



720 Olive Way Suite 1900
Seattle, Washington 98101
Phone 206.287.9130
Fax 206.287.9131
www.anchorqea.com

MEMORANDUM

To: Joyce Mercuri, Washington State Department of Ecology
Date: July 18, 2012

From: David Templeton and Joy Dunay, Anchor QEA, LLC
Project: 040289-02.07

Cc: Steve Misiurak, City of Gig Harbor
William Joyce, Salter Joyce Ziker, PLLC

Re: Eddon Boat Park Long-Term Monitoring Plan Year 4 Memorandum

This Long-Term Monitoring Plan (LTMP) Year 4 memorandum for the Eddon Boat Park Site (Site) was prepared on behalf of the City of Gig Harbor (City) to comply with the requirements in the Washington State Department of Ecology (Ecology) approved LTMP (Anchor 2009). The LTMP complies with the requirements described in the Cleanup Action Plan (CAP; Anchor 2008), which is included as an exhibit to the Agreed Order DE 5597 (Ecology 2008).

The LTMP requires five years of visual monitoring and one year of chemical testing. The areas assessed in the LTMP are cap area SMU-3 and enhanced natural recovery (ENR) area SMU-2 (Figure 1). SMU-3 contained three of ten sample locations that exceeded the total mercury sediment quality standard cleanup levels. Additionally, three samples in this area contained tributyltin (TBT) above benchmark values established by Ecology, as described in the CAP. As part of the cleanup action, this area was capped with 12 inches of sand and overlain by 6 inches of habitat mix. SMU-2 contained total mercury above the cleanup screening level and TBT porewater above Site cleanup levels (0.15 micrograms per liter) and was dredged to 2 feet below mudline and then overdredged to remove possible contaminated residuals. Post-construction, one location in this area (SE-03) exceeded the TBT Site cleanup level; therefore, ENR material consisting of a 1-foot sand layer was placed, followed by a 6-inch habitat mix layer. Year 3 monitoring included chemical analysis of the cap sand layer at three locations in SMU-2 and SMU-3 to determine if TBT or mercury were migrating to the surface layer. All samples yielded non-detects of these chemicals, concluding that the remedy is successful and additional chemical monitoring is not required.

Five years of visual monitoring are required in areas SMU-2 and SMU-3 to verify that the sediment cap has achieved its performance standard. As set forth in the LTMP, the performance standard is met if the cap has remained in place and has not substantially eroded over time by natural and anthropogenic forces. This was assessed through visual inspection of the cap surface layer to confirm that the material (i.e., habitat mix) has remained in place. In addition, the visual inspection included the measurement of any accumulations of fine-grained material that have deposited on top of the surface layer (i.e., habitat mix) to determine if more than 2 centimeters (cm) of fine-grained material has accumulated.

Year 4 visual inspections were performed on June 4, 2012, between 1030 and 1230 hours. During this time, the tidal elevation ranged from -2.4 to -3.7 mean lower low water (MLLW), with a low tide of -3.7 MLLW at 1145 hours. This allowed for direct observation of most of SMU-3 and part of SMU-2. Digital photographs were taken in each area from locations marked on Figure 2 and Figure 3. As shown in the photographs, the cap material is present in all areas with minimal (fewer than 2 cm) accumulation of fine-grained material. The visual inspection did not identify any areas of concern (i.e., areas where cap material is no longer present). Based on the visual survey and associated photographs, the cap and ENR areas are achieving performance standards and no additional remedial actions are recommended.

In conclusion, Year 4 monitoring was performed in accordance with the Ecology-approved LTMP. Visual inspection confirmed that the cap material is present in SMU-3 and shows no sign of erosion. As expected, fine-grained material is accumulating, and recolonization is evident. Similarly, the material placed in SMU-2 is present, has not eroded, and is showing signs of deposition. This is consistent with the yearly visual inspections conducted since 2009 and confirms that the cleanup action is functioning as desired and in accordance with the CAP.

Visual inspections will occur during the spring low tides in 2013, for the final year (Year 5) of long-term monitoring. At the conclusion of the Year 5 event, the City, pending concurrence from Ecology, will have fulfilled its obligations per the LTMP and receive a "No Further Action" for the Site.

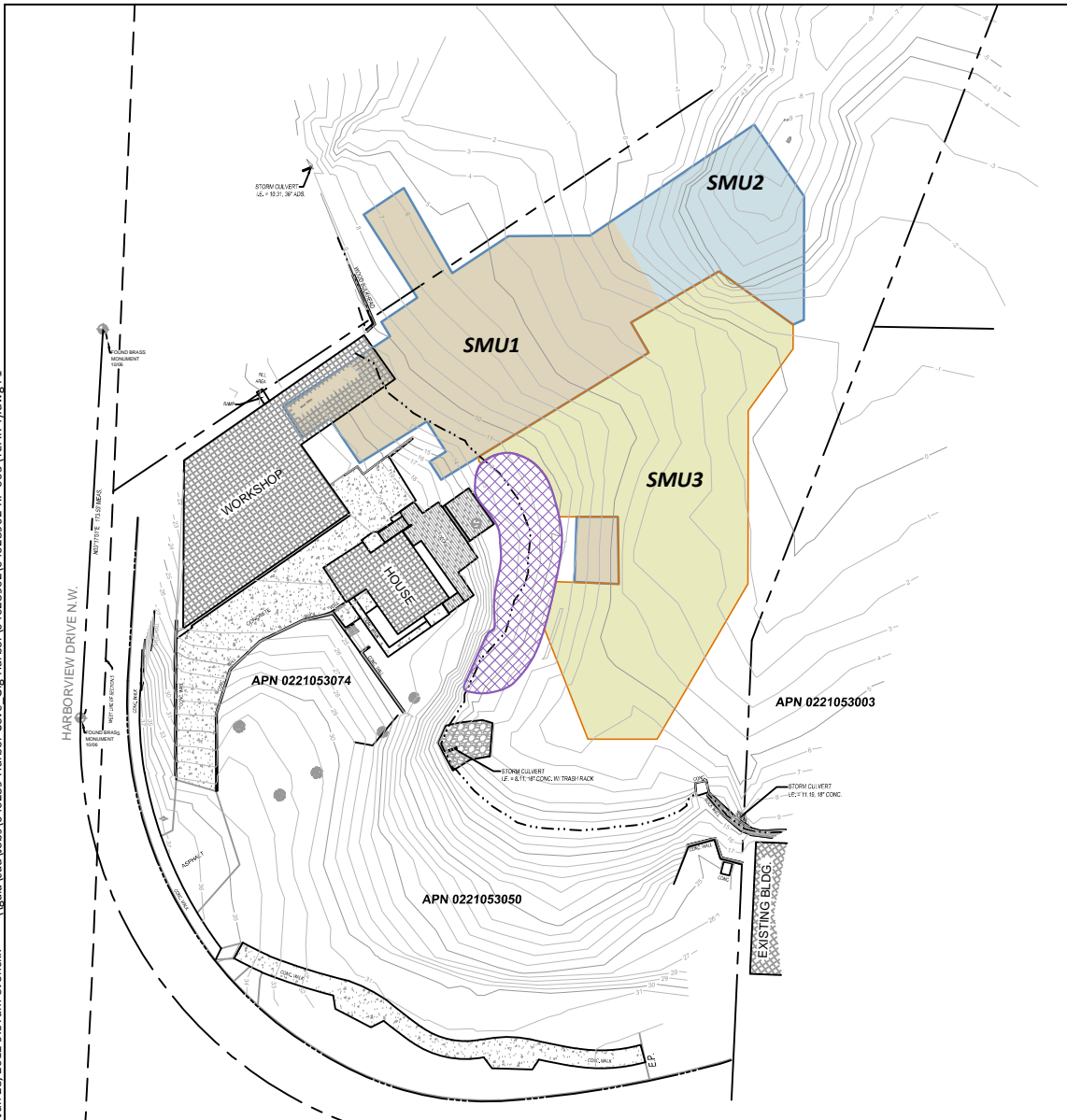
Attachments

- Figure 1 Site Areas and Features
- Figure 2 SMU-3 Visual Inspection Results
- Figure 3 SMU-2 Visual Inspection Results








References

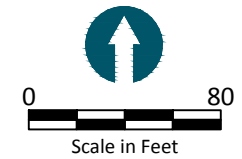
- Anchor (Anchor Environmental, LLC), 2008. Exhibit B. *Cleanup Action Plan for Eddon Boatyard Site*. Gig Harbor, Washington. June 2008.
- Anchor, 2009. *Long-Term Monitoring Plan*. Gig Harbor, Washington. January 2009.
- Ecology (Washington State Department of Ecology), 2008. *Agreed Order No. DE 5597*.
-

Jun 28, 2012 9:57am evonckx \\gala\card\jobs\040289-Harbor Cove_Gig_Harbor\04028902\04028902-RP-003 (YEAR 4).dwg F1



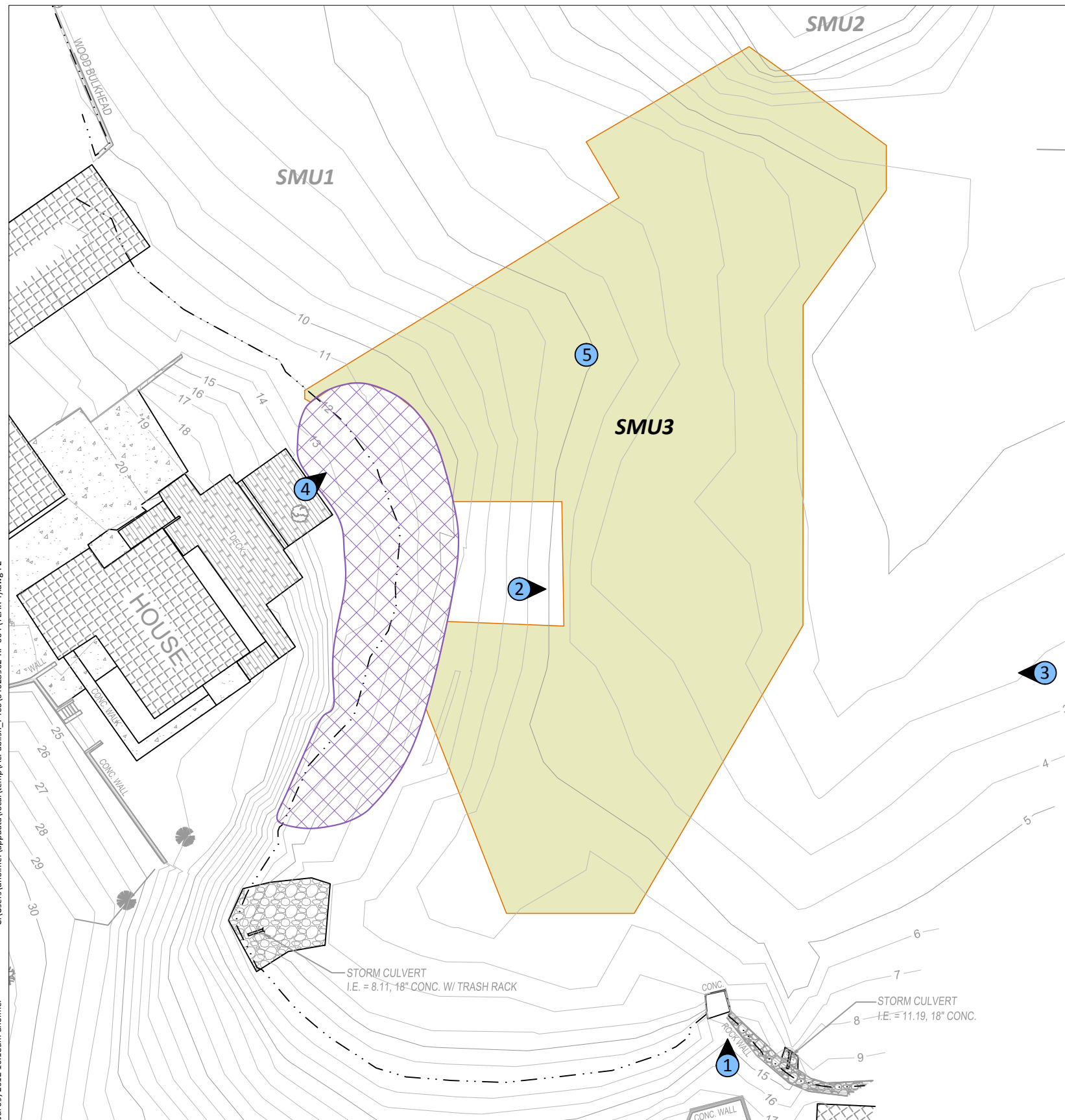
LEGEND:

-  Dredge And Backfill Boundary
-  Enhanced Natural Recovery Area
-  Cap Boundary
-  Existing Salt Marsh Vegetation Restricted Area (No Equipment, Dredging, or Material Placement Allowed)
-  Stormwater Outfall
-  Approximate Ordinary High Water Mark (OHWM)
-  Bathymetric/Topographic Contour (in Feet)

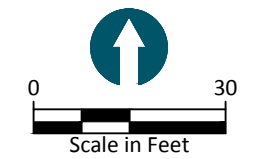


NOTE: Bathymetric and topographic survey by Prizm Surveying, Inc. dated 12/11/2008.

C:\Users\dholmer\appdata\local\temp\AcPublish_7400\04028902-RP-004 (YEAR 4).dwg F2
Jul 09, 2012 10:18am dholmer



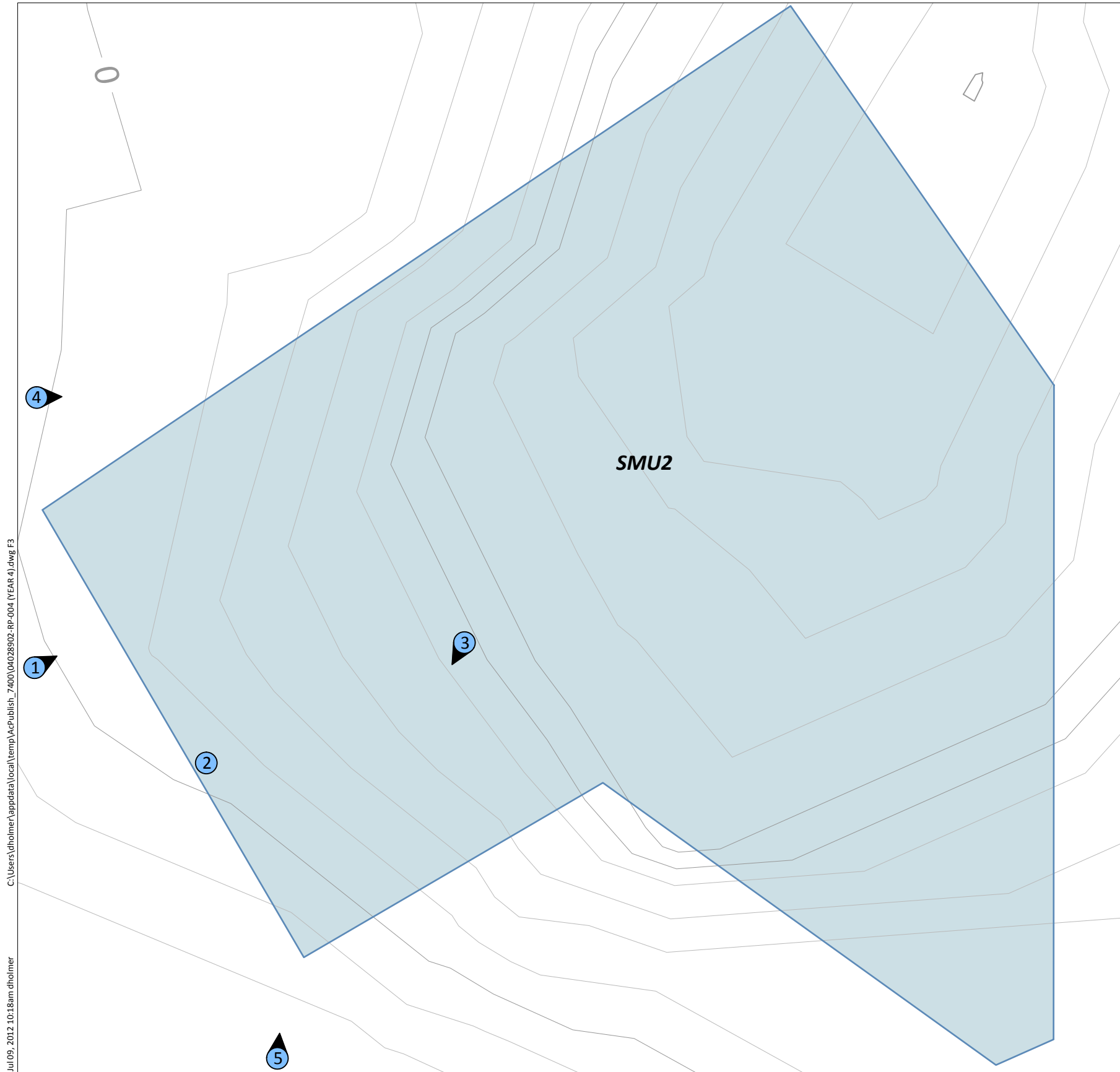
- LEGEND:**
- Cap Boundary
 - Existing Salt Marsh Vegetation Restricted Area (No Equipment, Dredging, or Material Placement Allowed)
 - Stormwater Outfall
 - Approximate Ordinary High Water Mark (OHWM)
 - Bathymetric/Topographic Contour (in Feet)
 - Photograph Location and Orientation



NOTE: Bathymetric and topographic survey by Prizm Surveying, Inc. dated 12/11/2008.

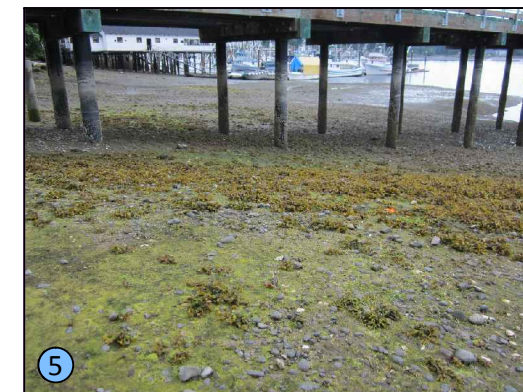


Figure 2
SMU-3 Visual Inspection Results
Long-Term Monitoring Plan - Year 4 Report
Eddon Boat Park

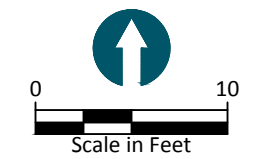


C:\Users\dholmer\appdata\local\temp\AcPublish_7400\04028902-8P-004 (YEAR 4).dwg F3

Jul 09, 2012 10:18am dholmer



- LEGEND:**
- Enhanced Natural Recovery Area
 - 16- Bathymetric/Topographic Contour (in Feet)
 - 3 Photograph Location and Orientation



NOTE: Bathymetric and topographic survey by Prizm Surveying, Inc. dated 12/11/2008.