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LETTER TRANSMITTING U S NAVY RESPONSES TO U S EPA REGION I, RHODE ISLAND  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, U S FISH AND WILDLIFE AND  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION COMMENTS ON DRAFT  
SAMPLING AND ANALYSIS PLAN FOR CARR POINT WITH ATT

*2/22/2013*

RESOLUTION CONSULTANTS

**DATE:** February 22, 2013  
**TO:** Distribution Listed Below  
**FROM:** Resolution Consultants  
**RE:** Response to Comments on Draft Sampling and Analysis Plan (SAP)  
Carr Point, NAVSTA Newport, Rhode Island

On behalf of the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic, Resolution Consultants is providing you with the attached Response to Comment (RTC) package associated with the Draft Sampling and Analysis Plan (SAP) for your review and input. The SAP pertains to the planned Remedial Investigation (RI) at the following two sites at Carr Point, Naval Station (NAVSTA) Newport, Rhode Island:

- MRP Site 1 Former Carr Point Shooting Range (OU 9)
- IR Site 22 Former Carr Point Storage Area (OU 10)

This RTC package is being submitted per the Federal Facilities Agreement (FFA) scheduled date of February 24, 2013. The FFA provides a 45-day timeframe for distribution of the Draft Final SAP; however, the Navy anticipates generating the Draft Final SAP earlier. The Navy Remedial Project Manager (RPM) and point-of-contact for this site is listed below:

Naval Facilities Engineering Command, Mid-Atlantic  
Attn: Ms. Maritza Montegross, Code OPTE3  
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The RTC package was developed based on team collaboration and regulatory input during our January 16, 2013 meeting and February 13, 2013 conference call. The RTC package is intended to capture the discussions and consensus decisions, and provide a description and/or preview of planned revisions to the SAP. If there are inaccuracies or concerns with the Navy's planned revisions as presented in the attached RTC package, please notify either of the Resolution Consultants contacts listed below or Ms. Maritza Montegross as soon as possible, to assist in the production of an accurate and acceptable Draft Final SAP for this project.

Melissa Cannon, Carr Point Task Order Manager, 978.400.1213  
Mark Kauffman, NAVSTA Newport Activity Coordinator, 978.905.2262

Thank you again for your efforts in collaborating with the Navy to develop the SAP.

Sincerely,

A handwritten signature in black ink that reads "Melissa J. Cannon". The signature is written in a cursive, flowing style.

**Resolution Consultants**

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**NAVY RESPONSES TO  
U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA)  
COMMENTS DATED DECEMBER 20, 2012  
ON THE DRAFT SAMPLING AND ANALYSIS PLAN,  
FORMER CARR POINT SHOOTING RANGE (MRP SITE 1, OU9) AND  
FORMER CARR POINT STORAGE AREA (IR SITE 22, OU10),  
NAVAL STATION (NAVSTA), NEWPORT, RHODE ISLAND  
(NOVEMBER 5, 2012)**

Navy responses to U. S. Environmental Protection Agency (EPA) comments on the Navy's Draft SAP for the Former Carr Point Shooting Range (MRP Site 1, OU9) and Former Carr Point Storage Area (IR Site 22, OU10) are presented below. The EPA comments are presented first (in italics) followed by Navy's responses.

**General Comments**

*General Comment 1: Surface water is not included in the SAP as a media of concern. In Worksheet 10-1 and 10-2, or elsewhere where it would be appropriate, include a discussion supporting the Navy's position that surface water is not a media of concern. EPA agrees that surface water does not need to be included as a media of concern, but requests that Navy clarify the basis for that conclusion in the SAP.*

**Response:** The following text will be added to Sections 10.1 and 10.2 under 'Target Matrices:'

"MRP Site 1/IR Site 22 is located adjacent to Narragansett Bay. However, contact with surface water in Narragansett Bay is not considered to be a significant pathway of exposure to site-related chemicals due to the tidal influence. In addition, there are no inland surface water bodies within MRP Site 1/IR Site 22. The nearest inland surface water body is Norman's Brook located 0.3 miles southeast of Carr Point. Therefore, surface water is not considered to be a media of concern and will not be evaluated in the planned investigation."

The following text will be included in Sections 10.1 and 10.2 under the 'Receptors and Exposure Pathways - Human Health' Section for the Recreational Adult and Child (RV Park Visitors) (10.1 only) and Hypothetical Future On-Site Resident:

"MRP Site 1/IR Site 22 is located adjacent to Narragansett Bay. However, human access to the bay and the shoreline from the site is limited by overgrown vegetation with only one walking path/access point at the north side of MRP Site 1. There is also a sign posted on the site restricting swimming in the bay. In addition, contact with surface water in Narragansett Bay is not considered to be a significant pathway of exposure to site-related chemicals due to the tidal influence." The following statement will be added to the end of the above text in sections 10-1 and 10-2: "Therefore, surface water is not considered a media of concern and exposure to surface water will not be evaluated in the risk assessment."

The following text will be included in Sections 10.1 and 10.2 under the 'Receptors and Exposure Pathways - Ecological' Section:

“Exposure to site-related constituents in Narragansett Bay surface water are assumed to be negligible and will not be evaluated in the ecological evaluation.”

**General Comment 2:** *The SAP does not include a data collection effort to evaluate bedrock groundwater. All of the proposed groundwater monitoring wells are to be located in the overburden aquifer. Clarify how the Navy will delineate the vertical distribution of contaminants in groundwater within the study areas. Provide support for locating all of the proposed monitoring well screens in the shallow aquifer at the water table. EPA will need to evaluate the Navy’s response to this comment before we will concur with an RI Work Plan that does not investigate groundwater at depth and within the bedrock aquifer.*

**Response:** The SAP will be modified to include the installation of 4 deep overburden monitoring wells (MW-1D, MW-4D, MW-6D and MW-12D; to be located adjacent to shallow water table monitoring wells), 1 bedrock monitoring well (MW-8D; to be located adjacent to an overburden monitoring well) and 1 additional shallow water table well (MW-5S; to be located adjacent to the only existing deep overburden monitoring well). Please refer to the attached figures (Figure 4 & 9) for the proposing groundwater sampling locations. The locations were selected using existing site data, as discussed on 2/13/2013. Data collected from these well pairs will be used to assess the vertical distribution of contaminants and vertical gradient at each site using short depth-discrete screened intervals (shallow and deep). The conceptual table and figure shown were discussed during our 2/13/2013 conference call and will be incorporated into the tables and figures in the revised SAP.

**General Comment 3:** *Although there is an extensive References Section provided in Appendix C, there does not appear to be a References Section for the SAP. Confirm whether all documents referenced in the SAP are included in the Appendix C References Section or provide a References Section for the SAP.*

**Response:** A reference section will be added to the SAP.

### **Specific Comments**

**Specific Comment 1: Worksheet 10-1, Page 47, Nature and Extent of Contamination:** *The SAP does not identify propellants as a contaminant of concern (COC), although propellants were identified as a contaminant that could pose a potential for human health risk at the site in the “Site Investigation for MRP Site 1- Carr Point” (TetraTech, May 2010). The SAP states: “Although propellant residues (i.e., nitroglycerin) were reported during the prior investigations (TetraTech, 2010a), they are considered to be limited to the clay pigeon launching/firing arc area, which will be addressed via a planned removal action (TetraTech, 2012), and not considered a potential compound of interest for other areas of the MRP Site 1.” Thus, it is EPA’s understanding that the Navy is taking the position that the planned removal action will remove all propellant residues in soils to a level that will be protective; therefore, propellant constituents (i.e., nitroglycerin) do not need to be carried forward as a COC in the RI effort. This position should be further clarified in the SAP. EPA reserves our concurrence on this position until after completion of the removal action and evaluation of post-removal confirmatory data.*

**Response:** According to the SI report (Tetra Tech, 2010), nine composite surface soil (0-2 inches) samples were collected and analyzed for three common propellants: 2,4-dinitrotoluene, 2,6-dinitrotoluene and nitroglycerin by EPA Method 8330B at MRP Site 1. The soil samples were collected utilizing a multi-incremental sampling technique from three grids laid over the former firing arcs. According to the SI report, 2,4-dinitrotoluene and nitroglycerin were detected above SI project action limits (PALs) at all three firing arcs and that 2,6-dinitrotoluene was not detected.

Based on the Engineering Evaluation/Cost Analysis (EE/CA) (Tetra Tech, 2012) prepared for the proposed removal action, the footprint of the proposed removal action does not include the entire area of the three former firing arcs. Therefore, 2,4-dinitrotoluene and nitroglycerin will need to be retained as COCs as part of the RI. The SAP will be revised to include 2,4-dinitrotoluene and nitroglycerin as analytical parameters for soil samples to be collected from MRP Site 1.

***Specific Comment 2: Worksheet 14-1 and 14-2, Page 145 and 156, Clearing:** The SAP indicates that prior to the initiation of field work, the Navy, its contractors, and the regulatory agencies will conduct a site visit to mark out locations of the proposed soil borings and monitoring wells. EPA concurs that this would be a valuable opportunity to ensure consensus on the RI WP implementation. As soon as this can be scheduled, please propose dates for our consideration.*

**Response:** Specific dates will be provided to EPA, RIDEM, NOAA, and USFWS representatives as the field mobilization schedule is developed.

***Specific Comment 3: Worksheet 14-1 and 14-2, Page 148 and 158, Sediment Sampling; and Worksheet 30, Page 332:** EPA did not review the analytical SOP listed in Worksheet 30 for grain size analysis of sediment. However, a full breakdown, beyond the broad categories of cobbles, sands, silts and clays, may be unnecessarily detailed, unless it would be needed for engineering purposes later. Particularly for the selection of suitable background locations, the Navy may find that a less detailed grain size analysis is adequate.*

**Response:** The SOP listed in Worksheet 30 for grain size analysis is associated with the laboratory analysis of grain size. The method proposed is for sieve analysis only, and to our knowledge, is the most direct method. In addition to laboratory analysis of grain size, a qualitative assessment of sediment grain size will be completed in the field, both at the sites and off-site at the ultimate reference/background locations. This qualitative assessment will be used to ensure that the off-site reference/background locations are collected from areas of similar grain size as the sites.

***Specific Comment 4: Worksheet 14-1, Page 148-150, Sediment Sampling:** This section describes core sampling for chemical analysis of sediment and other devices (e.g., ponar, Eckmann samplers) for sampling of sediment for toxicity testing. EPA suggests that in order to harmonize the results of toxicity and chemistry sampling, the toxicity testing sample should also be made up of a homogenized composite of a sufficient number of cores to obtain a toxicity test sample. Alternatively, and ideally, both chemistry and toxicity should come from the same composited bowl. Sampling devices such as a ponar grab samplers rarely achieve their nominal sampling depth of 0-6 inches unless the sediment is very soft. The discrepancy between sampling depths created by different collection methods may cause difficulty in data interpretation.*

**Response:** The SAP text will be revised to indicate that a ‘power grab’ sampler will be used to collect the 0 – 0.5 foot samples for co-located sediment chemistry, toxicity testing, and benthic invertebrate community samples. Per our meeting on 1/16/2013, it is anticipated that this approach will be more efficient than collecting multiple cores per station to obtain sufficient volume for surface sediment sampling. Deeper sampling intervals will be collected using the coring approach presented in the SAP.

***Specific Comment 5: Worksheet 14-1 and 14-2, Page 152 and 159, Sediment Sampling, Background/Reference Locations:*** *With respect to the sediment background data collection effort, EPA recommends locating some of the background sediment samples in an area near the Carr Point site, but outside the likely extent of lead shot and other site impacts, in order to better match with site conditions such as grain size.*

**Response:** The SAP will be revised to reflect the collection of reference/background sediment samples in the vicinity of the Carr Point sites outside of impacted areas. Please refer to the attached figure (Figure 6) for possible background/reference sediment sampling locations.

***Specific Comment 6: Appendix C, Page 14, Chemical-Specific Information:*** *EPA does not agree with the Navy’s position articulated here that “in the absence of speciated chromium results, chromium will be evaluated as trivalent chromium in the HHRA if there are no known current of former sources of hexavalent chromium at the site.” Note that, in the absence of chromium speciation data, it is EPA’s risk assessment practice to assume that chromium at a site is hexavalent chromium (Cr +6), not trivalent chromium (Cr +3), to be conservative. EPA encourages doing chromium speciation for a site to get site-specific data, but where there is no specific information, Cr +6 should be considered in the evaluation.*

**Response:** For the planned Carr Point investigation described in the SAP, a subset of samples will be analyzed for hexavalent chromium. The text related to chromium in Appendix C, page 14, Chemical-Specific Information, will be edited to read as follows:

“Chromium is most commonly present in the environment in the trivalent state because typical conditions in the environment favor the reduction of chromium from the hexavalent to the trivalent state. A subset of samples per media may be analyzed for hexavalent chromium, in addition to total chromium, to provide information on whether the hexavalent form of chromium is present in Site media. The hexavalent chromium data will be evaluated in HHRA, and will also be used to determine whether total chromium results will be evaluated as hexavalent or trivalent chromium in the HHRA. In the absence of speciated chromium data, chromium will be conservatively evaluated as hexavalent chromium in the HHRA, as requested by USEPA.”

***Specific Comment 7: Appendix C, Section 4.2, Page 23 and Table 11:*** *The Herring Gull is selected as a representative receptor species for purposes of the ecological risk assessment. The Risk Assessment Work Plan Technical Memorandum states that the “diet will be assumed to be 100% of its most contaminated prey item”. In this instance, it seems the only available option will be to use a literature-based sediment-to-biota accumulation factor (BSAF) and model to a generic food item. Although this food chain modeling approach was not discussed in the SAP, it is EPA’s understanding that the data collected through the SAP would be utilized in the ecological risk assessment process detailed in Appendix C. Considering the proposed data*

collection effort detailed in the Draft SAP, several questions emerge related to the application of the proposed food chain model for consideration and discussion.

- *If the home range is taken into account, is there any receptor species, BSAF, and sediment concentration combination based on existing data that could trigger a risk, or is the entire exercise moot in the absence of higher detected contaminant concentrations than have been found to date?*
- *Is there any biota that could be collected for a “reality check” of the BSAF? Could collection of some kind of biota be worked into the scuba work? If so, would it be infauna such as clams or worms, or epifauna such as crabs, which is a more realistic food item for the herring gull, but possibly less susceptible to uptake of contaminants from bedded sediment?*
- *Is there any proxy, such as pore water analysis (filtered), that could provide clarity on whether concentrations of lead in sediment are biased high due to small fragments of lead in the chemistry sample? Such lead may not be bioavailable, but may influence the findings of the chemical analysis.*

*Marine sites like Carr Point present a challenge for food chain modeling because it is difficult to determine the best receptor species and food items to sample. EPA suggests collecting an additional line of evidence to further evaluate risk based on BSAF/food chain modeling should this be needed.*

**Response:** The SAP will be clarified to indicate that, in the absence of site-specific biota data, the food chain modeling approach will use literature-derived uptake factors to estimate biota concentrations. Table 10 in Appendix C presents the literature BSAF values to be used in the ecological risk assessment to predict biota concentrations. The SCUBA survey described in Worksheet 14-1 will be expanded to include a tissue collection effort in order to provide tissue data for use in the food chain modeling. It is anticipated that surface sediments will be collected from areas where tissues are collected in order to allow the derivation of site-specific uptake factors. It is expected that the available tissue will be various mollusks. Tissue samples will likely represent composites of similar sizes of the same species to achieve sufficient volume for metals analyses.

Based on the evaluation presented in the SI, it appears that bioaccumulation risks to wildlife receptors due to sediment exposure are likely to be low. However, it is relevant to conduct the food chain evaluation with newly collected data to confirm this finding and the incorporation of site-specific tissue data will further refine this assessment.

Based on technical discussions during the 1/16/2013 meeting, it was decided that pore water sampling was not necessary at this time.

**Specific Comment 8 (received via email from Ginny Lombardo on 1/24/2013):** *I asked EPA hydrogeologist about the proposed approach of assessing the weathered bedrock zone and he agreed that was a reasonable approach, but indicated we should target any bedrock low that may exist. He asked about whether groundwater profiling had been performed. He also asked whether there was existing data on bedrock depth across the site. I looked back at the SI report and PID soil screening was done in order to select groundwater screen depths for the SI wells. Borings were advanced to bedrock, but I have not yet checked how that data*

*was reported in the SI Report. Groundwater profiling is not proposed in the RI WP. I would like to discuss whether groundwater profiling from the water table to the top of rock can be completed in order to select the screen depths for the wells.*

**Response:** Please refer to the Navy's response to Specific Comment 2. To expand upon that response, the Navy will add more detail to the SAP to describe the additional geologic and hydrogeologic review conducted prior to the 02/13/2013 conference call, and to present the expanded investigation approach relative to EPA's request for additional groundwater assessment. In addition, the conceptual table and figure shown as part of the response to Specific Comment 2 will be incorporated into the tables and figures in the revised SAP.

As discussed during our 2/13//2013 conference call, the Navy compiled the available geologic and hydrogeologic information available for both Carr Point sites to better refine the conceptual site model (CSM) as it pertains to expanding the groundwater assessment. The conceptual figure shows the potential source areas from prior operations, bedrock elevation contours, existing monitoring well locations, and key results of prior sampling events (in groundwater as well as soil on the bedrock surface). Based on these findings, the proposed additions to the monitoring well network, also shown on the conceptual figure, was designed to delineate the vertical extent of key constituents in groundwater by installing short screen deep overburden wells on the bedrock surface at targeted locations where these constituents were detected in water table wells and / or detected in soils. Deep overburden wells are also proposed on MRP Site 1 where the bedrock surface depth is greatest and where limited data was collected during the SI. The Navy expanded the planned groundwater assessment as follows, which will be described in the revised SAP:

- Install additional monitoring wells in the shallow overburden where spatial data gaps may exist to assess potential shallow (water table) groundwater impacts; construct 10-foot screened intervals to span the stabilized water table and match the construction of the existing monitoring well network.
- Install additional monitoring wells in the deep overburden on top of the lower bedrock surface to assess potential deep (weathered bedrock or lower till) groundwater impacts; construct 5-foot screened intervals to maximize the separation between shallow and deep monitoring wells and target the weathered bedrock and/or lower till zone.
- Collect continuous split-spoon samples from all new monitoring well locations to assess depth-discrete impacts and whether variation occurs vertically and horizontally.
- Sample groundwater from the expanded monitoring well network; refer to the conceptual table shown as part of the response to Comment 2; include analysis of geochemical parameters (in addition to target constituents) to aid in evaluating groundwater provenance and profiling, as it relates to hydrogeologic flow and chemical behavior.
- Measure hydraulic conductivity and calculate vertical gradients at monitoring well pairs to aid in conceptualizing groundwater flow preferences, direction, and relative rates.

**NAVY RESPONSES TO  
U.S. FISH AND WILDLIFE SERVICE (USFWS)  
COMMENTS DATED DECEMBER 21, 2012  
ON THE DRAFT SAMPLING AND ANALYSIS PLAN,  
FORMER CARR POINT SHOOTING RANGE (MRP SITE 1, OU9) AND  
FORMER CARR POINT STORAGE AREA (IR SITE 22, OU10),  
NAVAL STATION (NAVSTA), NEWPORT, RHODE ISLAND  
(NOVEMBER 5, 2012)**

Navy responses to U.S. Fish and Wildlife Service (USFWS) comments on the Navy's Draft SAP for the Former Carr Point Shooting Range (MRP Site 1, OU9) and Former Carr Point Storage Area (IR Site 22, OU10) are presented below. The USFWS comments are presented first (in italics) followed by Navy's responses.

**Specific Comments**

*Specific Comment 1: SAP Worksheet #9-4: Clarify why PAH analysis is being characterized as a RIDEM concern only.*

**Response:** The comment appears to refer to petroleum hydrocarbon analysis (not PAH analysis), which was initially included in the draft SAP for RIDEM (non-CERCLA) purposes.

*Specific Comment 2: SAP Worksheet #9-5: Clarify why TCLP analysis is being removed from consideration.*

**Response:** TCLP analysis was considered in an early internal version of the SAP to assess chemical behavior; however, following further discussions, it was determined that TCLP analysis was not necessary, and more specific physical properties (e.g., DO, BOD, TOC, pH, etc.) would be more useful to assess chemical behavior. These physical property parameters are included in the draft SAP.

*Specific Comment 3: SAP Worksheet #9-9: Clarify why all COPCs are not being analyzed in background/reference sediments.*

**Response:** Metals, PAHs, pesticides, TOC, and grain size will be analyzed for all background/reference locations with a 7-day turnaround time. The samples selected for use in the toxicity testing program will also be analyzed for VOCs, SVOC, and PCBs to identify additional stressors that may impact the test results (see Worksheet 14-1). The additional analyses are not warranted at the remaining background/reference samples since a background comparison (site vs. background) is not planned for these compounds.

*Specific Comment 4: SAP Worksheet #10-1: Operational History: Anecdotal evidence of a third firing arc, along with SI exceedances, suggests that Pb pellets should exist within "20 degrees to the left of the southernmost range" which is under-represented in onshore and offshore sampling locations. In general, soil samples should be taken in transects with nodes not more than 50 feet apart along the proposed SB208 line, extending beyond the southernmost and northernmost 20 degree arcs, as described. Sampling should also be similarly conducted in the supratidal zone.*

**Response:** The proposed soil sampling locations were revised during our 1/16/2013 meeting. The revised SAP will reflect the increased soil sampling locations. Please see attached figure (Figure 3) for the proposed soil sampling locations.

***Specific Comment 5: SAP Worksheet #10-1: Current Site Use: Point of note for MRP Site 1: Maintained lawn areas around embayments are commonly used by waterfowl (i.e. Canada geese, mallards, black ducks, etc.), shorebirds (gulls, killdeer, etc.) and passerines (crows, blackbirds, sparrows, robins, etc.) for foraging and loafing. These species are especially susceptible to incidental ingestion of lead shot which is usually fatal at low dosages.***

**Response:** There are no plans to sample these areas for lead pellets. The conceptual site model (CSM) developed in the SI indicates that pellets are present in the firing area within the Bay, and not present in upland locations. Potential risks posed to birds from exposure to site-related compounds will be assessed in these areas using food chain modeling. Worksheet 10-1 will be modified to indicate that the maintained lawn areas may provide some area for foraging.

***Specific Comment 6: SAP Worksheet #10-1: Hydrology and Hydrogeology: Indicate that GW is flowing away from Norman's Brook, toward Narragansett Bay, and therefore no impacts are expected in inland surface water bodies. Also indicate if GW breakout areas or GW upwelling is known, suspected, or undocumented in areas adjacent to or in intertidal/subtidal areas of the Bay.***

**Response:** Two additional monitoring wells, MW10 and MW14, will be installed between the existing well network for IR Site 22 and Norman's Brook to assess groundwater flow direction and the potential for Norman's Brook to be receiving groundwater from beneath IR Site 22. The SAP will be revised to describe these additional monitoring well locations as well as the associated rationale. Please refer to the attached figure (Figure 9) for proposed groundwater sampling locations.

***Specific Comment 7: SAP Worksheet #10-1: Previous Site Investigation Activities: A table listing PALs for the site would be beneficial. State/footnote the basis for the established threshold of 10 pellets/square foot.***

**Response:** The PALs proposed in the SAP are further refined and more conservative than the PALs applied during the prior SI. To avoid confusion, the Navy is not listing or tabulating SI PALs in the SAP, but instead will add a reference to the SI report for that particular information. This will maintain the Navy's focus on the planned PALs and pellet count threshold for the RI program described in the SAP.

***Specific Comment 8: SAP Worksheet #10-1: CSM Summary: Figure 2 should include Fish and Aquatic Invertebrates under Sediment exposure.***

**Response:** Figure 2 will be updated to indicate potential pathways for Fish and Aquatic Invertebrates with sediment.

***Specific Comment 9: SAP Worksheet #10-1: Ecological: Based on discussions on the last conference call, shellfish, if present on-site, will be collected and measured for COC residues.***

*This will satisfy 2 exposure pathways - one for upper food chain bioaccumulation, as stated, and one for potential residue effects to the shellfish community itself.*

**Response:** If present, shellfish will be collected and the residue data incorporated into the food web modeling as a measurement of site-specific bioaccumulation. In addition, the tissue data will be used as an additional endpoint to assess the potential for risks to the benthic community. Rather than selecting one individual effects-based critical body residue (CBR) for evaluating potential effects of residues, the tissue data will be evaluated in the context of a number of different studies. Lowest Observable Effects Level (LOEL) and No Observable Effects Level (NOEL) values for shellfish (or similar species) will be identified from a review of the U.S. Army Corps of Engineers' (USACE) Environmental Residue Effects Database (ERED) (<http://www.wes.army.mil/el/ered/>) and Jarvinen and Ankley (1999). The Carr Point shellfish tissue residue data will be discussed in relation to the range of body burden toxicity data available.

***Specific Comment 10: SAP Worksheet #10-2: Overview:*** *Intertidal and subtidal sediment sampling has not been performed previously for this area. It is unclear if the Former Drain Lines are the only pathways of contamination to the Bay. The nature and extent of contamination in this overall area cannot be adequately characterized by the 4 proposed sample locations. Further discussion between agencies regarding adequate sample numbers to fully characterize intertidal and subtidal sediment quality is warranted.*

**Response:** Currently, we expect that the former drain lines were a potential contaminant pathway to the Bay. Surface and subsurface soil samples will be collected at the discharge points, and sediment samples will be collected in the Bay in the near vicinity of the discharge points.

As noted above, two additional monitoring well, MW10 and MW14, are planned to be installed between the existing well network for IR Site 22 and Norman's Brook to assess groundwater flow direction and the potential for Norman's Brook to be receiving groundwater from beneath IR Site 22. If it is determined that Norman's Brook is receiving groundwater and that groundwater concentrations prior to discharge into Norman's Brook are at unacceptable levels, evaluation of Norman's Brook and the associated areas of Narragansett Bay will need further evaluation. We expect overland transfer from IR Site 22 to the Bay to be limited by the presence of vegetation. Refer to the conceptual table and figure presented as part of the Navy's response to Specific Comment 6.

***Specific Comment 11: SAP Worksheet #10-2: Ecological:*** *Site-specific tissue levels may also be warranted for this area if shellfish are present in suspected or documented intertidal or subtidal contaminant zones.*

**Response:** No sediment sampling has previously occurred at IR Site 22, so there is no basis to develop a tissue sampling program at IR Site 22. The proposed sediment sampling at IR Site 22 represents an initial effort to characterize the sediment conditions adjacent to the site. If warranted based on the chemical analysis of the sediments, additional sampling (e.g., shell fish tissue, toxicity testing) may be warranted in future phases.

***Specific Comment 12: SAP Worksheet #11-1: Sediment Sampling:*** *Sample locations, as depicted on Figure 5, should include all intertidal areas within the defined firing arc. Notably,*

*the areas in the lower left and right of the shooting arc, within the Target Area, are under-represented. These may be covered in follow-up step-out sampling, as inferred, but should be sampled as part of full-arc sampling due to heterogeneity of shot fallout patterns and the potential for sediment migration with tidal fluxes and nearshore currents.*

**Response:** As discussed and agreed to during the 1/16/2013 meeting, proposed soil sampling locations were revised to address potential impacts at MRP Site 1; however, it was decided that intertidal samples would not be collected due to the nature of the beach (i.e., present of cobbles). The revised SAP will reflect the increased soil sampling locations. Please refer to the attached figures (Figure 3 & 5) for soil and sediment sampling locations associated with MRP Site 1.

***Specific Comment 13: SAP Worksheet #11-1: Sediment Sampling:*** *Clarify the surface and subsurface intervals to be sampled. Insure that background sediment data are being collected from the same depth interval and in the same manner as site samples.*

**Response:** The text in this worksheet (and in worksheet #11-2) will be clarified to indicate the sampling depths for the MRP Site 1 samples and the background/reference samples and that the sampling methodologies will be consistent in both areas.

***Specific Comment 14: SAP Worksheet #11-1: Figure 6:*** *I suggested moving some of the proposed reference/background sampling locations closer to the Carr Point area, outside the zone of influence, on our last conference call. It seems that potentially the intertidal/subtidal shoreline south of the site, well north of the Shipyard, may be an option, or the northwest shoreline of Dyer Island, on the same exposure profile as the site. Moving at least 1 of the proposed locations (3 samples) to one or both of these areas seems reasonable, dependent on local site condition evaluation prior to sampling. As discussed, grain size/TOC comparability to site conditions is an important issue and site history/current use patterns are also of concern. Qualitative or abbreviated grain size determination may aid in determination of reasonably comparable background locations.*

**Response:** The SAP will be revised to reflect the collection of reference/background sediment samples in the vicinity of the Carr Point sites outside of the impacted areas. Qualitative assessment of grain size will be completed in the field to aid in the determination of appropriate reference/background sediment sampling locations. Also, TOC data will be collected from both the site and reference/background sediment samples for comparability. Please see attached figure (Figure 6) for possible background/reference sediment sampling locations.

***Specific Comment 15: SAP Worksheet #11-1: Table 11-1:*** *Sediment samples SD-101, etc. are proposed to assess potential impacts from an outfall. All outfalls for either OU should be identified on figures, in conjunction with sample locations.*

**Response:** The approximate location of the outfalls at IR Site 22 are identified by the former drain lines and the former soil samples located at the outfalls, OFS002 and OFS003, on Figure 8. The approximate location of the outfall associated with MRP Site 1 will be identified on Figure 3 with the addition of OFS001 at the approximate discharge point.

***Specific Comment 16: SAP Worksheet #11-2: Sediment Sampling:*** *Text on more extensive proposed sediment sampling (16 samples) is further defined in Section 14-2 but is not clearly*

*defined here. I realize that worksheets are presented in chronological order and decisions or specifics of sampling have evolved over extended timeframes but review in this format is difficult and repetitive.*

**Response:** The text in Worksheet #11-2 will be clarified to indicate the sampling depths for the IR Site 22 samples (4 sampling locations with 4 sampling depths per location).

***Specific Comment 17: SAP Worksheet #14-1: Scientific SCUBA Diving:*** *Add in the potential for divers to collect shellfish tissue, if present onsite, based on previous discussions. Shellfish species should be sampled/analyzed separately. Similar numbers (per sample), sizes, and total biomass of individuals should be sampled from onsite and off-site reference areas.*

**Response:** Shellfish sampling will be added to Worksheet #14-1. If present, samples will be collected from both the site and background/reference areas.

***Specific Comment 18: SAP Worksheet #14-1: Sediment Sampling - Toxicity Testing:*** *Technically, sediment chemistry and sediment toxicity samples should be subsampled from the same homogenate. As proposed, there is going to be core sampling for sed chemistry and co-located grab sampling for sed toxicity. This may present inconsistencies in data comparison so we suggest uniform sampling procedures, if bulk sediment is not going to be collected and subsampled for all purposes.*

**Response:** The SAP text will be updated to indicate that a ‘power grab’ sampler will be used to collect the 0 – 0.5 ft samples for co-located sediment chemistry, toxicity testing, and benthic invertebrate community samples. Per our meeting on 1/16/2013, it is anticipated that this approach will be more efficient than collecting multiple cores per station to obtain sufficient volume for surface sediment sampling. Deeper sampling intervals will be collected using the coring approach presented in the SAP.

***Specific Comment 19: SAP Worksheet #14-1: Macroinvertebrate Sampling:*** *Insure that sed chemistry, sed tox, and macrobenthic evaluation are all performed at the same locations. Similar concerns exist for sediment depth sampling and comparison to sed chemistry, as stated above.*

**Response:** See the Navy’s response to Specific Comment 18.

***Specific Comment 20: SAP Worksheet #14-1: Risk Assessment: Evaluation of Ecological Risks Due to Lead Pellets:*** *Risk of lead pellet ingestion is also significant for wading birds or shorebirds foraging in intertidal areas for crabs, worms, amphipods, etc. and should be included in risk scenarios, including pellet size ranges and grit preference comparisons.*

*EPA Region 1 assessment associated with the investigation and cleanup of contaminated soils at the Bryant Range at Fort Devens, MA (2005) referenced a clean-up that was conducted at the Patuxent Research Refuge (2004, USFWS, EPA). Clean-up goals there were based on both total Pb in soils and pellets per square foot. The cleanup goal established for Bryant Range based on that study and others was a site-wide average of less than 100 ppm and less than 3 lead particles of 0.5mm to 2.8 mm in size per square foot. We are familiar with the studies that the*

*Navy has referenced for the 10 pellet/square foot benchmark for Carr Pt. but will need to review them for comparison and appropriateness.*

**Response:** As discussed on 2/13/2013, a threshold of 7 pellets/square foot will be used at MRP Site 1. The SAP will be updated as necessary.

***Specific Comment 21: SAP Worksheet #14-2: Sediment Sampling:*** *As noted previously, 4 sediment locations (16 samples) to characterize the intertidal and subtidal area adjacent to the Former Storage Area is insufficient and deserves further discussion with the agencies.*

**Response:** No sediment sampling has previously occurred at IR Site 22, so there is no basis to develop a tissue sampling program at IR Site 22. The proposed sediment sampling at IR Site 22 represents an initial effort to characterize the sediment conditions adjacent to the site. If warranted based on the chemical analysis of the sediments, additional sampling (e.g., shell fish tissue, toxicity testing) may be warranted in future phases. In addition, as discussed during the 1/16/13 meeting, the sediment sampling locations were revised for IR Site 22. Please see the attached figure (Figure 10) for the proposed sediment sampling locations.

***Specific Comment 22: SAP Worksheet #17-1:*** *Subsurface determination of Pb pellet density is important for long-term protection of intertidal and subtidal habitat. Significant storm events can rework substantial amounts of subsurface sand and deposit or expose contaminated media in previously uncontaminated or remediated areas. Therefore, we suggest conducting pellet counts on 100% of the next depth horizon below the last horizon with pellet presence and 25% of the samples, as stated, below that.*

**Response:** As discussed and agreed to during the 2/13/2013 conference call, the SAP will be revised to increase the conservatism from 10 to 7 pellets/square foot. Otherwise, the approach/protocol in the SAP will remain unchanged.

***Specific Comment 23: Appendix C: Section 4.2: Sediment:*** *Since this is a basewide guidance document, freshwater sediment criteria should be identified for use at NUSC or other future FW evaluation scenarios. Consensus-based FW sediment quality guidelines (Ingersoll 2000) are recommended.*

**Response:** The Risk Assessment Work Plan Tech Memo includes the expected media, pathways, and receptors for MRP Site 1 and IR Site 22 at Carr Point. Freshwater sediment is not a medium of concern at these sites. The Tech Memo will be expanded to include freshwater sediment and other media, pathways, and/or receptors for other sites within NAVSTA Newport, on an as-needed basis.

***Specific Comment 24: Appendix C:*** *For Carr Point, food chain modeling will need to be extended, beyond the standard receptor list proposed, to potentially include diving and dabbling ducks, if there are adequate food sources present.*

**Response:** It is anticipated that the conservative assumptions for the herring gull (body weight of 0.95 kg and 100% ingestion of benthic invertebrates) will serve as an acceptable surrogate for diving ducks. If potential risks are indicated with this evaluation, additional modeling may be conducted if adequate food sources are noted during the field efforts.

*Specific Comment 25: Appendix C: Section 4.3.1: There should be a provision for the inclusion of site-specific tissue residues for calculation of site-specific BSAFs, food chain modeling, and determination of the potential for injury.*

**Response:** Text will be added to Section 4.3.1 to indicate that site-specific tissue residues may be collected to further refine bioaccumulation assumptions and may include the calculation of uptake factors for use in food chain modeling.

**NAVY RESPONSES TO  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)  
COMMENTS DATED DECEMBER 31, 2012  
ON THE DRAFT SAMPLING AND ANALYSIS PLAN,  
FORMER CARR POINT SHOOTING RANGE (MRP SITE 1, OU9) AND  
FORMER CARR POINT STORAGE AREA (IR SITE 22, OU10),  
NAVAL STATION (NAVSTA), NEWPORT, RHODE ISLAND  
(NOVEMBER 5, 2012)**

Navy responses to National Oceanic and Atmospheric Administration (NOAA) comments on the Navy's Draft SAP for the Former Carr Point Shooting Range (MRP Site 1, OU9) and Former Carr Point Storage Area (IR Site 22, OU10) are presented below. The NOAA comments are presented first (in italics) followed by Navy's responses.

**Specific Comments**

*Specific Comment 1: Why is Toxicity Testing planned at the Shooting Range but not at the Storage Area offshore sampling locations?*

**Response:** The planned toxicity testing at the Shooting Range is to follow-up on prior sediment results that reveal potential sediment impact at the Shooting Range. No sediment sampling has previously occurred at the Storage Area, so there is no basis to develop a toxicity testing program at the Storage Area. The proposed sediment sampling at the Storage Area represents an initial effort to characterize the sediment conditions adjacent to the site. If warranted based on the chemical analysis of the sediments, additional sampling (e.g., shell fish tissue, toxicity testing) may be warranted in future phases.

*Specific Comment 2: On Page 43 it is noted that the Club House was removed after 2010. Certainly, a more precise date is available.*

**Response:** The SAP will be revised to reflect the date that the Club House (former Building 233) was demolished.

*Specific Comment 3: Also on Page 43 under Current Site Use, it is confusing how available the former Shooting Range is to the public as the first paragraph makes note of its accessibility to DOD personal but the third paragraph indicates that people cannot enter the site. And the text reports that the rocky shoreline likely supports benthic invertebrates but the Navy plans no such sampling according to Worksheet #9-5 (although it is discussed on Page 150).*

**Response:** The following is the text under Current Site Use in Worksheet #10-1 (starting on page 43 of the Draft SAP):

“The Former Carr Point Shooting Range (MRP Site 1) is currently used as a Recreational Vehicle (RV) campground for Navy and Department of Defense (DoD) personnel and has been since 1995. The RV Park is open from Memorial Day weekend through October for rental by DoD personnel and active/retired military and their families. It is not available for use by the general public. The RV Park visitors are allowed to stay for up to 2 weeks per year. Current workers within MRP Site 1 include RV Park management and maintenance workers within the

RV Park. Trespassers may also access MRP Site 1. There are no existing buildings on MRP Site 1.

Terrestrial portions of MRP Site 1 may provide habitat for ecological receptors such as plants, soil invertebrates, and small birds and mammals. However, pavement, gravel, and maintained lawn areas are unlikely to provide suitable habitat or foraging areas for many ecological receptors.

Groundwater at the site is not currently being used for potable use, there are no drinking water wells present on site, and the site is served by the municipal water supply.

MRP Site 1 is located adjacent to the Narragansett Bay. However, human access to the bay and the shoreline from the site is limited by overgrown vegetation with only one walking path/access point at the north side of MRP Site 1. There is also a sign posted on the site restricting swimming in the bay. Along the majority of the shoreline, sediment is covered by stones and cobbles and may provide habitat for benthic invertebrates.

The former clay pigeon launching area, portions of the former firing arcs and the area immediately downgradient of the former firing arcs are separated from the remaining portions of the MRP Site 1 by a secure chain-link fence, demarking an approximate 27,000 square foot area with the highest estimated impacts from prior shooting range activities. This area is being addressed by a planned removal action. Refer to the Engineering Evaluation and Cost Analysis (EE/CA) prepared to support the planned removal action (Tetra Tech, 2012) for more information pertaining to former clay pigeon launching area/firing arcs. Please refer to Figure 3 for the location of the fenced area and planned soil removal area.”

The site is not available for use by the general public but is accessed by DOD personnel and active/retired military and their families, current site workers and possible trespassers. The fourth paragraph indicates that human access to the bay and the shoreline is limited.

Benthic sampling is currently proposed for the Shooting Range but not for the Storage Area. Based on the SI, elevated concentrations of PAHs and metals occur within the Shooting Range so additional investigation of this area is proposed (e.g., toxicity testing, macroinvertebrate community survey). However, the sediments adjacent to the Storage Area have not previously been sampled so it is premature to collect additional biological data from this area until the sediment chemistry data have been evaluated.

***Specific Comment 4:** I do not think that as many as 12 Reference locations are really necessary and the three furthest to the south are likely extraneous. Rather, take those three and place them in the shallow subtidal around the small island just to the north of the Shooting Range (Figure 6).*

**Response:** The Navy intends to collect up to 12 background/reference samples to further expand the available analytical background data set for sediments within Narragansett Bay. Of those 12 samples, 3 will be selected (with input from the stakeholders) to represent reference conditions for the sediment toxicity testing program and the macroinvertebrate community survey. Locations for the background/reference locations are still to be determined but a sub-set will be

located in relatively close proximity to the Carr Point sites themselves. Please refer to the attached figure (Figure 6) for possible locations for background/reference sediment sampling.

*Specific Comment 5: Under Toxicity Testing –Page 149, I trust that EPA and the Trustees will have the opportunity to assist the Navy in the selection of the 10 samples for toxicity testing.*

**Response:** Upon receipt of the initial analytical data, the Navy will propose 10 locations for toxicity testing. The locations will be proposed to the stakeholders for input. It should be noted that the Navy will be requesting a quick turnaround on stakeholder input since there is a limited approximate 6-week holding time for the toxicity testing.

*Specific Comment 6: In Table 15-2, what does the pink shading mean? And why is there no PAL for Total PAHs?*

**Response:** The pink shading/highlighting indicates that the compounds laboratory reference value(s) is/are above the selected PAL.

No PAL is listed for Total PAHs (or Total PCBs) because these totals are calculated values based on individually analyzed PAHs (or PCB Aroclors) and are not analyzed directly as totals. A footnote will be added to Table 15-1 through 15-3: “PALs are defined as the limit of detection that analytical data must meet in order to be of sufficient quality for use in the Remedial Investigation, Risk Assessment, and Feasibility Study,”

*Specific Comment 7: Section 4 of Appendix C provides the Ecological Risk Assessment workplan. Here, it appears that much is made of Tier 1 – The Screening Risk Assessment (SRA) – but I would have thought that the SRA was already completed (or can be completed with no further data) given the sediment samples collected in 2009-10 and this second round of sampling that includes biological measures. In my opinion, this sampling discussed in the Worksheets is a part of Tier 2. Especially, the Table provided on Page 20 listing Assessment and Measurement Endpoints. Such is part of the Problem Formulation of a BERA. The text states that more specific endpoints will be developed for Tier 2 but that – if it really occurs - is beside the point.*

**Response:** The Appendix C document was intended for use at multiple Navy sites within NAVSTA Newport, so some of the language is general in regards to the Tier 2 evaluations. For completeness, a Tier 1 SRA will be completed for both the Storage Area and the Shooting Range. However, based on the results of the SI conducted by the Navy, it is recognized that because the aquatic portion of the Shooting Range will warrant a Tier 2 evaluation, additional sampling is included for that site (e.g., toxicity testing, macroinvertebrate survey). If a Tier 2 evaluation is warranted for the Storage Area, additional sampling may be conducted in a separate sampling event.

*Specific Comment 8: As Ken Munney pointed out in his review letter from 21 December 2012, I am also aware that EPA selected a 3 pellet per square foot value at Fort Devens. However, Dupont under CTDEP oversight used 1000 shots per cubic meter or 28 pellets per cubic foot or about 9 pellets per square foot as the remedial goal at the Stratford-Remington Arms Gun Club in Connecticut. Similar to the Navy suggestion of 10 pellets per square foot. This likely deserves more discussion.*

**Response:** As discussed on 2/13/2013, a threshold of 7 pellets/square foot will be used at this site. The SAP will be revised accordingly.

**NAVY RESPONSES TO  
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)  
COMMENTS DATED JANUARY 10, 2013  
ON THE DRAFT SAMPLING AND ANALYSIS PLAN,  
FORMER CARR POINT SHOOTING RANGE (MRP SITE 1, OU9) AND  
FORMER CARR POINT STORAGE AREA (IR SITE 22, OU10),  
NAVAL STATION (NAVSTA), NEWPORT, RHODE ISLAND  
(NOVEMBER 5, 2012)**

Navy responses to Rhode Island Department of Environmental Management (RIDEM) comments on the Navy's Draft SAP for the Former Carr Point Shooting Range (MRP Site 1, OU9) and Former Carr Point Storage Area (IR Site 22, OU10) are presented below. The RIDEM comments are presented first (in italics) followed by Navy's responses.

**General Comments**

*General Comment 1: Please cite all references in the main body of the report that were used in generating the report. (References are included in Appendix C, but not in the main text of the SAP.)*

**Response:** A reference section will be added to the SAP.

*General Comment 2: Please indicate in this SAP if the Navy plans to use existing historical data in combination with the data proposed to be collected in the risk assessment evaluations. The risk assessments should take into account all available data from both of the Sites.*

**Response:** Clarification will be added to the SAP to indicate that historical data reported in the Site Investigation (SI) will be incorporated into the risk assessments for each site.

**Specific Comments**

*Specific Comment 1: p. 43 (MRP Site 1), Operational History: Does the size of the target area and overshoot area take into account contaminant transport via tidal movement of sediment? It would seem that tidal action could potentially expand these areas. Please discuss this potential tidal influence in the document. This comment also applies to Figure 5.*

**Response:** The dive survey will be completed first to aid in visual assessment of lead pellets. Based upon results of the dive survey, the proposed sediment samples can be modified, as necessary. In addition, the SAP maintains flexibility to step out from the proposed sampling locations, as necessary, based on field observations. This approach is further detailed in Worksheet #14.

*Specific Comment 2: p. 43 (MRP Site 1), Operational History: Please provide a separate figure showing the locations and configuration of the three firing arcs, as well as the three firing fans, showing the overlap of the firing fans. Also, please provide an additional large fold-out figure summarizing all previous activities at this Site, including all sample locations, test pits, associated sampling results which exceeded criteria, all former structures, pipes, outfalls, storage areas, etc. drawn on the figure. To ensure accuracy, the locations of the former*

*structures, outfall, etc. should be based upon information obtained from historical plans and aerial photographs in conjunction with the figures from the previous Site Inspection Report.*

**Response:** Because the Carr Point RI is site-specific for IR Site 22 and MRP Site 1, there are separate figures in the SAP for each site. Historical plans and aerial photographs, combined with available information related to previous activities, were reviewed as part of the SI phase, and are documented in the SI report (Tetra Tech, 2010). The figures presented in the SAP include the relevant sample locations, test pits, associated sampling results which exceeded criteria, former structures, pipes, outfalls, storage areas, etc. that were identified during the SI process and depicted in the SI report. These features provide the basis for the additional investigation planned for the RI.

***Specific Comment 3: p. 43 (MRP Site 1), Operational History:*** *Please provide a more detailed discussion of the uses of the Site buildings and how they may have or have not contributed to contamination at the Site. This discussion should note the function of the buildings, if they were serviced by underground storage tanks or leach fields, if there were any transformers located in the buildings, etc. Also, please review any existing condition maps, engineering plans and/or aerial photographs which may contain information concerning the locations of drainage structures, underground pipes, transformers, USTs, scrap yards, areas of disturbed soil, etc. These sources of information should be included in an appendix for review. If this review provides information concerning potential additional sources of contamination, it is recommended that appropriate samples be proposed for these additional areas.*

**Response:** Please refer to the Navy's response to Specific Comment 2. Historical review was completed under the SI phase. No further historical review is planned as part of the RI phase. The SI report provides the basis for the additional investigation described in the SAP. Based on the proposed sampling plan relative to the size of the site, the sampling strategy should adequately capture any historical CERCLA release to the environment at the site.

***Specific Comment 4: p. 45 (MRP Site 1) and p. 55 (IR Site 22), Hydrology and Hydrogeology:*** *Please provide additional discussion as to why bedrock groundwater is assumed to be unimpacted, to justify excluding bedrock groundwater sampling from the SAP. This comment also applies to p. 70 (MRP Site 1) and p. 84 (IR Site 22), Spatial Boundaries.*

**Response:** The SAP will be modified to include the installation of 4 deep overburden monitoring wells (MW-1D, MW-4D, MW-6D and MW-12D; to be located adjacent to shallow water table monitoring wells), 1 bedrock monitoring well (MW-8D; to be located adjacent to an overburden monitoring well) and 1 additional shallow water table well (MW-5S; to be located adjacent to the only existing deep overburden monitoring well). Please refer to the attached figures (Figure 4 & 9) for the proposing groundwater sampling locations. The locations were selected using existing site data, as discussed on 2/13/2013. Data collected from these well pairs will be used to assess the vertical distribution of contaminants and vertical gradient at each site using short depth-discrete screened intervals (shallow and deep). The conceptual table and figure shown were discussed during our 2/13/2013 conference call and will be incorporated into the tables and figures in the revised SAP.

***Specific Comment 5: p. 47 (MRP Site 1), Nature and Extent of Contamination:*** *During the Site Investigation, propellants were detected above screening levels but, as part of this SAP, they are*

*excluded from being constituents of potential concern (COPCs) due to the assumption that they are limited to the clay pigeon launching area and firing arcs that are planned for remediation. However, it is unclear as to whether post-excavation soil samples will be analyzed for propellants or if areas outside the excavation area that are proposed to be sampled will be analyzed for propellants. Please add propellants to be analyzed in all proposed soil samples and evaluated through the COPC-selection process in the risk assessment.*

**Response:** According to the SI report, nine composite surface soil (0-2 inches) samples were collected and analyzed for three common propellants: 2,4-dinitrotoluene, 2,6-dinitrotoluene and nitroglycerin by EPA Method 8330B at MRP Site 1. The soil samples were collected utilizing a multi-incremental sampling technique from three grids laid over the former firing arcs. According to the SI report, 2,4-dinitrotoluene and nitroglycerin were detected above SI project action limits (PALs) at all three firing arcs and that 2,6-dinitrotoluene was not detected.

Based on the Engineering Evaluation/Cost Analysis (EE/CA) (Tetra Tech, 2012) prepared for the proposed removal action, the footprint of the proposed removal action does not include the entire area of the three former firing arcs. Therefore, 2,4-dinitrotoluene and nitroglycerin will need to be retained as COCs as part of the RI. The SAP will be revised to include 2,4-dinitrotoluene and nitroglycerin as analytical parameters for soil samples to be collected from MRP Site 1.

***Specific Comment 6: p. 48 (MRP Site 1) and p. 58 (IR Site 22), CSM Summary, Receptors and Exposure Pathways:*** Please include shellfish consumption as a relevant exposure pathway for the hypothetical future site resident. This comment also applies to Figure 2 (MRP Site 1); Figure 7 (IR Site 22); and Section 3.3.1 of Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport.

*Another pathway to consider is exposure to sediment by the utility worker or on-site worker. Are there currently any discharge outfalls located at either of the Sites? Is it possible that an on-site worker or utility worker could maintain or repair existing discharge outfalls and thereby be exposed to COPCs in sediment? Please discuss this in the document. This comment also applies to Figure 2 (MRP Site 1); Figure 7 (IR Site 22); Section 3.3.1 of Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport.*

**Response:** Shellfish consumption will be added as a relevant exposure pathway for the hypothetical future on-site resident.

In regards to the exposure to sediment by a utility/on-site worker, the outfalls associated with the sites terminate in the upland bank where soil (not sediment) is present. Therefore, utility/on-site workers would not be exposed to sediment during maintenance, etc.

***Specific Comment 7: p. 49 (MRP Site 1) and p. 58 (IR Site 22), CSM Summary, Receptors and Exposure Pathways, Future On-site Worker:*** If groundwater is identified as being potable, please quantitatively evaluate ingestion of groundwater as drinking water for the future on-site worker, in order to derive cumulative hazard and cancer risk estimates for all complete exposure pathways. This comment also applies to Section 3.3.1 of Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport.

**Response:** The SAP will be modified as suggested.

**Specific Comment 8: p. 51 (MRP Site 1) and p. 60 (IR Site 22), CSM Summary, Receptors and Exposure Pathways:** Please provide a discussion as to the size of the Sites and whether consideration of more than one exposure area within each Site is appropriate for the hypothetical future on-site resident. In other words, could each Site be divided up into multiple residential lots whereby multiple discrete exposure points would exist? If so, these exposure points should be evaluated separately for the hypothetical future on-site resident, or an alternate approach to derive a conservative EPC (for the RME scenario) should be contemplated. Please consider typical lot sizes of nearby homes in the town.

Please ensure that all of the risk assessment default parameters meet both RIDEM Regulatory Criteria and USEPA guidance values.

**Response:** The SAP will be revised to clarify the size of the Sites and that an assessment of whether hot spots exist will be included as part of the data evaluation portion of the risk assessment. If a hot spot is determined to exist, the hot spot area will be evaluated using an EPC calculated separately from the rest of the Site. However, if the data evaluation concludes that there are no hot spots present, the EPC calculated based on the Site being one exposure area is considered appropriate.

The SAP will also be revised to state that the assessment of groundwater for the hypothetical future residential use scenario and future on-site worker use scenario (e.g., direct contact and vapor intrusion pathways) will be conducted on a well-by-well basis.

**Specific Comment 9: p. 53 (IR Site 22), Operational History:** This SAP does not specify what types of materials were stored on the Site. Please provide a detailed discussion of what constituents were stored in the drums, the materials storage areas, and the scrap yard. Furthermore, please provide a more detailed discussion of the uses of the Site buildings and how they may have or have not contributed to contamination at the Site.

**Response:** Please refer to the Navy's response to Specific Comment 2. Historical review was completed under the SI phase. No further historical review is planned as part of the RI phase. The SI report provides the basis for the additional investigation described in the SAP.

**Specific Comment 10: p. 53 (IR Site 22), Operational History:** Please review the existing condition maps, aerial photos, etc. to ensure that all previous structures are included on the figures in this SAP. For example, Building 186, the scrap yard and the scrap bins (a possible PCB source) in between the rail line and the drum storage area are not shown on the figures in this SAP. Please update the figures as necessary, and include an additional large fold-out figure summarizing all previous activities at this Site, including all sample locations, test pits, associated sampling results which exceeded criteria, all former structures, pipes, outfalls, drain pits, and storage areas drawn on the figure.

**Response:** Please refer to the Navy's response to Specific Comment 2. Historical review was completed under the SI phase. No further historical review is planned as part of the RI phase. The SI report provides the basis for the additional investigation described in the SAP.

**Specific Comment 11: p. 57 (IR Site 22), Nature and Extent of Contamination:** *The SAP proposes to analyze petroleum hydrocarbons by volatile petroleum hydrocarbon (VPH) carbon ranges and extractable petroleum hydrocarbon (EPH) carbon ranges by the Massachusetts Department of Environmental Protection (MassDEP) methods. However, the RIDEM Direct Exposure Criteria (DEC) is for total petroleum hydrocarbons (TPH). Because the criterion of 500 mg/kg is for TPH as opposed to individual carbon ranges, please explain how Navy will use the VPH/EPH data to compare to the RIDEM TPH standard. The concentrations of individual fractions will need to be summed to calculate a total TPH concentration. The laboratory TPH range will need to extend to C-44 and be capable of detecting all of the fuel oils that may have been used on the site including Navy Special. This comment also applies to p. 167, Table 15-1, Project Action Limits (PALs) – Soil.*

**Response:** Analysis of petroleum hydrocarbons was initially included in the draft SAP at IR Site 22 for RIDEM (non-CERCLA) purposes. However, after further review, only one soil sample location, SB05 (0-1ft) at IR Site 22, contained petroleum hydrocarbon concentrations above state regulatory criteria (1,500 mg/kg DRO compared to a standard of 500 mg/kg). The location of SB05 is outside of the former drum storage area and not considered to be site-related. The Navy is thus planning to eliminate petroleum hydrocarbon analysis from the RI program.

**Specific Comment 12: p. 63, Table 10-2, Summary of Potential Exposure Assumptions – Current/Future Trespassing Teenager:** *There is an inconsistency between exposure durations for the different pathways. The age range of 7 < 16 is 9 years, yet the duration used for the (outdoor air) inhalation pathway is 10 years. This also applies to Table 3 in Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport*

**Response:** The SAP will be revised.

**Specific Comment 13: p. 63, Table 10-2; p. 64, Table 10-3; and p. 66, Table 10-4; Summary of Potential Exposure Assumptions:** *The proposed sediment adherence factors represent EPA-recommended adherence factors for soil, and may potentially underestimate dermal adherence from sediment. Sediment adherence factors are provided in the 2011 Exposure Factors Handbook (EFH). The 2011 EFH provides updated body part-specific sediment adherence factors as well as surface areas in Table ES-1. Additionally, surface areas should be consistent with the body parts exposed as well as the age range of the receptor. This comment also applies to p. 154 (MRP Site 1) and p. 162 (IR Site 22), Risk Assessment, Derivation of Human Health Screening Levels for Sediment; p. 173, Table 15-2, Project Action Limits (PALs) – Sediment; and Tables 3 and 4 of Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport.*

**Response:** As discussed during the conference call on 2/13/2013, along the majority of the shoreline, sediment is covered by stones and cobbles, and not readily accessible to potential human receptors. At the water line, most of the sediment that may adhere to the skin is likely to be washed off by contact with water at that location. For this exposure pathway, USEPA-recommended soil adherence factors are considered to be appropriate and conservative for the evaluation of potential risks from sediment contact.

**Specific Comment 14: p. 69 (MRP Site 1) and p. 83 (IR Site 22), Step 3 – Information Inputs:** *Please discuss in more detail how the Tetra Tech NUS, Inc. Basewide Background Study Report*

(October, 2007) will be used in the background comparison. This comment also applies to Section 2.2 of Appendix C - Risk Assessment Work Plan Technical Memorandum, NAVSTA Newport.

**Response:** The following details will be added to the SAP to provide clarity:

The data compiled in the Basewide Background Study Report (Tetra Tech, 2007) will be used in the upland (soil) evaluation of MRP Site 1 and IR Site 22. The Basewide Background Study Report evaluated soil from six different soil types at the base and determined that these soil types represent very different concentrations of background inorganic constituents. The Basewide Background Study Report recommends that the data may be used one of two ways to evaluate consistency of site data with basewide background data: comparison using statistical tests to evaluate consistency between means or an upper prediction limit (UPL) using geochemical statistics on all soil types are included in the calculations. The choice to use comparative or geochemical statistics will depend on the data collected from the sites. It is preferable to use comparative statistics, but geochemical statistics may be used to augment the evaluation, or if the site data are not conducive to comparative statistics.

Data collected from MRP Site 1 and IR Site 22 will be evaluated to determine:

- (1) which constituents in soil require comparison to background (i.e., exceedence of risk-based values);
- (2) whether the constituents that require comparison to background are naturally occurring or have anthropogenic constituent sources;
- (3) if the samples collected from each Site are from the same soil type, and if so, if that soil type matches one from the Background Report;
- (4) distribution of the data (i.e., are the data normally distributed).

Analyses conducted will be consistent with USEPA (2002), NAVFAC (2002) and USEPA (2010).

USEPA 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003. OSWER 9285.7-41. September 2002.

USEPA 2010. ProUCL Version 4.1.00 Technical Guide (Draft). EPA/600/R-07/041. May 2010.

Naval Facilities Engineering Command (NAVFAC), 2002. Guidance for Environmental Background Analysis. Volume I: Soil. NFESC User's Guide UG-2049-ENV. April 2002.

***Specific Comment 15: p. 74 (MRP Site 1) Soil Sampling:*** In addition to soil borings, RIDEM strongly recommends the installation of a number of test pits to fully evaluate the potential contamination near known structures of concern at this Site (i.e., oil/water separator, drum storage area, scrap bins). The use of test pits can be extremely useful in determining the best locations for sampling as it allows one to observe any staining, product, etc. Also, please ensure that any locations where test pits have previously been dug along with any associated sampling results above criteria are shown on a figure in this SAP.

**Response:** Test pitting was completed as part of the SI process to help identify the best locations for sampling. The test pit locations and exceedances of SI action limits are shown in the SAP figures.

**Specific Comment 16: p. 74 (MRP Site 1) and p. 88 (IR Site 22), Groundwater Sampling:** *Because hydraulic flow direction has yet to be determined, a true upgradient groundwater monitoring well location will be uncertain at each site. Please install additional monitoring wells at the southwest and northeast boundaries and center of the MRP Site 1 and at the south boundary of IR Site 22. These additional wells would also help identify possible off-site migration. This comment also applies to Figures 4 and 9.*

**Response:** As discussed during our 1/16/2013 and 2/13/2013 meeting and conference call, an additional monitoring well was added along the southern boundary of IR Site 22. Additional monitoring wells at the southwest, northeast and center of MRP Site 1 were not considered to be necessary because groundwater flow is towards Narragansett Bay and proposed monitoring well, MW-13, will be sufficient to evaluate upgradient conditions associated with MRP Site 1.

**Specific Comment 17: p. 77, Sediment Sampling:** *The proposed reference station at Newport Harbor is adjacent to a heavily used harbor and a former DOD facility (Fort Adams). The location on Prudence Island is also adjacent to a former DOD facility. In addition to munitions concerns, Prudence Island Ammunition Depot was also known to contain a disposal area and TPH contaminated sediments in the vicinity of the T-wharf. Considering the location of Carr Point Site in the bay, it is recommended that the reference samples be taken from the Jamestown reference stations. Please provide details on the approach used in selecting reference locations for bay sediment and evaluate the use of the Jamestown stations.*

**Response:** As discussed on 1/16/2013, the background/reference sediment sampling locations have been revised. Please see the attached figure (Figure 6) for possible background/reference sediment sampling locations.

**Specific Comment 18: p. 77 (MRP Site 1) and p. 90 (IR Site 22), Table 11-1 (MRP Site 1) and Table 11-2 (IR Site 22), Sampling Rationale Table:** *Considering that the source of contamination is surficial in many areas of both Sites, subsurface soil sample depths should be contiguous from top surface interval (0 to 1 feet) to the subsurface (up to 12 feet). Please either collect subsurface samples from the 2 to 3 feet range or expand the surface and subsurface intervals to include soils from 2 to 3 feet below ground surface.*

**Response:** As agreed during our 02/13/2013 conference call, continuous split-spoon soil samples will be collected during overburden drilling at all proposed locations. This information will be valuable to assess whether depth-discrete differences in subsurface impacts are present, and will help refine the vertical extent of site impacts..

**Specific Comment 19: p. 145 (MRP Site 1) and p. 156 (IR Site 22), Drilling Soil Sample Collection and Monitoring Well Installation:** *This SAP notes that a surface soil sample will be collected in the 0-1 foot interval. Please be advised that if an ELUR is to be placed on the site, the 0-2 foot soil interval must be sampled and the results must meet appropriate RIDEM Regulation Criteria. Sampling of this interval can either be conducted during the RI stage or in the FS stage if ELURs are proposed.*

**Response:** The SAP will be revised to include a subset of soil samples from the 1-2 foot interval.

**Specific Comment 20: p. 146 (MRP Site 1) and p. 157 (IR Site 22), Monitoring Well Development:** *The SAP notes that the monitoring wells will be developed in accordance with RIDEM Regulations. Please modify the SAP to specify that the wells will also be installed in accordance with RIDEM regulations, including provisions that the filter packs are sized in consideration of the Site's geology and to allow for free movement of contaminants into the wells. In order to avoid cost and time delays associated with not having the correct size filter pack sand onsite, it is recommended that more than one size of filter pack sand be available onsite during monitoring well installation.*

**Response:** The SAP will be modified to note that monitoring wells will be installed, developed, and sampled in accordance with RIDEM regulations (RIDEM, 2011 and RIDEM, 2005). Monitoring well filter packs will be designed based on the formation encountered and the well screen slot size selected. Based on the observed geology, a #0 Morie Sand or equivalent (0.067 to 0.023 inch grain size distribution) filter pack and 0.010 inch slot size screens will be installed. If non-aqueous phase liquid (NAPL) is observed in soils collected from within the proposed screen interval (not expected), or coarser grain size formations are encountered (not expected), a #1 Morie Sand or equivalent (0.094 to 0.033 inch grain size distribution) filter pack and 0.020 inch slot screen will be installed.

The following two references will be added to the SAP.

RIDEM, 2011. Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases, State of Rhode Island and Providence Plantations Department of Environmental Management, Office of Waste Management. March 31, 1993 as amended November 2011.

RIDEM, 2005. Rules and Regulations for Groundwater Quality. State of Rhode Island and Providence Plantations Department of Environmental Management, Office of Water Resources. March 2005.

**Specific Comment 21: p. 146 (MRP Site 1) and p. 157 (IR Site 22), Groundwater Quality Monitoring and Sample Collection:** *Please include a provision for both LNAPL and DNAPL testing prior to purging the wells. It is recommended that an oil/water interface probe and bailer be employed for these tests. If NAPLs are encountered, please include a provision for the collection of a NAPL sample for analysis. The low flow sample should be collected in the zone which exhibits the highest level of contamination. This can be determined by taking PID readings from purge water as the purge pump is raised in the screen interval noting changes in conductivity values, as well as other field observations such as the presence of NAPL, odors, discoloration, etc.*

**Response:** Please refer to the Navy's response to Specific Comment 4. Data collected from the planned well pairs (MW-1/MW-1D, MW-4/MW-4D, MW-5S/MW-5, MW-6/MW-6D, MW-8/MW-8D, and MW-12/MW-12D) will be used to assess the vertical distribution of contaminants and vertical gradient at each site using short depth-discrete screened intervals (shallow and deep). The conceptual table and figure shown as part of the Navy's response to

Comment 4 were discussed during our 2/13/2013 conference call and will be incorporated into the tables and figures in the revised SAP. Combined with continuous split-spoon sampling, this approach will yield more accurate depth-discrete data than adjusting the tubing intake within a single well screen.

**Specific Comment 22: p. 149, Sediment Coring:** *The text states that sediments will be sieved and rinsed with seawater in order to separate out lead pellets and larger material. This process would remove many of the fines, which could potentially under-quantify the concentration of contaminants in a sample. It is not stated in the text whether sieved samples be allowed to settle prior to decanting rinse water; however, this is recommended to the extent practical to allow for settling of fines and small suspended particles.*

*In addition to the sieved samples, whole sediment samples (non-sieved samples) should be analyzed for both the human health and ecological risk assessments in order for the samples to be representative of actual conditions of the site.*

**Response:** The samples will be sieved using the minimal amount of water possible and allowed to settle prior to siphoning off the rinse water. As discussed during the conference call on 2/13/2013, the SAP proposes to sieve the samples utilizing a #10 (2 mm) sieve to remove lead shot, vegetation, debris, etc. This approach is consistent with protocols followed during the SI. For consistency and comparability to the SI data, which will be incorporated in the RI, the same protocol will be implemented as part of the upcoming field program.

**Specific Comment 23: p. 149, Toxicity Testing:** *The Navy proposes to conduct sediment toxicity testing using only one species, the amphipod (*Leptocheirus plumulosus*). RIDEM suggests that the Navy consider conducting toxicity testing using two species, with the amphipod and a more sensitive species, possibly the mysid (*Hemimysis anomala*). This would provide a more robust set of toxicity data to compare to chemical data and may help avoid any difficulties in correlating chemistry to toxicity as was experienced with Gould Island.*

**Response:** As discussed on 2/13/2013, the SAP will include the use of one species.

**Specific Comment 24: p. 149, Toxicity Testing:** *This SAP notes that toxicity testing will be conducted to evaluate risk to invertebrate receptors. RIDEM concurs with the logic associated with the testing; however, in order to ascertain the risk at this Site, the test must be conducted on whole sediment samples in which the lead pellets have not been removed as a result of the sieving process. Since macro invertebrates as well as all of the other marine life on the sea floor will be exposed to an environment in which lead pellets are present, the toxicity testing should be representative of this environment. Please revise the SAP to meet this condition.*

**Response:** Refer to the Navy's response to Specific Comment 22. In addition, as discussed on the conference call on 2/13/2013, the same protocols will be used for the samples being submitted for chemical analysis as well as toxicity testing so that the data are comparable.

**Specific Comment 25: p. 150, Macroinvertebrate Sampling:** *Macroinvertebrate analysis will be conducted to ascertain the available biota and as an indication of the overall environmental health of the area. Please include macroinvertebrate analysis of the reference stations. Depending upon the compatibility of the reference stations this may allow for either a qualitative*

*or quantitative comparison and may serve as either a measureable ecological endpoint or as an additional line of evidence in the overall analysis.*

**Response:** Similar to toxicity testing, macroinvertebrate analysis will be completed on up to three samples at the reference/background sediment sampling locations.

***Specific Comment 26: p. 151, Macroinvertebrate Sampling:*** *Please consider collection of macroinvertebrates (e.g., mussels, clams) for tissue chemistry analysis. The SAP currently proposes modeling tissue contaminant concentrations from sediment chemistry data, for use in the risk assessment. Use of empirical data, rather than modeled concentrations, reduces uncertainty regarding bioaccumulation in both the human health and ecological risk assessment.*

**Response:** If present, shellfish will be collected and the residue data incorporated into the food web modeling as a measurement of site-specific bioaccumulation. In addition, the tissue data will be used as an additional endpoint to assess the potential for risks to the benthic community. Rather than selecting one individual effects-based critical body residue (CBR) for evaluating potential effects of residues, the tissue data will be evaluated in the context of a number of different studies. Lowest Observable Effects Level (LOEL) and No Observable Effects Level (NOEL) values for shellfish (or similar species) will be identified from a review of the U.S. Army Corps of Engineers' (USACE) Environmental Residue Effects Database (ERED) (<http://www.wes.army.mil/el/ered/>) and Jarvinen and Ankley (1999). The Carr Point shellfish tissue residue data will be discussed in relation to the range of body burden toxicity data available.

***Specific Comment 27: p. 154, Risk Assessment:*** *During previous investigations, clay fragments and what appeared to be pellets were found on the beach. Please indicate whether samples will be collected from the beach. If not, it is recommended that samples be collected from the beach. Please indicate whether these sample locations will be treated separately from those sample locations which are always below water in terms of adherence factor, exposure frequency, etc. It would seem that individuals, especially children, would be exposed at different rates for sample locations which are always submerged as compared to sample locations which are not submerged or are periodically submerged. It would therefore seem prudent to have a different risk assessment for these areas.*

**Response:** As discussed during our meeting and conference call on 1/16/2013 and 2/13/2013, sediment samples will not be collected from the beach because the beach is comprised mainly of cobbles.

***Specific Comment 28: p. 154-155, Evaluation of Ecological Risks due to Lead Pellets:*** *Both upland and aquatic birds may ingest lead shot, and different species of birds are expected to have a different ingestion rate. It is unclear in this section whether the benchmark of 10 pellets/square foot will be applied only to diving ducks or to other types of birds. Please note that there are other studies indicating unacceptable risk for some species of birds at a much lower density of lead pellets (e.g., see USFW 2004<sup>1</sup>, which provided a remedial goal of 3 pellets/square foot.). Please provide in this section the specific plan for evaluating lead shot*

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<sup>1</sup> US Fish & Wildlife, Ecological Risk Assessment for Range 17 (Trap and Skeet Range), Patuxent Research Refuge, Laurel, MD. March 2004.

*ingestion; this plan should include the avian species that will be evaluated, and the species-specific benchmark. Additionally, please include the assessment of lead shot ingestion in the Risk Assessment Technical Workplan (Appendix C).*

**Response:** As discussed during our conference call on 2/13/2013, a threshold of 7 pellets/square foot will be used at this site. The SAP will be updated to reflect this decision. Pellets have not been observed in the upland areas and are not expected to be present. However, if they are observed during sampling, then the potential for upland exposures to lead pellets will be considered. Ingestion of lead pellets is a site-specific pathway to be evaluated at MRP Site 1 and is not expected to be a pathway evaluated for other sites at NAVSTA Newport. Therefore, the discussion of this pathway will remain in the site-specific SAP and not in the more general discussions included in Appendix C.

**Specific Comment 29: p. 156, Summary of Project Tasks:** *Information from historical site plans and aerial photographs indicates that the site contained a scrap yard, a materials storage area and potential areas of disturbed soil. Contaminated soil and buried waste has been found at similar Naval storage areas found on this base, as well as the Naval Construction Battalion Center (NCBC). As an illustration, a materials storage area which contained similar concrete storage bins located south of the Fuel Loading Area was found to contain soils contaminated with PCBs, metals, SVOCs and TPH. In addition, buried waste and scrap was also found on the site.*

*It is recommended that a geophysical investigation, magnetometer, ground-penetrating radar, be conducted in the materials storage area, the scrap yard, the area adjacent to the storage bins, the drum storage area, and the locations of the former dry wells, as well as the former buildings (the latter will aid in ascertaining whether they were serviced by USTs or contained discharge pipes which went to leachfields or to the bay). Test pits should be excavated in these areas and appropriate samples should be collected. Please also collect concrete chip samples from the storage bins and analyze the samples for contaminants, including PCBs.*

*It appears that the drum storage areas have been backfilled with soil and construction debris. Please propose additional investigation and sampling in this area.*

*Please provide additional information concerning the two drain pits (i.e., What were they used for? Where did they drain to? Did they drain to the OWS? etc.) This information may be used to modify the existing SAP. If this information is not available, please include provisions for additional investigations of the drain pits in order to address this question, which may include a geophysical survey, test pits, etc.*

*There are a number of buildings and fences on the site which may have been painted with lead paint. It is recommended that soil samples be collected from these locations and analyzed for lead.*

*This SAP proposes advancing the borings up to 16 feet. As it is known that the site was used for petroleum storage, it is recommended that all borings be advanced to a depth of three feet below the historic low water table or 16 feet, whichever is deeper.*

*Finally, it is recommended that some wells be drilled into bedrock in order to assess whether chlorinated solvents are present.*

**Response:** Relative to RIDEM's comment on additional historical review, please refer to the Navy's response to Specific Comment 2. Historical review was completed under the SI phase. No further historical review is planned as part of the RI phase. The SI report provides the basis for the additional investigation described in the SAP.

Relative to RIDEM's comment on depth-discrete groundwater sampling and potential bedrock groundwater sampling, please refer to the Navy's response to Specific Comment 4.

***Specific Comment 30: p. 156, Drilling Soil Sample Collection and Monitoring Well***

*Installation: This SAP proposes installing two borings at the terminus or discharge point of the discharge pipes located on the Site. RIDEM concurs with the rationale of collecting samples at the terminus of the discharge pipe. Please be advised that at other locations on the Navy base, as a result of storm action, simple decay, rerouting of the pipe, etc., the current terminus of a discharge pipe may not represent the historic or original terminus. It is therefore recommended that historical plans and aerial photographs be reviewed in an effort to ascertain the original terminus location. In addition, field efforts should be employed to locate the historic terminus, such as the use of a hand held metal detector. If as a result of this effort two different terminus points are located, then samples should be collected at each terminus point. One sample would be representative of current or recent discharge, the other would be indicative of historic discharges. Finally, prior to sample collection at the terminus it is recommend that a hand shovel be employed to probe the area for field evidence of any contamination.*

**Response:** The SAP will be revised to include the use of a shovel and a metal detector to investigate the historic terminus of the discharge pipes. This will be reflected in Worksheet #14.

***Specific Comment 31: p. 174, Table 15-3, Project Action Limits (PALs) – Groundwater: PALs selected for volatile constituents include groundwater vapor intrusion screening levels (VISLs) based on November 2011 RSLs. Note that RSLs were recently updated in November 2012. The November 2012 update includes updated toxicity information (in particular, for tetrachloroethylene; PCE) used to derive the RSLs and VISLs. Please update the VISLs used as PALs (and therefore the VISLs used in the COPC selection process).***

**Response:** The PALs will be revised using the most current version of the groundwater VISLs, which is version 2, derived based on the November 2012 RSLs. The most current versions of the RSLs, VISLs, and all screening levels available at the time the risk assessment is performed will be used in the risk assessment, as stated in the risk assessment work plan.

***Specific Comment 32: Figure 7 (IR Site 22): Based on Site investigations to date, it is unclear if soils are impacted by VOCs. Although using groundwater data for assessment of the potential for vapor intrusion is appropriate, if VISLs are exceeded in groundwater, collection of soil vapor samples beneath pavement in the groundwater exceedance areas would provide valuable information on the vapor intrusion pathway, in addition to groundwater data. Soil vapor concentrations could then be screened against VISLs for soil gas and used in the Johnson and Ettinger model, to get a more complete analysis of the vapor intrusion pathway.***

**Response:** The Navy agrees and has included depth-discrete VOC analysis in soil and groundwater as part of the planned RI program. The results will be used to determine whether further assessment is necessary.

**Specific Comment 33: Figure 2:** *Please include ingestion of lead shot as a potential exposure pathway for the “avian and mammalian communities” column.*

**Response:** A footnote will be added to indicate that ingestion of lead shot is a potential exposure pathway for birds exposed to sediment. The footnote will also indicate that, if pellets are observed within the upland, then ingestion of pellets will be considered as a potentially complete exposure pathway.

**Specific Comment 34: Figure 3 and Figure 8:** *Please update this SAP to include additional soil sampling locations in the southern “Target Area” of the “Firing Fan”, southwest of proposed sediment sample SD124, east of samples SD103 and SD102 and northeast of proposed soil boring SB301 (shown on Figure 8). This area is shown on Figure 5 as within the Target Area, but has not previously been characterized.*

**Response:** As agreed during our meeting on to on 1/16/2013, please see the attached figure (Figure 5) for the proposed sampling locations.

**Specific Comment 35: Figure 8 (IR Site 22):** *Please update this SAP to include three additional soil samples southeast of SB310, SB311, and SB312 to adequately delineate the extent of contamination in the southeastern portion of the Site.*

**Response:** The SAP will be updated as suggested and as discussed during our 2/13/2013 conference call, to refine the extent of impacts in the former material storage area that were identified in the SI report.

**Specific Comment 36: Figure 10 (IR Site 22):** *Please update this SAP to include additional sediment samples northeast of each of the former drain lines (i.e., northeast of SD201 and northeast of SD203) to adequately delineate the extent of contamination that may have discharged from the outfalls and may be affected by tidal action.*

**Response:** As discussed during our meeting on 1/16/2013, the sediment sample locations were modified. Please see the attached figure (Figure 10) for the proposed sediment sampling locations.

**Specific Comment 37: Appendix C, general:** *This appendix describes the general methods that will be used to evaluate human and ecological risk at NAVSTA. Although the intent of this workplan is to set a standardized approach to evaluating risk at multiple NAVSTA sites, the utility of appending a generic workplan to a site-specific SAP is limited, because the environmental media, analytical results, receptors and exposure pathways are unique to each individual site. Therefore, RIDEM suggests that the appendix be made site-specific, or that information currently presented on the SAP worksheets be expanded to include more details on the risk assessment approach to be used specifically at the Carr Point Sites. Alternatively, if a generic risk assessment workplan is to be retained, then please expand the workplan to include*

*all potential receptors and exposure pathways (including sediment, surface water, dietary ingestion, recreational exposures etc.). Please note that Navy policy does not supersede regulatory guidance. Please ensure that the risk assessment is performed according to EPA's guidance and RIDEM's requirements.*

**Response:** The Risk Assessment Work Plan Tech Memo is intended to represent a working document presenting the general methods for human and ecological risk at NAVSTA Newport. Additional pathways and media will be added to the work plan tech memo in the future as they become relevant for NAVSTA Newport sites. Additional information will be added to the SAP Worksheets 10 and 14 to include more details on the risk assessment approach to be used specifically at the Carr Point Sites.

***Specific Comment 38: Appendix C, Section 3.3.1, p. 11: Please include direct contact with sediment as a relevant exposure pathway for the trespasser and residential scenarios. Additionally, please include shellfish ingestion as a complete exposure pathway for the trespasser and/or residential scenarios.***

**Response:** Direct contact with sediment and ingestion of shellfish are site-specific pathways to be evaluated at the Carr Point Site and are not expected to be pathways evaluated for other sites at NAVSTA Newport. Therefore, the discussions of these pathways will remain in the site-specific SAP only and not in the more general discussions included in Appendix C. Additional information on how these pathways will be evaluated in the risk assessment for the Carr Point Site will be included in the SAP Worksheets 10 and 14.

***Specific Comment 39: Appendix C, p. 19: Please include ingestion of lead pellets as a relevant exposure pathway. (This pathway should be included in other relevant sections of Appendix C).***

**Response:** Ingestion of lead pellets is a site-specific pathway to be evaluated at MRP Site 1 and is not expected to be a pathway evaluated for other sites at NAVSTA Newport. Therefore, the discussion of this pathway will remain in the site-specific SAP and not in the more general discussions included in Appendix C.

***Specific Comment 40: Appendix C, p. 20-22. (Use of soil screening benchmarks for terrestrial wildlife.): The table presented on p. 20 specifies the comparison of total daily dose to toxicity reference values as a measure of effect for terrestrial wildlife. However, p. 22 (first full paragraph) states that constituents will be compared to wildlife-based soil benchmarks to evaluate whether they will be included in food chain modeling. (Table 5 of Appendix C provides these soil screening levels for birds and mammals.) This initial benchmark comparison seems unnecessary for a screening-level risk assessment, and somewhat redundant with the exposure modeling. Therefore, RIDEM recommends that either the soil benchmarks alone be used to select COPCs (site-specific modeling could then be used in Step 3a to refine COPCs), or that only exposure modeling, based on the conservative assumptions that are described in the SAP, be used in the screening risk assessment.***

**Response:** The measure of effect table and the text will be clarified to indicate that the comparison to wildlife-based soil benchmarks and the exposure modeling will both be used to evaluate potential risks to terrestrial wildlife. As stated in the SAP, the comparison to

benchmarks will be used to determine which compounds are further evaluated in the conservative SRA food chain model.

**Specific Comment 41: Appendix C, p. 22, Use of Bioaccumulation Factors:** *Please collect site-specific tissue samples (i.e., shellfish, earthworms and/or vegetation) where possible to reduce the uncertainty associated with estimating contaminant concentrations in the diet.*

**Response:** Shellfish, if present, will be collected to support the MRP Site 1 food chain modeling. If the results of the terrestrial food web model indicate significant risks based on literature-based uptake factors then the need for collection of terrestrial tissues will be considered in the future.

**Specific Comment 42: Appendix C, p. 25, Step 3A Reevaluation:**

- *Background Evaluation. Please describe the statistical methods that will be used for the background comparison. In particular, describe which components of the Basewide Background Study Report (October, 2007) background datasets will be used.*
- *Detection Frequency. The text proposes to eliminate as COPCs constituents with a detection frequency less than or equal to 5%. Please note that this criterion should also take into consideration both spatial representation and concentration, since use of the 5% criterion alone could potentially overlook the presence of hot spots.*

**Response:** Relative to the background evaluation, please refer to the Navy's response to Specific Comment 14. Relative to the detection frequency, the associated text (in Appendix C of the SAP) will be revised to state that "...consideration to spatial representation and concentration will be given to ensure that the presence of potential hot spots is not overlooked."

**Specific Comment 43: Appendix C, Table 11, Exposure Parameters for Ecological Receptors:** *Dietary composition for the SRA assumes 100% of the diet is from one food source. For some receptors (particularly for the quail, who is assumed to eat only vegetation), this may not be a conservative assumption because some COPCs may preferentially accumulate in invertebrates relative to plants, and so assuming a vegetarian diet may underestimate risk. We recommend instead using the same dietary composition for both the SRA and baseline risk assessment (BERA), based on more realistic assumptions about diet, and instead modifying other exposure parameters (like BCFs, home range, exposure point concentrations etc.) for the BERA.*

**Response:** As discussed during our 2/13/2013 conference call, dietary assumptions will remain as indicated in Table 11. This approach is consistent with EPA ecological risk assessment guidance which considers exclusive diets in the SRA and more site-specific diets in the BERA. Both herbivorous and insectivorous upland birds will be evaluated in the SRA food chain model.

**Specific Comment 44 (received via email from Pamela Crump on 2/13/2013):** *I went back to look through several figures that I had copied for Resolution and the first one that I saw labeled an area in Site 22 as a "Drummed Petroleum Storage Area", which discharges to an oil separator pit. Therefore, it seems to me that sampling for TPH would be appropriate for this Site. Also, if this information is not documented in the SI, then it appears that the historical uses and features of the Site were not thoroughly researched and documented in the previous investigation.*

**Response:** Please refer to the Navy's response to Specific Comment 2 and 11.

**Conceptual Table**  
**Proposed Well Screen Intervals and Rationale**  
**Carr Point Shooting Range (MRPSite 1) and Storage Area (Site 22)**  
**NAVSTA Newport RI**

Well ID	Site	Location	Installed	Bedrock	Ground	Bedrock	Proposed Screen	Rationale	
			Screen Interval	Surface	Elevation	Elevation	Interval		
			ft bgs	ft bgs	ft Site Reference	ft bgs	ft bgs		
MW-1	Shooting Range (MRP Site 1)	Adj. to SI Well MW-1D	5 - 15	28.5	16.9	-11.6	NA	Already installed	
MW-1D	Shooting Range (MRP Site 1)	Adj. to SI Well MW-1	NA	28.5	16.9	-11.6	34 - 29	Determine groundwater conditions on bedrock surface, and measure vertical gradients.	
MW-2	Storage Area (Site - 22)	Norther Corner of Site 22	8 - 18	26	15.4	-10.6	NA	Already installed	
MW-3	Storage Area (Site - 22)	Northeast Corner of Site 22	10 - 20	29.5	21.2	-8.3	NA	Already installed	
MW-4	Storage Area (Site - 22)	Western Border of Site 22	8 - 18	35	17.5	-17.5	NA	Already installed	
MW-4D	Storage Area (Site - 22)	Adj. to SI Well MW-4	NA	35	17.5	-17.5	30 - 35	Determine groundwater conditions on bedrock surface, provide vertical profile of dissolved phase constituents detected at MW-4, and measure vertical gradients.	
MW-5S	Storage Area (Site - 22)	Adj. to SI Well MW-5	NA	31.5	19.9	-11.6	8 - 18	Water table well to measure groundwater flow and vertical gradients.	
MW-5	Storage Area (Site - 22)	Eastern Boundary Site 22	21 - 31	31.5	19.9	-11.6	NA	Already installed	
MW-6	Storage Area (Site - 22)	South Central Area of Site 22	8 - 18	25	16.6	-8.4	NA	Already installed	
MW-6D	Storage Area (Site - 22)	Adj. to SI Well MW-6	NA	25	16.6	-8.4	20 - 25	Determine groundwater conditions on bedrock surface, provide vertical profile of dissolved phase constituents detected at MW-6, and measure vertical gradients.	
MW-7	Storage Area (Site - 22)	South Central Area of Site 22	5 - 15	17.5	15.7	-1.8	NA	Already installed	
MW-8	Storage Area (Site - 22)	Southwest Area of Site 22	7 - 17	17.5	15.8	-1.7	NA	Already installed	
MW-8D	Storage Area (Site - 22)	Adj. to SI Well MW-8	NA	17.5	15.8	-1.7	20 - 25	Confirm elevation of competent bedrock surface, provide vertical profile of dissolved phase constituents detected at MW-8, and measure vertical gradients.	
MW-9	Storage Area (Site - 22)	Northeast Corner of Site 22	NA	NA	NA	NA	10 - 20	Delineation of existing well network; potential upgradient reference point	
MW-10	Storage Area (Site - 22)	Southern Boundary Site 22	NA	NA	NA	NA	10 - 20	Delineation of existing well network; to assess potential transport to surface water	
MW-11	Shooting Range (MRP Site 1)	Western Border of MRP Site 1	NA	NA	NA	NA	5 - 15	Assess groundwater downgradient of source	
MW-12	Shooting Range (MRP Site 1)	Northwestern Border of MRP Site 1	NA	39.5	16	-23.5*	5 - 15	Assess groundwater downgradient of source	
MW-12D	Shooting Range (MRP Site 1)	Adj. to Prop. Well MW-12 and SI SB-9	NA	39.5	16	-23.5*	35 - 40	Determine groundwater conditions on deepest bedrock surface, and measure vertical gradients.	
MW-13	Shooting Range (MRP Site 1)	Eastern Border of MRP Site 1	NA	NA	NA	NA	8 - 18	Delineation of existing well network; potential upgradient reference point	
MW-14	Storage Area (Site - 22)	Southeast Boundary Site 22	NA	NA	NA	NA	8 - 18	Delineation of existing well network; potential upgradient reference point	

**Notes:** Proposed well screen intervals to be adjusted during installation based on field observations.

\*Ground surface Elevation Estimated for SI boring SB-9

Bedrock surface estimated based on split-spoon refusal depths noted on SI boring logs.

ft - feet

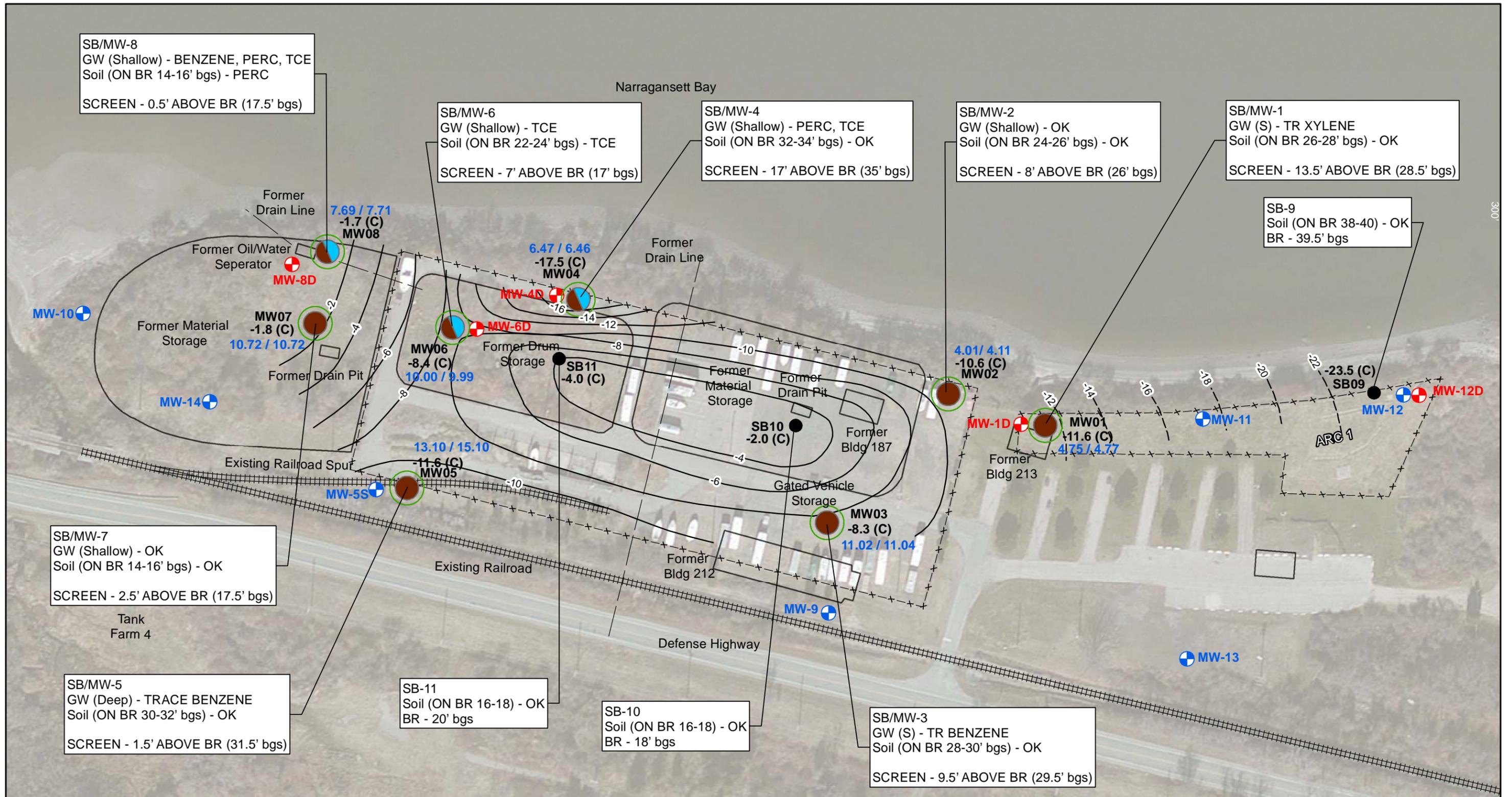
Site Reference - Reference elevation is unclear. SI: "relative elevation of each monitoring well was determined by a State of Rhode Island registered land surveyor."

VOC - Volatile Organic Compounds

NA - Not Available

bgs - below ground surface

Adj. - adjacent



SB/MW-8  
 GW (Shallow) - BENZENE, PERC, TCE  
 Soil (ON BR 14-16' bgs) - PERC  
 SCREEN - 0.5' ABOVE BR (17.5' bgs)

SB/MW-6  
 GW (Shallow) - TCE  
 Soil (ON BR 22-24' bgs) - TCE  
 SCREEN - 7' ABOVE BR (17' bgs)

SB/MW-4  
 GW (Shallow) - PERC, TCE  
 Soil (ON BR 32-34' bgs) - OK  
 SCREEN - 17' ABOVE BR (35' bgs)

SB/MW-2  
 GW (Shallow) - OK  
 Soil (ON BR 24-26' bgs) - OK  
 SCREEN - 8' ABOVE BR (26' bgs)

SB/MW-1  
 GW (S) - TR XYLENE  
 Soil (ON BR 26-28' bgs) - OK  
 SCREEN - 13.5' ABOVE BR (28.5' bgs)

SB-9  
 Soil (ON BR 38-40) - OK  
 BR - 39.5' bgs

SB/MW-7  
 GW (Shallow) - OK  
 Soil (ON BR 14-16' bgs) - OK  
 SCREEN - 2.5' ABOVE BR (17.5' bgs)

SB/MW-5  
 GW (Deep) - TRACE BENZENE  
 Soil (ON BR 30-32' bgs) - OK  
 SCREEN - 1.5' ABOVE BR (31.5' bgs)

SB-11  
 Soil (ON BR 16-18) - OK  
 BR - 20' bgs

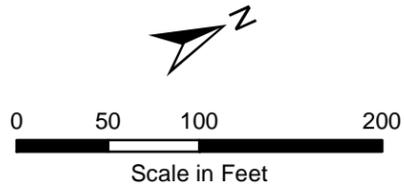
SB-10  
 Soil (ON BR 16-18) - OK  
 BR - 18' bgs

SB/MW-3  
 GW (S) - TR BENZENE  
 Soil (ON BR 28-30' bgs) - OK  
 SCREEN - 9.5' ABOVE BR (29.5' bgs)

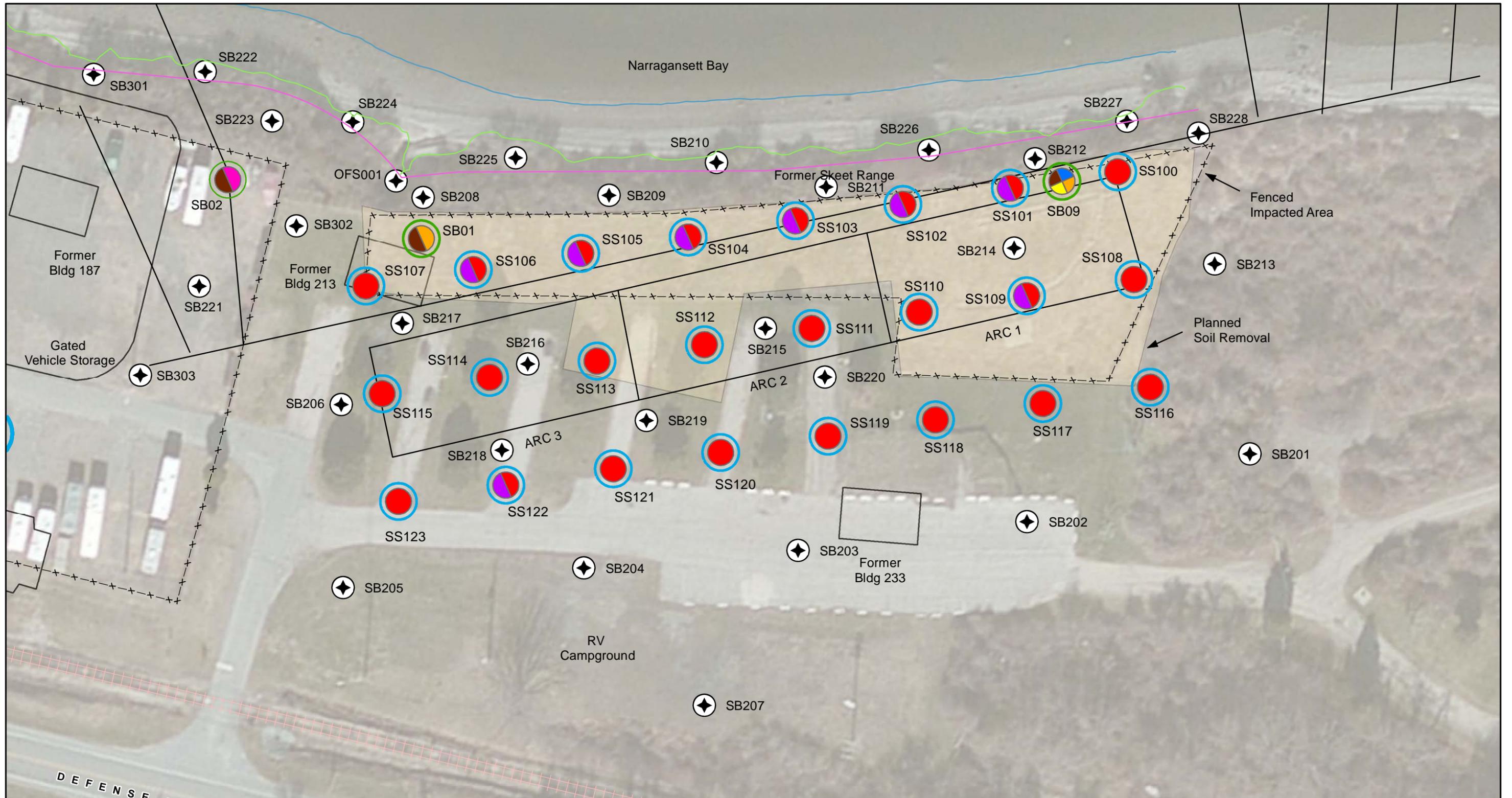
**RESOLUTION CONSULTANTS**  
 Drawn: JB 2/12/2013  
 Approved: MC 2/12/2013  
 Project #: 60250336



- Legend**
- SI Exceedences
  - VOCs
  - SVOCs
  - Pesticides
  - PCBs
  - Metals
  - TPH
  - Prior Analysis of VOCs, SVOCs, pesticides, PCBs, metals, and TPH
  - Proposed Shallow Monitoring Well
  - Proposed Deep Monitoring Well (5 ft screen on bedrock in Till or weathered bedrock)
  - 8.3 (C) Presumed Competent Bedrock Elevation FT MSL
  - 11.02 / 11.04 GW Elevation FT MSL (2-3 hrs after LOW / HI Tides)

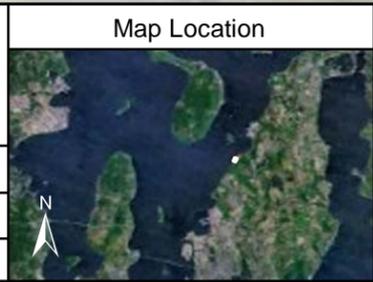


**CONCEPTUAL FIGURE**  
 BEDROCK ELEVATION CONTOURS, GROUNDWATER ELEVATIONS, COMPOUNDS OF INTEREST IN SOIL ON BEDROCK AND IN GROUNDWATER, PROPOSED GROUNDWATER MONITORING WELLS  
 FORMER CARR POINT STORAGE AREA  
 NAVSTA NEWPORT, RHODE ISLAND



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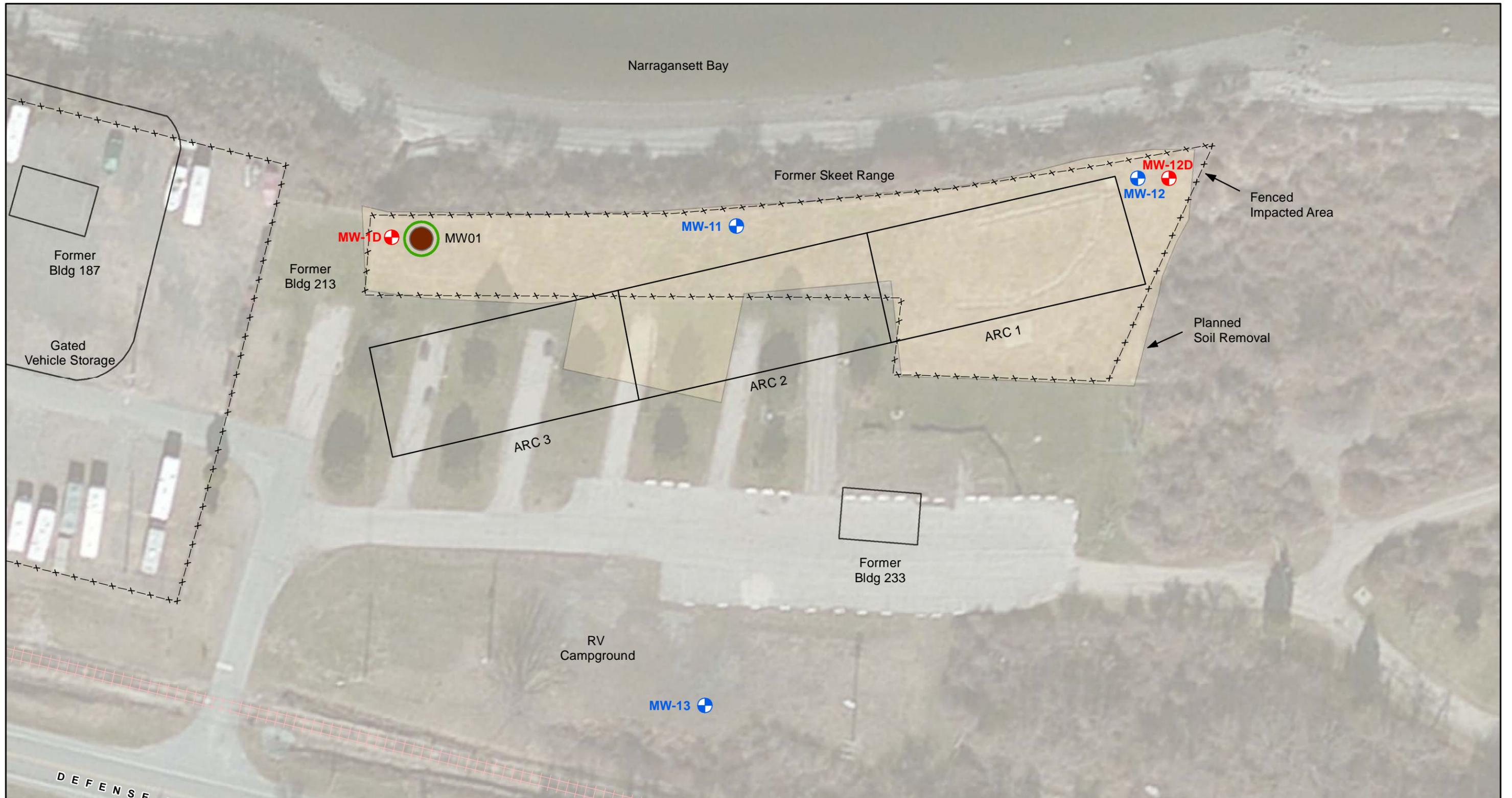
**Legend**

SI Exceedences	Analysis of VOCs, SVOCs, pesticides, PCBs, metals and TPH
VOCs	Analysis of PAHs and lead
SVOCs	Proposed Soil Borings
Pesticides	PCBs
PAHs	Metals
Lead	TPH
Approximate High Water Line Estimated by Surveyor	
Approximate High Water Line Marked Via GPS June 2009	
Approximate Low Water Line	

Scale in Feet: 0 25 50 100

**FIGURE 3  
 PROPOSED SOIL SAMPLE  
 LOCATIONS**

**FORMER CARR POINT SHOOTING RANGE  
 NAVSTA NEWPORT, RHODE ISLAND**

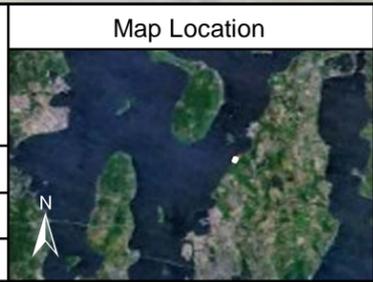


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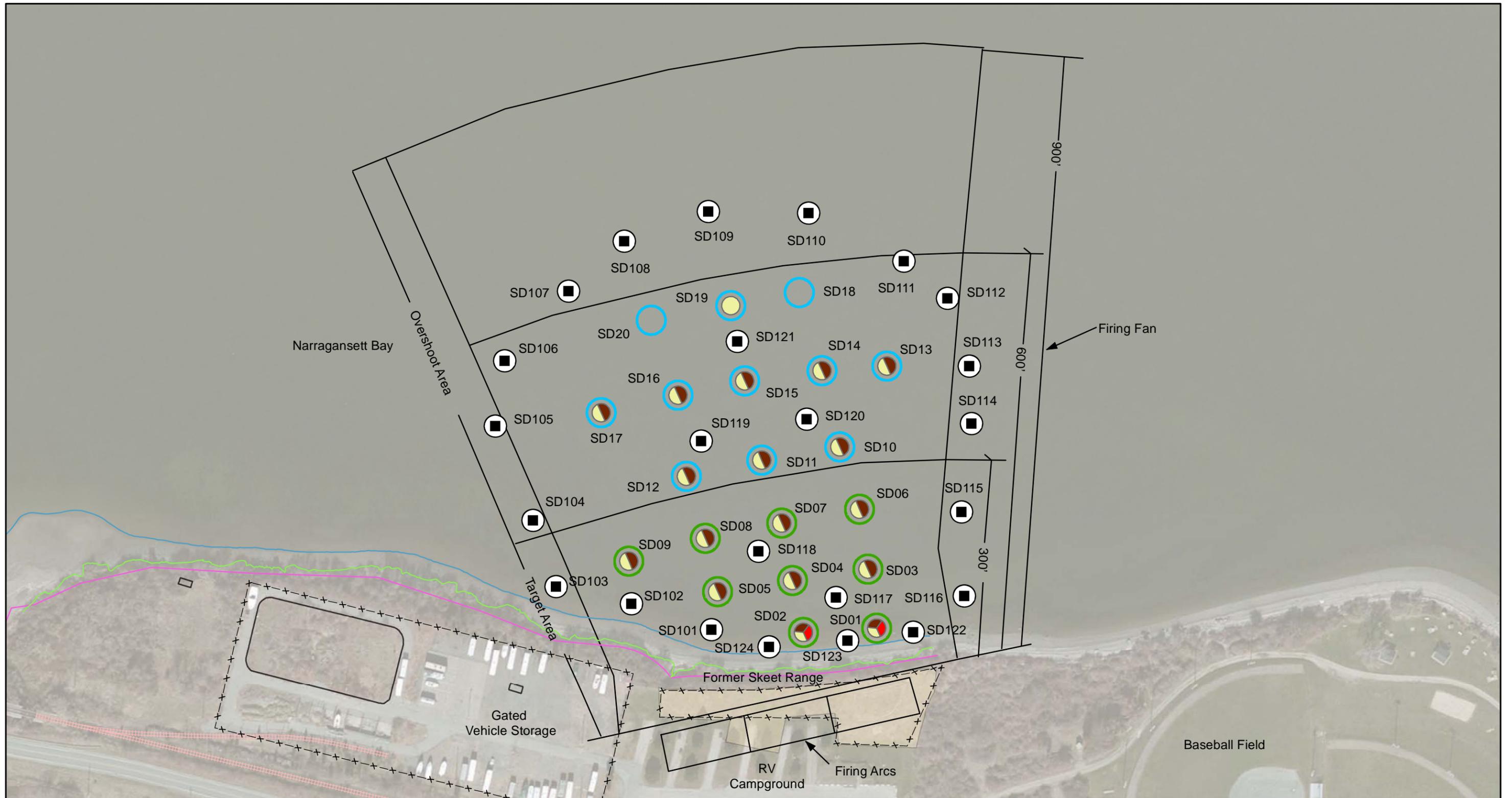
**Legend**

SI Exceedences	Analysis of VOCs, SVOCs, pesticides, PCBs, metals and TPH
VOCs	PCBs
SVOCs	Metals
Pesticides	TPH
Proposed Shallow Monitoring Well	
Proposed Deep Monitoring Well	

Scale in Feet

**FIGURE 4**  
**PROPOSED GROUNDWATER**  
**SAMPLE LOCATIONS**

**FORMER CARR POINT SHOOTING RANGE**  
**NAVSTA NEWPORT, RHODE ISLAND**

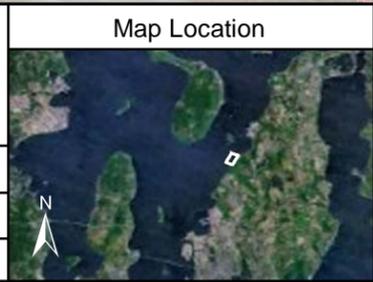


**RESOLUTION CONSULTANTS**

Drawn: BC 1/23/2013

Approved: MC 1/23/2013

Project #: 60250336



**Legend**

- Proposed Sediment Samples
- SI Exceedences
- PAHs
- Metals
- Pellets
- Approximate High Water Line Estimated by Surveyor
- Approximate High Water Line Marked Via GPS June 2009
- Approximate Low Water Line

Scale in Feet

**FIGURE 5**  
**PROPOSED NEAR-SHORE SEDIMENT**  
**SAMPLE LOCATIONS**

**FORMER CARR POINT SHOOTING RANGE**  
**NAVSTA NEWPORT, RHODE ISLAND**

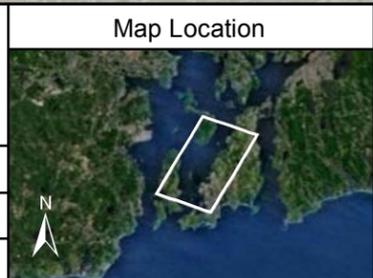


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**Legend**

Conceptual Reference Sediment Sample Locations

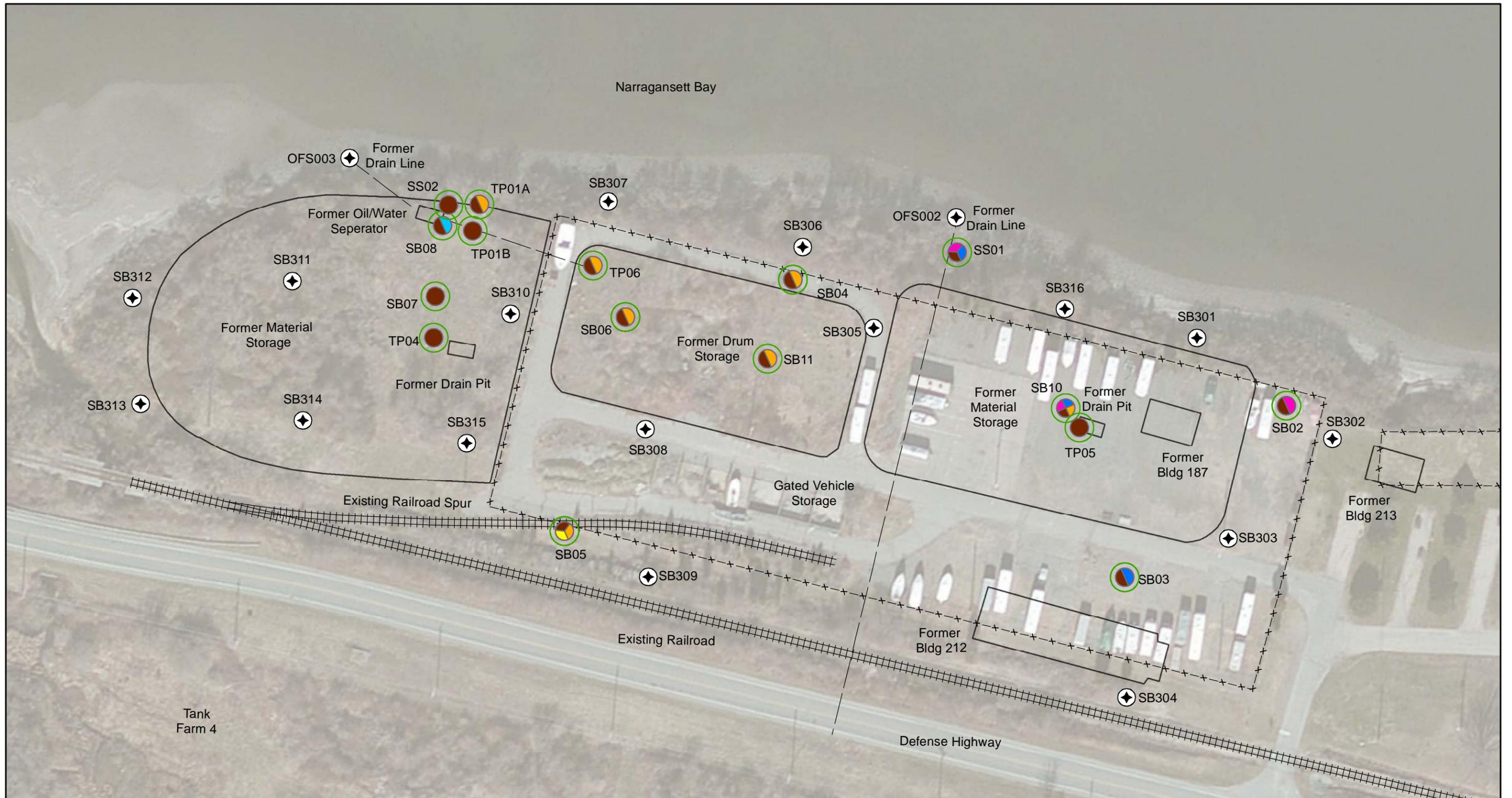
Notes:

1. For locations in vicinity of Carr Point, sample locations will be placed approximately 500 ft from the edge of determined extent of lead pellet.
2. For Locations in vicinity of Carr Point, sample locations to bracket water depth (shallow, mid, deep)
3. For off-site locations, one or more area to be sampled, up to 6 locations, based on field match of Carr Point sediment characteristics.
4. All locations are approximate

Scale in Feet

0 1,500 3,000 6,000

**FIGURE 6**  
**CONCEPTUAL REFERENCE SEDIMENT**  
**SAMPLE LOCATIONS**  
**FORMER CARR POINT SHOOTING RANGE**  
**AND STORAGE AREA SITES**  
**NAVSTA NEWPORT, RHODE ISLAND**

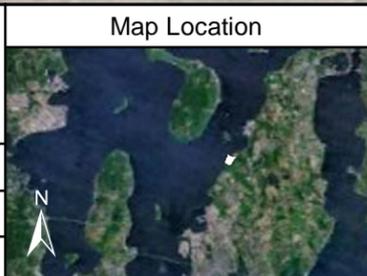


**RESOLUTION CONSULTANTS**

Drawn: BC 2/19/2013

Approved: MC 2/19/2013

Project #: 60250336



**Legend**

- SI Exceedences
  - VOCs
  - SVOCs
  - Pesticides
  - PCBs
  - Metals
  - TPH
- Analysis of VOCs, SVOCs, pesticides, PCBs, metals, and TPH
- Proposed Soil Sample Location

0 37.5 75 150  
Scale in Feet

**FIGURE 8  
PROPOSED SOIL  
SAMPLE LOCATIONS**

**FORMER CARR POINT STORAGE AREA  
NAVSTA NEWPORT, RHODE ISLAND**



**RESOLUTION CONSULTANTS**

Drawn: BC 2/22/2013  
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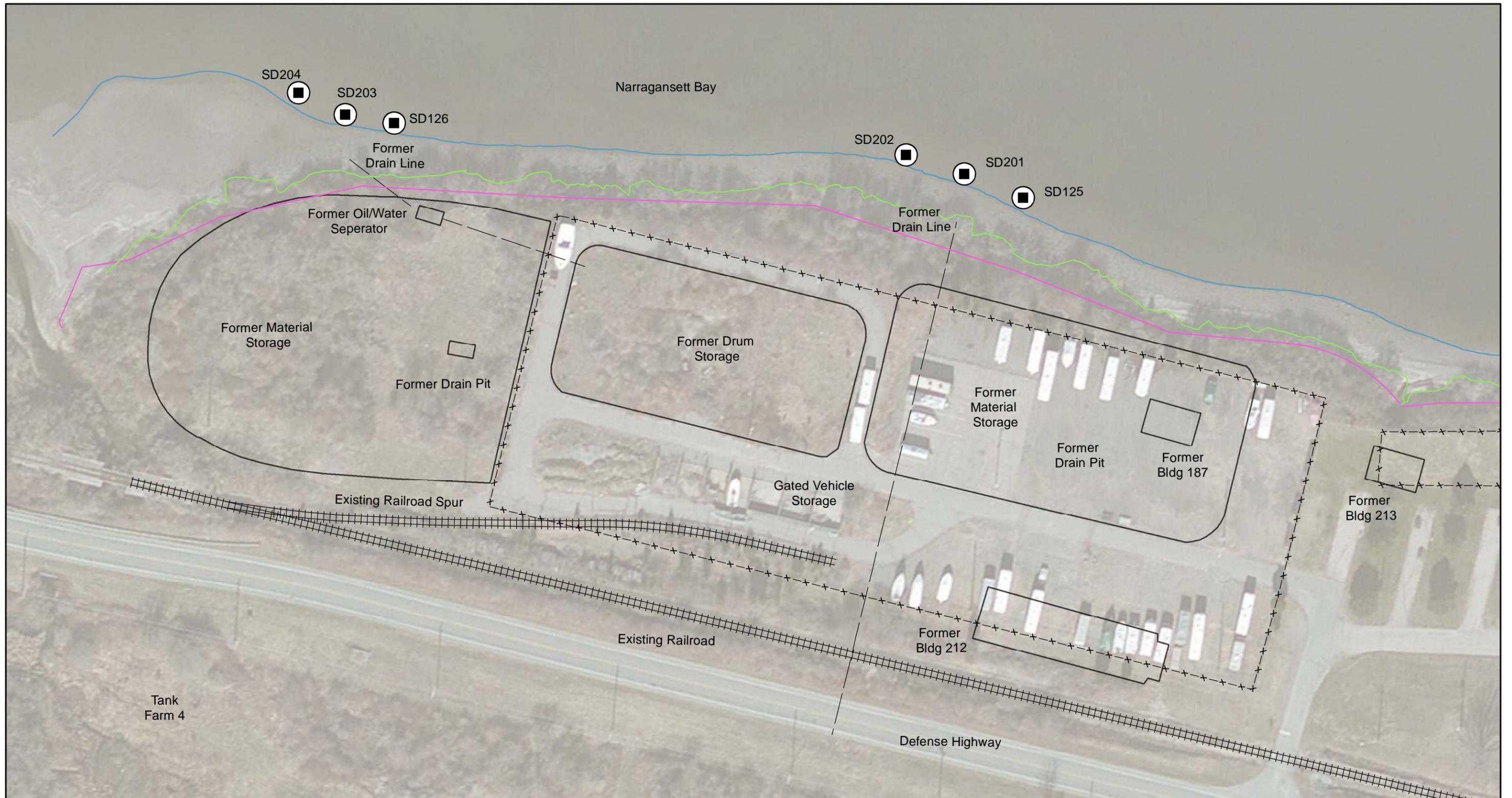
**Legend**

SI Exceedences	Analysis of VOCs, SVOCs, pesticides, PCBs, metals, and TPH
VOCs	Proposed Shallow Monitoring Well
SVOCs	Proposed Deep Monitoring Well
Pesticides	PCBs
TPH	Metals

0 37.5 75 150  
 Scale in Feet

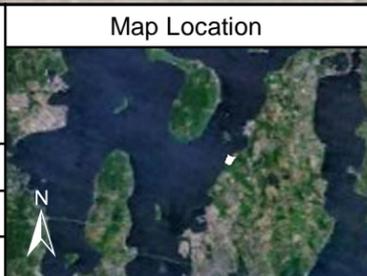
**FIGURE 9  
 PROPOSED GROUNDWATER  
 SAMPLE LOCATIONS**

**FORMER CARR POINT STORAGE AREA  
 NAVSTA NEWPORT, RHODE ISLAND**



**RESOLUTION CONSULTANTS**

Drawn: BC 1/23/2013  
 Approved: MC 1/23/2013  
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**Legend**

- Proposed Sediment Samples
- Approximate High Water Line Estimated by Surveyor
- Approximate High Water Line Marked Via GPS June 2009
- Approximate Low Water Line

Scale in Feet

**FIGURE 10**  
**PROPOSED NEAR SHORE**  
**SEDIMENT SAMPLE LOCATIONS**  
**FORMER CARR POINT STORAGE AREA**  
**NAVSTA NEWPORT, RHODE ISLAND**