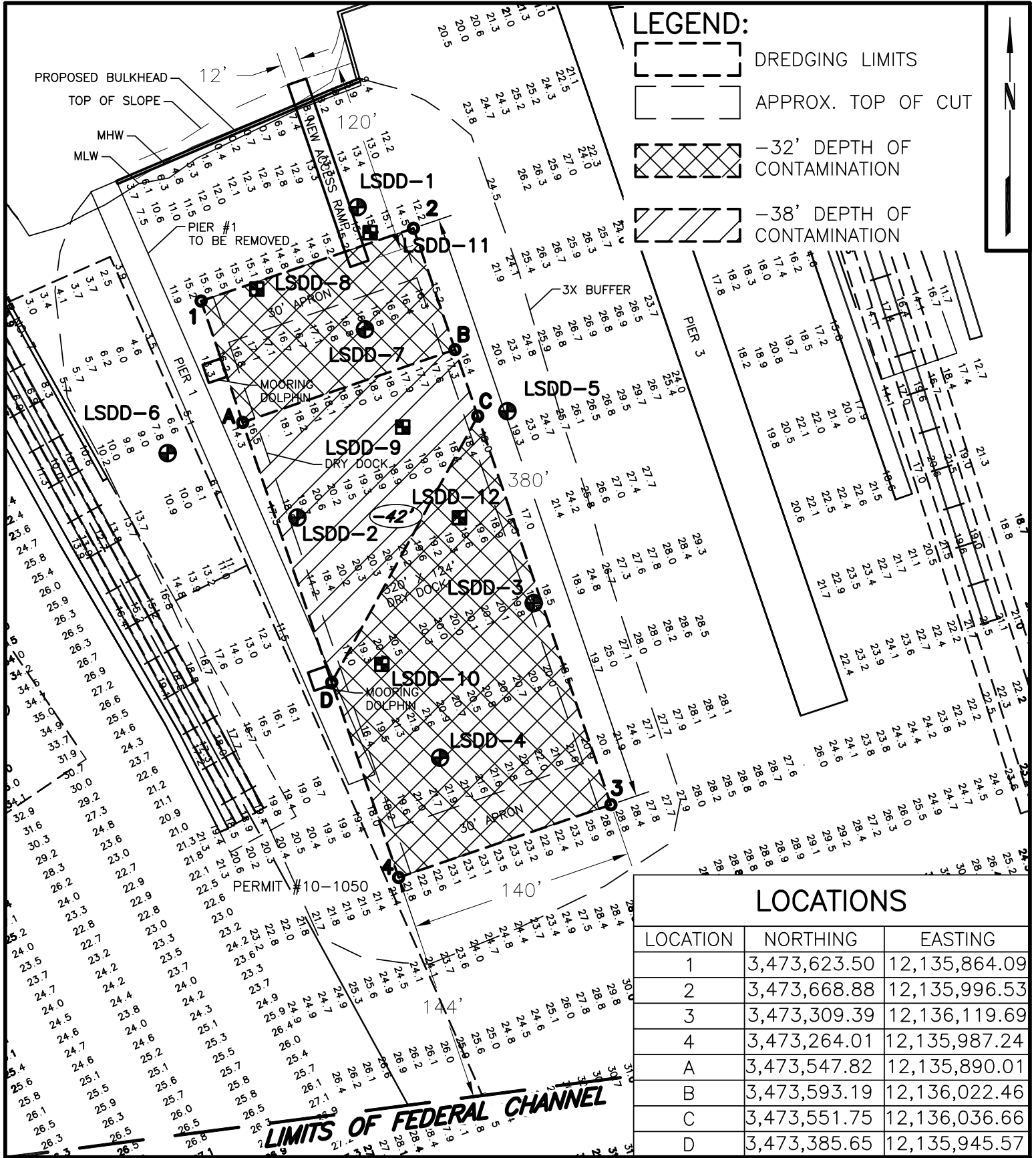


**Lyon Shipyard – Drydock Dredging – Supplemental Information**  
**Permit Application – VMRC #16-0368**  
**January 18, 2017**

Based on recommendations from the Corps of Engineers and the Department of Environmental Quality, Lyon Shipyard plans to remove between 30,000 and 35,000 cy of contaminated material from the proposed drydock area. The material will be mechanically dredged, placed in sealed barges and transported to a transfer site. The material will then be placed in sealed trucks and transported to an approved upland site for disposal. At this time, the upland site has not been specifically selected, but the chemical test results show that it is suitable for a Class B Landfill, possibly a Class A Landfill, as well as some permitted land applications. The specific location will not be chosen until a contractor has been selected, and at that time a formal dredging plan – as required by permit – will be submitted for approval prior to construction. Upland options and transport methods, however, are currently available for handling the contaminated material.

The attached diagram outlines the proposed dredging area, as well as the proposed dredging scenario. The toe of the proposed drydock is ~144 ft from the toe of the federal channel. In general, the top layer of material will be dredged to a depth of -32 ft MLW and the material will be placed in an approved upland disposal location. (Test results show that the contaminated layer extends to a varying depth of -28 ft to -30 ft MLW, but the Corps requests a 2 ft of overdepth due to the varying vertical and horizontal distribution of contaminants in the proposed drydock area.) Then the deep layer of contamination in the center of the project (as identified on the attached drawing) will be dredged to -38 ft MLW and that material will be placed in an approved upland location. The remaining material (35,000 to 45,000 cy) has been deemed suitable for the Craney Island Rehandling Basin.

To reduce contamination in the federal channel, an environmental bucket will be used to remove the top contaminated layers. There will not be any overflow or return water from the barge into the waters of the US. There will not be any decanting of the material from the barge. Note, however, that in general, the 2 ft of overdepth to the -32 ft MLW depth, extends into a thick layer of a sandy clay marl sited throughout the yard. The environmental bucket will not be able to penetrate that layer. (There are not geotech data other than observations and pictures from the sediment sampling, however, the previous dredging of Drydock #2 several years ago encountered this same layer.) Contamination has not been detected in the sandy clay marl layer. Therefore, once the hard layer has been encountered, a standard, heavier bucket will be used to perform the dredging. There has not been any contamination in the clay layer, therefore there is very little risk of resuspension of contaminants due to dredging.



LOCATIONS		
LOCATION	NORTHING	EASTING
1	3,473,623.50	12,135,864.09
2	3,473,668.88	12,135,996.53
3	3,473,309.39	12,136,119.69
4	3,473,264.01	12,135,987.24
A	3,473,547.82	12,135,890.01
B	3,473,593.19	12,136,022.46
C	3,473,551.75	12,136,036.66
D	3,473,385.65	12,135,945.57

**PURPOSE:** PRIVATE  
**DATUM:** N.O.S. MLLW=0.0'  
**ADJACENT PROPERTY OWNERS:**  
 ① MORAN TOWING  
 ② CITY OF NORFOLK

**SAMPLE LOCATIONS**  
 PREPARED BY:  
*Waterway*  
 Surveys & Engineering, Ltd.  
 Virginia Beach, Virginia

**PROPOSED SAMPLES**  
**IN:** EASTERN BRANCH ELIZABETH RIVER  
**CITY:** NORFOLK      **STATE:** VIRGINIA  
**APPLICATION BY:** LYON SHIPYARD  
**SCALE:** 1"=80'      **DATE:** JANUARY 12, 2015  
**SHEET 1 OF 1**      **REV.1:** JULY 6, 2015  
                                  **REV.2:** NOV. 18, 2016