FINAL

COMPLETION REPORT
FORMER BREMERTON MGP SITE
INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

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Prepared for

U.S. Coast Guard Sector Puget Sound

Incident Management Division

On behalf of

Cascade Natural Gas Corporation

Prepared by

Anchor QEA, LLC

January 2011

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Prepared for

U.S. Coast Guard Sector Puget Sound
Incident Management Division
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January 2011

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1 INTRODUCTION

Cascade Natural Gas Corporation (Cascade Natural Gas) has completed an Incident Action and Time Critical Removal Action (Action) at the location of the former Bremerton manufactured gas plant (MGP) in Bremerton, Washington (Figure 1). The Action was completed as specified in the *Final Work Plan: Former Bremerton MGP Site, Incident Action and Time Critical Removal Action* (Work Plan; Anchor QEA and Aspect 2010), which was approved by the U.S. Coast Guard (USCG) and the Unified Command in November 2010. The Work Plan is included as Appendix A.

This Completion Report discusses the performance and results of the Action.

1.1 Site Description and Background

This section describes the Site, defined as the area where the MGP was formerly situated plus all areas affected by contamination originating from the former MGP, whether in the upland or shoreline environments; historical and current uses of the Site; and the recent discovery of and response to a discharge pipe near the former MGP.

1.1.1 *Historical and Current Uses*

The former Bremerton MGP was located on the south shore of Port Washington Narrows in Bremerton, Washington, between Thompson and Pennsylvania Avenues (Figure 1). The MGP produced gas for lighting and heating through coal gasification from approximately 1930 to the mid-1950s and through blending of propane and air from the mid-1950s to 1963. The MGP structures were removed between 1963 and the early 1970s.

The former Bremerton MGP was located on portions of three existing properties: two currently owned by the McConkey Family Trust (McConkey Property) and the third currently owned by Natacha Sesko (Sesko Property). The boundaries of the former Bremerton MGP are shown on Figure 1.

After the MGP was dismantled, the McConkey Property and Sesko Property were used for industrial purposes, including metal fabrication, concrete forming, and boat repair. The majority of the McConkey Property is currently vacant and unused. A small, currently-

empty structure spans the southern edge of the McConkey Property. The Sesko Property is also currently vacant and unused. Land use in the immediate vicinity of the former MGP is currently industrial and hght commercial.

Three separate petroletun storage and distribution facilities were formerly or are currently present in the immediate vicinity of the former MGP:

1. A facility located on the Sesko Property, in operation between approximately the early to mid-1940s to approximately 1993
2. A facility located southwest of the former MGP, in operation between approximately 1942 and 1992
3. A facility located to the east of the Sesko Property, across Pennsylvania Avenue, which is still active and commenced operations in the early to mid-1940s

Historically, petroleum products were dehvered to all three fuel facihties by barge. Three separate docks were used for product dehvery over the years. Use of the docks was consohdated over time, and two or more of the fuel facilities shared a single dock in later years.

The former MGP, the fuel facilities, and other former and current operations in the vicinity of the Site have been the subject of multiple environmental studies. A hst of studies focused primarily on the former MGP includes:

- Inspection Field Notes and Lab Report from initial investigation inspection (Ecology 1995)
- *Targeted Brownfields Assessment Report, Old Bremerton Gas Works – McConkey Properties* (Techlaw 2006)
- *Preliminary Upland Assessment Report, McConkey/Sesko Brownfields Site* (GeoEngineers 2007)
- *Historical Characterization and Data Gaps, Old Bremerton Gasworks Property 1725 Pennsylvania Avenue* (Hart Crowser 2007)
- *Final Bremerton Gasworks Targeted Brownfields Assessment Report* (Ecology and Environment 2009)

Complete references for these studies are included in Section 5.

1.1.2 Discovery of and Response to Pipe

On August 20, 2010, the Kitsap County Health District (KCHD) observed intermittent sheens on surface water of Port Washington Narrows near the former MGP. Further investigation by KCHD on October 4, 2010, identified a 12-inch concrete pipe (Pipe) in the intertidal area that appeared to be discharging product to marine waters. KCHD reported the finding to the U.S. Environmental Protection Agency (EPA). EPA relayed the finding to USCG on October 5, 2010, because the Pipe was within USCG's area of responsibihty (EPA 2010).

USCG mobilized to the Site on October 6, 2010. USCG took immediate action to contain the sheen by installing a containment system as of October 10, 2010, and conducting frequent monitoring of Site conditions. On October 16, 2010, USCG commenced activities to mitigate the apparent discharge from the Pipe. The activities included breaking of a 4-foot section of the Pipe with a hydrauhc hammer, plugging the Pipe-end in that area, and placing hydraulic cement over the temporary plug. These activities were implemented by an emergency response contractor working at the direction of USCG.

EPA, in coordination with USCG and in conjtmction with the response activities, collected surface sediment samples for analysis of polycychc aromatic hydrocarbons (PAHs). The sample locations and sample results of this analysis and the results of sediment samples collected in August 2009 (Ecology and Environment) are presented on Figure 2. The Washington State Department of Ecology (Ecology) analyzed a sample of material collected near the Pipe by KCHD on September 24, 2010, only for hydrocarbon identification by HC-ID (Appendix B). The sample was identified by the laboratory as a "coal-tar creosote" type of product.

EPA coliected a sample of material from inside the Pipe on October 5, 2010, and only analyzed it for PAHs. Complete laboratory results for all samples collected by EPA in 2010 are included in Appendix C. Laboratory results for all other samples can be fomd in the enviromnental studies listed in Section 1.1.1.

The USCG established a Unified Command to assist with the response activities. The Unified Command initially included representatives of USCG, EPA, Ecology, Washington Department of Natural Resotrces (DNR), and KCHD.

On October 18, 2010, Cascade Natural Gas first learned of the response activities at the Site and contacted EPA that same day expressing an interest in being involved in the response. On October 19, 2010, Cascade Natural Gas met with USCG, EPA, and the rest of the Unified Command to discuss additional actions appropriate at the Site. The USCG subsequently added Cascade Natural Gas to the Unified Command and issued Cascade Natural Gas an Admirdstrative Order for a Pollution Incident (Order) to implement response actions at the Site under oversight of USCG. Cascade Natural Gas accepted the Order (Acceptance of Order) in a letter dated October 29, 2010 (Appendix D).

In response to the Order, Cascade Natural Gas developed the Work Plan, which outlines the scope and details of the Action. The Action includes the following key elements:

- Investigation of the location and orientation of the abandoned Pipe
- Permanent plugging of the Pipe as close as practicable to the shoreline
- Removal of all portions of the Pipe from the new plug to the terminus of the Pipe
- Backfilhng of the excavation created by removal of the Pipe with clean beach material
- Placement of an Organo-Clay mat over impacted sediments near the terminus of the Pipe that have been observed to generate sheen with only minimal disturbance
- Continued maintenance of a containment system umtil the Action is complete and field observations and inspections confirm the situation is stable (no sheen)

On November 5, 2010, USCG and the other members of the Unified Command approved the Work Plan. Cascade Natural Gas commenced the Action immediately upon approval and completed the Action on November 8, 2010. Post-completion inspections of the Action are continuing pursuant to the Work Plan (Anchor QEA and Aspect 2010; Appendix A) and are described in Section 2.9.

1.2 Completion Report Purpose

This Completion Report describes the Action and demonstrates that implementation of the Action was consistent with the Work Plan and the National Contingency Plan.

1.3 Completion Report Organization

The Completion Report is organized into the following sections:

- Section 1: Introduction
  Provides context for the Completion Report, including the Site description and background and the purpose of the Action
- Section 2: Summary of Action
- Section 3: Completion of Work Plan Objectives
  Assesses the effectiveness of the Action in meeting the Work Plan objectives
- Section 4: Continued Investigation
  Presents ongoing Site investigation

2 SUMMARY OF ACTION

Cascade Natural Gas retained Anchor QEA, LLC, and Aspect Consulting (Aspect) to assist with development and oversight of the Action. Cascade Natural Gas selected Clearcreek Contractors (Clearcreek) to implement the Action.

Cascade Natural Gas quickly prepared for the Action to be conducted during extreme low tides between November 5 and 8, 2010. With the help of EPA, Cascade Natural Gas obtained access agreements to perform the Action. DNR granted access to the intertidal work zone pursuant to a Consent for Access to Property. Natacha Sesko and the McConkey Family Trust granted access to the upland portion of the Site pursuant to similar agreements. The access agreements are included in Appendix E.

The Action was completed over a three-night construction period to take advantage of low tides. This section summarizes the Pipe location effort, mobilization, daily work activities, post-completion inspections, and characterization of wastes generated by the Action.

2.1 Locating the Pipe

Before the Action commenced in the intertidal area, Cascade Natural Gas used hand tools to field-locate the Pipe as far into the uplands as possible. Efforts to identify the origin of the Pipe included reviewing maps and diagrams of the former MGP and reviewing City of Bremerton sewer and stormwater records. The investigation showed the Pipe was likely an abandoned storm drain or combined sewer outfall that was once connected to or may still be connected to an abandoned vault on the Sesko Property. The vault was likely connected by a separate pipe or pipes to one or more former catch basins within the footprint of the former MGP.

In addition to locating the Pipe, utility locates were performed in the vicinity of the Site to identify potential constraints to implementation of the Action. A City of Bremerton low pressure sewage force main was located in the intertidal area running parallel with and meandering along the shoreline. This force main was staked and protected throughout the Action.

2.2 Mobilization

Mobilization of construction materials, staging, and pre-construction meetings were complete by the evening of November 5, 2010. The mobilization resulted in an upland exclusion zone that included a 175-ton mobile crane, stockpiles of approved lill material, the construction of a Site access stairway, and a lined containment zone with separate lined containers for excavated material, the Pipe, and excavation water. A forward operation center was provided in a warehouse owned by the McConkey Family Trust adjacent to the upland staging and exclusion zone (Figure 3).

Cascade Natural Gas produced a Fact Sheet (Appendix F) to inform the community about the Action and to provide a point of contact for questions. EPA distributed the Fact Sheet to businesses and residences in the vicinity of the Site. The Fact Sheet was also on-hand during performance of the Action to distribute as needed to persons curious about the Action. Cascade Natural Gas did not receive any inquiries about the Action.

2.3 Activities of the Shift Beginning November 5, 2010 (Night No. 1)

On November 5, 2010 (Night No. 1 of the Action), a pre-work Health and Safety meeting was held to discuss safety procedures, potential hazards, and receive sign-off on the Site Health and Safety Plan from all present. Work began at 7:30 p.m. Pacilic Daylight Time (PDT) with mobilization by crane of light plants (for night-time illumination), low ground pressure (LGP) excavator, and other materials from the upland staging area to the intertidal work zone. Once the intertidal work zone was estabhshed, the new plug location (Figure 4) was excavated at a location where the Pipe was less than 4 feet below the surface, as established in the Work Plan (Anchor QEA and Aspect 2010; Appendix A). This plug location was selected based on the infeasibility of exposing and plugging the Pipe at a greater depth closer to the uplands. A deeper trench would have likely collapsed, jeopardizing worker safety, and the use of shoring equipment would have adversely impacted the shoreline environment.

As material was excavated, it was directly loaded into a 3-cubic-yard skip box and moved by crane to the upland containment area. Water was pumped as needed from the excavation to an upland storage tank for characterization and disposal.

At 11:35 p.m. PDT, the LGP excavator exposed the Pipe and the excavation walls were prepared for worker entry. When safe access to the Pipe was achieved, a Clearcreek laborer entered the excavation and drilled a hole in the top of the Pipe to relieve potential head pressure. After drilling, minimal water was released from the Pipe and was immediately pumped from the excavation. The Pipe was then cut with an abrasive disc saw to allow for the removal of Pipe sections resulting in a clean end-of-pipe edge to facilitate the plug installation. At 12:37 a.m. PDT on November 6, two sections of the Pipe were removed from the excavation and placed into a second 3-cubic-yard skip box for removal from the intertidal work zone.

The excavation was prepared for plugging by dewatering and by removing material from the end-of-pipe. At 1:35 a.m. PDT, a pneumatic plug was installed approximately 3 feet upslope of the end-of-pipe (Figure 4). The remaining 3 feet of the Pipe was hand packed with rapid curing hydraulic cement, creating a secure plug. A 2-inch steel pipe was positioned at the end-of-pipe and was eventually cut flush with the existing grade to facilitate locating the end-of-pipe in the future.

Pursuant to the Work Plan, the excavation was lilled with approximately 6 cubic yards of large beach material to within 2 feet of original grade (Anchor QEA and Aspect 2010; Appendix A). The large beach material consisted of clean 10-inch streambed cobbles per Section 9-03.11(2) of the Washington State Department of Transportation (WSDOT) handbook. Approximately 9 cubic yards of small beach material (see Table 1) were placed in the excavation umtil it was returned to original grade. All backfill material was provided by a WSDOT certified source. All excavated materials were removed via crane to the upland contairunent area, and the LGP excavator was staged above the high water mark.

Table 1
Small Beach Material Specifications

Sieve Size	Percent Passing by Weight
2-inch	100
1-inch	60 to 100
1/2-inch	30 to 50
3/8-inch minus	0 to 30

The specifications in Table 1 satisfy the BMPs proposed by the Washington State Department of Fish and Wildlife (WDFW) for the top layer of backfill used in the Action.

For characterization and to assist in profihng and disposal of the removed material, Aspect collected two samples:

1. A sample (PIPE-40-110610) of the contents of the southernmost section of removed Pipe
2. A sample of sediment (SED-40-110610) just outside the base of the Pipe at the same location

Samples were submitted to Friedman & Bruya, Inc., laboratory for analysis. Analyses and analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 1 is provided in Appendix G.

2.4 Activities of the Shift Beginning November 6, 2010 (Night No. 2)

On November 6, 2010 (Night No. 2 of the Action), excavation of the Pipe and associated sediments began after the nightly safety briefings at approximately 10:00 p.m. PDT with the mobilization of required intertidal work zone equipment. The excavation was located immediately downgradient of the new plug location with great care taken to maintain the plug (Figure 4). All Pipe sections were handled separately from removed sediment. The Pipe sections and removed sediment were hoisted in 3-cubic-yard skip boxes to their respective containers in the upland containment area. The final section of the Pipe was removed from the intertidal work area at 12:00 a.m. PDT on November 7.

In total, approximately 60 lineal feet of Pipe was removed from the excavation. The dimension of the excavation tapered from approximately 5 feet wide and 5 feet deep at the Pipe plug location to 2 feet wide and 1 foot deep where the last section of Pipe was removed (Figure 4). The excavation was backfilled using small beach material, as specified in Table 1.

In addition to the Pipe removal and backfill activities, the Organo-Clay mat placement area was laid out with stakes by Anchor QEA and Aspect using offset measurements from known locations. Clearcreek prepared the sediment surface for placement of the Organo-Clay mat by removing larger rocks to prevent damage during installation.

For characterization and to assist in profihng and disposal, Aspect collected three samples of the removed material:

1. A sample (PIPE-80-110610) of the contents of the section of Pipe that had been exposed and plugged by USCG on October 6 and 7, 2010
2. A sample of sediment (SED-80-110610) just outside the base of the Pipe at the same location
3. A sample of sediment (SED-110-110610) collected just beyond the end of the northerumost section of removed Pipe

Samples were submitted to Friedman & Bruya, Inc., laboratory for analysis. Analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 2 is provided in Appendix G.

2.5 Activities of the Shift Beginning November 7, 2010 (Night No. 3)

On November 7, 2010 (Night No. 3 of the Action), work began with the stockpifing of large beach material in the upper intertidal work zone. When the tide had ebbed sufficiently, the Organo-Clay mat was mobilized from the upland staging area. The Organo-Clay mat specifications are presented in Appendix H. The mat had been pre-cut during the day on November 7, 2010 into 50-by-15-foot panels, which were placed in the upper intertidal area and unrolled in the delineated area that had been staked and cleared the previous night until

the entire targeted area was covered (Figure 4). The panels were overlapped, so there were no gaps in between.

After the panels were in place, the LGP excavator was used to place large beach material on the Organo-Clay mat. The large beach material was first placed on the eastern edge of the mat to create a pathway to the lower intertidal zone for cover placement. Once the large beach material was placed to a nominal 1-foot thickness covering the eastern portion of the mat, the LGP excavator proceeded to the lower intertidal area. Using this method, the entire mat and 10-foot overplacement area was covered before tidal inundation. Care was taken not to cover the City of Bremerton 10-inch stormwater outfall and its upgradient pipe sections, which are located northeast of the mat (Figure 4). A cross-section representing the Organo-Clay mat and cover is presented in Figure 5. The containment boom system was checked and determined to be clean enough to be re-used and extended to contain the entire mat and cover area (Figure 4). Approximately 2,600 square feet of sediment was covered with the Organo-Clay mat and 4,800 square feet of mat and sediment was covered with the large beach material.

Small beach material was transported by crane to the upper intertidal area and placed in the areas where the tracks were visible until the LGP excavator was in place to be removed from the intertidal area by the crane. All construction materials were gathered and placed into a skip box and removed by crane from the intertidal area.

Aspect collected one water sample (TANK 110710) from the collection tank to which water removed from the beach area was pumped. The sample was submitted to Friedman & Bruya, Inc., laboratory for analysis. Analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 3 is provided in Appendix G.

2.6 Demobilization

Demobilization of the upland staging area began on November 8, 2010, after completion of the Action. The crane and unused material stockpiles were removed from the Site. The stairs constructed on the Sesko Property to provide safe worker access from upland to the intertidal area were removed and stored on the McConkey Property for potential future use.

Photographs of the Site following demobilization taken on November 12, 2010, are provided in Appendix I.

2.7 Characterization of Sediments and Derived Wastes

Materials removed during the Action were sampled for characterization and disposal. The analytical results are provided in Appendix J.

Pipe debris, including Pipe contents, were segregated in separate containers (as described in previous sections) from sediments located outside the Pipe pending the results of characterization. Wastewater was collected in a separate collection tank. Samples were analyzed as follows:

- Sediment samples were analyzed for:
  - Volatile organic compounds (VOCs) by EPA Method 8260C
  - Semivolatile organic compounds (SVOCs) by EPA Method 8270D
  - Petroleum hydrocarbons by Ecology Methods NWTPH-G and NWTPH-Dx
  - Total Organic Carbon (TOC) by EPA Method 9060A
- Pipe content samples were analyzed by the same methods as sediment samples and additionally for total and toxicity characteristic leaching procedure (TCLP) metals:
  - Chromium, arsenic, selenium, silver, cadmium, barium, and lead by EPA Method 200.8
  - Mercury by EPA Method 1631E
- The wastewater sample was analyzed for:
  - VOCs by EPA Method 8260C
  - SVOCs by EPA Method 8270D

- Petroleum hydrocarbons by Ecology Methods NWTPH-G and NWTPH-Dx.

The analytical data indicated the following:

- The primary constituents detected in all samples were polycyclic aromatic hydrocarbons (PAHs). Lesser amounts of lighter aromatic hydrocarbons, such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were also detected in several samples. The observed chemical fingerprint is consistent with a coal tar product.
- Gasoline-range, diesel-range, and oil-range petroleum hydrocarbons were detected in most samples; however, the laboratory chemist indicated the chromatograms were more consistent with a coal tar or creosote product than a petroleum product.
- The highest concentrations of PAHs and BTEX were detected in the Pipe and sediment samples at the location where USCG had plugged the Pipe on October 16, 2010. Lower concentrations were detected in the Pipe and sediment samples at the location where the Pipe is currently plugged.
- At locations where samples were collected from both Pipe contents and adjacent sediments, higher constituent concentrations were detected inside the Pipe.
- Concentrations of VOCs, SVOCs, and metals in all samples were below potential hazardous waste limits.

The analytical results allow for disposal of the sediments, Pipe debris, and collection tank wastewater as non-hazardous waste. Clearcreek transported the solld sediment waste and Pipe material to the Alfied Waste Roosevelt Regional Landfill (Roosevelt Landfill) in Roosevelt, Washington. Wastewater was transported to Emerald Services, Inc., in Seattle, Washington. The waste facihty receipt documentation is presented in Appendix K.

2.8 Completion of Action

As specified in the Work Plan, the Action was completed at 2 a.m. PDT on November 8, 2010, when all work activities other than demobilization and post-completion inspections were finished (Anchor QEA and Aspect 2010; Appendix A). On November 16, 2010, USCG issued a letter confirming the Action was completed satisfactorily. In its response, Cascade Natural Gas clarified that the Completion Report would be

submitted and the post-completion inspections would be performed as specified in the Work Plan (Appendix D).

2.9 Post-completion Inspections

Pursuant to the Work Plan, inspections of the intertidal area continued following completion of the Action. The in-water containment system was inspected twice a week for four weeks after the Action was completed. As part of those inspections, Cascade Natural Gas visually inspected the ground surface in the area of the new Pipe plug for sheen. The inspections verified the containment boom was in place and functional and the new Pipe plug was working properly. As contemplated in the Work Plan, the containment system was decommissioned on December 10, 2010, because no product or sheen was observed on the water or sediment during four consecutive inspections (Anchor QEA and Aspect 2010; Appendix A). At the time this Completion Report was produced, no product or sheen has been documented in any inspection. Copies of all inspection reports through January 15, 2011, are included in Appendix L.

Inspections will continue once a week for an additional four months (or longer, if directed by EPA) after decommissioning of the containment system to ensure the new Pipe plug is effective and no product or sheening is observed in the water. If such conditions are observed, additional actions will be discussed with EPA because USCG transferred to EPA lead agency status on November 12, 2010 (Appendix M).

3 COMPLETION OF WORK PLAN OBJECTIVES

The Action satisfied the following objectives of the Work Plan:

- The Pipe was located and traced to the shoreline.
- The Pipe was plugged as close as practicable to the shorehne, at the location specified in the Work Plan.
- All Pipe sections downgradient of the new plug were removed together with all overburden sediments.
- All excavations were filled to grade with clean beach material.
- The Organo-Clay mat was placed over the area of impacted sediments specified in the Work Plan.

Periodic inspections as specified in the Work Plan (Anchor QEA and Aspect 2010; Appendix A) are the only remaining activities. These inspections are ongoing.

4 CONCLUSIONS AND FUTURE RESPONSE ACTIONS

The Action successfully plugged and removed a portion of the Pipe, which may unknowingly have served as a transport mechanism for MGP-related contamination to the shoreline environment. However, because of the widespread nature of the contamination, it is highly unlikely the Pipe is the source of all MGP-related contamination identified in the shoreline enviromnent.

Additional investigation is necessary to evaluate the nature and extent of MGP-related contamination, the pathways for such contaminants to reach the shoreline environment, and the risks the MGP-related contamination may present to human health or the environment. Cascade Natural Gas will be discussing the scope and schedule for these future response actions with EPA because USCG has transferred lead agency status to EPA.

5 REFERENCES

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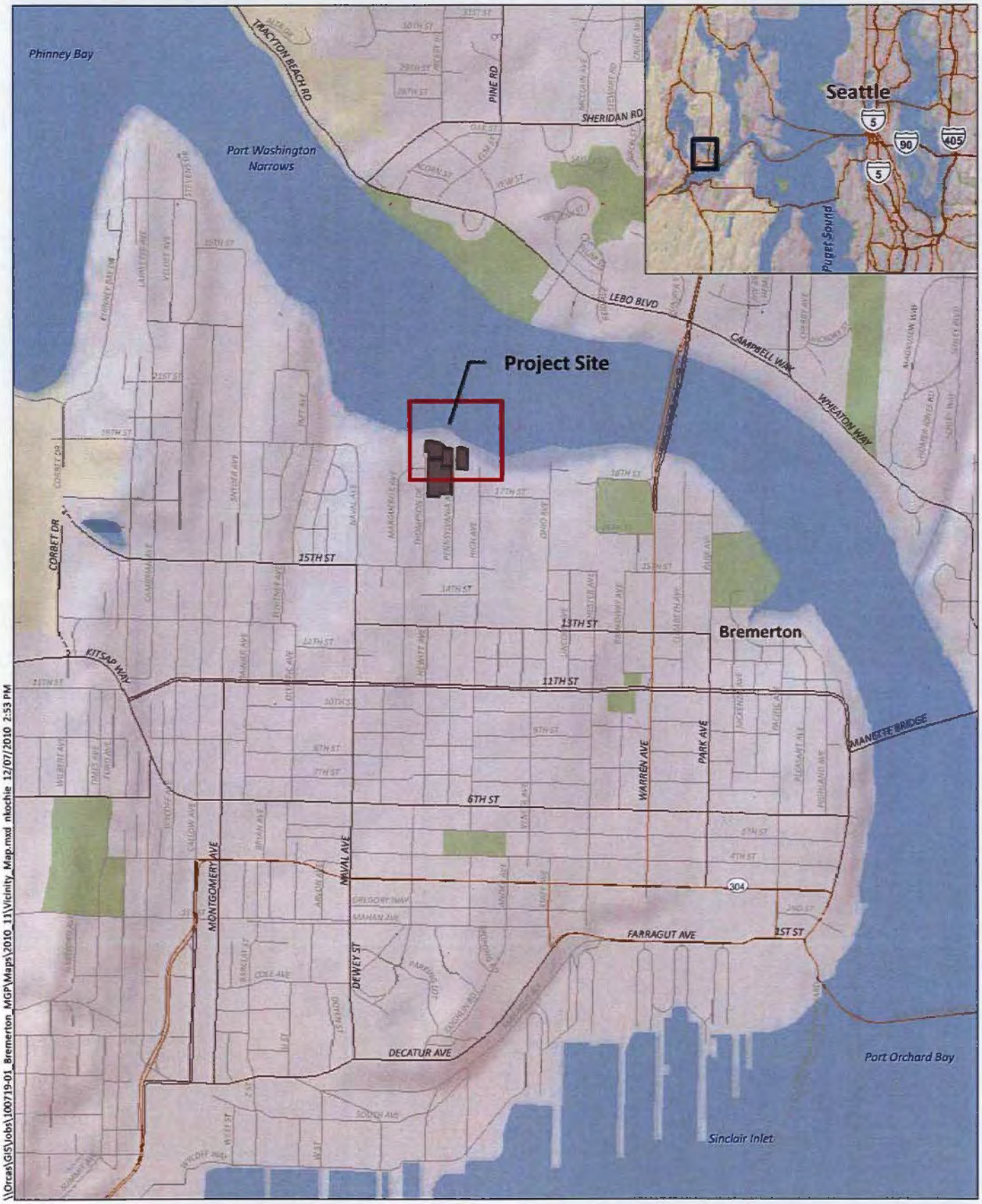
FIGURES



\\Orcas\GIS\Jobs\100719-01_Bremerton_MGP\Maps\2010_11\Vicinity_Map.mxd nkochie 12/07/2010 2:53 PM

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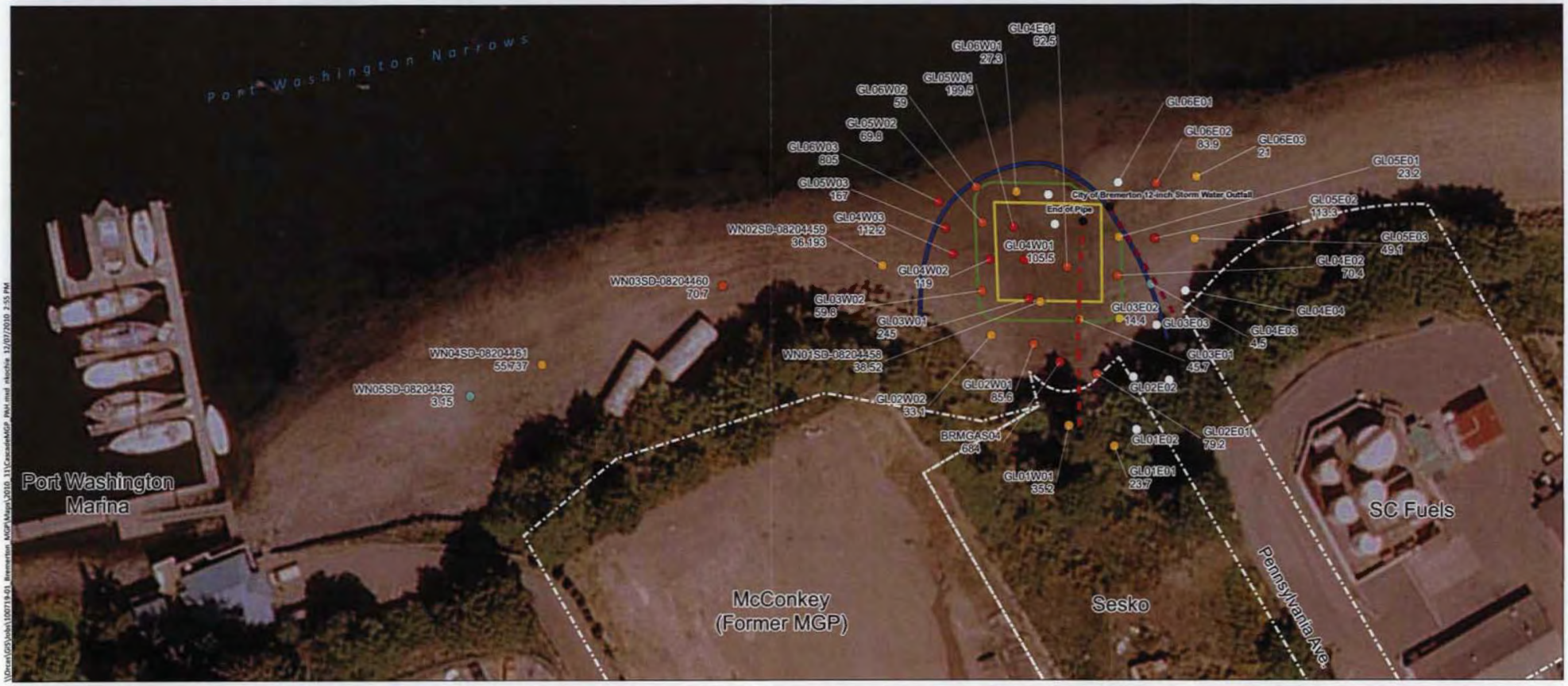
Feet
0 750 1,500

Figure 1
Vicinity Map
Completion Report
Former Bremerton MGP Site



Detected Total PAH Concentrations (mg/kg)

- No Data
- <1
- ≥1 - 10
- ≥10 - 20
- ≥20 - 50
- ≥50 - 100
- ≥100

- End of Pipe
- 12-inch Concrete Pipe Configuration
- Assumed City of Bremerton 12-inch Storm Water Pipe Configuration
- Boom Location
- Extent of Organo-Clay Mat
- Cover of Organo-Clay Mat

Feet
0 25 50 75 100

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.
4. Total PAH sample data provided by Aspect Consulting and EPA. Locations are approximate.

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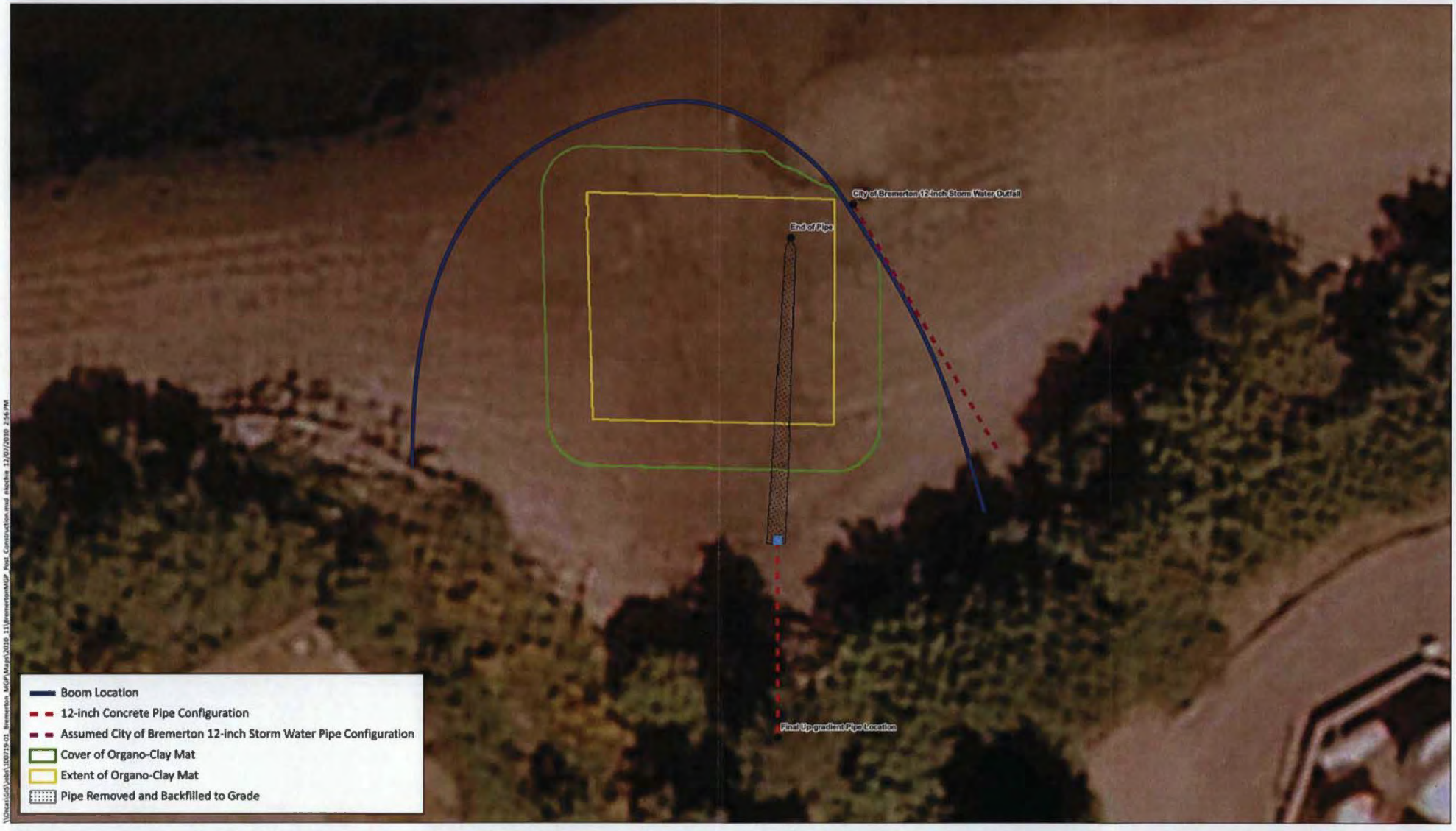
Figure 2
Total Polycyclic Aromatic Hydrocarbons Sediment Sample Locations
Completion Report
Former Bremerton MGP Site

ANCHOR QEA

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.

Feet
0 25 50 75 100

Figure 3
Site Access and Staging
Completion Report
Former Bremerton MGP Site



ANCHOR QEA

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.

Feet
0 10 20 30 40

Figure 4
Pipe Removal, Organo-Clay Mat Extent, and Cover
Completion Report
Former Bremerton MGP Site

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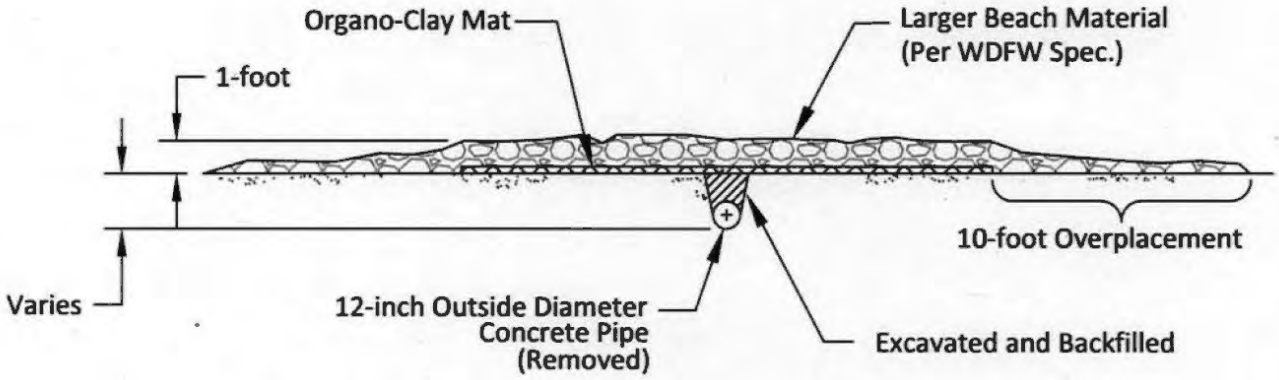

Typical Organo-Clay Mat Placement and Cover

Not to Scale

NOTE: WDFW - Washington Department of Fish and Wildlife

Dec 08, 2010 8:36am cdavidson K:\Jobs\100719 - Cascade MGP\100719-01\10071901-RP-003.dwg FIG 5

ANCHOR QEA

Figure 5
Cross Section of Organo-Clay Mat and Cover
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