



MEMO

To: David S. Denk, NYSDEC
CC: Tim R. Horanburg, Supervisor, Town of Newfane
From: Wendel
Date: 4/17/2013
RE: Olcott Harbor Sediment Sampling Plan

Olcott Harbor Sediment Sampling Plan

Project Description

The Town of Newfane is proposing to dredge a 9487 square yard area in Olcott Harbor near the corner of West Lake and Lockport Street in Newfane, NY. The proposed dredging site spans from a point 300 yards south of Lake Ontario to approximately 250 yards south through the Harbor. The purpose of the dredging will be to increase the navigability of the Harbor. Included on the following pages of this document is the sampling plan for the site, as well as the site map showing the extent of the dredging and the proposed sampling layout. Also shown on the site map is the adjacent Sites "A" and "B" that were dredged in 1988.

Historical Sampling

In 1994, 1998, 2004, 2008 and 2010, sampling was conducted by CH2M HILL for the U.S. Environmental Protection Agency (EPA) of the area from Lake Ontario to the Burt Dam, including the section of our area in the Olcott Harbor. The sampling identified the presence of various metals and PCB's in the surface and subsurface sediment. The table below summarizes the results from previous testing:

(Note: Sampling includes areas located outside the proposed dredging site; therefore, the data may not be representative of the dredging sediment.)

PCB's (Total Aroclors)	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
	19	32	0.41	0.001	0.9



PCB's (Total Congeners)	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	36	36	0.37	0.021	2.0

Lead	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	47	47	118	4	419

Arsenic	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	47	47	4.3	1.0	13

Chromium	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	47	47	70	8	867

Copper	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	47	47	74	10	245

Zinc	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	46	46	347	67	1350

Mercury	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	37	46	0.67	0.022	3.8

DDT (Total Metabolites)	Number Detected	Number of Samples	Average (mg/kg)	Minimum Detected	Maximum Detected
_____	25	31	0.02	0.003	0.1

Based on the results from the previous sampling, it is expected that after testing, the dredging site will be considered Class B “Moderate Contamination – Chronic Toxicity to aquatic life.” In any case, the dredging will commence by required means consistent with Table 3 – “Riparian/In Water Management Options” in Technical & Operational Guidance Series (TOGS) 5.1.9.



Sampling Plan

Chemicals To Be Tested For

Based on the previous sediment testing data coupled, with the TOGS Sediment Classification System requirements, the following chemicals have been chosen for testing. These pollutants will characterize the site enough to give an accurate sediment class determination.

- Copper
- Lead
- PCB's (Sum of Aroclors)
- Arsenic
- Mercury
- DDT (Total Metabolites)
- PAH's
- Benzene*
- BTEX*
- Sieve analysis

*Have been chosen as site specific chemicals due to the presence of boat motor fuel.

Sampling Methods

The proposed work has been broken into three dredging areas with the square footage as follows:

Proposed Dredge Area "1" → 3765 Square Yards

Proposed Dredge Area "2" → 5196 Square Yards

Proposed Dredge Area "3" → 525 Square Yards

The number of proposed sampling locations for each will be as follows.

Proposed Dredge Area "1" → 8 sample locations

Proposed Dredge Area "2" → 12 sample locations

Proposed Dredge Area "3" → 2 sample locations

Samples will be taken at each of the 22 locations on the attached site map.



The number of sampling locations was calculated as “22” using Balduck’s method from Appendix B of TOGS 5.1.9 (shown below).

Balduck’s Method

$$N = (Df)(30) \left((W)(L) \left(\frac{1}{1.2 * 10^6} \right) \right)^{0.33}$$

N= the total number of coring (sampling) stations.

$\frac{1}{1.2 * 10^6}$ = factor to convert square yards into square kilometers.

W = the width (in yards) of a single dredge area or the widest dredge area where there are multiple areas to be dredged.

L = the length (in yards) of a single dredge area or the sum of the lengths of the parts of a combined dredge area.

Df = a dredge factor consisting of a multiplier (unitless) from 1 to 3 based on the site’s dredging, environmental or pollutant history and other case-specific factors discussed below.

Df = 1 for sites with no previous sediment data and no suspected likelihood of appreciable contamination.

Df = 2 for sites with no previous sediment data and there is a likelihood of contamination based on history of surrounding land uses (e.g. heavy industry, spills, observed environmental stresses, and dredging has occurred within the last five years or near particularly sensitive features, e.g. water supply intakes, unique habitats.)

Df = 3 for sites with documented contamination from past sediment data or in areas of established fish advisories or spills or site specific contamination of concern (e.g., copper, mirex, dioxin, PCB’s) in the drainage basin or where there is a likelihood of contamination and dredging has not occurred in the last five years.

The Olcott Harbor proposed dredging site is approximately 64 yards in width and 257 yards long. The Dredge factor (Df) of 3 was used since the site has shown contamination in past sediment tests. Sampling will be taken within five (5) – ten (10) feet of the centroid of the proposed sampling locations on the included site map. The removed sediment is expected to be comprised primarily of silt, clay and organic material sized particles; this will be verified with sieve analysis. The depth of sediment to be removed is assumed to be about seven (7) feet based on previous dredging. Each sediment core sample will represent the complete depth of the material to be dredged, plus an additional foot per TOGS 5.1.9.

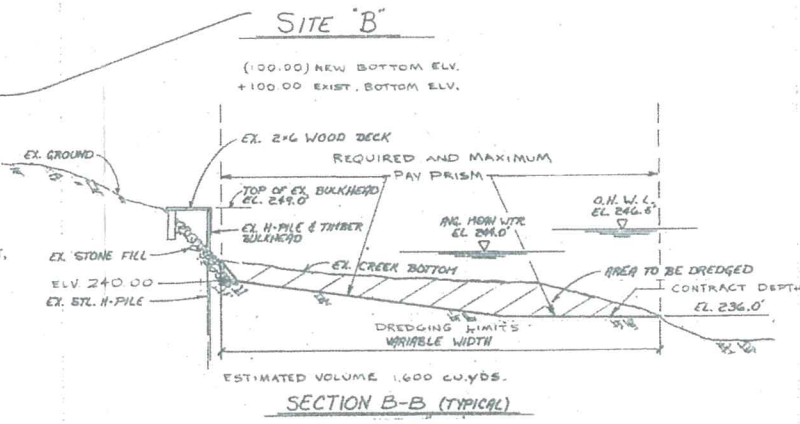
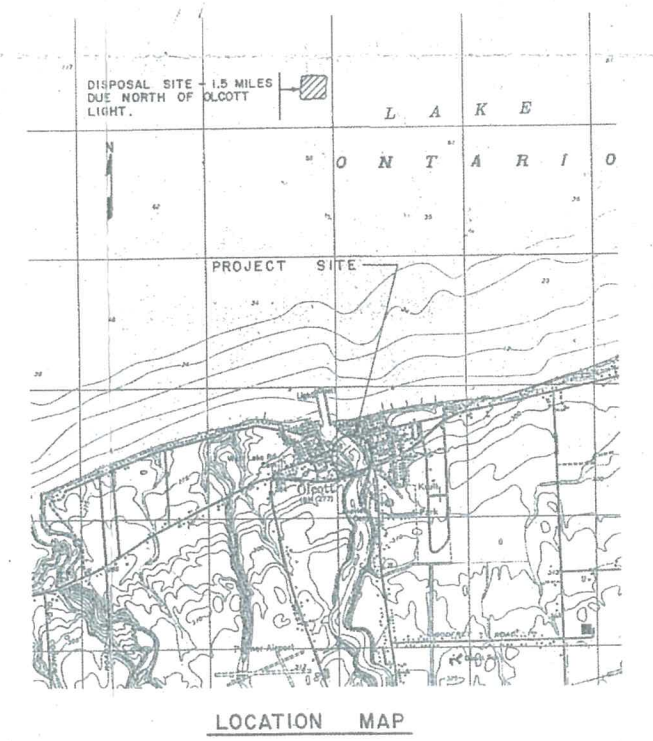
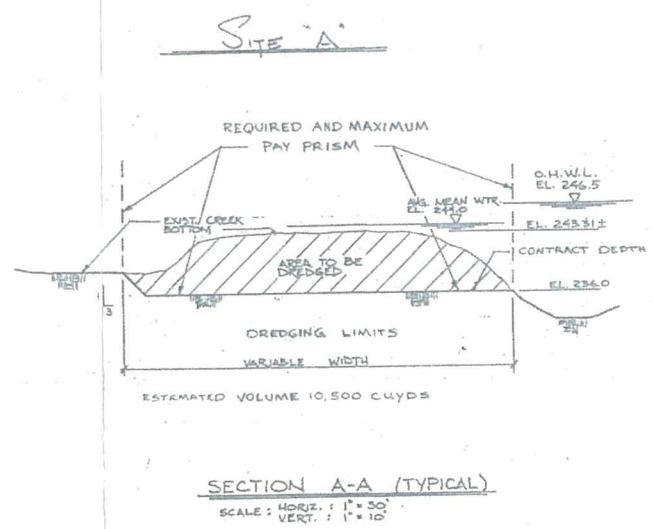
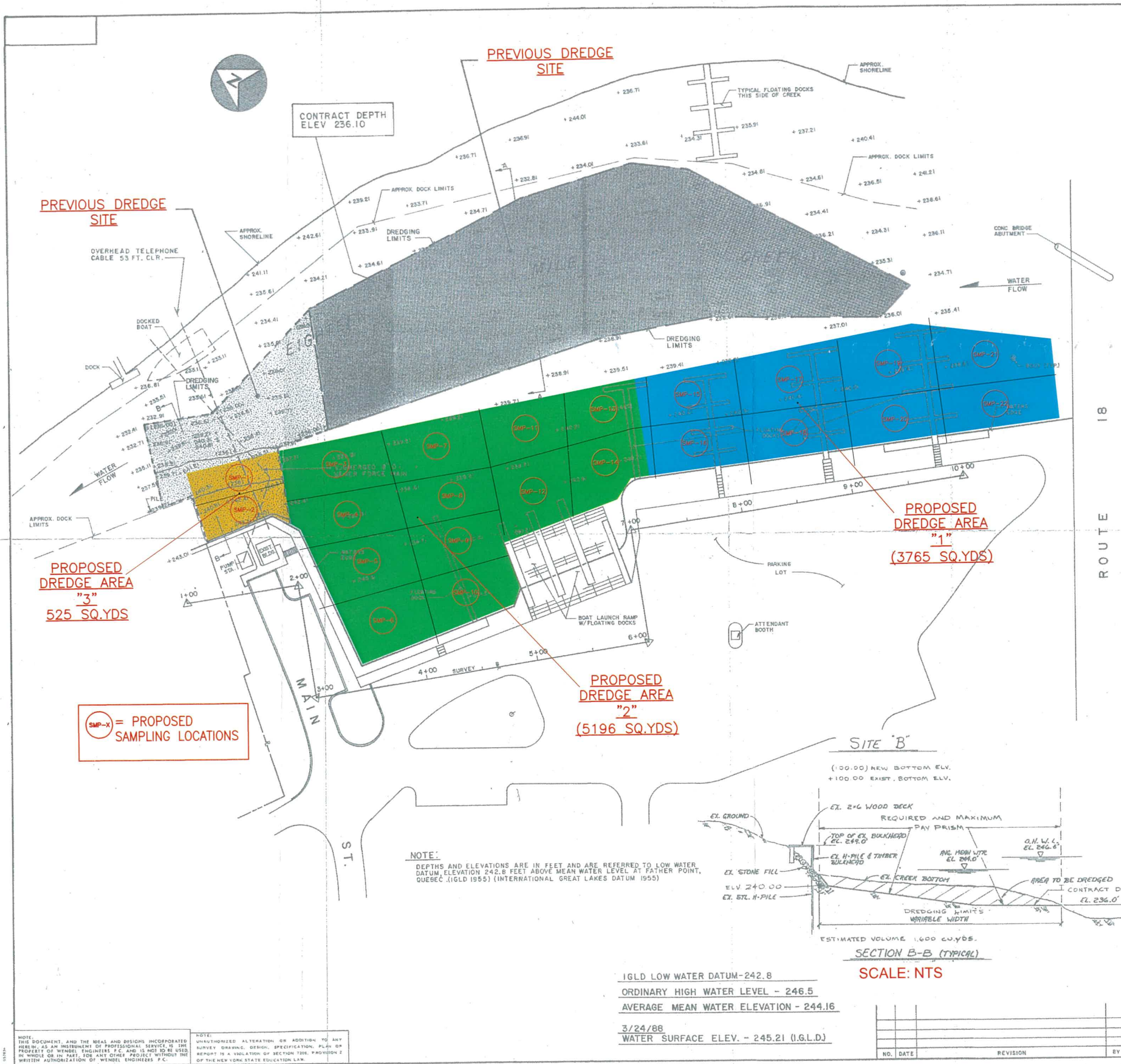
Each core sample will be broken into the following two segments (both will be chemically analyzed separately):

- A homogenized sample representing the complete dredging depth.
- A sample representing the top six (6) inches of the sediment to be exposed after dredging. This sample will be archived, and if the dredging depth segment reveals Class B or C sediments,



then the samples will be analyzed to determine the risk of increased contamination exposure after dredging. The sampling technology will be consistent with approved methods in TOGS 5.1.9.

- After samples are collected and analyzed, the results will be used to develop a Dredging and Disposal Plan that is acceptable to the Town and NYSDEC.



TOWN OF NEWFANE
OLCOTT HARBOR DREDGING PROJECT
DREDGING PLAN - EIGHTEEN MILE CREEK

DWN. M. ROESLER CHK. T.C.C. APPD. *James M. Kelly*

DATE APRIL 11, 1988
 SCALE 1" = 40'
 JOB NO. 2431-2

WENDEL
 BUFFALO, NY • LOCKPORT, NY

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