Memorandum

To: Nick Acampora
Walter Parish, P.E.

Date: December 11, 2018

Project #: 26183.01

From: Stephen Kaplan, P.G.

Re: Commander/Global Terminal
Off-Site Sampling Investigation
Oyster Bay, New York

Pursuant to the on-site meeting between you, Billy Schaefer, Richard Rosenberg, Esq., and VHB representatives Joseph Stressler and I on October 19, 2018, this memo has been prepared to indicate the proposed sampling to be conducted off-site at the adjoining property commonly referred to as the "Flowers" property as required by the NYSDEC. Attached is a proposed sampling plan figure indicating the locations of eight (8) soil borings situated north of the known on-site chlorinated volatile organic compound (CVOC) area of impact.

As indicated on the attached sampling plan figure, the eight (8) off-site soil borings are spaced approximately 40 feet apart. The southern soil borings (i.e., SB-1, SB-2, SB-3 and SB-4) are to be placed within 10 feet to the north of the property boundary line demarcated by an existing chain-link fence between the Commander/Global facility and the Flowers property. A second row of four (4) soil borings is proposed approximately 40 feet northward (i.e., SB-5, SB-6, SB-7 and SB-8). The soil boring locations are approximate and may be relocated (if necessary) based upon site conditions at the adjacent property due to infrastructure, buildings/structures and/or on-site storage of boats and materials.

The source area of the CVOC impacts is known to have occurred at the north side of Tank #18 (located south of proposed borings SB-2 and SB-3). The CVOC impacts are a result of the documented 1995 spill and prior operations as discovered in 2008. Furthermore, on-site excavation of CVOC-impacted soils in the upper two feet of this source area has already taken place. Although two (2) active on-site remediation systems are treating the CVOCs in the soils and groundwater, CVOCs are still present.

To assess the conditions of the soils and groundwater at the Flowers property, soil samples will be collected from each of the eight (8) proposed boring locations. Based upon known lithology on-site at the Commander/Global terminal, a thick layer of bog (peat) is present at approximately six (6) feet below grade surface (bgs) proximate to the property boundary between the Commander/Global terminal and the Flowers property. Based upon site observations, the Flowers property appears to be at a higher elevation than the Commander/Global terminal; thus, it is likely to assume that the bog layer is present at approximately 10 feet bgs. As the bog layer is an aquitard and inhibits the CVOCs from progressing downward through the aquifer, no soil borings beneath the existing bog layer are proposed.

A Geoprobe® hydraulic push rig with factory-new vinyl acetate macrocore sleeves will be utilized at the Flowers property to install soil borings SB-1 through SB-8. Between each boring location, re-usable drilling equipment will be field decontaminated with a potable water and Alconox solution with potable water rinse. Soil samples and groundwater samples collected from borings SB-1 through SB-8 will be submitted to an Environmental Laboratory Approval Program (ELAP)-certified laboratory with appropriate chain-of-custody protocols. Each sample collected will be transferred into appropriate laboratory-supplied glassware and maintained at a temperature of 4° Celsius pending transport to the laboratory.

100 Motor Parkway
Suite 135
Hauppauge, NY 11788-5120
P 631.787.3400

Two (2) soil samples are proposed at each of the eight (8) boring locations; thus, a total of 16 soil samples are proposed. All soils will be field screened with a photoionization detector (PID) and recorded in soil boring logs. As the upper two (2) feet of the Flowers property is not anticipated to have been impacted by on-site releases at the Commander/Global terminal, one (1) discrete soil sample will be collected, and submitted for analysis, from the unsaturated soils from two-feet bgs to the saturated zone. The second discrete soil sample from each boring will be collected from the beginning of the saturated zone to the beginning of the bog layer.

At each boring location, a temporary groundwater well will be installed using slotted PVC. A minimum of three well casings of groundwater will be purged into NYS DOT-approved 55-gallon drums using a peristaltic pump prior to sample collection into factory-supplied glassware. A total of eight (8) groundwater samples are proposed.

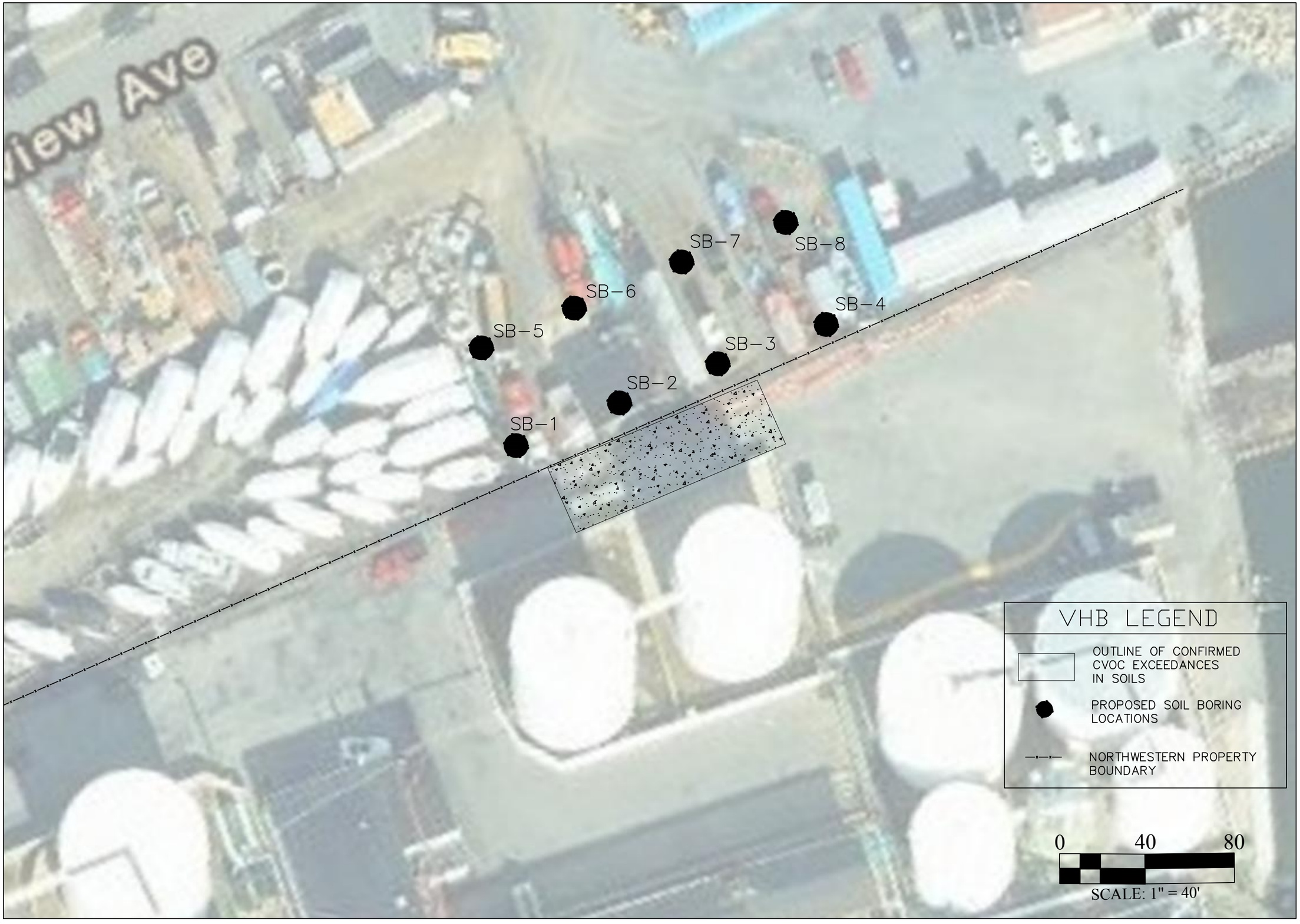
Each sample (soil and groundwater) will be submitted for the following analyses:

1. Target Compound List (TCL) VOCs using USEPA Method 8260; and
2. TCL semi-volatile organic compounds (SVOCs) using USEPA Method 8270.

In addition, one (1) trip blank and one (1) field blank is proposed for QA/QC per sampling day. All QA/QC blanks will be submitted for analysis of TCL VOCs using USEPA Method 8260.

Drill spoils from below two-feet bgs will not be returned to the bore holes, but will instead be containerized in NYS DOT-approved 55-gallon drums, appropriately waste characterized and disposed off-site. At the conclusion of soil and groundwater sampling, each bore hole will be backfilled with clean sand from terminal depth to the upper 2-feet bgs, then the upper two (2) feet of on-site soils will be used as backfill.

At the conclusion of the sampling event, the NYSDEC will be provided a summary report inclusive of laboratory data and tables, soil boring logs and site photographs.



PROJECT NORTH

vhb

VHB Engineering
Surveying, Landscape Architecture & Geology, P.C.
100 Motor Parkway Suite #135
Hauppauge, NY 11788
Phone: (631).787.3400
Fax: (631).813.2545

Notes:

Former Commander Oil Terminal

Drawing Title

Proposed Off-Site Soil Borings

Scale	Project No.	Date
1"=40'	26183.01	11-29-18

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Figure No.

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