PHASE IV STATUS AND MODIFICATION

LEISURE SHORES AND HOWARD'S BEACH
PORTION OF SHORELINE SEGMENT W1F-02 (BRANDT ISLAND WEST)
MATTAPOISETT, MASSACHUSETTS

BARGE B120 SPILL, BUZZARDS BAY, MASSACHUSETTS
RTN 4-17786

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1.0 INTRODUCTION

This Phase IV Status and Modification Report is submitted on behalf of Bouchard Transportation Company, Inc. ("Bouchard" or "RP"). This report was prepared by GeoInsight, Inc. (GeoInsight) under the direction of Richard J. Wozmak, P.E., P.H. of EnviroLogic, LLC, the Licensed Site Professional (LSP)-of-record for this release. This report was prepared as part of response actions conducted under the Massachusetts Contingency Plan (MCP), associated with the release of Number 6 (No. 6) fuel oil from Bouchard Barge B120 that occurred on April 27, 2003 in Buzzards Bay. This report describes activities and conditions associated with shoreline segment W1F-02 (Brandt Island West) located in Mattapoisett, Massachusetts. The segment location is shown on Figure 1.

This report describes: 1) response actions conducted in areas of the Leisure Shores and Howard's Beach portions of the Brandt Island West segment between July 18 and December 21, 2007, and 2) a modification of the original Phase IV Remedy Implementation Plan (RIP) to conduct additional assessment activities at portions of Leisure Shores and Howard's Beach to evaluate the presence of buried rocks or cobbles that may contain oil pavement or splatter, and, if necessary, removal of those materials. Cobbles with residual oil were identified in the sandy portion of Leisure Shores by residents in the fall of 2007. A copy of Bureau of Waste Site Cleanup (BWSC) Transmittal Form 108 associated with this report is included in Appendix A.

2.0 BACKGROUND

On or about April 27, 2003, an unknown volume (estimated to range between 22,000 gallons and 98,000 gallons) of No. 6 fuel oil was released from Bouchard Barge B120 after entering the western approach of Buzzards Bay, Massachusetts. Oil from the release primarily floated on the water surface and was driven by waves, tides, and currents, ultimately stranding on the shoreline in the intertidal zone. The heaviest oiling occurred on exposed, southwest facing shorelines, such as Barney's Joy in Dartmouth or West Island in Fairhaven.

The shoreline was initially divided into 149 shoreline segments. Of those 149 segments, 29 segments were found to be unoiled and not part of the Site. The Site was, therefore, considered to be comprised of the 120 shoreline segments that were oiled to varying degrees by the release. A Phase I Initial Site Investigation and Conceptual Site Model (CSM) report, Tier Classification, and Conceptual Phase II Scope of Work (SOW) were filed for the Site on May 3, 2004. On May 21, 2004, a Partial Class A-2 Response Action Outcome (RAO) statement was filed for 57 out of the 120 shoreline segments. The maximum degree of initial oiling at these 57 shoreline segments was characterized as "light" or "very light," as well as three sandy beach segments where the maximum degree of initial oiling was characterized as "moderate."

A Tier IA Permit was issued by MADEP as part of a July 27, 2004 Decision to Grant Permit letter. A Phase II Comprehensive Site Assessment (CSA) SOW and Updated CSM, that incorporated MADEP comments to the initial submittal, were submitted to MADEP on August 24, 2005. MADEP approved portions of the proposed Phase II CSA SOW and Updated CSM and requested additional information (primarily regarding the proposed ecological risk characterization) in a letter dated January 18, 2006. Additional information was provided to MADEP in a letter dated March 31, 2006, and MADEP issued final approval of the Phase II CSA SOW in a letter dated June 27, 2006.

A Phase II CSA was completed in August 2006 to characterize the remaining 63 shoreline segments and the subtidal zone in Buzzards Bay. The Phase II CSA included a Method 3 Risk Characterization (Method 3) that concluded that a condition of No Significant Risk to human health, public welfare, safety, and the environment was present at 61 of the remaining 63 shoreline segments and the subtidal zone in Buzzards Bay. A Partial Class A-2 RAO was submitted for these 61 segments and the subtidal zone in August 2006. At the remaining two shoreline segments (segment W2A-10-Long Island and Causeway North and segment W1F-02-Brandt Island West), it was concluded in the Risk Characterization that a condition of No Significant Risk exists for human health and safety. However, localized residual oil was present at portions of these two segments and a condition of No Significant Risk to public welfare (at portions of both segments) and/or the environment (at a portion of segment W2A-10) could not be concluded at that time.

To address the presence of residual oil at the remaining two segments, an August 3, 2006 Phase III Remedial Action Plan (RAP) was prepared. Phase IV RIPs were subsequently prepared for Hoppy's Landing (part of shoreline segment W2A-10) and Leisure Shores and Howard's Beach (part of shoreline segment W1F-02) and submitted to MADEP on November 29, 2006 and August 2, 2007, respectively. Phase IV response actions were conducted at Hoppy's Landing between December 2006 and August 2007. A Partial Class A-2 RAO Statement for this segment is being prepared and will be submitted under separate cover. The Phase IV RIP for the Leisure Shores and Howard's Beach portion of shoreline segment W1F-02 focused upon evaluating and remediating residual oil in two locations: the cobble beach area near the eastern side of Leisure Shores, and an area west of the stream channel that drains the pond behind Leisure Shores. The Phase IV activities were performed in the fall and winter of 2007 at these locations to address potential concerns regarding public welfare and are described below in this report.

During a Post Phase IV RIP inspection on December 7, 2007, residents indicated that buried rocks/cobbles were discovered on the sandy portion of Leisure Shores during grading activities associated with the widening of the stream channel. Additional activities were

proposed as a modification to the August 2, 2007 Phase IV RIP to evaluate for the presence of oiled cobbles at the sandy portion of Leisure Shores and also at Howard's Beach to the west of the stream channel, and if necessary, subsequent removal.

3.0 SEGMENT SUMMARY

The Brandt Island West segment is located in Mattapoisett, Massachusetts and extends west from the southern tip of Brandt Island to the approximate center of Howard's Beach (Refer to Figure 2). An approximately 1,500-foot causeway connects to Brandt Island. This segment includes Howard's Beach and Leisure Shores (that are located on the western portion of the segment), as well as the western side of the causeway and Brandt Island (refer to Figure 2). Nasketucket Bay is located to the southwest, an unnamed pond is located north of the segment, and Buzzards Bay is located to the south and southeast of the segment.

Leisure Shores is bounded approximately to the east by the groin that extends south from Brandt Island Road and to the west to an unknown location near the stream channel that drains the pond and nearby groin. A small groin located in the approximate center of Leisure Shores divides the shoreline into two unequal areas. The eastern half of Leisure Shores is composed primarily of rocks and cobbles, with relatively little sand, and is identified as the "cobble beach area" on Figure 3. The western half is composed primarily of sand and small gravel, with some cobbles. Howard's Beach to the west of the stream channel is composed of sand and gravel shoreline, with fringing marshes and peat along the shoreline and along the channel that drains the pond behind Leisure Shores. In the Howard's Beach marsh located near the stream channel, a set of what appears to be tire tracks are present in a portion of peat. According to residents, these tire tracks were created when a backhoe or other piece of equipment became stuck in the peat during the initial cleanup activities for the B120 release that were conducted by Unified Command in the summer of 2003.

Leisure Shores is semi-private and readily accessible to residents in the Leisure Shores community. In general, people use the shoreline primarily for seasonal recreational activities, including sunbathing, swimming, fishing, walking, and boating. Potential sensitive receptors identified at Brandt Island West include water resources, critical habitats, threatened and endangered species, and humans. Based upon information obtained and reviewed to evaluate potential sensitive receptors in the Buzzards Bay area from the Natural

Heritage & Endangered Species Program (NHESP) and Massachusetts Geographic Information Systems (MassGIS), endangered species and fringing salt marshes are present at Leisure Shores. A portion of the subtidal environment in Buzzards Bay is part of the Site and is identified as a NHESP Estimated Habitat of Rare Wildlife in Wetland Areas. The subtidal zone is a habitat for numerous marine species including organisms that live in the ocean water, as well as in the subtidal sediment (e.g., clams).

The shoreline segment is not located within a Zone II for a public water supply well, an interim wellhead protection area, a potentially productive aquifer or a sole-source aquifer, and schools are not located in the vicinity of the shoreline segment. Residences are located within 500 feet of Leisure Shores and obtain potable water from private shallow water supply wells located at individual properties.

4.0 PHASE IV STATUS REPORT

4.1 INTRODUCTION

As described in the August 2, 2007 Phase IV RIP, response actions were designed to address residual oil present in the following two areas of Leisure Shores and Howard's Beach: 1) the cobble beach area and 2) the area near the stream channel and fringing marsh in an area of "tire tracks" through a portion of marsh peat. Refer to Figure 3 for the approximate locations of these areas. These two areas were the focus of Phase IV activities. The objective of the proposed Phase IV response actions in these areas of shoreline segment W1F-02 was to assess the magnitude and extent of residual oil and, as necessary, remove residual oil to reach a condition of No Significant Risk (NSR) to public welfare. Note that these areas do not include the recently-discovered rocks and cobbles with splatter observed at Leisure Shores. The proposed Phase IV activities were described to the Mattapoisett Conservation Commission prior to commencement of the field work.

4.2 ASSESSMENT ACTIVITIES

4.2.1 Sampling Activities

As part of Phase IV activities, samples of various media (sediment, weathered oil, and soil) were collected and submitted for laboratory analysis for fingerprinting (to evaluate whether the residual oil was consistent with B120 oil) or for extractable petroleum hydrocarbons (EPH) and target analytes. Sample locations are shown on Figures 4 and 4A and the analytical results are includes in Tables 1 through 3. Additional information regarding sample collection and analysis is included in Section 4.7 below.

4.2.2 Trench and Test Pit Investigation

A total of 53 trenches/test pits were excavated in the two areas at Leisure Shores/Howard's Beach between September 10 and September 13, 2007. Trenches/test pits in the cobble beach area were excavated between September 10 and September 12, 2007 using a mini-excavator. The trenches/test pits in the cobble area were typically two to three feet wide (the approximate width of the excavator bucket), between approximately 10 and 25 feet long, and were excavated to between one and two feet below grade. Care was taken not to penetrate peat deposits that were encountered in some areas at a depth of approximately one foot. The trenches/test pits in the cobble area were generally spaced approximately six feet apart. Trenches/test pits near the stream channel and fringing marsh were excavated on September 13 using a hand shovel. The trenches/test pits near the stream channel and fringing marsh were excavated to a depth of approximately one foot and were generally approximately 10 inches in width and ranged from approximately 10 inches to 15 feet in length. The approximate locations of the trenches/test pits are shown on Figure 6. Photographs taken during Phase IV field activities are included in Appendix E.

The observations recorded during the trench/test pit excavations at Leisure Shores and Howard's Beach are included as Tables 4 and 5. Note that multiple observations were made at several trenches/test pits – these observations were made at different locations in the test pit and/or at different times. Two of the test pits were excavated at a location where an approximate eight-foot length of 5/8-thick steel cable was encountered below the shoreline surface. Grease (not B120 oil) was present on the steel cable, and the residual oil that was observed in one of the two test pits for the steel cable may have been associated with the cable grease. Trench/test pit excavations and observation locations at Leisure Shores and Howard's Beach are shown on Figures 7 and 8, respectively. The trenches were backfilled with the excavated material at the end of each day.

More than half of the trenches/test pits showed either no evidence of oil or small sheens that were typically less than one inch in diameter or present as thin "ribbons." The sheens were

typically small and discontinuous, and were present on the water surface in the trench/test pit, typically covering less than 50 percent of the water surface. Small oil particles (colloquially termed "flecks") that were typically less than 0.25-inch diameter were observed in 13 of the 53 test pits. Generally, fewer than ten flecks were present in the individual test pits/trenches where flecks were observed, and in some trenches/test pits the flecks dissipated over time after the trench/test pit remained open. Oiled sediment and/or small tarballs (generally less than 1-inch diameter) were observed in 9 of the 53 trenches. In some of these locations, the volume of sediment and/or tarballs was small (less than a quart), and the material was removed during the Phase IV assessment activities. At other locations (in particular in portions of trenches/test pits T12, T14, T22, and T23 in the cobble area and trenches/test pits T1 and T2 near the stream channel and fringing marsh), enough residual oil was present that it was considered to be feasible for subsequent cleanup activities (discussed below in section 4.3) in order to mitigate potential public welfare concerns.

4.2.3 Shoreline Profiling

Before the test pits were excavated, a baseline shoreline profiling event was conducted in the cobble area. The shoreline profiling used the same benchmarks as previous profiling events conducted at this location and was conducted using an autolevel and standard surveying techniques. A total of five profile transects were established roughly perpendicular to the shoreline and approximately 30 feet apart. Profile measurements were collected at approximate 5-foot intervals along the individual transects. The approximate transect locations are shown on Figure 9.

Post-assessment shoreline profiles were conducted on October 10, 2007 at the same transect locations described above. Pre-assessment and post-assessment shoreline profile data are presented on Figures 10 through 14. The profile data indicate that the shoreline elevation remained relatively consistent before and after the assessment activities.

4.3 CLEANUP ACTIVITIES

Cleanup activities were conducted on October 25 and 26, 2007 in the locations highlighted in Tables 2 and 3 where oiled sediment was encountered during Phase IV assessment activities. Oiled sediment was removed from five locations (identified as Area #1 through Area #5) in the cobble beach area at Leisure Shores, as shown on Figures 15 and 15A. Oiled sediment was also excavated from the "tire track" area at Howard's Beach. Three test pits, identified as Test Pit #1 through #3 were excavated east of the "tire tracks" between the "tire tracks" and the stream channel, and oiled sediment was excavated and removed from these test pits. Two remnant pieces of oiled snare (oil absorbent material) were encountered in Test Pit #1 and removed. Oiled sediment adjacent to the snare was also removed. Excavated sediment was live-loaded during excavation into 1-cubic yard waste pack containers. A total of 15 waste packs were generated, each approximately one-half to two-thirds full of sediment and cobble. The waste packs and excavated material were removed on October 26, 2007 for disposal in accordance with applicable requirements as discussed in Section 4.4. Photographs of the cleanup activities are included in Appendix E.

On November 5, 2007, a total of 6.89 tons (approximately 4 cubic yards) of 2½-4" river rock (rounded cobble) and 18 tons (approximately 12 cubic yards) of medium sand were delivered to Leisure Shores/Howard's Beach to replace the excavated material. The replacement material was spread and graded on the shoreline.

4.4 REMEDIATION WASTE

On October 25 and 26, 2007, a total of 15 waste packs, each approximately one-half to two-thirds full, were generated from excavation activities. Remediation waste generated during Phase IV activities consisted of residual oil pavement, oiled rocks, oiled sediment, oil absorbent material, and personal protective equipment used by the cleanup crews. The recovered remediation waste was collected in polyethylene bags that were temporarily stored on-site during cleanup activities. Remediation waste generated was transported by Trident

Environmental Group, LLC to the Covanta SEMASS facility in West Wareham, Massachusetts for disposal in accordance with applicable requirements. A total of 14.05 tons of remediation waste was generated during Phase IV cleanup activities in October 2007. Documentation of remediation waste disposal is included in Appendix F.

4.5 RESPONSE TO REPORT OF OIL

Residual oil was reported in July 2007 in the marsh behind Leisure Shore by a local resident. Attempts were made to coordinate a meeting with the resident and the field team, but a meeting could not be arranged and the field team visited the area without the resident. On November 28, 2007, the field team visited the marsh to evaluate for the presence of residual B120 oil. The field team used an inflatable boat to observe the walls of the stream channels in the marsh, and visually inspected portions of the marsh surface on foot. Residual B120 oil was not observed in the marsh during this investigation, and oil was not present on the inflatable boat or field equipment after the inspection. Naturally-occurring organic sheens were observed on some of the standing water in the marsh, but these sheens are not associated with B120 oil.

4.6 POST-CLEANUP EVALUATION

On December 7, 2007, representatives from GeoInsight, EnviroLogic, and MADEP were present to observe test pits excavated in the Phase IV cleanup locations. Three trenches were excavated in the cobble beach portion of Leisure Shores and one trench was excavated between the "tire tracks" and the stream channel in the Howard's Beach area. The three trenches in the cobble beach area were excavated perpendicular to the shoreline and approximately 10 feet apart. The trench between the "tire tracks" and the stream channel was located in the Test Pit #3 area shown on Figure 15A. Sheens were observed on the standing water surface in the three trenches excavated in the cobble beach area. The sheens were transient and dissipated as the trenches remained open. Neither oiled sediment nor oil

particles were observed. In addition, sheens, oiled sediment, and oil particles were not observed in the trench between the "tire tracks" and the stream channel.

During the evaluation, several residents who were present showed the field team an area of oiled cobbles. The oiled cobbles were located on the west side of the middle groin at Leisure Shores, as shown on Figure 16. According to some of the residents, cobbles and sand on the shore were pushed onto the middle groin by workers who were widening the stream channel in the fall of 2007 as part of mosquito control activities. The oiled cobbles, which were previously present at various locations apparently below the shoreline surface in the western portion of Leisure Shores, were subsequently concentrated against the groin by the mosquito control workers. Photographs of the oiled cobbles are included in Appendix E.

On December 7 and December 12, 2007, a total of six 5-gallon pails of oiled cobbles were removed from this location. Information on the disposal of these cobbles will be included in the next Phase IV status report.

4.7 SAMPLING AND ANALYSIS

Samples of different media were collected at various dates and locations as part of Phase IV activities. Sediment sample locations are shown on Figures 4 and 4A, and sample information is summarized below.

4.7.1 Weathered Oil

During the reporting period, weathered oil samples were collected for laboratory analysis on three occasions. On March 27, 2007 an oiled cobble was collected from Leisure Shores in response to a report of oil. The field visit was described in the April 3, 2007 IRA Status and Completion Report, and approximate location of the oiled cobble is shown on Figure 4 as sampling location W1F-02-32707. The oiled cobble was submitted for fingerprint analysis of the oil on the cobble. The analytical results were reviewed by a forensic chemist from ENTRIX, Inc. for comparison to B120 oil. The evaluation indicated that the oil on the

cobble was consistent with weathered B120 oil. An unknown quantity of another unknown fossil fuel was also present in the sample. Copies of the forensic chemist report and the laboratory analytical report are included in Appendix B. The analytical results are summarized in Table 1.

On July 10, 2007, test pits were excavated in the cobble beach area and near the stream channel and fringing marsh to evaluate residual oil impacts reported by residents to the field inspection team. These test pits were described in the August 2, 2007 Phase IV RIP. Four samples, identified as samples W1F-02-071007-A through W1F-02-071007-D, were collected from these test pits for fingerprint analysis and comparison of the residual oil to B120 oil. Three of the samples (W1F-02-071007-A through W1F-02-071007-C) consisted primarily of sediment with some residual oil and are described in Section 4.7.2 below. Sample W1F-02-071007-D was a sample of "pavement" (i.e., residual oil with incorporated sediment and gravel). The analytical results are summarized in Table 1 and a copy of the laboratory report is included as Appendix C.

The analytical results from the W1F-02-071007-D sample were compared to the March 27, 2007 sample (along with the W1F-02-071007-A through W1F-02-071007-C samples) to evaluate whether the residual oil in the samples is consistent with B120 oil. The comparison is shown on Figure 5 and indicates that the residual oil in the July 10, 2007 samples is consistent with B120 oil.

On October 25, 2007 a sample of the residual oil and sediment attached to the snare encountered in Test Pit #1 (sample W1F-02-102507-S1) was collected and submitted for laboratory analysis of EPH fractions and target analytes. The analytical results of this sample are included in Table 1.

The analytical results for the three weathered oil samples (W1F-02-32707, W1F-02-071007-D, and W1F-02-102507-S1) were compared to the Risk Based Threshold

Concentrations (RBTCs) for weathered oil developed in the Method 3 Risk Characterization, and the reported results were below the applicable RBTC values.

4.7.2 Sediment

During the reporting period, sediment samples were collected for laboratory analyses on four occasions. The results of the July 10, 2007 sediment samples (W1F-02-071007-A through W1F-02-071007-C) are summarized in Table 2. Note that sediment sample W1F-02-071007-A was collected from one of the "tire tracks" for the purpose of using fingerprint analysis to evaluate if the observed oil was B120 oil, and not for characterizing oil concentrations in sediment. In order to do this, the field team deliberately selected and composited sediment with the greatest degree of visible oiling to maximize the amount of oil in the sample. Because of the sampling methodology, this sediment sample is not considered to be representative of constituent concentrations in sediment.

On July 18, 2007, two sediment samples, identified as W1F-02-071807-S1 and W1F-02-071807-S2, were collected from the location near the stream channel and fringing marsh where the July 10, 2007 samples were collected. The July 18, 2007 samples were submitted for laboratory analysis of EPH fractions and target analytes. Due to a laboratory error, the target analytes were initially analyzed by the EPH method (using a gas chromatograph and photoionization detector [GC/PID]), instead of the gas chromatograph/mass spectrometer (GC/MS) with selected ion monitoring (SIM), as requested. The laboratory subsequently analyzed the targets using GC/MS-SIM, but this analysis was outside of the recommended 14-day laboratory holding time. Therefore, on August 13, 2007 an additional sample, identified as W1F02-081307-S1, was collected from this location for laboratory analysis of the EPH fractions and target analytes using the GC/MS-SIM method. Analytical results from the July 18 and August 13, 2007 samples are summarized in Table 2 and copies of the laboratory reports are included in Appendix D.

On October 25, 2007, a sediment sample was collected from Test Pit 2 (W1F-02-102507-S2) located on Howard's Beach for laboratory analysis of EPH fractions and target analytes. The

laboratory analytical results are summarized in Table 2 and copies of the laboratory reports are included in Appendix D.

On December 21, 2007, a total of four sediment samples, identified as HA-1 through HA-4, were collected from the "tire tracks" and the area between the "tire tracks" and the stream channel. The samples were collected using a hand auger at depths between 2 and 3 feet below grade surface for laboratory analysis of EPH fractions and target analytes. The analytical results are summarized in Table 2 and a copy of the analytical report is included in Appendix D.

Analytical results of the sediment samples were compared to the RBTCs for sediment that were developed in the Method 3 Risk Characterization. Constituent concentrations in two sediment samples collected from the "tire track" area exceeded RBTC values for sediment. However, as discussed above, the purpose of one of the samples (W1F-02-071007-A) was not for characterizing oil concentrations in sediment, but for sampling the residual oil for fingerprint analysis to evaluate if the observed oil was B120 oil. Because the sampling methodology concentrated residual oil in the sample, we do not consider this sample to be representative of constituent concentrations in sediment for comparison to RBTCs. For the other sample (WIF-02-071807-S2), the total polynuclear aromatic hydrocarbon (PAH) concentration slightly exceeded the non-cancer RBTC, but forward-progressing risk calculations using these values indicated that these concentrations would result in hazard indices below MCP risk limits, and would therefore be representative of a condition of NSR to human health. It should be noted that as part of Phase IV response actions, oily sediment was removed from the tire track area (including these areas where the two samples with RBTC exceedences [i.e., W1F-02-071007-A and WIF-02-071807-S2] described above were located) to address concerns to public welfare. Four confirmatory sediment samples (HA-1 through HA-4) were collected from this area after the sediment removal activities. Constituent concentrations in these four post-cleanup sediment samples were well below RBTC values. Constituent concentrations in one sediment sample collected from the cobble

beach area (in an area where residual oil impacts were observed in sediment) were also below RBTC values.

4.7.3 Soil

On October 26, 2007, two soil samples (identified as Brandt Island Road 1 and Brandt Island Road 2) were collected from areas adjacent to and beneath the waste pack storage on Brandt Island Road and submitted for laboratory analysis of EPH fractions and target PAH analytes. EPH fractions were not detected in the two soil samples. Individual PAH were detected in these road soil samples at concentrations well below Method 1 S-1 Risk Characterization soil standards. It is unknown if the low concentrations of PAH are associated with B120 oil, as these PAH could also be associated with automotive oils and fluids that could be expected to be present as part of normal roadway use.

5.0 PHASE IV MODIFICATION

Additional Phase IV assessment and, if needed, remedial activities are proposed for the western portion of Leisure Shores and Howard's Beach in response to the presence of oiled cobbles observed during the December 7, 2007 field visit described above. The assessment and cleanup activities will be similar to the previous assessment and cleanup methods conducted in the cobble beach area in 2007. The areas of the proposed additional assessment activities are shown on Figure 16. The objective of the additional assessment activities is to evaluate for the presence of additional oiled cobbles and potential oiled sediment and oil particles at these locations. The assessment activities will consist of excavating trenches in these areas using a mini-excavator using the same procedures used to evaluate the cobble beach and "tire track" areas at Leisure Shores and Howard's Beach. The trenches will be excavated approximately perpendicular to the shoreline to a depth of approximately 2 feet below grade surface. The trenches will be excavated primarily in the middle to upper intertidal zone and the centers of adjacent trenches will be approximately six feet apart. Care will be taken to minimize damage to peat materials, if encountered during assessment activities. After field observations are made, the trenches will be backfilled using the excavated material.

Locations of oiled rocks and cobbles identified during the assessment activities will be the focus of subsequent cleanup activities. Oiled rocks and cobbles will be excavated from these locations, segregated, and loaded into waste packs for disposal. To identify oiled cobbles, the excavated material will be placed through a screen to separate the cobbles from the sand for visual inspection and seawater will be used to gently rinse sand from the cobbles, if needed. Because seawater will be applied to rinse the sand from the cobbles, absorbent boom will be placed between the work area and the ocean to contain separate-phase oil that could be generated during the field activities. Oiled sediment and/or particles encountered during the assessment activities will also be loaded into waste packs, if needed.

The proposed additional assessment and possibly remedial activities are anticipated to be conducted in March 2008. It is anticipated that the proposed additional activities will require between 3 and 5 days to complete. On each day, field activities will begin approximately three hours before low tide and will continue to approximately three hours after low tide, weather and daylight permitting.

Because of the small scale of the remedial project, the use of small equipment, and the minimal disruption to the shoreline, federal, state, and local permits are not anticipated to be required. The Mattapoisett Conservation Commission will be notified in advance regarding the proposed cleanup activities and anticipated schedule and address any issues. Other permits or approvals are not expected to be required for the proposed Phase IV assessment and possible cleanup activities.

6.0 SUMMARY

Phase IV assessment and cleanup activities were conducted between September and November 2007 at the cobble beach portion of Leisure Shores, and an area near "tire tracks" at Howard's Beach. More than half of the trenches/test pits showed either no evidence of oil or sheens only. Floating particles ("flecks"),typically less than 0.25-inch diameter, were observed in 25% of the trenches/test pits. Oiled sediment and/or tarballs were observed in fewer than 25% of the trenches/test pits. Phase IV cleanup activities removed a total of 14.05 tons of sediment and cobbles from these locations for disposal. Clean sand and cobbles were brought to the area after cleanup to replace the removed material.

Post-cleanup assessment activities found no oil in the fringing marsh/channel area, and only transient sheens (i.e., sheens that disappeared after the trench was allowed to remain open) were observed in the cobble beach area. However, oiled cobbles were observed on the western side of the middle groin at Leisure Shores, and additional Phase IV assessment and possibly cleanup activities were considered to be warranted to evaluate whether additional oiled cobbles are present at Howard's Beach and the western portion of Leisure Shores. Additional Phase IV activities are therefore proposed to evaluate these two areas in March 2008.