

Downgradient Property Status Submittal

Mystic River Sediments
One Broadway
Everett, Massachusetts

Release Tracking Number (RTN) 3-35073



Prepared by:

AMEC Massachusetts, Inc.
271 Mill Rd, 3rd Floor
Chelmsford, MA 01824

August 2018

Project No. 3651170065

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Prepared and Reviewed by:

A handwritten signature in black ink that reads "John F. Rice".

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1.0 INTRODUCTION

This Downgradient Property Status (DPS) Submittal has been prepared for a portion of two properties separately owned by Wynn MA, LLC and Everett Property, LLC (collectively, “Wynn”) located at One Broadway (formerly 1 Horizon Way) in Everett and an unnumbered parcel on Alford Street in Boston (collectively, the “Wynn Property”) (**Figure 1**). The Wynn Property encompasses approximately 35 acres, which includes an upland portion (approximately 22 acres) and a portion of the adjacent Mystic River to the southwest (approximately 13 acres). This DPS submittal applies to the sediments on the Wynn Property below Mean High Water (MHW, elevation +4.35 feet relative to the North American Vertical Datum of 1988) out to the Wynn Property boundary within the Mystic River (**Figure 2**). Based on evaluation of existing data which is outlined in this submittal, AMEC Massachusetts, Inc. (“AMEC”) concluded that phthalate (primarily bis(2-ethylhexyl)phthalate or BEHP) and polychlorinated biphenyl (PCB) contamination is related to releases from an upgradient source, unrelated to Wynn, which migrated onto the Wynn Property via surface water transport. For this reason, filing of DPS is appropriate for the sediment portion of the Wynn Property.

The release of BEHP and PCBs to sediment on the Wynn Property has been assigned Release Tracking Number (RTN) 3-35073 by the Massachusetts Department of Environmental Protection (MassDEP). The Wynn Property also contains a separate Massachusetts Contingency Plan (MCP, 310 CMR 40.000) disposal site known as the Former Everett Staging Yard Disposal Site. This Disposal Site includes both uplands and a portion of the Mystic River and is identified by RTN 3-13341. Contamination associated with the Former Everett Staging Yard Disposal Site consists primarily of metals associated with the former use of the property as a chemical manufacturing facility. Remediation of the metals-impacted sediment by dredging and capping was performed under a Phase IV Remedy Implementation Plan (AMEC, 2017).

This DPS Submittal has been structured to satisfy the content requirements outlined in 310 CMR 40.0183(3). Section 2 contains background information. Section 3 contains a DPS Opinion prepared in accordance with 310 CMR 40.0015 and 310 CMR 40.0183(4). Section 4 provides documentation as to why Wynn qualifies for DPS in accordance with 310 CMR 40.0183(2).

2.0 SITE BACKGROUND

2.1 Ownership History

The Wynn Property was previously used by various chemical companies, including Cochrane Chemical Company, the Merrimac Chemical Company, and the Monsanto Chemical Company (Monsanto), from the 1860s until the late 1960s. These same companies also had operations on an adjacent property (referred to herein as “Monsanto West”) which has since been redeveloped as the Gateway Center (response actions for that property were handled under RTNs 3-313, 3-4200, and 3-4425). The buildings associated with chemical manufacturing on the Wynn Property were demolished in the late 1960s and 1970s. According to Tetra Tech Rizzo (2007), the Wynn Property was generally vacant by about 1980.

According to a 1997 Phase I Initial Site Investigation for the Former Everett Staging Yard Disposal Site prepared by Consulting Engineers & Scientists (CES), Boston Edison acquired the Wynn Property from Monsanto (no date given for the purchase). O'Donnell Sand & Gravel, Inc. (O'Donnell) acquired the property in the 1990s and used it as a storage area for equipment and excavated rock and tunnel muck from the construction of the Deer Island Outfall project (Tetra Tech Rizzo, 2007; GEI, 2012). Mystic Landing, LLC (Mystic Landing) acquired the property from O'Donnell, and leased the property to Modern Continental Construction Co., Inc. as a materials and equipment laydown yard for the Central Artery Project (TetraTech Rizzo, 2007; GEI, 2012). FBT Everett Realty, LLC (FBT) purchased the property from Mystic Landing in 2009 (GEI, 2012). Wynn purchased the property from FBT in January 2015.

2.2 Regulatory History and Status

O'Donnell submitted the initial notification of a release on the Wynn Property in January 1996 based on the presence of elevated concentrations of certain metals and petroleum hydrocarbons in soil as well as areas of low pH in groundwater. CES filed a Phase I Initial Site Investigation and Tier Classification (classifying the Former Everett Staging Yard Site as Tier II) on behalf of O'Donnell in January 1997 (CES, 1997). Following Mystic Landing's purchase of the property in 2001, additional subsurface and sediment investigations were completed under Tetra Tech Rizzo and others which were documented in a Phase II Report submitted in December 2007. This report includes the first analysis for, and detection of, phthalates (BEHP and di-n-octylphthalate) and PCBs in sediment from samples collected by Menzie-Cura Associates, Inc. in 2005 and 2006 and Williams Environmental, Inc. in 2007. In their Phase II CSA Report, Tetra Tech Rizzo states “The source of the PCBs in the sediment is unknown...Elevated concentrations of PCBs have not been detected in the soil at the Site.” BEHP had been detected at a very low concentration (<1 mg/kg) in one of the soil samples previously analyzed from the property.

FBT purchased the property in October 2009 and in February 2012 GEI submitted a Phase II CSA which summarized the work previously described in the Tetra Tech Rizzo Phase II Report (no new sampling was performed). Wynn purchased the property in January 2015 and in December 2015, GZA GeoEnvironmental, Inc. (GZA) submitted a Supplemental Phase II Report which contained the results from an extensive sampling program as well as an updated Disposal Site boundary and risk characterization (GZA, 2015). These investigations greatly expanded the dataset characterizing the horizontal and vertical extent of BEHP and PCB contamination in

sediment on the Wynn Property. GZA concluded that BEHP and PCBs detected in sediment were not related to releases from the upland portion of the Wynn Property based on the distribution of BEHP and PCBs in sediment as well as the limited extent and low concentrations of these constituents in soil.

In December 2016, AMEC prepared a Revised Supplemental Phase II Comprehensive Site Assessment Report (AMEC, 2016) which presented the Conceptual Site Model (CSM), assessed risks to human health and the environment, and defined the limits of those areas which could pose a risk. The CSM and an evaluation of local conditions identified arsenic, lead, mercury, and vanadium as specific contaminants of concern tied to historical manufacturing operations and processes on the property. The presence of phthalates and PCBs detected in sediment were determined to be related to historical operations on the adjacent Monsanto West property. There is no evidence of the manufacture of phthalates or PCBs on the Wynn Property.

In June 2017, a combined Phase III Remedial Action Plan (RAP) and Phase IV Remedy Implementation Plan (RIP) for the sediment portion of the Former Everett Staging Yard Site was submitted to MassDEP (AMEC, 2017). The goal of the remedial action was to eliminate significant risk to benthic organisms associated with exposure to contaminated sediment at concentrations which exceed benchmarks or local conditions. Sediment remediation was accomplished through the dredging and capping or capping alone of contaminated sediments. Dredged materials were transported off-site for disposal. These remedial actions addressed sediment contamination associated with former operations on the Wynn Property (i.e., arsenic, lead, mercury and vanadium). Contamination from other sources (metals likely from a drain pipe, phthalates and PCBs from Monsanto West, and polycyclic aromatic hydrocarbons (PAHs) and petroleum from stormwater runoff, industrial releases, and shipping-related impacts) was remediated incidentally during the remediation of the four metals associated with former operations on the Wynn Property. Dredging and installation of the cap were largely completed between October 2017 and March 2018.

On July 18, 2018 following discussion with MassDEP (Mr. Andrew Clark), Matt Grove of AMEC notified MassDEP of a Condition of Substantial Release Migration (SRM) which had resulted in the presence of BEHP and PCBs in sediment on the Wynn Property at concentrations above local conditions. MassDEP issued RTN 3-35073 for this release so that it could be tracked separately from remedial actions related to metals contamination associated with the Former Everett Staging Yard Disposal Site. In accordance with Massachusetts General Law (M.G.L.) Chapter 21E, Section 5D(a)(4), Wynn is not required to conduct an Immediate Response Action (IRA) to address RTN 3-35073 because the concentrations of BEHP and PCBs have migrated in surface water from a known upstream source and do not pose an Imminent Hazard at the downstream Wynn Property. Wynn never owned or operated the upstream property from which BEHP and PCBs are derived. As documented herein, Wynn is filing a DPS Submittal for BEHP and PCBs present in sediments on their property, which remain following remediation of metals in sediments derived from RTN 3-13341.

3.0 DPS OPINION [310 CMR 40.0183(4)]

This Opinion summarizes the results of investigations completed by Wynn and which demonstrate Downgradient Property Status. The following sections outline the technical basis for the conclusion that the property owned by Wynn has been impacted by an upgradient release of oil and /or hazardous material. This section has been structured to address the following Performance Standards for DPS found in 310 CMMR 40.0183(4):

- a) an evaluation of the boundaries of the property which is the subject of the Opinion;
- b) an evaluation of the disposal site boundaries, to the extent they have been defined by assessments conducted to date;
- c) an evaluation of the releases of oil and /or hazardous materials at the disposal site, to the extent that such releases have been identified;
- d) an evaluation of the relevant hydrogeologic conditions, including, at a minimum, groundwater flow direction and local transport characteristics based on field data, when migration of oil and/or hazardous materials had occurred via groundwater.
- e) a plan showing the downgradient or downstream property and the disposal site boundaries (to the extent known), the locations of any known or suspected source(s) of oil and/or hazardous material(s) release(s) that have come to be located at the downgradient or downstream property, the direction of groundwater flow and/or surface water flow (as appropriate), the locations where samples were collected for analysis, and the results of the analysis; and
- f) an evaluation of the need to conduct and Immediate Response Action, as defined in 310 CMR 40.0412.

3.1 Evaluation of Property Boundaries [310 CMR 40.0183(4)(a)]

As previously noted, the Wynn Property encompasses approximately 22 acres of uplands and approximately 13 acres of the adjacent Mystic River to the southwest. This DPS submittal applies only to the sediment portion of the property below Mean High Water (MHW, elevation +4.35 feet relative to the North American Vertical Datum of 1988) out to the Wynn Property boundary within the Mystic River (**Figure 2**).

3.2 Evaluation of Disposal Site Boundaries [310 CMR 40.0183(4)(b)]

The presence of phthalates and PCBs in sediment on the Wynn Property is attributed to releases from the adjacent Monsanto West property (**Figure 2**). Contamination then migrated via surface water flow in the Mystic River onto the Wynn Property.

As part of the 2016 Revised Phase II CSA, a representative “local conditions” database was developed using samples collected by GZA as well as data from earlier studies by Wehran Engineering Corporation (Wehran, 1989) and the United States Geological Survey (Breault et al., 2005). The MassDEP’s Guidance for Disposal Site Risk Characterization in Support of the Massachusetts Contingency Plan (MassDEP, 1996) defines “local conditions” as “...*levels of OHM present consistently and uniformly throughout the surface water body, or throughout a larger section of a river that contains the area potentially affected by contamination at or from the site.*”

The “local conditions” concept acknowledges that sediments in certain water bodies, particularly those located in industrial urban areas, contain constituents from sources such as other disposal sites, permitted discharges, and non-point sources. The concept of “local conditions” is fundamental to determining the boundary of contamination from the Disposal Site which extends into a highly urbanized and industrialized waterway like the Mystic River. By agreement with MassDEP, the 75th percentile statistic was conservatively used to determine the local condition concentration for each chemical detected in sediment on the Wynn Property (AMEC, 2016). These local condition concentrations were then used to draw the disposal site boundary for contamination associated with historical operations on the Wynn Property (RTN 3-13341) shown on **Figure 2**.

The concentrations of BEHP and PCBs in sediment for the 0 to 0.5 foot depth interval on the Wynn Property are shown on **Figures 3 and 4**, respectively. The BEHP concentrations on the Wynn Property ranged from 0.358 to 29 mg/kg; however, none of the concentrations measured in the sediment portion of the Wynn Property exceeded the local conditions concentration of 32.6 mg/kg. The total PCB concentrations on the Wynn Property ranged from 0.071 to 3.39 mg/kg. Eighteen of the 39 sediment samples had PCB concentrations that exceeded the local conditions concentration of 0.87 mg/kg. BEHP and PCB concentrations from the Monsanto West Tidal Flat subarea are also shown on **Figures 3 and 4**, respectively. The Phase II investigation of the Monsanto West Tidal Flat subarea (GZA, 1989b) had BEHP detected in 72 of the 87 samples with concentrations that ranged from 0.498 mg/kg to 5,960 mg/kg. PCBs were detected in 21 of the 34 samples with concentrations that ranged from 0.125 mg/kg to 12.7 mg/kg.

As shown graphically on the index plots in **Appendix A (Figures A-1 through A-4)**, in the Wynn Property shallow sediment there is a strong positive agreement among the concentrations of metals (i.e., samples that exhibit high concentrations for one metal typically exhibit high concentrations of the others) and a strong positive agreement between BEHP and PCBs. However, there is generally a weak agreement between metals and either BEHP or PCBs (i.e., peaks in metals concentrations do not correlate well with peaks in either BEHP or PCBs). Spearman correlations (which are less sensitive to extreme concentrations and concentration ranges) also show significant correlations (>95% confidence) between the arsenic, lead, and mercury and between vanadium and lead (see **Table A-1 in Appendix A**). BEHP and PCBs also show a statistically significant correlation. However, arsenic, lead and mercury concentrations are not significantly correlated with BEHP or PCBs. Vanadium appears to be correlated with both PCBs and BEHP; however, an index plot of vanadium versus PCBs (**Figure A-5**) shows that different samples contain the highest PCB and vanadium concentrations.

The BEHP and PCB results of sediment sampling in a larger portion of the Mystic River conducted as part of the Wynn Property investigation are also shown on **Figures 3 and 4**, respectively. The samples are identified by a designation starting with LC or GZ-LC. The BEHP concentrations in the Mystic River ranged from 1.53 to 1,570 mg/kg. Two of the 12 samples had concentrations that exceeded the local conditions concentration of 32.6 mg/kg (two additional samples collected north of the Amelia Earhart dam also had BEHP concentrations which exceeded local conditions). The total PCB concentrations ranged from 0.6 to 40.1 mg/kg. Ten of the 12 samples had PCB concentrations that exceeded the local conditions concentration of 0.87 mg/kg (six additional

samples upstream of the dam and three additional samples below the Alford Street bridge also had PCB concentrations which exceeded local conditions). Phthalates and PCBs were detected in the soil, groundwater, and/or sediment in each of the Monsanto West subareas (shown on **Figure 2** and described further in Section 3.3).

Based on the available data, the likely disposal site boundary for phthalate and PCB contamination (RTN 3-35073) shown on **Figure 2** includes sediment on the Wynn Property as well as a large portion of the Mystic River adjacent to the Wynn Property and the Monsanto West property.

3.3 Evaluation of the Release [310 CMR 40.0183(4)(c)]

The sediment portion of the Wynn Property and adjacent areas of the Mystic River have been impacted by phthalates and PCBs. Phthalates and PCBs are known to be associated with operations on the Monsanto West property. There is no evidence of the manufacture of phthalates or PCBs on the Wynn Property. Operations at the Monsanto West property were initiated by the New England Chemical Company in 1868. Operations continued under Cochrane Chemical Company, Merrimac Chemical Company, and then Monsanto.

The Monsanto West property has been the subject of numerous submittals under RTNs 3-0313, 3-4200, and 3-4425 dating back to the early 1980s. Monsanto West was divided into several subareas for remediation based on distinct historical uses as described below and shown on **Figure 2**:

- ▶ **Plasticizer Subarea** – Monsanto operated plasticizer manufacturing and storage facility for the production of phthalate ester plasticizers from 1952 to 1965 and adipate plasticizers from 1965 to 1992. The Phase II Report for the Plasticizer subarea (GZA, 1994a) indicated plasticizer compounds in the surface soil at concentrations that ranged from 0.078 to 3,160 ppm and PCB concentrations from 0.1 to 2.6 ppm.
- ▶ **Well 5 Subarea** – used for the inspection and weighing of rail cars entering and leaving the manufacturing facility. During environmental studies, a monitoring well in the area was found to contain up to one foot of floating plasticizer product in 1985. The Phase II Report for the Well 5 subarea (GZA, 1993b) indicated that BEHP had been detected in the soil of the southern half of the Well 5 area at concentrations up to 2,800 ppm. Concentrations of PCBs in the Well 5 subarea ranged from 0.09 to 0.018 ppm.
- ▶ **Therminol Furnace Subarea** - provided heat for pilot testing and production in the 409 building from 1952 until 1986. Until 1974, PCB-containing oils (manufactured under the Monsanto brand name Therminol) were used to transport the heat from the furnace to the process units in the 409 Building.
- ▶ **409 Building** – used as a pilot facility for new product lines from 1952 to the early 1960s. From the early 1960s to 1985, polymeric plasticizers were produced in the 409 building. The Phase II Site Risk Characterization (GZA, 1989a) reported PCB concentrations ranging from 0.58 to 4,010 ppm and BEHP concentrations from 3.1 to 830 ppm.
- ▶ **Plasticizer/Stormwater Lagoon** – received surface water runoff and spills from the plasticizer production area from 1971 until 1986. The Phase II Report for the Plasticizer/Stormwater Lagoon (GZA, 1988) indicated that phthalates were detected in the surface and subsurface soil at concentrations that ranged from 3.5 to greater than 10,000 ppm and PCBs were detected in the surface soils at concentrations that ranged from trace to

120 ppm. The lagoon continued to receive stormwater and groundwater inflow until its permanent closure in 1989.

- ▶ **Mystic View Subarea** – progressively filled with manufacturing wastes began in 1931 and continuing into the early 1960s. The Phase II Report for the Mystic View Subarea (GZA, 1993a) reported that elevated levels of arsenic, chromium, copper, lead, zinc, certain organic chemicals such as phthalate esters, PCBs, benzene, toluene, ethylbenzene, xylenes, and polycyclic aromatic hydrocarbons (PAHs) were detected in both soil and groundwater. The maximum concentration of BEHP was 59,000 ppm.
- ▶ **Fund Land Subarea** – progressively filled between 1917 and 1966 with the manufacturing by-product and construction demolition debris. The Phase II Report for the Fund Land subarea (GZA, 1994b) reported lead, PCBs, BEHP, and PAHs in soils and sediment within this area. PCB concentrations ranged from 0.007 to 0.22 ppm in soil and 0.01 to 1 ppm in sediment. BEHP concentrations ranged from 0.33 to 26 ppm in soil and 28 -84 ppm in sediment.
- ▶ **Tidal Flats Subarea** – consists of tidal mud flats located at the southeast corner of Monsanto West, just downstream of the Earhart Dam. Prior to 1952, the Tidal Flats was an island in the Mystic River (Atwood Island), which was merged with the rest of the property by filling from the railroad bridge embankment east of the island and the placement of fill, including slurried wastes from the chemical plant, north of the island. The Tidal Flats was also the location of Monsanto's National Pollutant Discharge Elimination System ("NPDES") permitted outfall, which was used to discharge "waste process water and other waters from the Monsanto plant (GZA, 1989b)" to the Mystic River. Monsanto's wastewater discharge activities were discontinued by 1997 (O'Reilly, Talbot & Okun, 1997). Sediments in the Tidal Flats subarea were characterized by elevated concentrations of metals (copper, lead, and zinc), and organic chemicals including phthalate esters (principally BEHP) and PCBs.

As can be seen from the list of subareas above, phthalates and PCBs were detected in soil, groundwater, sediment and surface water around the Monsanto West property. The Tidal Flats subarea appears to be the most likely source of phthalate and PCB contamination in sediments on the Wynn Property given its proximity and the presence of the NPDES outfall.

At the same time that these operations were occurring on Monsanto West, the Wynn Property was being used for sulfuric acid and alcohol production as well as administration and laboratories (Tetra Tech Rizzo, 2007).

3.4 Evaluation of Hydrogeologic Conditions [310 CMR 40.0183(4)(d)]

Since the contaminant transport for phthalates and PCBs has been through surface water, this section will discuss the surface water hydrology not groundwater flow.

The surface water hydrology in the vicinity of the Wynn Property is complicated by the presence of the Amelia Earhart Dam just upstream of the Wynn Property. Prior to the construction of this dam in 1966, the Craddock Locks, constructed in 1909, had terminated the upstream extent of tidal influence (GZA 1994).

The Mystic River flows southward past the Monsanto West property and through the Amelia Earhart Dam. Flow below the dam, while tidally influenced, is still generally southward past the Monsanto West Tidal Flat subarea and then the Wynn Property. During the incoming tide, water and sediment moves from the Mystic River channel into the embayment on the Wynn Property.

3.5 Site Plan [310 CMR 40.0183(4)(e)]

Figure 2 shows the downgradient property and the disposal site boundaries for RTNs 3-35073 and 3-13341, the locations of any known or suspected source(s) of oil and /or hazardous material(s) release(s) that have come to be located at the downgradient property, and the direction of surface water flow. For clarity and ease of reading, the locations where samples were collected for analysis and the results of the analyses are presented on **Figures 3** and **4**.

3.6 Evaluation of Need to Conduct Immediate Response Actions [310 CMR 40.0183(4)(f)]

The MCP at 310 CMR 40.0412, identifies four types of sites where IRAs are required:

- 1) sites or vessels where a release or threat of release of oil and/or hazardous materials has occurred which requires notification to the Department under the “Two Hour” notification provision of 310 CMR 40.0311 or 40.0312;
- 2) sites where a release or threat of release of oil and/or hazardous material has occurred which requires notification to the Department under the “72 Hour” notification provision of 310 CMR 40.0313 or 40.0314;
- 3) sites where a release of oil and/or hazardous materials has resulted in conditions which have been determined to pose an Imminent Hazard pursuant to 310 CMR 40.0950; and
- 4) any other site or vessel where the Department determines that immediate or accelerated response actions are necessary to prevent, eliminate, or minimize damage to health, safety, public welfare or the environment.

Based on the review of current site conditions, there is no release or threats of release in the sediments requiring notification within either 2 or 72 hours. However, following discussion with MassDEP (Andrew Clark), Matt Grove of AMEC notified MassDEP of a Condition of SRM which is a 72-hour notification condition (310 CMR 40.0313(4)). Making this notification allowed MassDEP to issue RTN 3-35073 for the release of phthalates and PCBs so that this release could be tracked separately from remedial actions related to contamination associated with the Former Everett Staging Yard Disposal Site (RTN 3-13341). MassDEP has stated to Wynn that an IRA is not necessary to address phthalates or PCBs in sediment despite the 72-hour notification condition. In accordance with Massachusetts General Law Chapter 21E, Section 5D(a)(4), Wynn is not required to conduct an IRA to address the phthalates or PCBs because the contaminants are associated with an upstream source and do not pose an Imminent Hazard on the Wynn property.

As part of the Revised Phase II CSA, AMEC conducted a Method 3 human health risk characterization using the available sediment data. The Method 3 risk characterizations concluded that there was No Significant Risk to human health and therefore no Imminent Hazard. The ecological risk characterization, which was updated in the combined Phase III RAP/Phase IV RIP, determined that a condition of No Significant Risk did not exist for benthic organisms exposed to sediment. However, this did not constitute an Imminent Hazard. Furthermore, the recently completed remediation has eliminated this risk. In addition, there is no evidence of stressed biota attributable to the release and there are no immediate or acute adverse impacts to freshwater or

saltwater fish populations. Therefore, based on current site conditions and the results of the risk characterizations, there are no Imminent Hazard conditions in the sediment.

Because an Imminent Hazard is not present, MassDEP has determined that immediate or accelerated response actions with respect to phthalates or PCBs present in sediments on the Wynn Property are not necessary to prevent, eliminate, or minimize damage to health, safety, public welfare or the environment.

4.0 QUALIFICATION FOR DOWNGRAIDENT PROPERTY STATUS

AMEC, on behalf of Wynn, requests that Downgradient Property Status be granted for the sediments of the Wynn Property that have been impacted by phthalates and PCBs. Wynn qualifies for DPS because the five criteria listed at 310 CMR 40.0183(2) have been satisfied:

- a) *Such person has notified the Department of the release if notification is required by 310 CMR 40.0300.*

Wynn was not required to notify MassDEP of the release which resulted in the detection of phthalates and PCBs in sediment pursuant to any notification triggers in 310 CMR 40.0300. As previously noted, on July 18, 2018 Matt Grove of AMEC notified MassDEP of a Condition of SRM following discussions with MassDEP. This notification allowed MassDEP to issue a separate RTN for phthalates and PCBs in sediment as there are no applicable notification conditions in 310 CMR 40.0300.

As previously stated, the Monsanto West property, which is the likely source of the release, has been the subject of numerous investigations and submittals dating back to the early 1980s.

- b) *The source of the release of soil and/or hazardous materials at the Downgradient or downstream property is or was located on one or more upgradient or upstream location(s) and oil and/or hazardous material from that location(s) has come to be located at the Downgradient or downstream property as a result of migration of the oil and/or hazardous material in or on groundwater or surface water, regardless of whether the upgradient or upstream location(s) which is the source has been identified as the source of the release(s).*

There are no sources of phthalates and PCBs in the upland soil and groundwater on the Wynn Property that would explain their detection in the sediment. In addition, as shown in **Appendix A** the detections of BEHP and PCBs sediments do not follow the same distribution pattern as the upland site contaminants (metals) and are not statistically correlated to arsenic, lead, and mercury. The upstream Monsanto West property contains multiple subareas where phthalates and PCBs were manufactured or used and prior sampling confirmed the release of these compounds. In addition, the Monsanto West Tidal Flat subarea, which is just upstream of the Wynn Property (and was the location of a former NPEDS outfall), has confirmed elevated detections of BEHP and PCBs in sediment.

- c) *No act of such person has contributed to the release described in 310 CMR 40.0183(2)(b), or caused such a release to become worse than it would have been.*

Wynn purchased the property as an Eligible Person in 2015 and has not contributed to the release or caused the release to become worse. Wynn does not own or operate any facility within, or upgradient of, the phthalate- and PCB-impacted sediment that could contribute to or exacerbate the release. Since purchasing the property in 2015, Wynn has completed extensive sampling and remediation programs of both the upland and sediment portions of the property.

- d) *Such person is not, and was not at any time, affiliated with any other person (i) who owned or operated the property from which the release described in 310 CMR 40.0183(2)(b) originated,*

or caused such release, and (ii) who is potentially liable under M.G.L. c.21E for the disposal site through any direct or indirect contractual, corporate or financial relationship other than:

- 1. That established by any instrument creating such person's interest in the downgradient property; or*
- 2. That established by an instrument wholly unrelated to the disposal site and which would not otherwise render such person potentially liable as a result of the relationship.*

Wynn is not affiliated in any way with any person who owns or previously owned the Monsanto West property from which the release potentially originated or who is potentially liable for the release.

- e) To the extent such person has performed response actions at the disposal site, those response actions have been performed in compliance with the requirement and procedures in M.G.L. c. 21E and 310 CMR 40.000.*

All assessment activities and response actions completed by Wynn since 2015 have been conducted in accordance with the requirements and procedures in M.G.L. Chapter 21E and 310 CMR 40.0000.

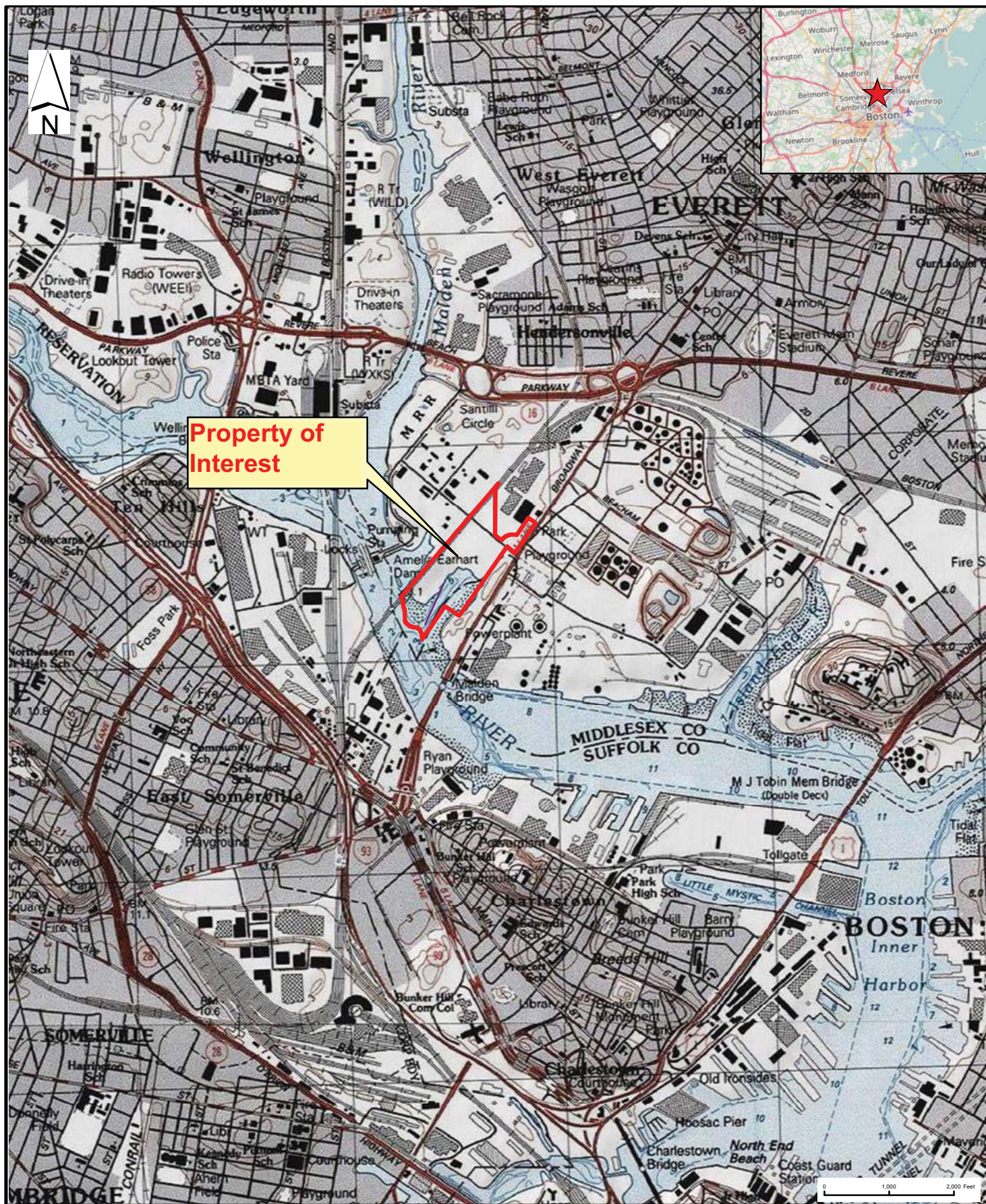
Based on the preceding evaluation, it is AMEC's opinion that Wynn is not responsible for the phthalate and PCB contamination detected in the sediment portion of the Wynn Property. The use and release of phthalates and PCBs have been documented on the adjacent and upstream Monsanto West property. In addition, elevated concentrations of phthalates and PCBs have been confirmed in the sediment of the Monsanto West Tidal Flat subarea located immediately adjacent and upstream of the Wynn Property. For these reasons, the filing of Downgradient Property Status is appropriate for the Wynn Property relative to these contaminants.

5.0 REFERENCES

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Figures



**Mystic River Sediments
One Broadway, Everett, MA
RTN 3-35073**



Approximate Parcel Boundary

TITLE:

Site Location Map

1

SCALE:
1 inch = 2,000 feet

DATE:
12/23/2016

PROJECT:
3651160042.003



DRAWN BY: M. Martin

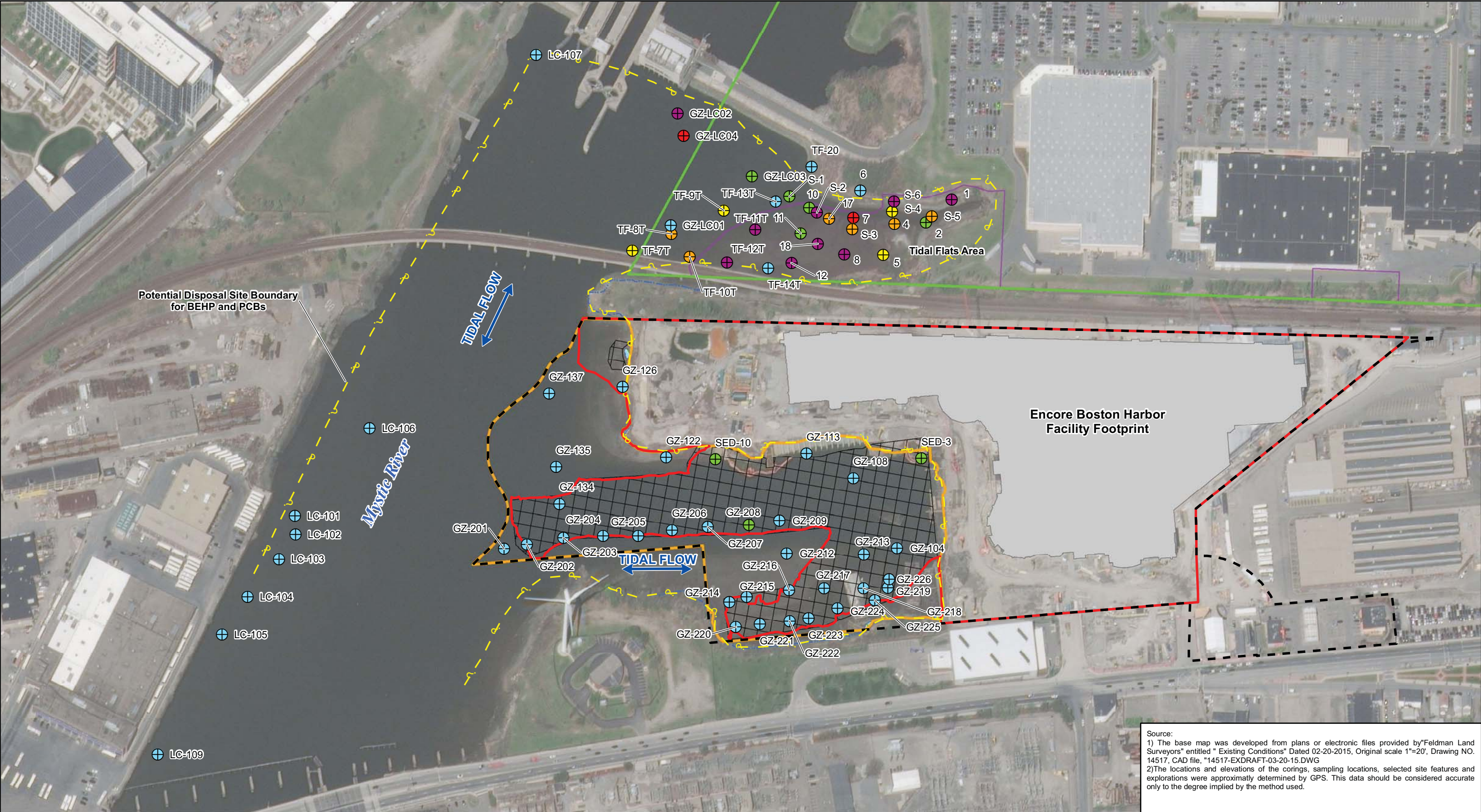
CHECKED BY: C. Platt

LOCATION: P:\Comm-Ind\Projects\Clients T to Z\Wynn\3651160042\GIS




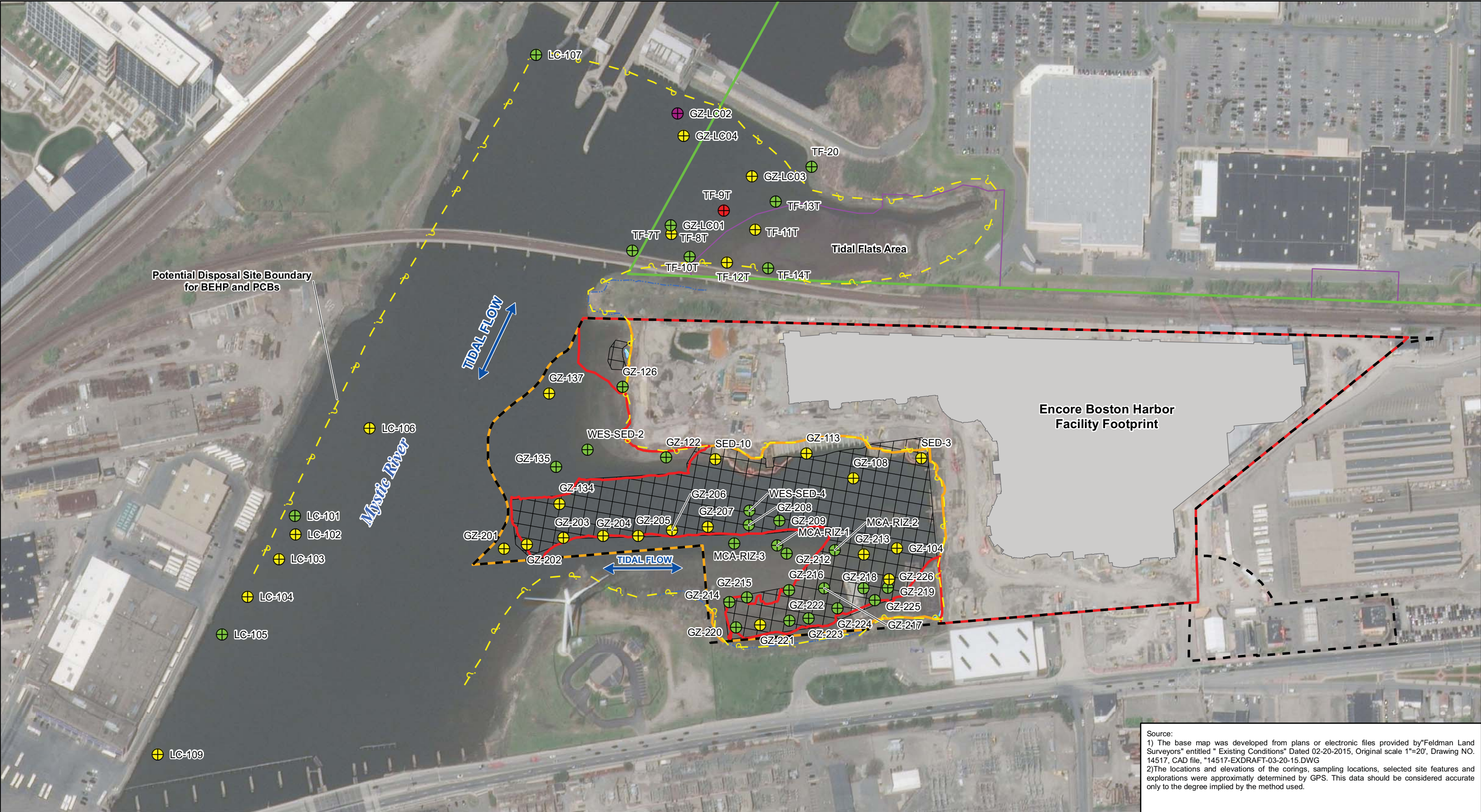
Source:
1) Approximate Parcel Boundary and Mean High Water datalayers developed from plans or electronic files provided by "Feldman Land Surveyors" entitled "Existing Conditions" Dated 02-20-2015, Original scale 1"=20', Drawing NO. 14517, CAD file, "14517-EXDRAFT-03-20-15.DWG

	Legend --- Mean High Water --- Approximate Parcel Boundary --- Former Everett Staging Yard Disposal Site Boundary (RTN 3-13341) --- Potential Disposal Site Boundary for BEHP and PCBs --- Cap Limits --- Salt Marsh --- Former Monsanto West --- Potential Upgradient Source Area --- Downgradient Property Status Area (RTN 3-35073)	 0 425 850 Feet	Downgradient Property Status Site Plan Mystic River Sediments RTN 3-35073 One Broadway, Everett, MA		FIGURE NO: 2	
			Drawn By: E. Gardiner			Checked By: J. Rice
			PROJECT NO: 3651160042.003			Date: 7/24/2018



Source:
1) The base map was developed from plans or electronic files provided by "Feldman Land Surveyors" entitled "Existing Conditions" Dated 02-20-2015, Original scale 1"=20', Drawing NO. 14517, CAD file, "14517-EXDRAFT-03-20-15.DWG"
2) The locations and elevations of the corings, sampling locations, selected site features and explorations were approximately determined by GPS. This data should be considered accurate only to the degree implied by the method used.

	Total BEHP Concentration in Sediment (mg/kg) ● ≤10 ● 10 < 50 ● 50 < 100 ● 100 < 500 ● 500 < 1,000 ● > 1,000	Legend --- Mean High Water --- Approximate Parcel Boundary --- Encore Boston Harbor Facility Footprint --- Salt Marsh --- Former Monsanto West --- Potential Upgradient Source Area --- Downgradient Property Status Area (RTN 3-35073) --- Former Everett Staging Yard Disposal Site Boundary (RTN 3-13341) --- Potential Disposal Site Boundary for BEHP and PCBs --- Cap Limits	BEHP in Shallow Sediment Mystic River Sediments RTN 3-35073 One Broadway, Everett, MA		FIGURE NO: 3	
			Drawn By: E. Gardiner			Checked By: J. Rice
			PROJECT NO: 3651160042.003			Date: 7/24/2018



	Total PCB Concentration in Sediment (mg/kg) ● ≤1 ● 1 > 5 ● 5 > 10 ● 10 > 50	Legend --- Mean High Water --- Approximate Parcel Boundary --- Encore Boston Harbor Facility Footprint --- Salt Marsh --- Former Monsanto West --- Potential Upgradient Source Area --- Downgradient Property Status Area (RTN 3-35073) --- Cap Limits --- Former Everett Staging Yard Disposal Site Boundary (RTN 3-13341) --- Potential Disposal Site Boundary for BEHP and PCBs	 0 250 500 Feet	Total PCBs in Shallow Sediment Mystic River Sediments RTN 3-35073 One Broadway, Everett, MA		FIGURE NO: 4	
				Drawn By: E. Gardiner			Checked By: J. Rice
				PROJECT NO: 3651160042.003			Date: 7/24/2018

Appendix A

Index Plots and Statistics

Figure A-1
Index Plot of Metals in Shallow Sediments

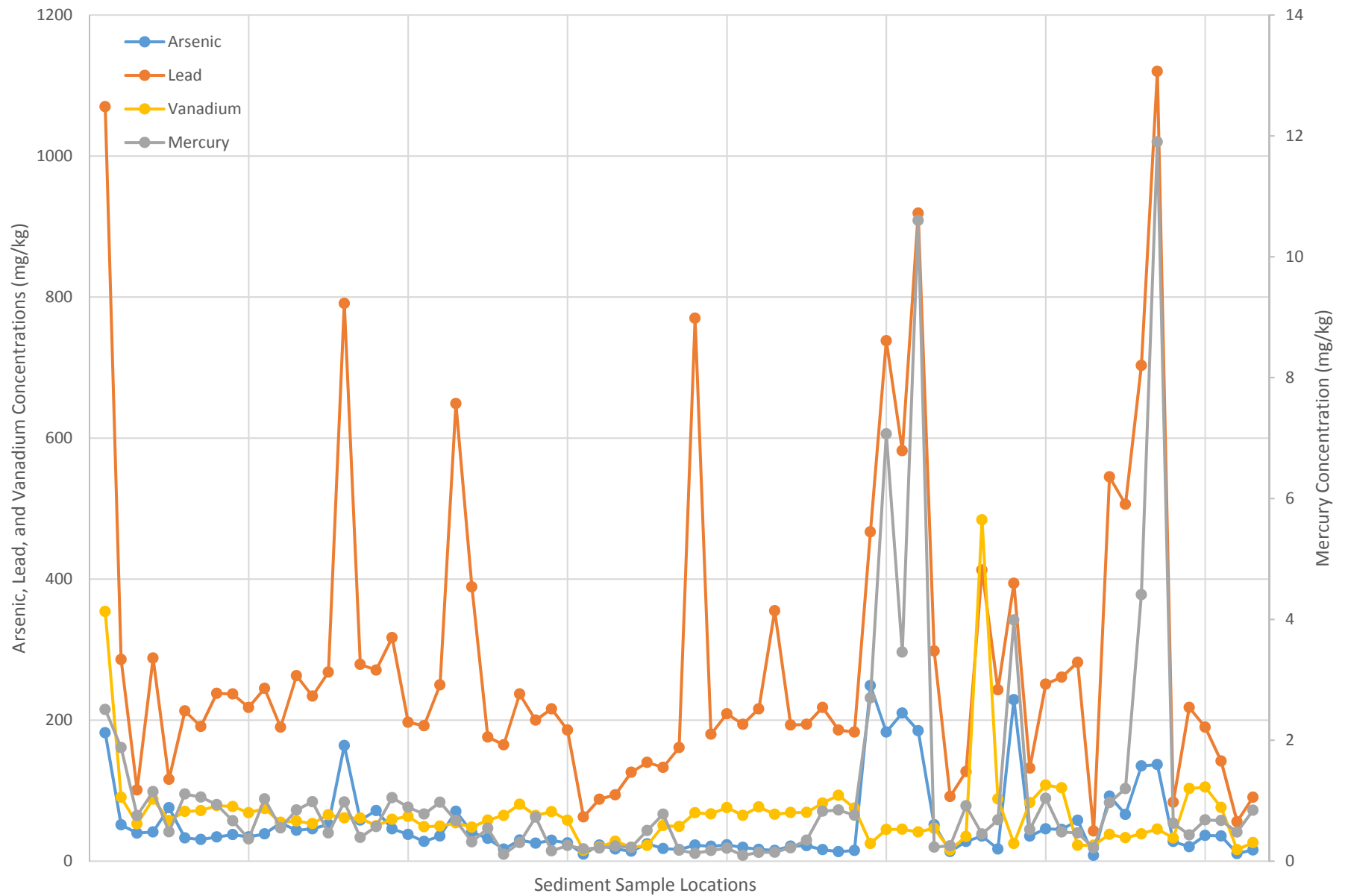


Figure A-2

Index Plot of BEHP and PCBs in Shallow Sediment

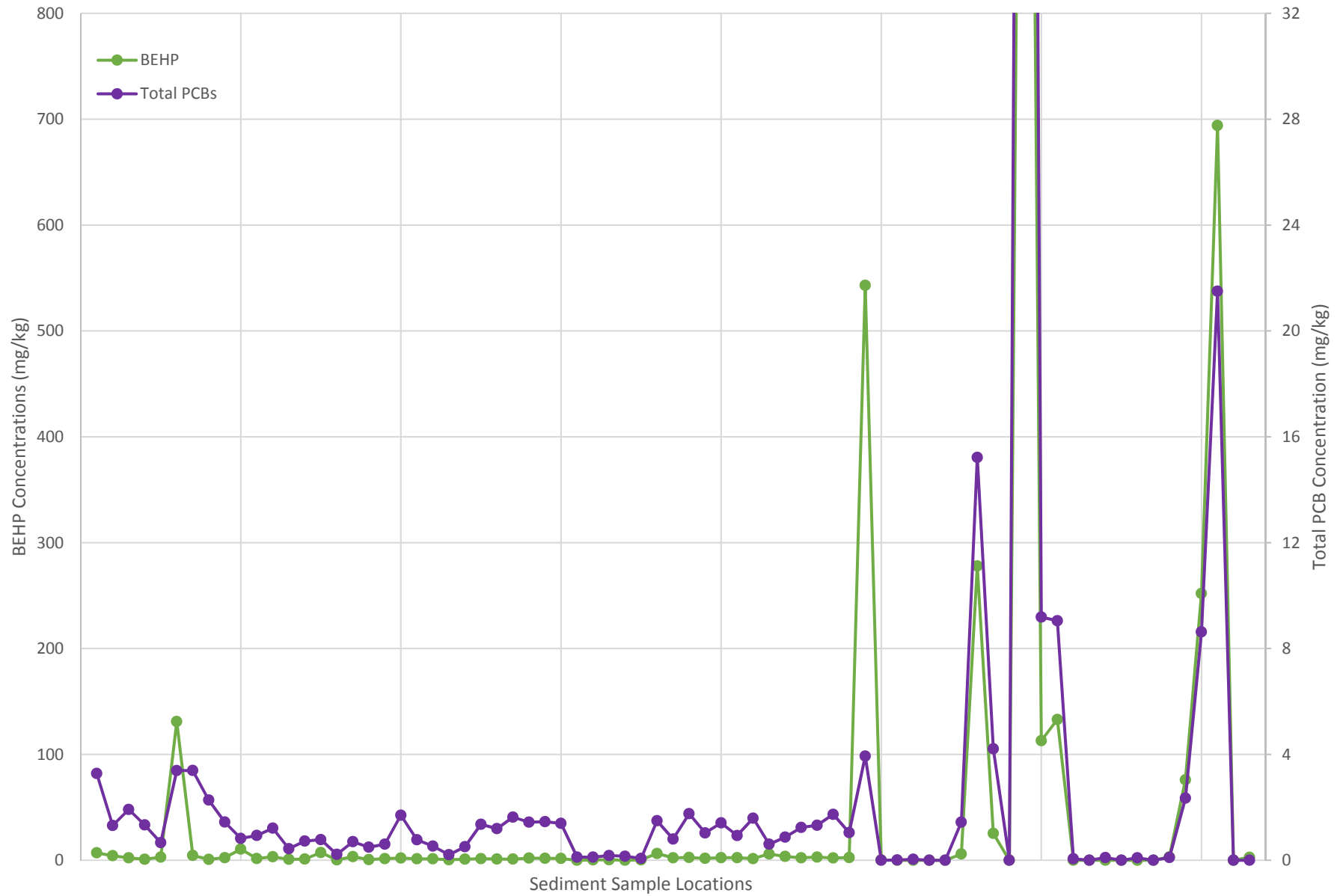


Figure A-3
Index Plot of Lead and BEHP in Shallow Sediments

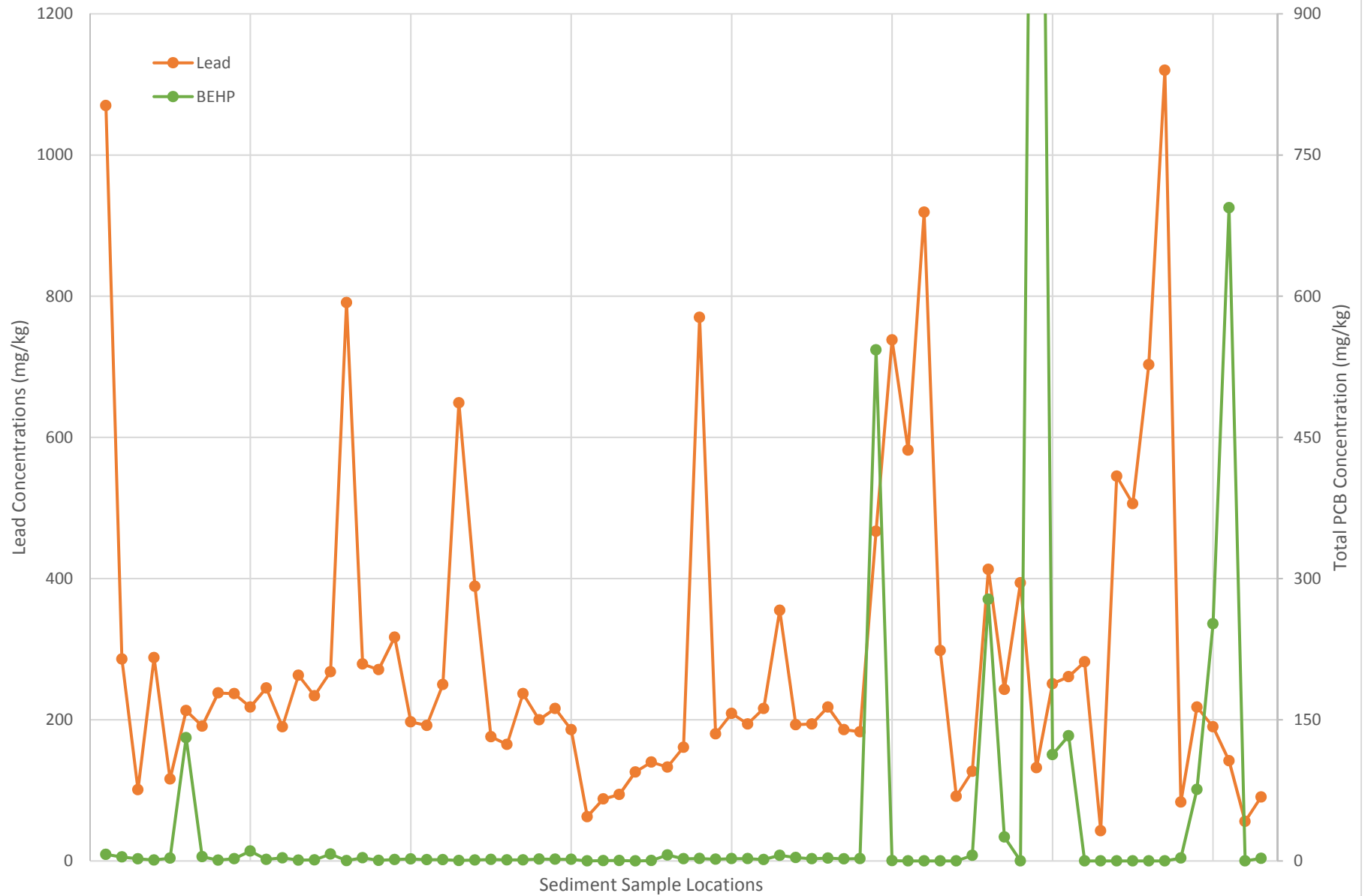


Figure A-4

Index Plot of Lead and Total PCBs in Shallow Sediment

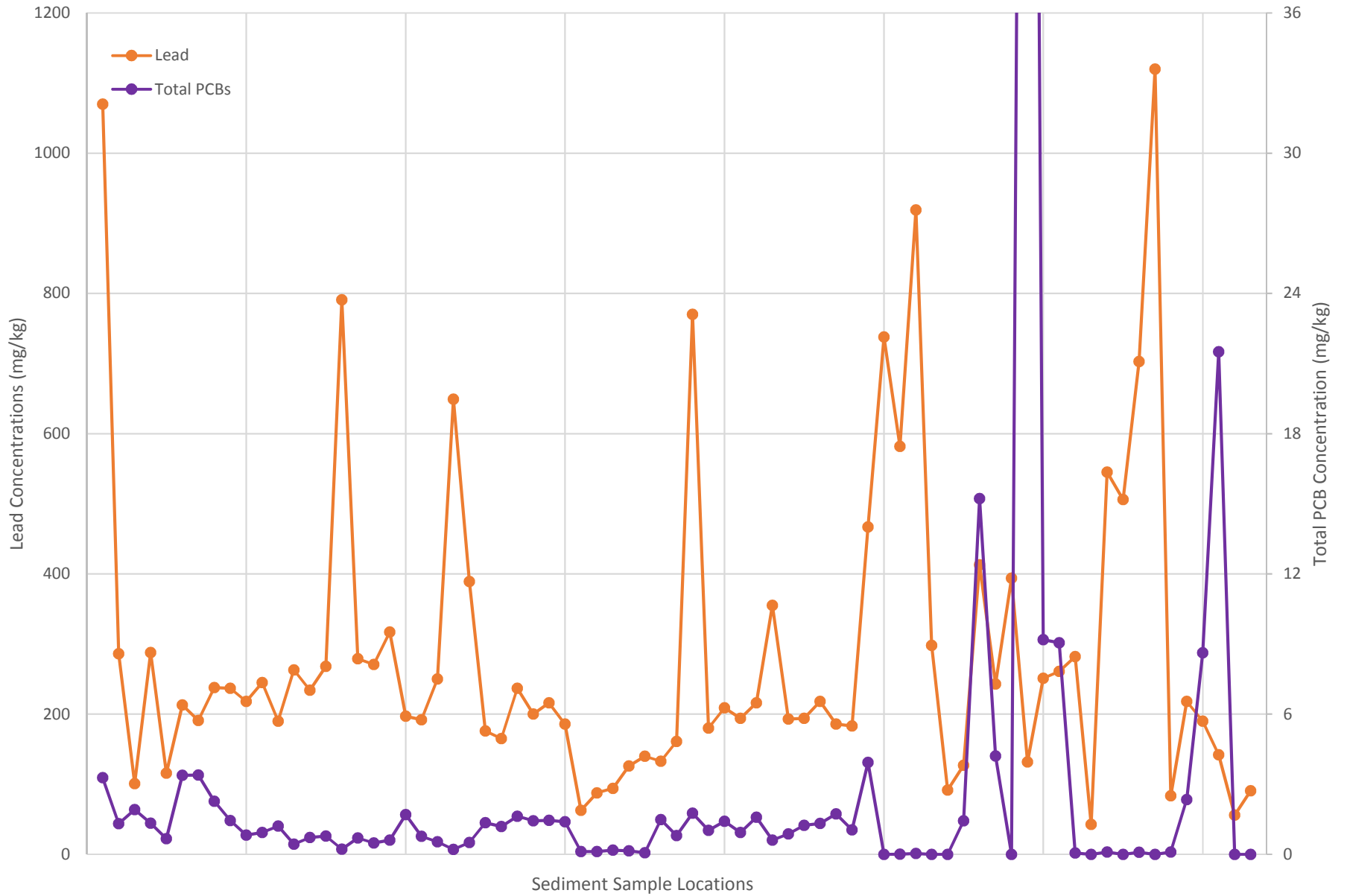


Figure A-5

Index Plot of Vanadium and Total PCBs in Shallow Sediments

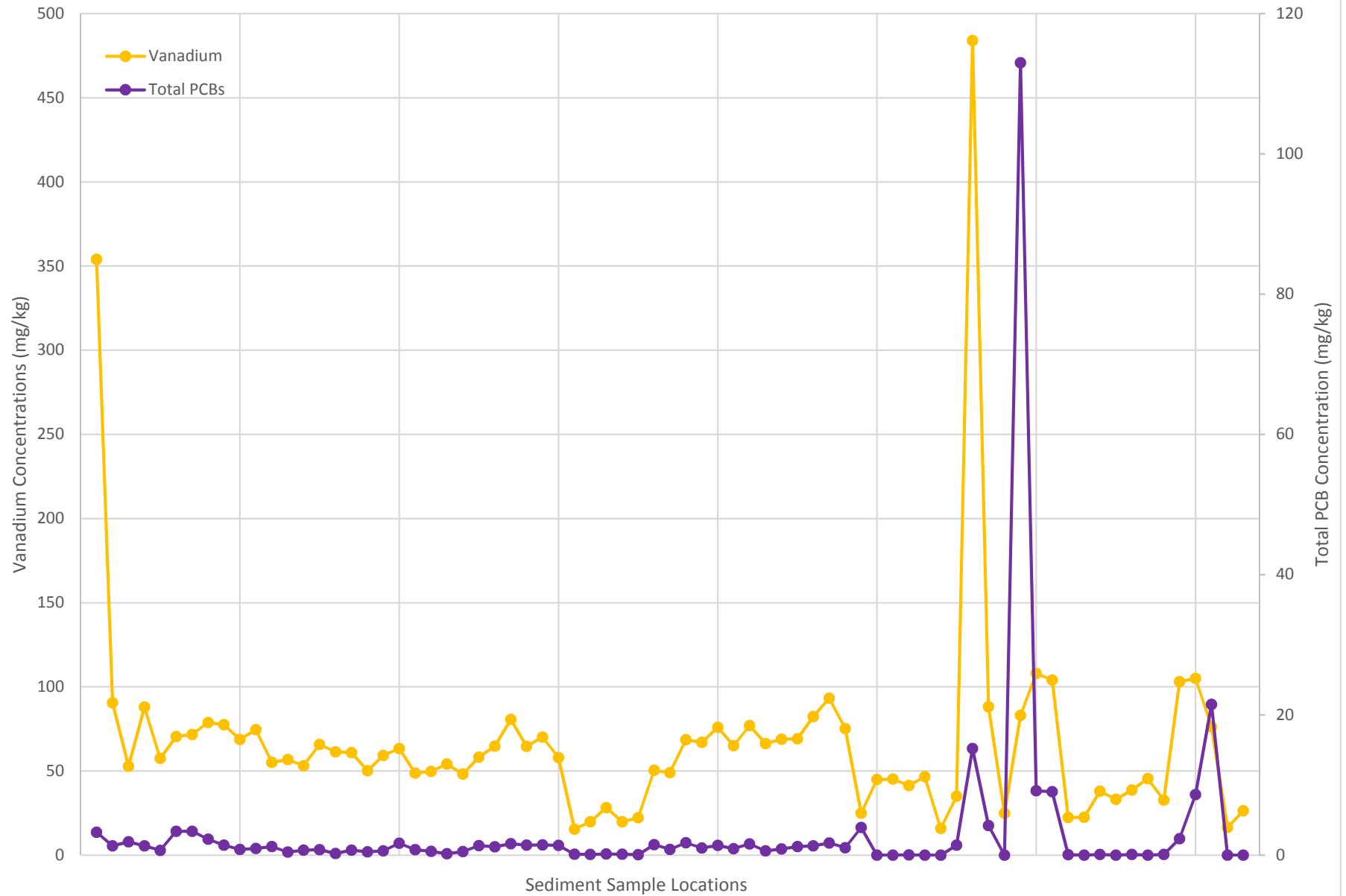


Table A-1
Statistical Evaluation of Sediment Concentrations
Mystic River Sediments
RTN 3-13341



Spearman Correlations						
	Arsenic	Lead	Mercury	Vanadium	BEHP	Total PCBs
Arsenic	---	0.757	0.7241	0.2903	0.2349	0.2045
Lead	0.757	---	0.6044	0.4408	0.1628	0.2549
Mercury	0.7241	0.6044	---	0.3115	0.2373	0.2445
Vanadium	0.2903	0.4408	0.3115	---	0.6808	0.8556
BEHP	0.2349	0.1628	0.2373	0.6808	---	0.7919
Total PCBs	0.2045	0.2549	0.2445	0.8556	0.7919	---
Adjusted p-values (Holm's Method)						
	Arsenic	Lead	Mercury	Vanadium	BEHP	Total PCBs
Arsenic	---	<.0001	<.0001	0.0274	0.079	0.0891
Lead	<.0001	---	<.0001	<.0001	0.111	0.0705
Mercury	<.0001	<.0001	---	0.0152	0.079	0.079
Vanadium	0.0274	<.0001	0.0152	---	<.0001	<.0001
BEHP	0.079	0.111	0.079	<.0001	---	<.0001
Total PCBs	0.0891	0.0705	0.079	<.0001	<.0001	---

Notes:

Statistics run on results from 97 samples analyzed for each of the listed metals, BEHP and Total PCBs.

Bold values in p-values table indicate significant correlation between concentrations.

BEHP = bis(2-ethylhexyl)phthalate

Total PCBs = sum of polychlorinated biphenyl (PCB) Aroclors detected

Created by: MJG 06/20/18
Checked by: NTG 06/21/2018