Project Review: RI/FS

Former Grumman Settling Ponds (a.k.a. Bethpage Community Park) Site No. 1-30-003A- OU3, Town of Oyster Bay, Nassau County.

Background: The site is a 11-acre park that was formerly a wastewater and processed chromium sludge drying area for Grumman Aerospace. The land was donated to the Town of Oyster Bay in 1962 and the waste water lagoons, rag pits and disposal areas were filled in and made into a ballfield and parking area.

Project Phase and Project Review Objective:
Objective is to review findings of the RI and discuss IRMs and overall remedial alternatives.

A. Finalizing the remedial investigation Report onsite and offsite RI.

Soils: Volatile organic (VOC) contamination mainly with TCE and DCE, vinyl chloride, BTEX, Freon, PCBs and inorganic compounds, mainly chromium sludges, cadmium, lead and to a lessextent arsenic.

Groundwater: Perched groundwater is some areas with solvents and some LNAPL in limited areas.

Offsite Groundwater: Extent and co-mingling with the OU2 Plume, Navy responsibility. A large solvent plume more than a mile long is migrating off -site containing

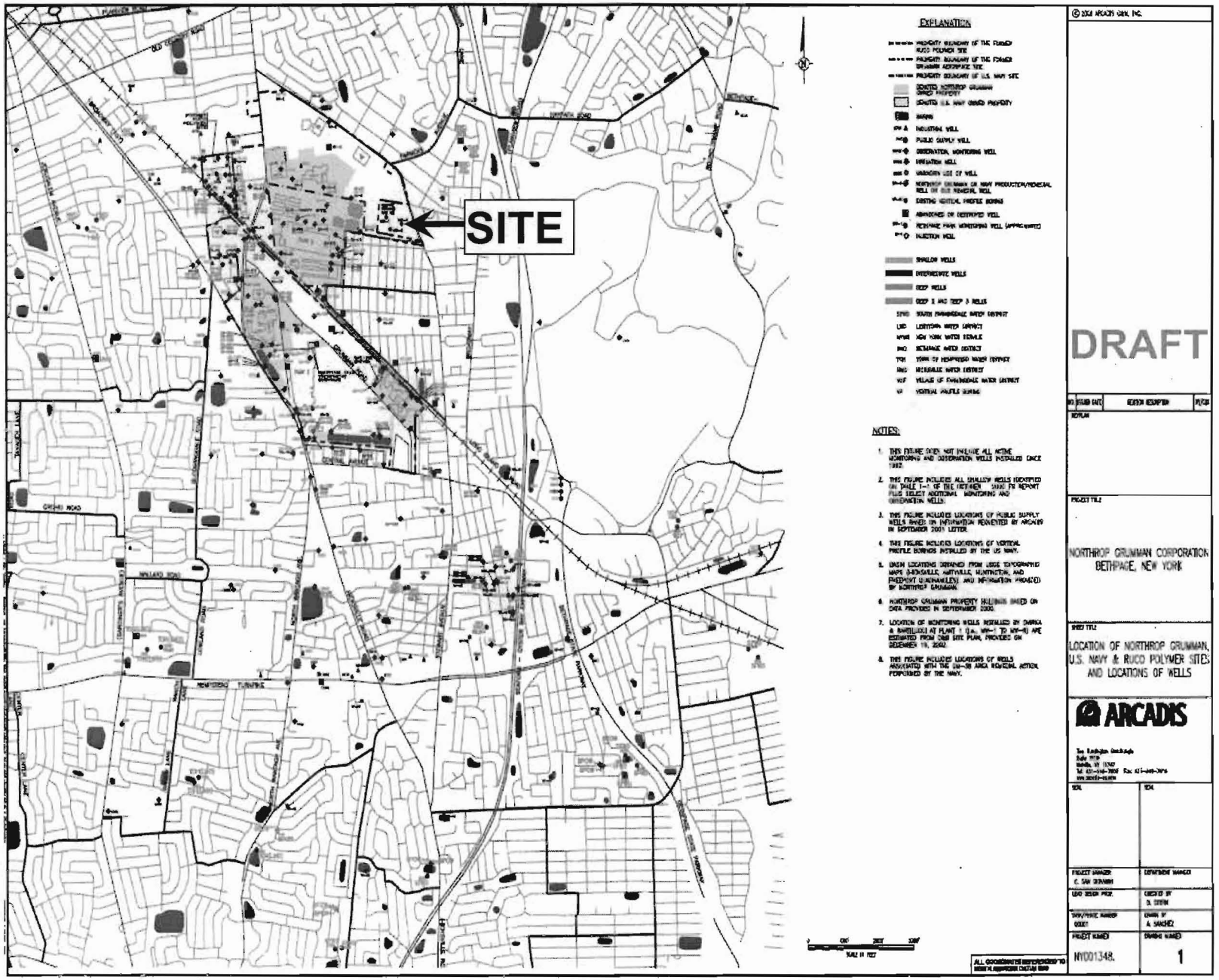
Soil Vapor: Soil vapor investigation is now complete.

B. The IRMs completed to date:

* The ***Huge*** soil excavation by the Town of Oyster Bay
* SVE by Northrop Grumman
* Groundwater pump and treat by Northrop Grumman.

C. Human Health Risk Assessment: The PRP has elected to submit an HHRA. They want this to guide remedial action objectives.

D. The Preliminary Screening of Alternatives.


SITE
EXPLANATION
NOTES:
DRAFT
NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK
LOCATION OF NORTHROP GRUMMAN, U.S. NAVY & RUCO POLYMER SITES AND LOCATIONS OF WELLS
ARCADIS
NY001348.
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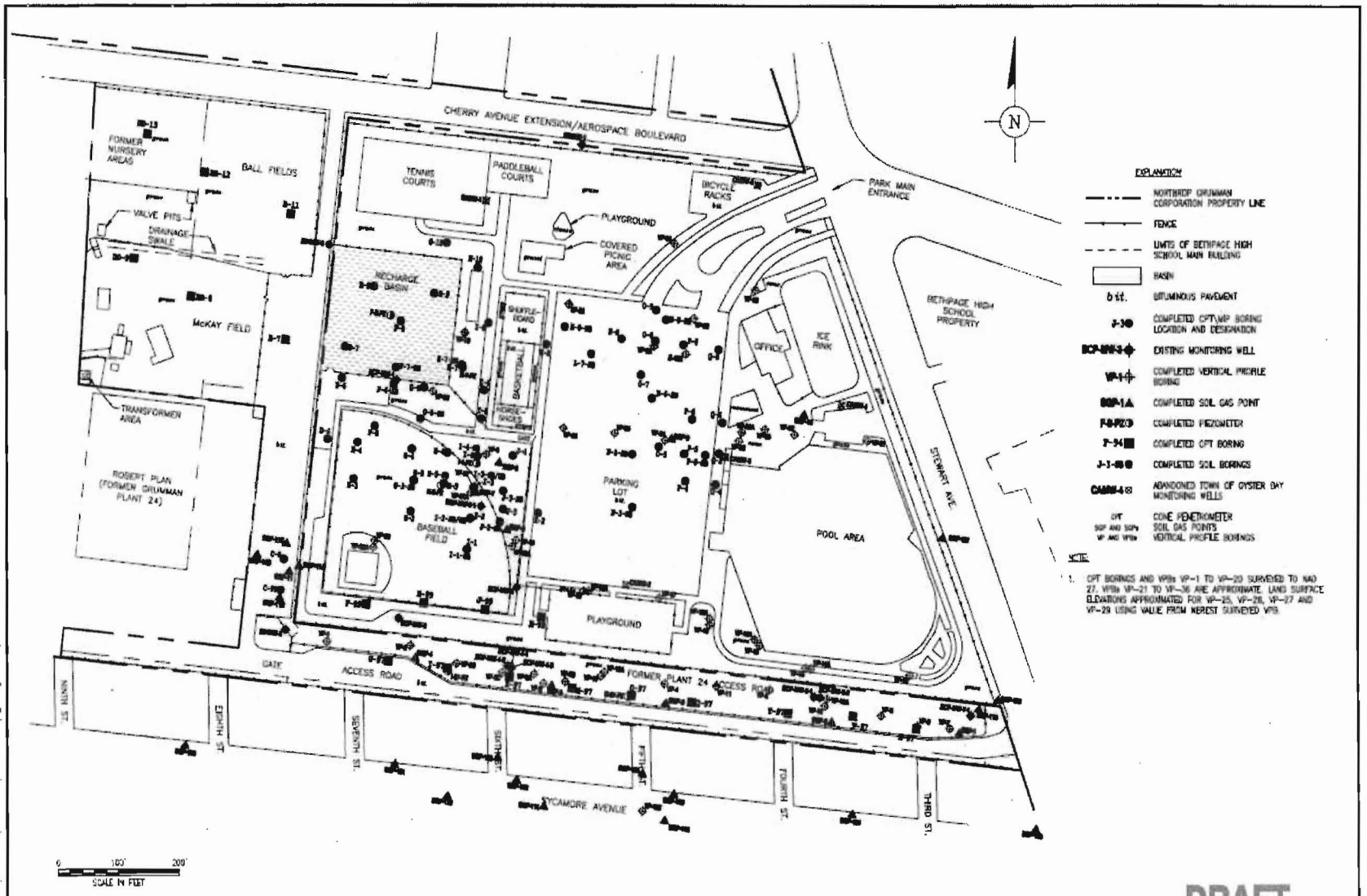

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NO.	ISSUED DATE	REVISION DESCRIPTION	BY/CKD

SEAL

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The Huntington Quadrangle
Suite 1010
Melville, NY 11747
Tel: 631-249-7600 Fax: 631-249-7610
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PROJECT TITLE
OPERABLE UNIT 3
FORMER GRUMMAN
SETTLING PONDS
BETHPAGE, NEW YORK

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
C. SAN GIOVANNI	M. WOLFERT		D. STERN
SHEET TITLE		TASK/PHASE NUMBER	DRAWN BY
SITE PLAN SHOWING COMPLETED SAMPLE LOCATIONS		00002	A. SANCHEZ
		PROJECT NUMBER	FIGURE
		NY001464.1007	2

DRAFT

DRAFT Technology Screening Summary: Focused Feasibility Study, Site Area, Operable Unit 3 (Former Grumman Settling Ponds), Bethpage, New York. (1)

TECHNOLOGY	CONTAMINANT			COMMENTS
	VOCs	PCBs	Metals	
SOILS, LPZ, AND PERCHED WATER				
Excavation w/off-site disposal	Y	Y	Y	Retained for all alternatives
Excavation w/on-site treatment	Y	Y	Y	Off-site disposal is more effective and less costly than on-site treatment options considered (soil washing, chemical oxidation, and incineration). Incineration was also eliminated due to the likelihood that the technology would not be acceptable to the NYSDEC, NYSDOH, and/or public.
Stabilization	N	Y	Y	Stabilization is not effective at treating VOCs.
Stabilization enhanced w/Zero-Valent Iron for VOCs only	Y	Y	Y	Retained for Alternatives 2 and 3
Stabilization enhanced w/Zero-Valent Iron for VOCs & PCBs	Y	Y	Y	Retained for Alternative 3 (2'-6'/10') only
In-situ Thermal Remediation	Y	N	N	Retained for Alternatives 2 and 3
In-situ Thermal Remediation (enhanced for PCBs)	Y	Y	N	Overall costs were prohibitive compared to excavating w/off-site disposal for alternatives considered.
Soil Vapor Extraction	Y	N	N	Retained for Alternatives 2 and 3
Multi-phase Extraction	Y	N	Y	Retained for Alternatives 2 and 3
Gravel Cap	Y	Y	Y	Retained for Alternatives 2 and 3
GROUNDWATER				
Pump & Treat	Y	NA	Y	Retained for all alternatives
Stabilization enhanced w/Zero-Valent Iron for VOCs only	Y	NA	Y	Retained for Alternatives 2 and 3
In-situ Thermal Remediation	Y	NA	N	Retained for Alternatives 2 and 3
In-situ Chemical Oxidation w/Permanganate	Y	NA	N	Retained for Alternative 4 only
In-situ Chemical Oxidation w/Persulfate	Y	NA	N	Site-specific bench-scale tests found permanganate to be a more effective oxidant.
Multi-phase Extraction	Y	NA	Y	The OM&M costs will be prohibitive due to the large quantity of water that would have to be extracted, treated, and discharged.
Enhanced Anaerobic Bioremediation	Y	NA	N	Is not compatible with the existing GW IRM due to the generation and release of significant quantities of dissolved iron within the anaerobic zone which would, ultimately, render the groundwater recovery system inoperable.
SOIL VAPOR				
Soil Vapor Extraction	Y	NA	NA	Retained for all alternatives

BOLD: denotes technologies that were not considered for any of the FFS alternatives
NA not applicable because contaminant is not present in the media
Y technology treats contaminant
N technology does not treat contaminant
LPZ low permeability zone soils

Notes:
1. Due to the nature of the Focused Feasibility Study, only technologies considered to be potentially applicable were included in this screening.

Preliminary Remedial Alternatives

Alternative 1: No additional further action

- Operate the soil gas IRM and groundwater IRM to prevent migration of groundwater with total VOC (TVOC) concentrations >50 ug/L from migrating off-site.

Alternative 2: No unacceptable exposure, with VOC hot-spot (source) treatment

- Operate the soil gas IRM and groundwater IRM to prevent migration of groundwater with TVOC concentrations >50 ug/L from migrating off-site.
- Excavate soil 0-2 ft bls where PCBs, metals, or VOCs exceed NYSDEC restricted residential criteria.
- No soil treatment necessary below 2 ft, based on human health risk assessment. For 2-6 ft bls (or 10 ft bls, where subsurface utilities are deeper), the risk assessment evaluated potential exposure to construction and utility workers. The risk assessment assumed no exposure below construction / utility depths.
- Treat the vadose zone, low permeability zone, and groundwater hot spots (source), where total VOC concentrations (TVOCs) exceed 10 mg/kg (soil) or 10 mg/L (groundwater). Treatment options under consideration are in-situ thermal desorption (ISTD), soil mixing/treatment with zero valent iron / clay (ZVI/clay), and soil vapor extraction / multi-phase extraction (SVE MPE).
- Develop and implement institutional controls, e.g. environmental easement to prevent access to contaminated soil or groundwater.

Alternative 3: No unacceptable exposure, with VOC hot-spot (source) treatment and PCB hot-spot treatment to 6 or 10-ft depth, depending on depth of utilities

- Same as Alternative 2, with the addition of soil treatment at 2-6 ft bls (or 10 ft bls, where utilities are deeper) where PCBs >/= 50 ppm.

Alternative 4: Remediate to Unrestricted Use Criteria

- Operate the soil gas IRM and groundwater IRM to prevent migration of groundwater with TVOCs >50 ug/L from migrating off-site.
- Excavate soils from 0-55 ft where PCBs, VOCs, or metals exceed unrestricted use criteria.
- Implement in-situ chemical oxidation for all groundwater with TVOCs >5 ug/L.

Access Road and Residential Properties

- Approach under development

Chittibabu Vasudevan	DER	402-9625
Bob Cozzy	DER	402-9768
KEVIN CARPENTER	"	2-9799
SAL ERUOCINE	"	402-9705
Jacquelyn Nealon	NYSDOH	402-7880
Brian Jankauskas	DER	402-9620
Nathan Putnam	DER	-9621
Chek Beng Ng	DER	402-9620
Vivian James	DER	402-9611
Don Milo	DOH	2-7880
Guy T Bobersky	NYSDEC, DER	2-9621
Jeffrey Dyber	DER	2-9621
John Swartwout	DER, BURA	2-9620