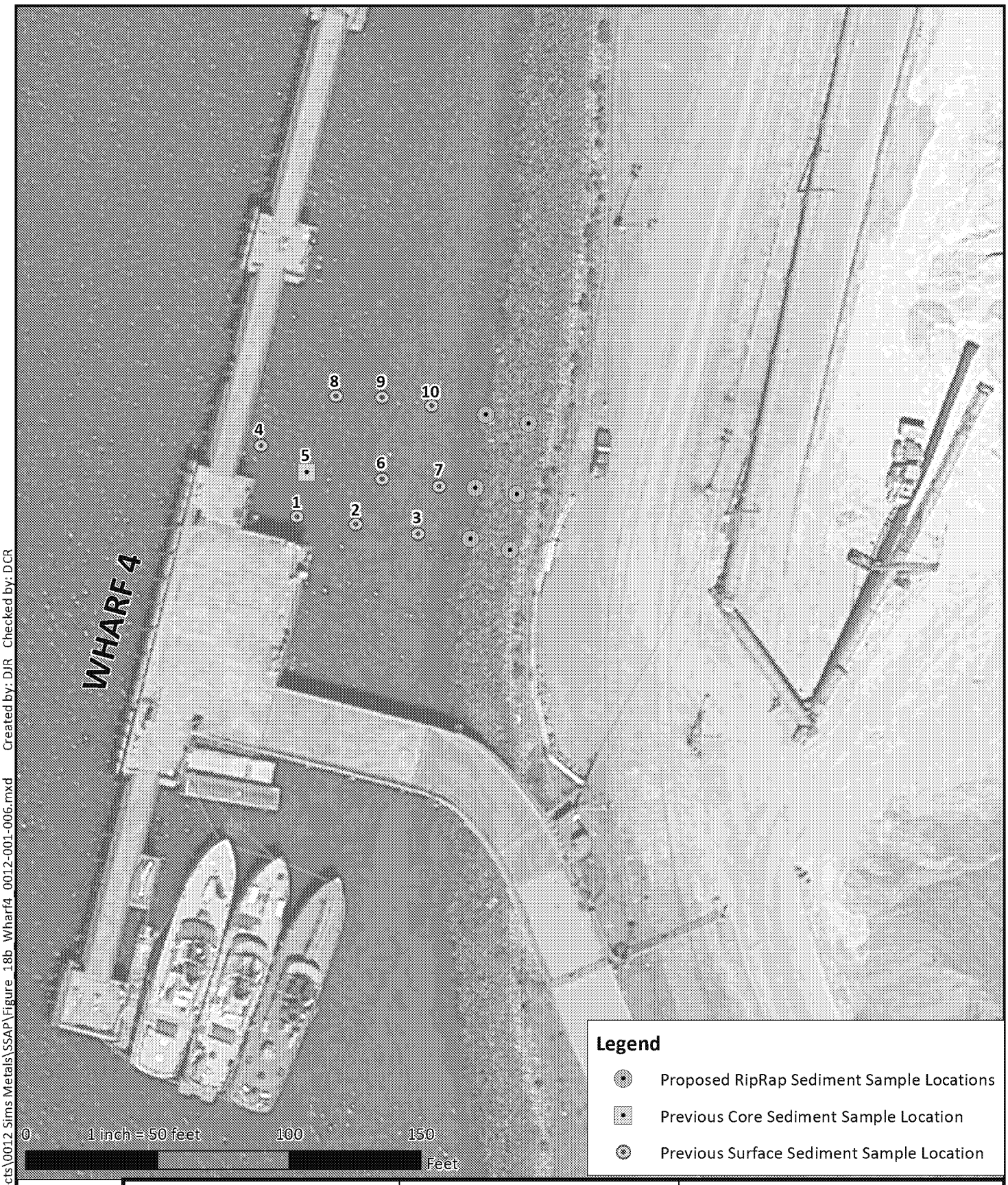
PROJECT NUMBER: 0012.001.007

Proposed Additional Background Riprap Sediment Sample Locations - Wharf 2

FIGURE 18a

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_18a_Wharf2_0012-001-006.mxd Created by: DJR Checked by: DCR



File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_18b_Wharf4_0012-001-006.mxd Created by: DJR Checked by: DCR

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CLIENT: Sims Metal Management	**Proposed Additional Background Riprap Sediment Sample Locations - Wharf 4**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 18b**

File: C:\GIS_Local\Projects\0012 Sims Metals\SSAP\Figure_18c_Wharf5_0012-001-006.mxd Created by: DJR Checked by: DCR

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CLIENT: Sims Metal Management	**Proposed Additional Background Riprap Sediment Sample Locations - Wharf 5**
PROJECT: Sediment Investigation Report	
PROJECT NUMBER: 0012.001.007	**FIGURE 18c**

SEDIMENT SAMPLING WITH VIBRACORE

1.0 PERFORMANCE OBJECTIVE

The purpose of this Standard Operating Procedures (SOP) document is to describe the procedures that shall be used for the collection of sediment samples for chemical analysis by vibracore methods.

2.0 EQUIPMENT AND MATERIALS

The following is a list of equipment necessary to carry out the procedures contained in this SOP:

- Approved documents, including sampling plan and health and safety plan
- Health and safety equipment
- Sampling plan and sample coordinates
- Camera and cell phone
- Sampling vessel equipped with outboard motor, derrick, winch assembly, spuds, or anchors
- Differential global positioning system (DGPS) navigation
- Vibracore sampling device and associated equipment
- Core tubes and caps
- Decontamination materials
- Lead line
- Tape measure
- Sample processing equipment (stainless steel bowls, sieves, hand tools, etc.)

3.0 PROCEDURES

3.1 General

Sediment sampling should be performed in teams of two or more persons for safety. The following are general procedures to be followed when collecting sediment samples.

1. Wear appropriate safety (e.g., flotation vests) and protective gear (e.g., gloves, boots, and glasses).

2. Use DGPS to maneuver to sample target, secure vessel in place with spuds or anchors.

3. Identify the sampling location and document it in the field book.

4. Measure the depth to water.

5. Pre-label sample containers. Use a water-proof marker and include sample number, location, date collected, and initials of sampler.

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Depending on the site conditions, number of cores to be collected and production rate, consideration should be given to establishing a core processing area off the sampling vessel. However, the field team may elect to process cores on board if practical.

3.2 Using the Vibracore

Subsurface sediment core samples will be collected at locations described in the sampling plan. The cores will be collected into a cellulose acetate or Lexan (or similar) liner inside a metal tube.

Sediment core collection will be performed using the following general procedures:

1. A new core liner of the desired length will be placed into the core tube and secured to the vibratory assembly head and deployed from the vessel. It is recommended that a line a few feet longer than the desired penetration depth be used. The core diameter will be approximately 4 inches. A core catcher will be used.
2. The cable umbilical to the vibrator assembly will be drawn taut and perpendicular, as the core rests on the bottom sediment.
3. The location will be recorded by the location control personnel, and depth to sediment will be measured with a survey tape attached to the head assembly and lead line.
4. The core tube will be vibratory-driven into the sediment.
5. A continuous core sample will be collected to the designated coring depth or until refusal.
6. The depth of core penetration will be measured and recorded.
7. The vibrator motor will be turned off and the core barrel will be extracted from the sediment using the winch.
8. While suspended from the try-pod or A-frame hoist, sediment adhered to the assembly head and outside of the core barrel will be sprayed off with site water and then placed on the vessel deck.
9. The core sample will be evaluated at the visible ends of the core tube, the length of recovered sediment will be recorded, and, if accepted, the core tube will be cut open to facilitate collection of sediment material.

Acceptance criteria for sediment core samples are as follows:

1. Overlying water is present and the surface is intact.
2. The core tube appears intact without obstruction or blocking.
3. Recovery is greater than 75 percent of drive length.

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If sample acceptance criteria are not achieved, the sample is rejected unless modified acceptance criteria are approved by the Field Team Leader and/or multiple attempts have been made at the sampling location.

Personnel will record field conditions and drive notes on a standard core log. Logs will include the following information:

- Sample ID
- Date and time of collection of each sediment core sample
- Names of field personnel collecting and handling the samples
- Geographic position of the actual coring location as determined by DGPS
- Depth to sediment surface
- Length of drive penetration and estimated recovery measurements
- Characteristics of the sediment including:
- Texture
- Color (Munsell scale)
- Presence and type of debris, especially metal debris
- Visible staining
- Qualitative notation of apparent resistance of sediment column to coring (how the core drove)
- Other observations

3.3 Sample Collection

Samples will be collected from the core at the prescribed intervals in accordance with the sampling plan and placed into sample jars. Excess sediment will be containerized and managed as investigation-derived waste.

3.4 Equipment Decontamination

Reusable equipment that may come in contact with the sediment samples will be properly decontaminated between sample locations to prevent cross-contamination of samples. Field personnel should first change all personal protective equipment that will come in contact with the equipment being decontaminated and rinse all visible debris (e.g., sediment, leaves, twigs, etc.) from the equipment using site water. The decontamination process will include the following:

- washing the equipment with a laboratory-grade detergent and water solution,
- rinsing with distilled water,
- rinsing with a 10-percent nitric-acid solution, and
- a final rinse with distilled water.

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After the equipment is decontaminated, if it will not be used immediately, keep the equipment clean by placing it in dedicated plastic or stainless-steel bins, boxes, or other appropriately sized containers.

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