

Memorandum

July 28, 2003 (Revised Table; 9/10/03)

To: Mr. Colin Wagoner, Ridolfi Engineers Inc.

From: Dr. David Velinsky, ANS-PCER

Subj: Anacostia Sediment Core Sampling

CC: Mike Buchman (NOAA), File

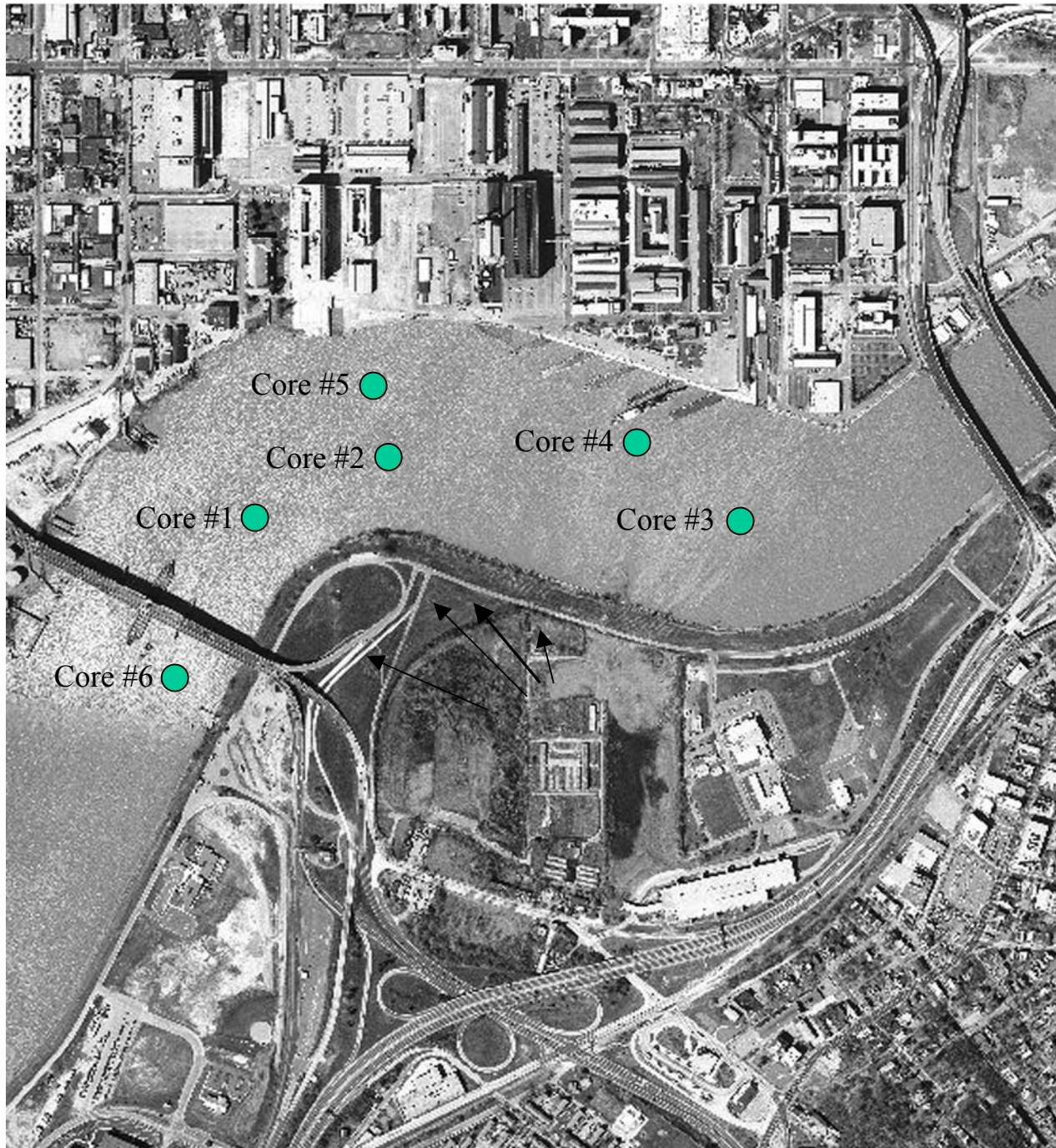
This memo provides a brief summary and update on the Poplar Point Anacostia core sediment sampling effort. On Tuesday, June 24th, staff from the Patrick Center and the Virginia Institute of Marine Sciences collected 6 cores from the area surrounding Poplar Point in the lower Anacostia River (Table 1; Figure 1).

Table 1: Locations, time sampled, core lengths and water depths for cores in Anacostia River.

Core #	Time Taken	Latitude	Longitude	Total Length (m)	Water Depth (m)
Core 1	0913	38.86984 N	77.00364 W	4.90	4.73
Core 2	1105	38.87073 N	77.00093 W	5.20	5.34
Core 3	1140	38.86963 N	76.99438 W	4.92	4.27
Core 4	1236	38.87070 N	76.99638 W	4.24	4.73
Core 5	1448	38.87171 N	77.00121 W	4.62	4.37
Core 6	1554	38.86752 N	77.00505 W	5.04	4.88

Cores were taken aboard the *RV Bay Eagle* (VIMS) using a submersible vibracore and aluminum core tubes. Sites were eventually selected based on the project needs and the many restricted areas in the river defined on the NOAA chart, including METRO tunnels and underwater cables and pipes. This prevented us from sampling locations cited in our original proposal. In addition, Ms. Diane Douglas from the District of Columbia was on board and assisted in site selection based on project needs and safety concerns.

Core depths were not as deep (approx. 5m) as we had proposed given the historical stratigraphy (RPI, 2002) and original project design (6 to 8m). We attempted to take three 10m cores but the wall thickness of these barrels (which was different from the 6m barrels) was not sufficient and the cores bent over and cracked during penetration.



Sampling Locations (●)

←
Potential GW

Figure 1. Approximate locations of sediment coring sites around Poplar Point.

Cores were sliced on deck into 2m intervals and placed into a refrigerated truck for transport to VIMS for core sectioning and logging. All cores were processed on Thursday and Friday, June 27th and 28th. Upon sectioning the cores we did find that, in all cores, the sediment changed from a very fine clay+silt (i.e., mud) at the top of the cores to a sand-sized sediment nearer the bottom. In Cores 2 and 6 (and to some degree Core 4), material changed to gravel-sand sediment near the bottom (e.g., see attached pdf file for Core 2). This suggests that, in these cores, we were able to penetrate into the target strata, which was referred to in our proposal.

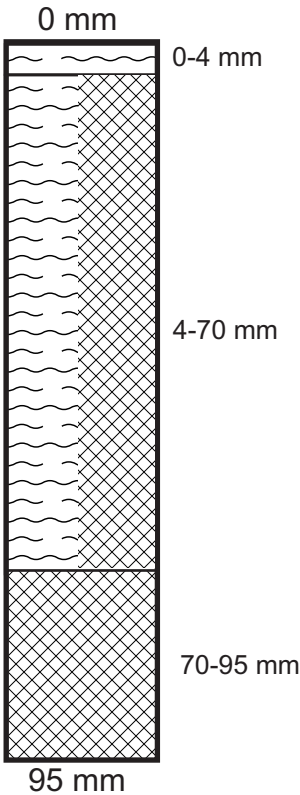
Seventy-two, plus a few extra, sediment samples were taken from the six cores. Core sediment sub-sectioning depths were selected based on the visual changes in sediment color and texture. Intervals were generally 20 cm but were smaller in the upper portion of each core. Recognizable woody material, near the base of two cores, was obtained for ¹⁴C dating. Pore water samples (15) for dissolved total As (arsenic) were obtained from all cores including those with substantial sand-gravel at the base.

We feel that we have a good-excellent sample set to evaluate historical levels of chemical contaminants near Poplar Point and potential groundwater or sub-surface water levels of specific chemicals. In the short term, we will be putting together a more comprehensive record of the material observed from these cores (i.e., stratigraphic description) and in conjunction with physical and chemical analyses provide information to complete the objective of this project.

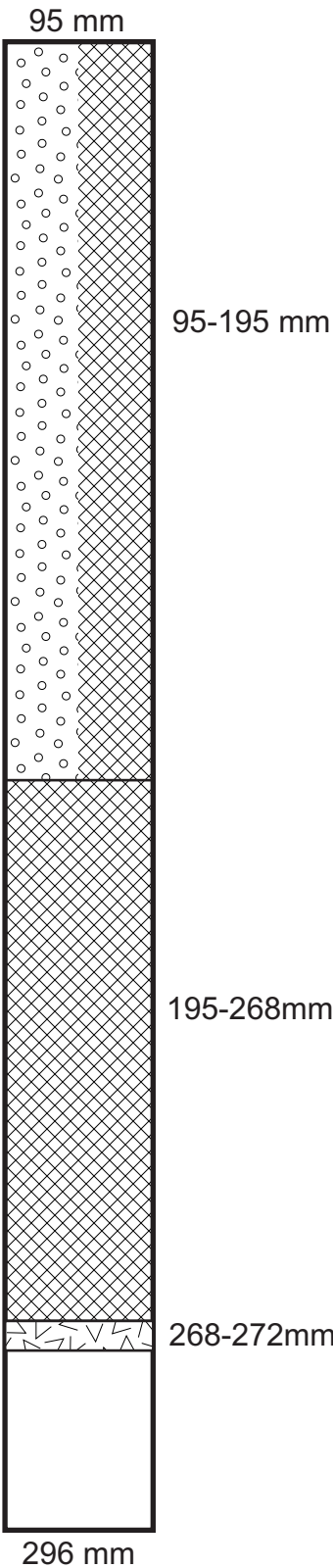
Poplar Point Core #1

DRAFT

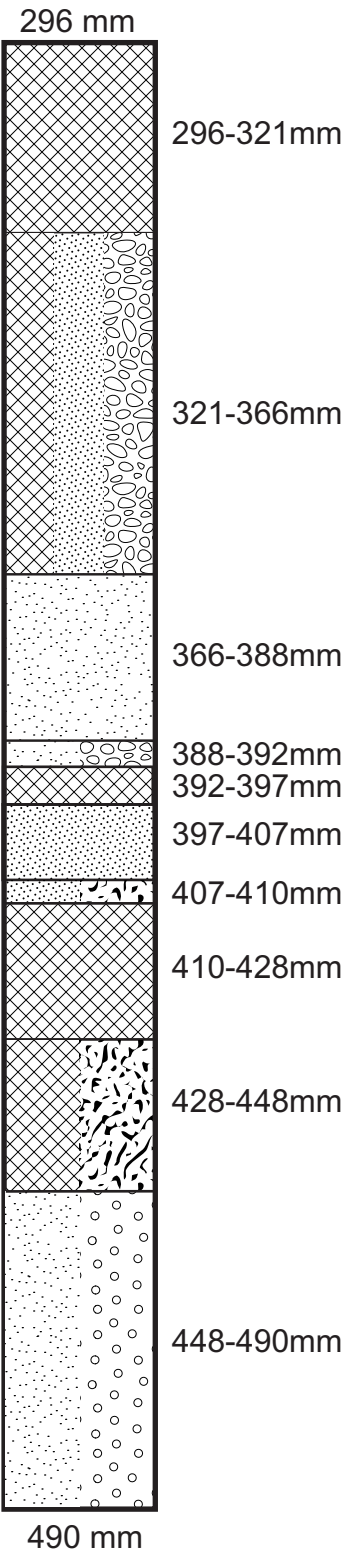
Section A-A¹



Section B-B¹



Section C-C¹



Sediment Key

- Clay
- Soupy Clay
- Fine Sand
- Medium Sand
- Coarse Sand
- Conglomerate
- Plastic Clay
- Woody Material
- Gas Pockets
- Petroleum Smell
- Silt
- Air Space (in core)
- Small Gravel
- Coarse Gravel
- Fine Sand + Clay