Northrop Grumman Site

Site No. 130003A
Proposed Remedial Action Plan
Operable Unit 3 (OU3)
Former Grumman Settling Ponds
June 2012

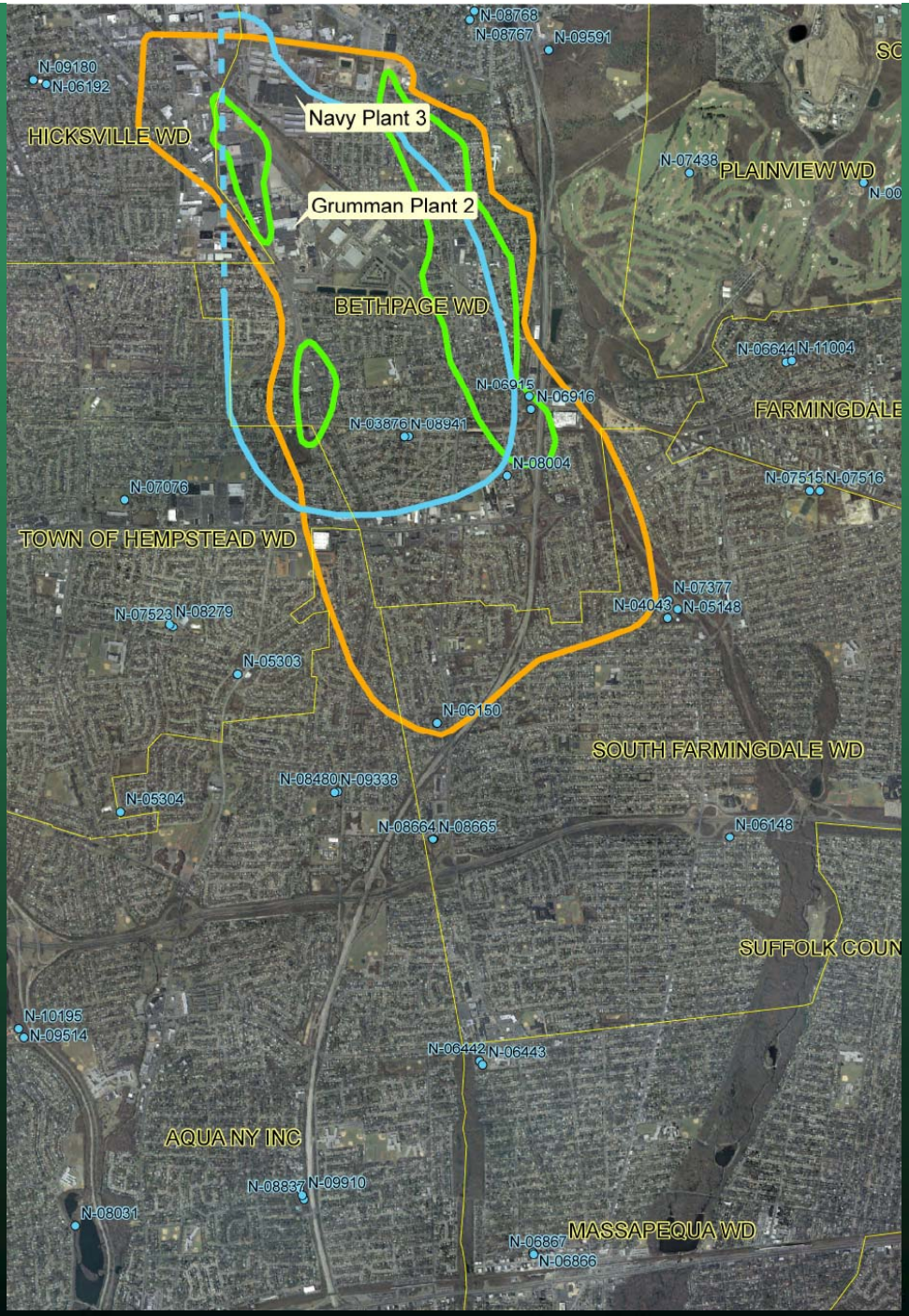
NYS Department of Environmental Conservation

Agenda

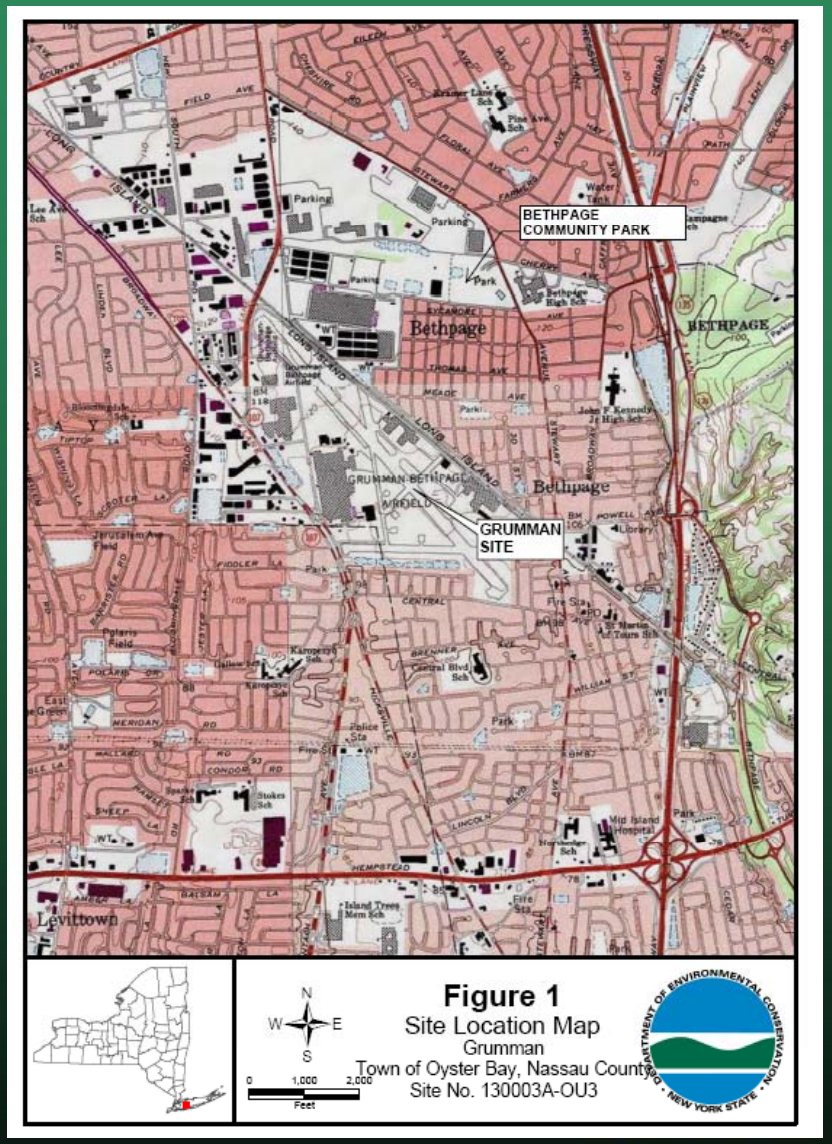
- **Introductions:**
  - **Bill Fonda, Citizen Participation-NYSDEC**
- **Site Background :**
  - **James Harrington, Director NYSDEC Remedial Bureau A**
- **Description of OU3 and Proposed Remedy :**
  - **Steven Scharf, Project Manager-NYSDEC**
- **Human Exposure Pathways :**
  - **Steven Karpinski, Public Health Specialist-NYSDOH**
- **Public Comment :**
  - **Bill Fonda, Citizen Participation Specialist**

Background

- Grumman Aerospace
  - Grumman
  - NWIRP
- Remedial Efforts
  - OU1
  - OU2
  - OU3


Navy Plant 3
Grumman Plant 2
HICKSVILLE WD
BETHPAGE WD
PLAINVIEW WD
FARMINGDALE
TOWN OF HEMPSTEAD WD
SOUTH FARMINGDALE WD
SUFFOLK COUN
AQUA NY INC
MASSAPEQUA WD
N-08768
N-08767
N-09591
N-09180
N-06192
N-07438
N-06644
N-11004
N-06915
N-06916
N-03876
N-08941
N-08004
N-07076
N-07515
N-07516
N-07377
N-04043
N-05148
N-07523
N-08279
N-05303
N-06150
N-08480
N-09338
N-05304
N-08664
N-08665
N-06148
N-10195
N-09514
N-06442
N-06443
N-08837
N-09910
N-08031
N-06867
N-06866

Site History and Description



G

Grumman F6F Hellcat, Circa 1942

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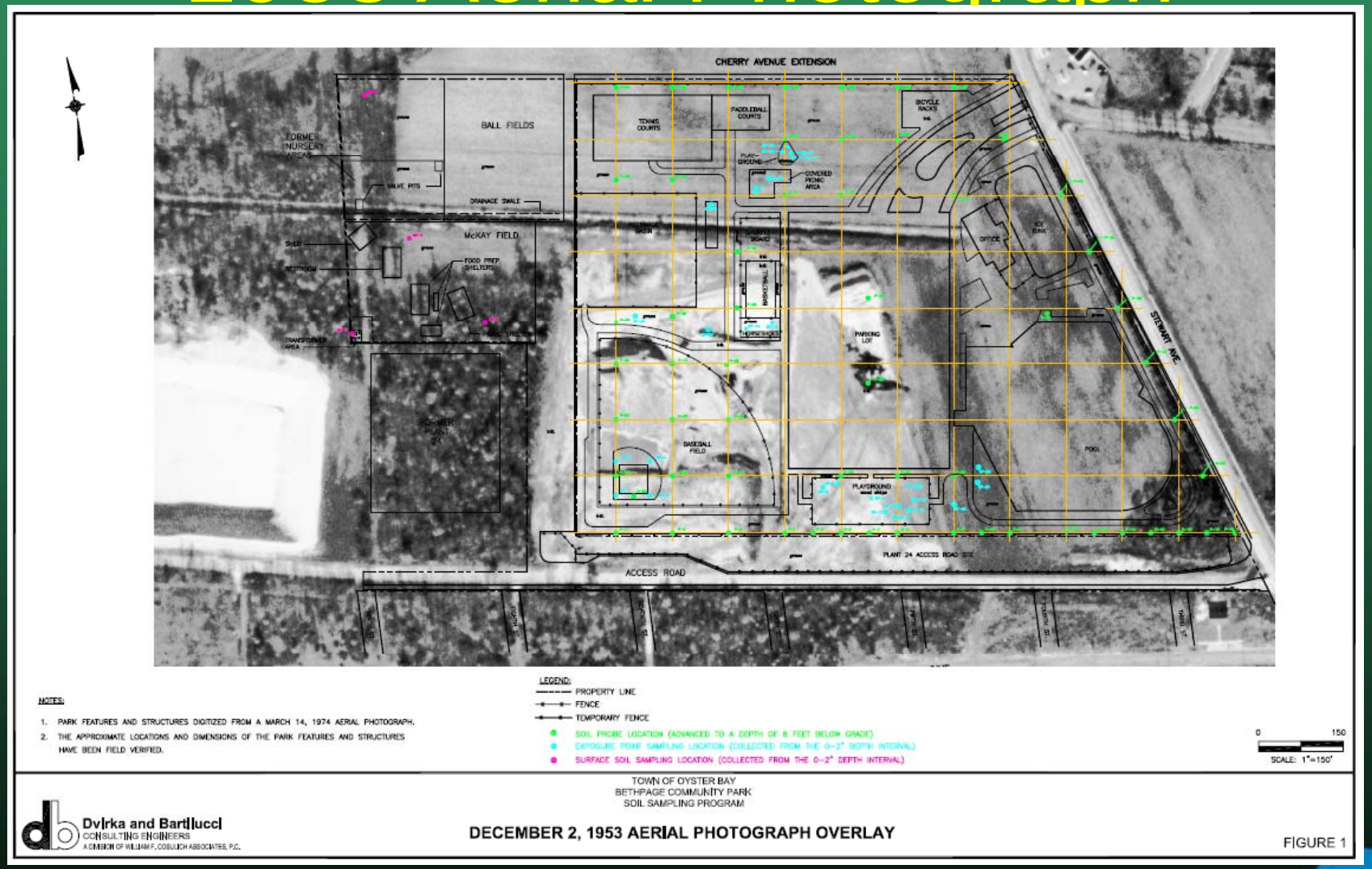
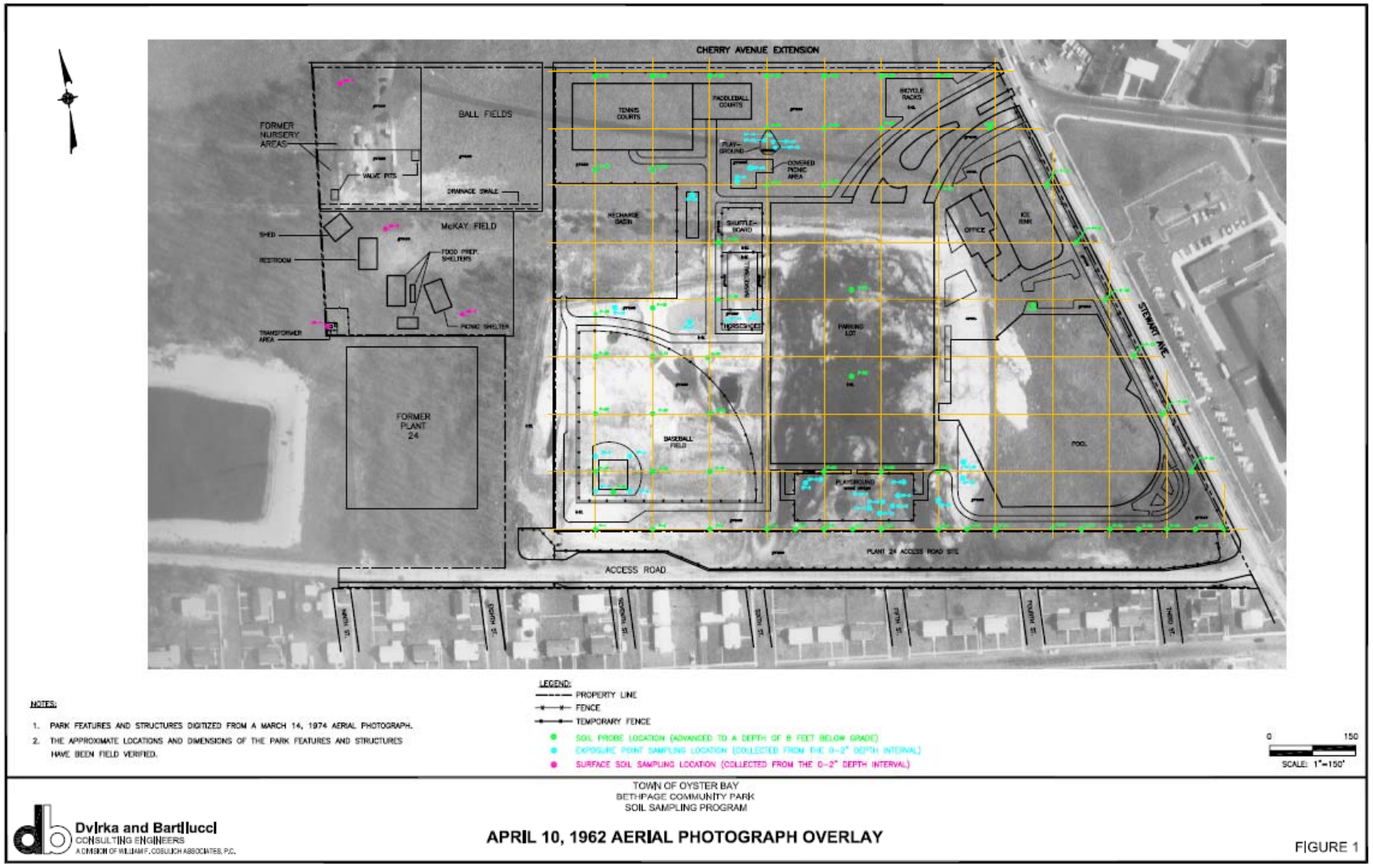
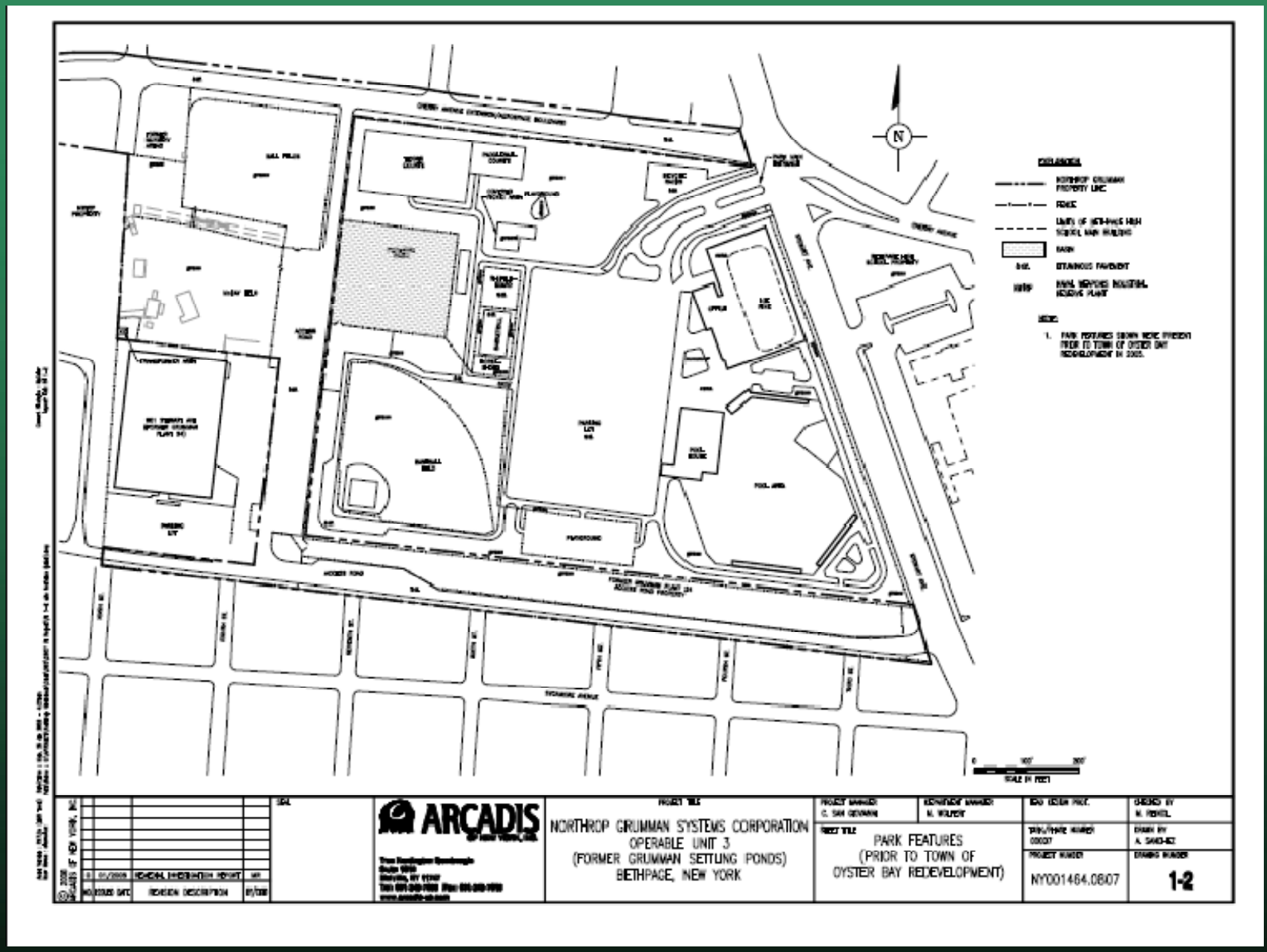
1953 Aerial Photograph



1962 Aerial Photograph



Site Area Circa 2004



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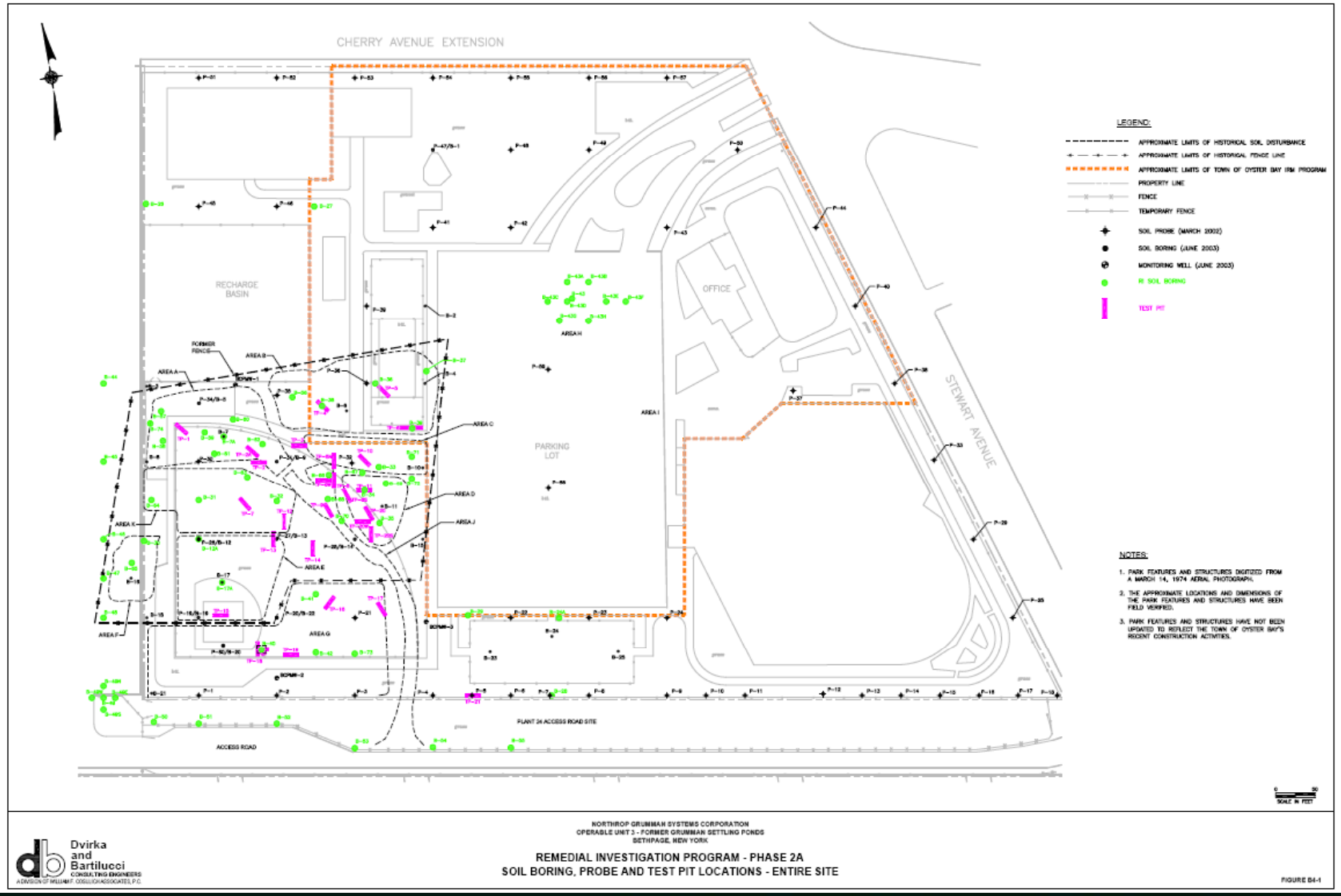
Potentially Responsible Parties

- Northrop Grumman Corporation
- Department of the Navy
- Town of Oyster Bay

Remedial Investigation

- Historic Data and Report Search
- Geophysical Surveys: Ground Penetrating Radar, Terrain Conductivity & Resistivity
- Soil Borings: Over 100 in total
- Test Pits: More than 30
- Groundwater- Ongoing Sampling (>500)
- Soil Gas- 35 soil gas points

Test Pits and Soil Sampling



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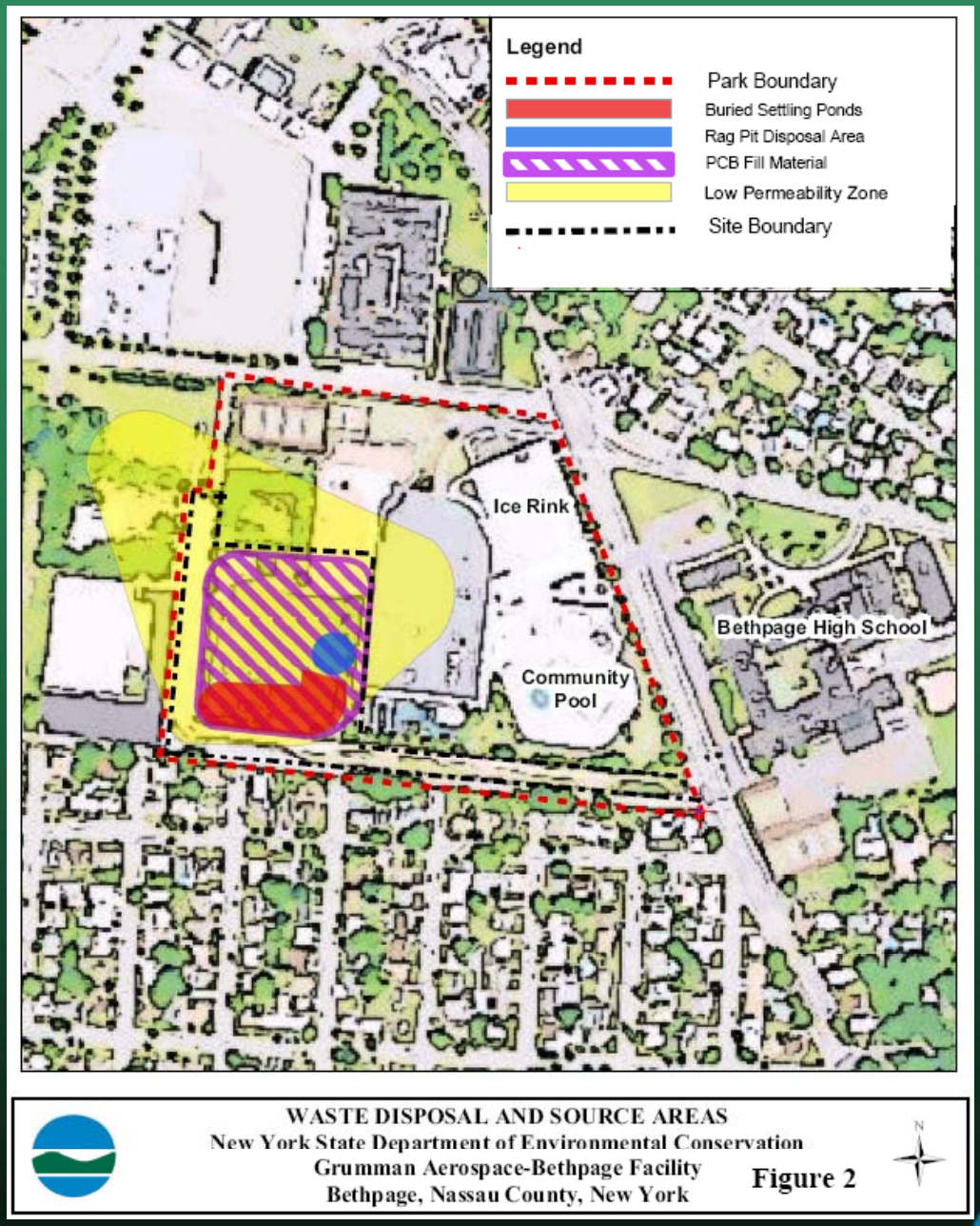
Waste Disposal and Source Areas



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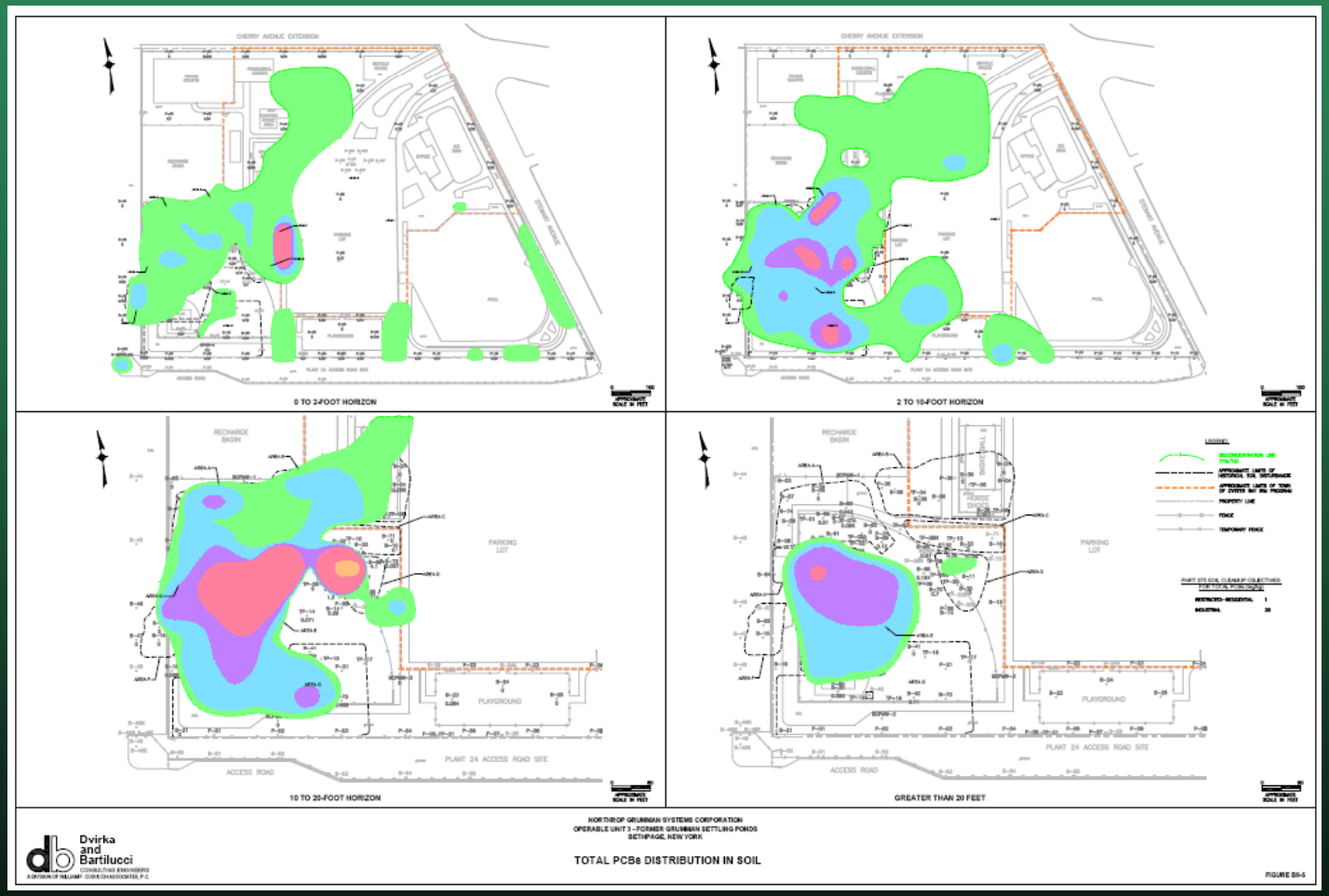
PCB Impacted Site Soils



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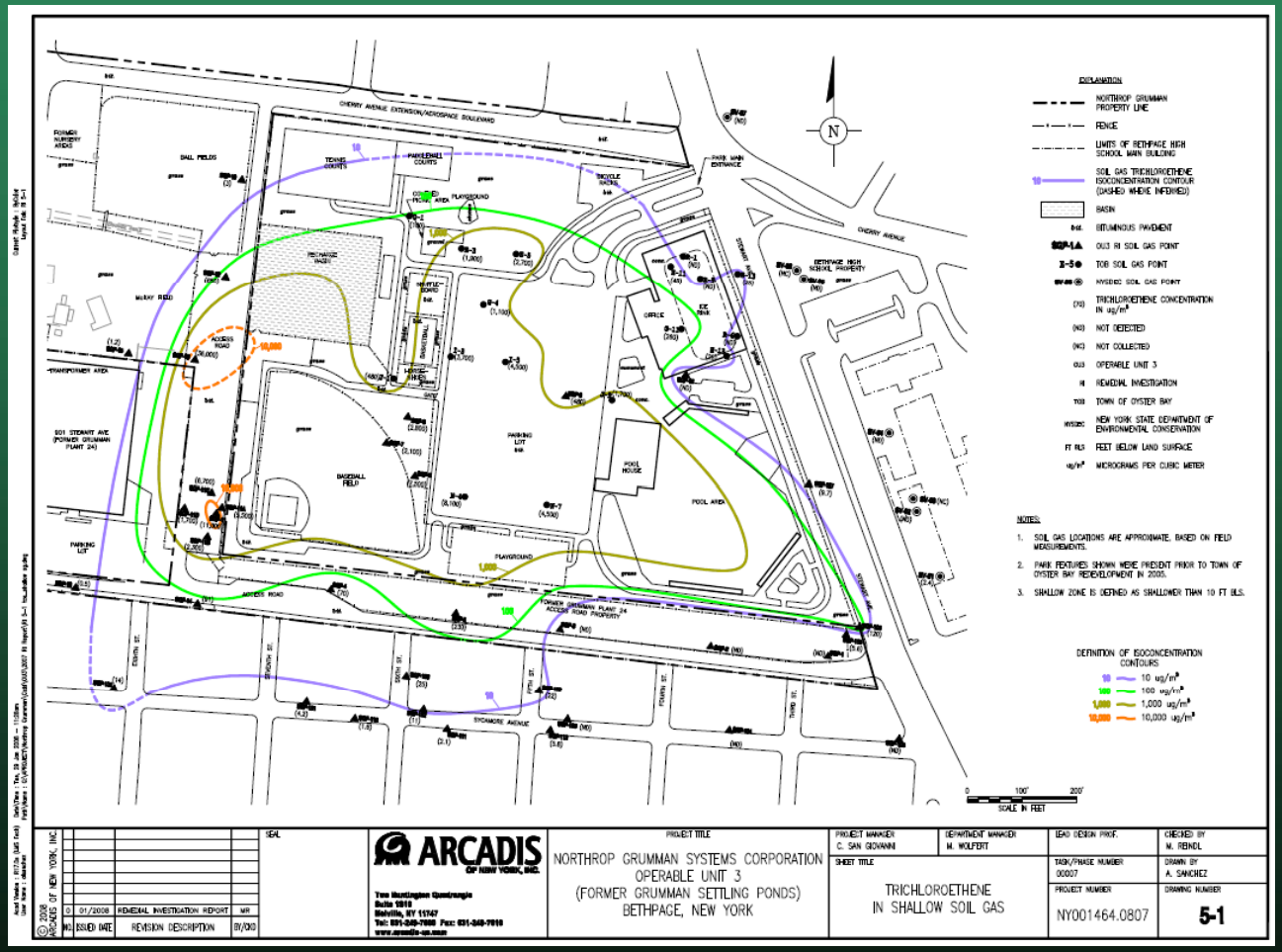
Soil Gas



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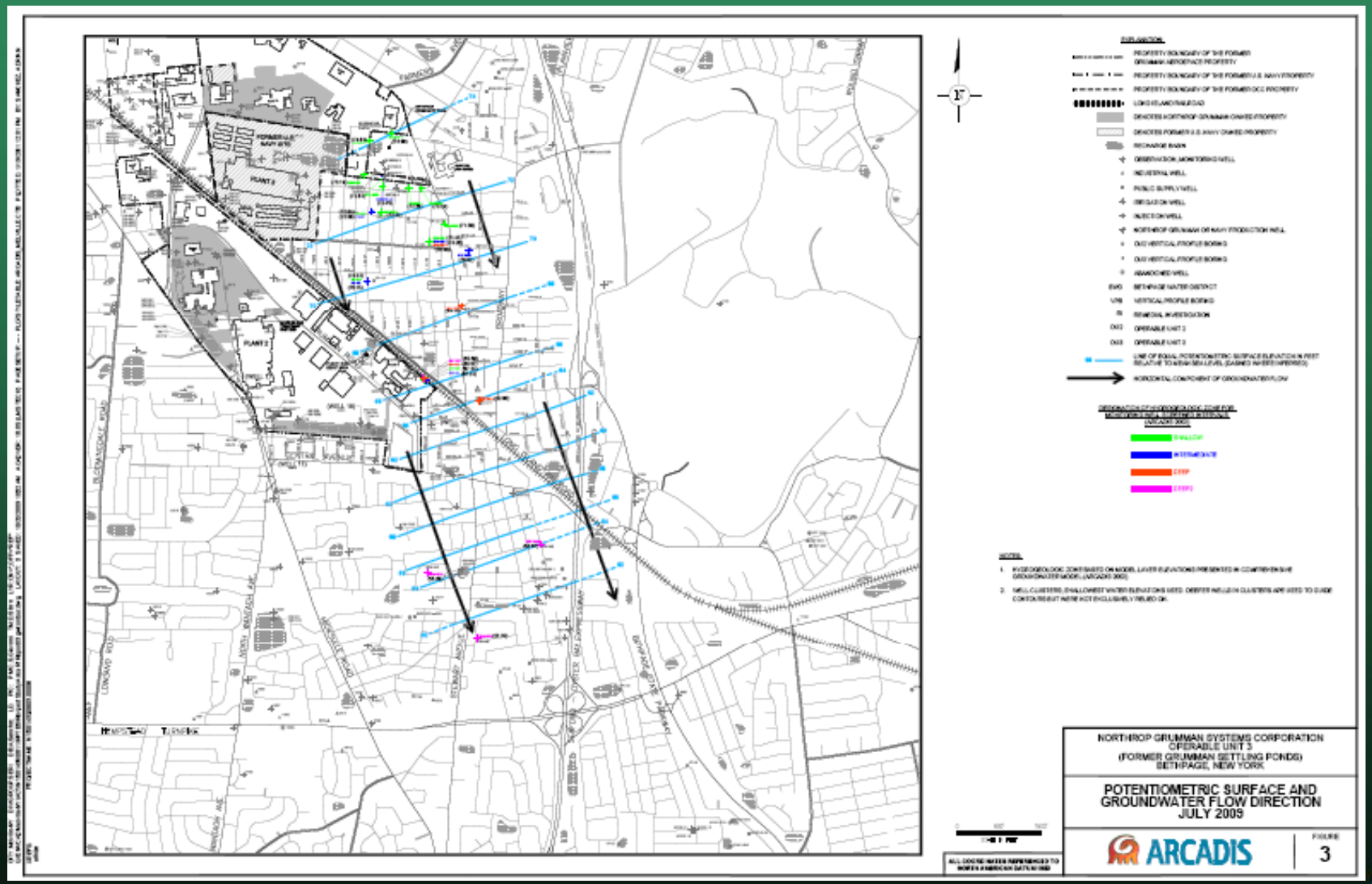
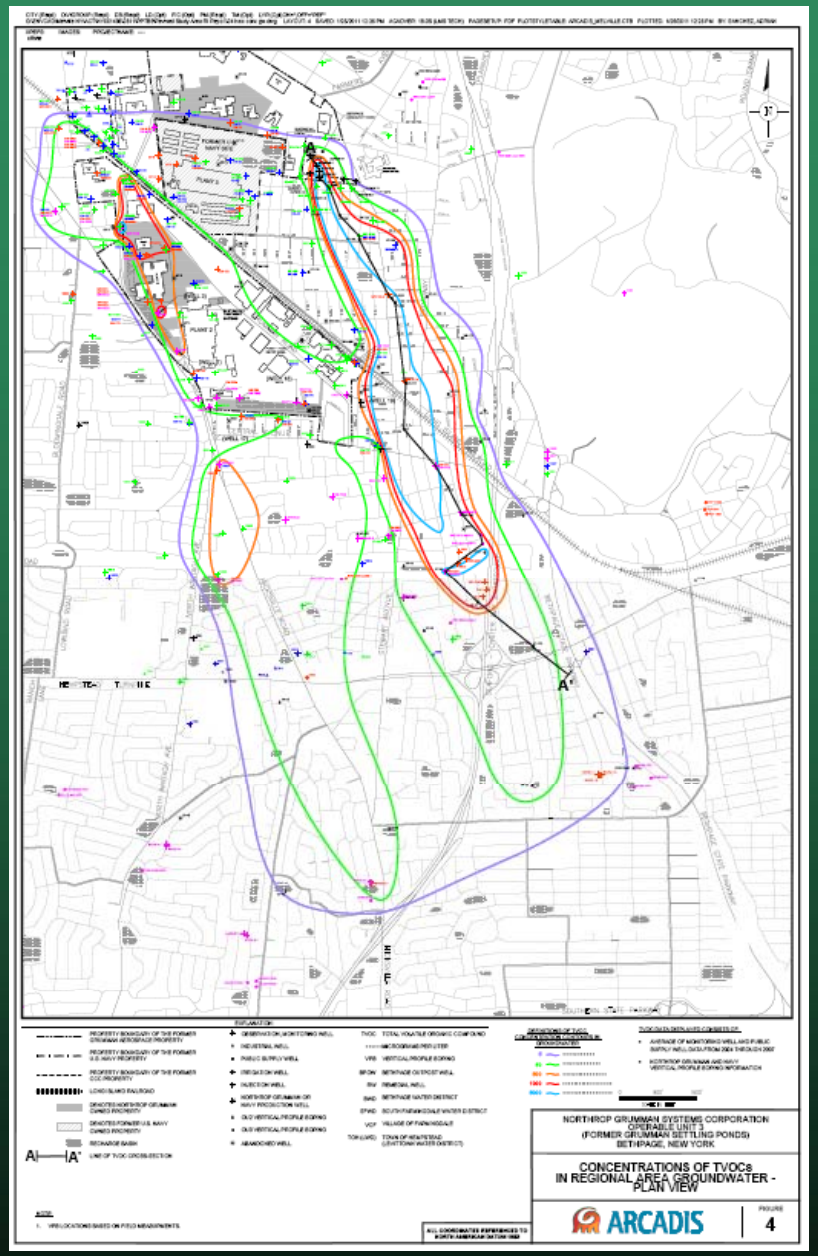
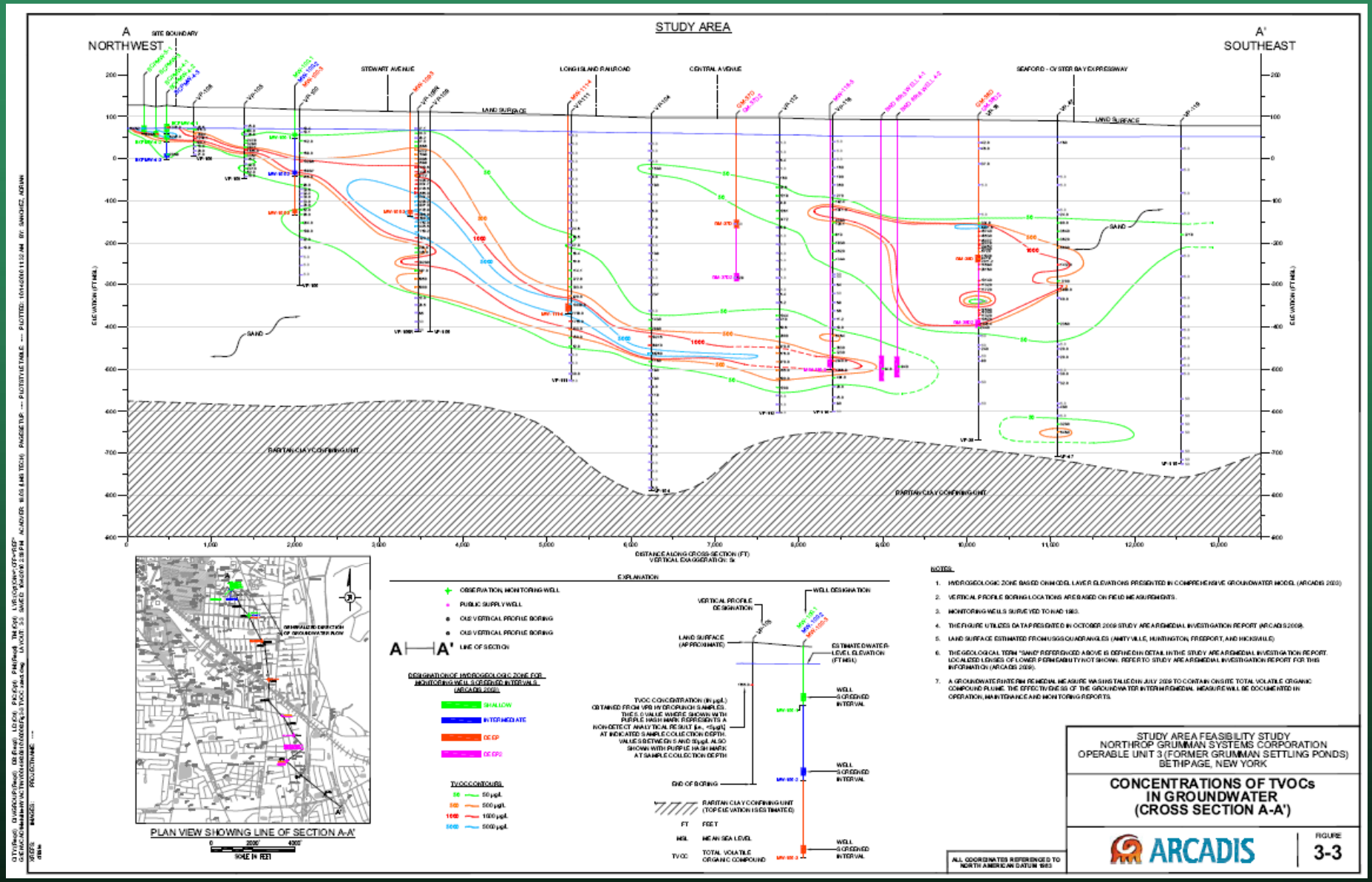
Groundwater Flow



OU3 Plume within OU2 Plume




STUDY AREA
A
NORTHWEST
A'
SOUTHEAST
SITE BOUNDARY
STEWART AVENUE
LONG ISLAND RAILROAD
CENTRAL AVENUE
SEAFORD - OYSTER BAY EXPRESSWAY
LAND SURFACE
SAND
RARITAN CLAY CONFINING UNIT
ELEVATION (FT MSL)
DISTANCE ALONG CROSS-SECTION (FT)
VERTICAL EXAGGERATION: 5x
PLAN VIEW SHOWING LINE OF SECTION A-A'
SCALE IN FEET
EXPLANATION
OBSERVATION MONITORING WELL
PUBLIC SUPPLY WELL
OU5 VERTICAL PROFILE BORING
OU5 VERTICAL PROFILE BORING
LINE OF SECTION
DESIGNATION OF HYDROGEOLOGIC ZONE FOR MONITORING WELL SCREEN INTERVALS (ARCADIS 2009)
SHALLOW
INTERMEDIATE
DEEP
DEEP2
TVOC CONTOURS
50 µg/L
500 µg/L
1000 µg/L
5000 µg/L
VERTICAL PROFILE DESIGNATION
WELL DESIGNATION
LAND SURFACE (APPROXIMATE)
ESTIMATED WATER-LEVEL ELEVATION (FT MSL)
TVOC CONCENTRATION (IN µg/L) OBTAINED FROM VPB HYDROPUNCH SAMPLES. THICK VALUE WHERE SHOWN WITH PURPLE HASH MARK REPRESENTS A NON-DETECT ANALYTICAL RESULT [ie., <5µg/L] AT INDICATED SAMPLE COLLECTION DEPTH. VALUES BETWEEN 5 AND 50µg/L ALSO SHOWN WITH PURPLE HASH MARK AT SAMPLE COLLECTION DEPTH
WELL SCREENED INTERVAL
END OF BORING
RARITAN CLAY CONFINING UNIT (TOP ELEVATION IS ESTIMATED)
FT FEET
MSL MEAN SEA LEVEL
TVOC TOTAL VOLATILE ORGANIC COMPOUND
NOTES:
1. HYDROGEOLOGIC ZONE BASED ON MODEL LAYER ELEVATIONS PRESENTED IN COMPREHENSIVE GROUNDWATER MODEL (ARCADIS 2009)
2. VERTICAL PROFILE BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS.
3. MONITORING WELLS SURVEYED TO NAD 1983.
4. THIS FIGURE UTILIZES DATA PRESENTED IN OCTOBER 2009 STUDY AREA REMEDIAL INVESTIGATION REPORT (ARCADIS 2009).
5. LAND SURFACE ESTIMATED FROM USGS QUADRANGLES (AMITYVILLE, HUNTINGTON, FREEPORT, AND HICKSVILLE)
6. THE GEOLOGICAL TERM "SAND" REFERENCED ABOVE IS DEFINED IN DETAIL IN THE STUDY AREA REMEDIAL INVESTIGATION REPORT. LOCALIZED LENSES OF LOWER PERMEABILITY NOT SHOWN. REFER TO STUDY AREA REMEDIAL INVESTIGATION REPORT FOR THIS INFORMATION (ARCADIS 2009).
7. A GROUNDWATER INTERIM REMEDIAL MEASURE WAS INSTALLED IN JULY 2009 TO CONTAIN ONSITE TOTAL VOLATILE ORGANIC COMPOUND PLUME. THE EFFECTIVENESS OF THE GROUNDWATER INTERIM REMEDIAL MEASURE WILL BE DOCUMENTED IN OPERATION, MAINTENANCE AND MONITORING REPORTS.
ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983
STUDY AREA FEASIBILITY STUDY
NORTHROP GRUMMAN SYSTEMS CORPORATION
OPERABLE UNIT 3 (FORMER GRUMMAN SETTLING PONDS)
BETHPAGE, NEW YORK
CONCENTRATIONS OF TVOCs IN GROUNDWATER (CROSS SECTION A-A')
ARCADIS
FIGURE 3-3

JH2

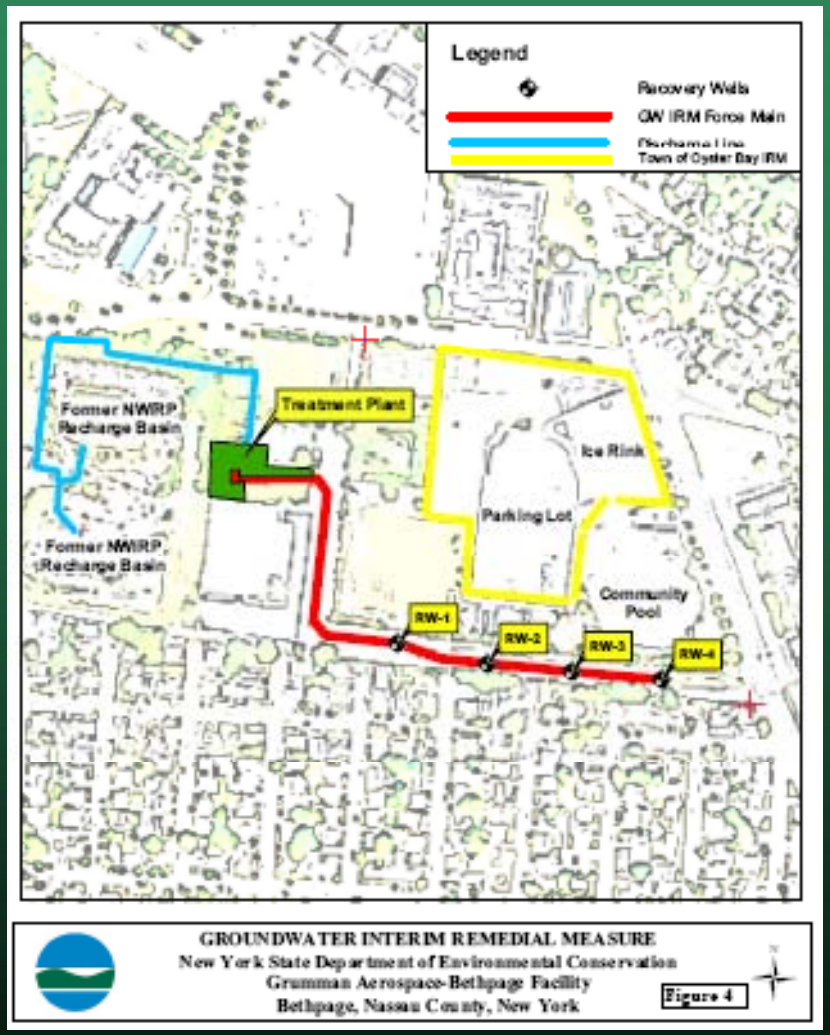
3 Interim Remedial Measures(IRMs)

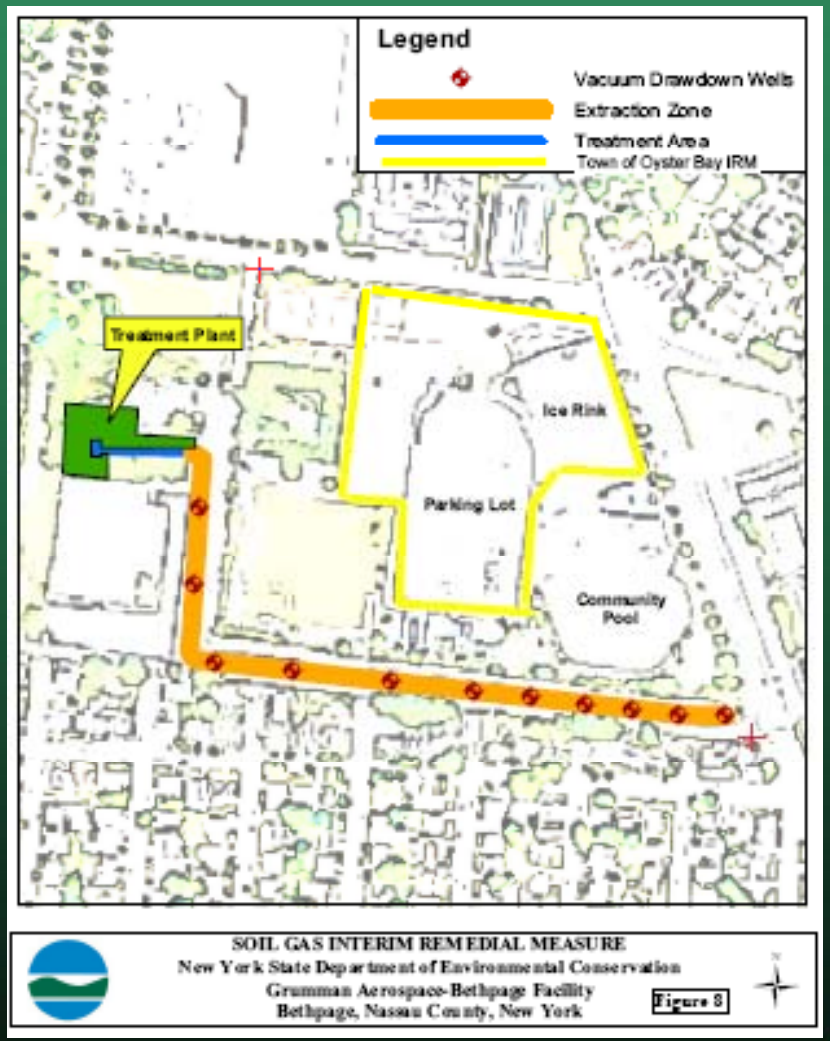
- 1. Town of Oyster Bay: Investigation & Remediation- 7 of 11 Acres (2006-7)
- 2. Grumman Soil Vapor Extraction (2008)
- 3. Grumman Groundwater Pump and Treat Containment (2009)

Slide 19

JH2 do we need both the slide w/ the bullets and the picture -
Jim Harrington, 6/8/2012

Interim Remedial Measures





Feasibility Study

- Develop alternatives
- Evaluate alternatives

JH3

Evaluation of Alternatives

The NYSDEC evaluates alternatives based on nine criteria:

1. Protection of human health and the environment
2. Compliance with standards, criteria and guidance
3. Short-term impacts and effectiveness
4. Long-term effectiveness and permanence
5. Reduction in toxicity, mobility and volume of contaminants
6. Implement ability
7. Cost effectiveness
8. Land use
9. Community Acceptance

Slide 22

JH3 need a slide introducing FS
Jim Harrington, 6/8/2012

Remedial Alternatives From the Proposed Plan

- Alternative 1 - No Action
- Alternative 2 - No Further Action
- Alternative 3 - Complete Excavation- Complete GW Extraction
- Alternative 4 - Site Capping, Groundwater Extraction
- Alternative 5 - Excavation to 10 feet *

* Proposed Alternative

Significant Components of the Proposed Alternative 5 Remedy Include:

– **For Soils:**

- Remove site soil above SCO's to 10 feet;
- Remove all hazardous waste;
- Remove soils above SCO's from Grumman Access Road;
- Treat soils in deep low permeability zone impacted with volatile organic compounds (VOCs) using in-situ thermal desorption and soil vapor extraction;
- Remove soil in residential yards near the Park to residential levels

- **For Groundwater:**
- Continue operation of on-site groundwater the pump and treat to prevent migration of groundwater offsite;

- Groundwater extraction and treatment of off-site groundwater hot spot with a goal of removing 90 percent of groundwater contaminant mass;

- The wellhead treatment contingency plan remains in effect.

- **Institutional Controls:** An environmental easement which will
  - Restrict use of the site
  - Prevent use of groundwater w/o treatment
  - Comply with Site Management Plan
    - Monitoring
    - Further Delineation of Downgradient Edge
    - Periodic Review

For Soil Vapor:

- Continued operation of the soil vapor extraction system to prevent migration.

Basis for Alternative 5

- Alt 1 and Alt 2 not protective
- Alt 3 - 5 have short term impacts but Alt 3 has more
- Long term effectiveness and permanence Alt 3-5 have same permanence but Alt 3 will take much longer
- Alt 3 has the most reduction in TM&V, Alt 4 has the least

Basis for Alternative 5 - Cont

- Implementability -Alt 4 is the easiest. Alt 3 may be possible but is problematic
  - Significantly larger amounts of soil removal
  - Significantly more offsite wells in densely populated area
  - Significantly more treated water to discharge
  - Potential impact on downgradient public supply wells

Basis for Alternative 5 - Cont

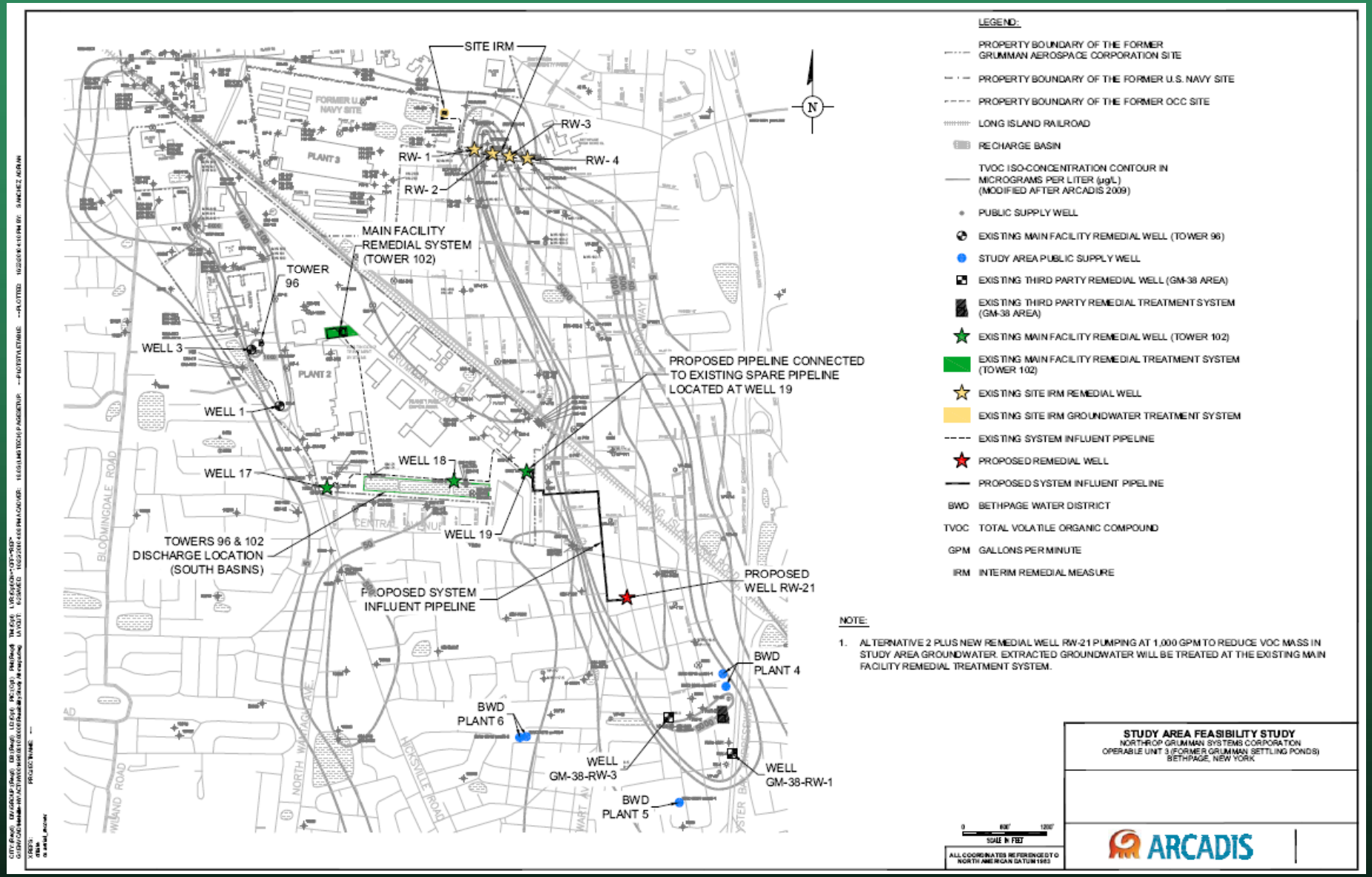
- Cost Effectiveness - Alt 3 is significantly more expensive than Alt 5 but will not provide significantly enhanced benefit.
  - Soil will comply with proposed use down to 10’
  - Downgradient groundwater may still become contaminated
  - Alt 3 has unknown costs relative to downgradient hydraulic impact

Cost of Proposed Remedy

- Present Worth - $ 81 M
  - Capital Cost - $ 61.5 M
  - Annual Operating Cost – $1.25 M

Remedial Alternative Costs

Remedial Alternative	Capital Cost $)	Annual Costs ($)	Total Present Worth ($)
Alternative 1	$0	$0	$0
Alternative 2	$0	$ 650,000	$10,450,000
Alternative 3	$189,000,000	$3,500,000	$194,000,000
Alternative 4	$40,250,000	$1,100,000	$58,000,000
Alternative 5	$61,500,000	$1,250,000	$81,000,000


SITE IRM
RW-3
RW- 1
RW- 4
RW- 2
MAIN FACILITY
REMEDIAL SYSTEM
(TOWER 102)
TOWER
96
WELL 3
WELL 1
WELL 17
WELL 18
WELL 19
PROPOSED PIPELINE CONNECTED
TO EXISTING SPARE PIPELINE
LOCATED AT WELL 19
TOWERS 96 & 102
DISCHARGE LOCATION
(SOUTH BASINS)
PROPOSED SYSTEM
INFLUENT PIPELINE
PROPOSED
WELL RW-21
BWD
PLANT 4
BWD
PLANT 6
WELL
GM-38-RW-3
WELL
GM-38-RW-1
BWD
PLANT 5
BLOOMINGDALE ROAD
NORTH WAMBAC AVE.
HICKSVILLE ROAD
PLANT 3
PLANT 2
FORMER U.S. NAVY SITE
N
LEGEND:
PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE CORPORATION SITE
PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
PROPERTY BOUNDARY OF THE FORMER OCC SITE
LONG ISLAND RAILROAD
RECHARGE BASIN
TVOC ISO-CONCENTRATION CONTOUR IN MICROGRAMS PER LITER (µg/L) (MODIFIED AFTER ARCADIS 2009)
PUBLIC SUPPLY WELL
EXISTING MAIN FACILITY REMEDIAL WELL (TOWER 96)
STUDY AREA PUBLIC SUPPLY WELL
EXISTING THIRD PARTY REMEDIAL WELL (GM-38 AREA)
EXISTING THIRD PARTY REMEDIAL TREATMENT SYSTEM (GM-38 AREA)
EXISTING MAIN FACILITY REMEDIAL WELL (TOWER 102)
EXISTING MAIN FACILITY REMEDIAL TREATMENT SYSTEM (TOWER 102)
EXISTING SITE IRM REMEDIAL WELL
EXISTING SITE IRM GROUNDWATER TREATMENT SYSTEM
EXISTING SYSTEM INFLUENT PIPELINE
PROPOSED REMEDIAL WELL
PROPOSED SYSTEM INFLUENT PIPELINE
BWD BETHPAGE WATER DISTRICT
TVOC TOTAL VOLATILE ORGANIC COMPOUND
GPM GALLONS PER MINUTE
IRM INTERIM REMEDIAL MEASURE
NOTE:
1. ALTERNATIVE 2 PLUS NEW REMEDIAL WELL RW-21 PUMPING AT 1,000 GPM TO REDUCE VOC MASS IN STUDY AREA GROUNDWATER. EXTRACTED GROUNDWATER WILL BE TREATED AT THE EXISTING MAIN FACILITY REMEDIAL TREATMENT SYSTEM.
STUDY AREA FEASIBILITY STUDY
NORTHROP GRUMMAN SYSTEMS CORPORATION
OPERABLE UNIT 3 (FORMER GRUMMAN SETTLING PONDS)
BETHPAGE, NEW YORK
SCALE IN FEET
ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983
ARCADIS

* Human Exposure Pathways
* Are People Being Exposed?

The DOH's Roll

Review available information

Evaluate if public health is being impacted by exposures to hazardous materials

Ensure that PRAP is protective of human health

Exposure

Contact with a hazardous material through:

- **Ingestion**
- **Inhalation**
- **Direct Contact**

If exposure does not occur – health cannot be impacted

Even if exposure does occurs – health may not be impacted

DOH Concurrence

- The DOH has determined that the proposed remedy is protective of public health

Contact Information

Steven Karpinski

Public Health Specialist

New York State Department of Health

Bureau of Environmental Exposure Investigation

Flannigan Square

547 River Street, Troy NY 12180

Phone: 1-518-402-7880

Northrop Grumman Former Grumman Settling Ponds

- **Availability Session: June 21, 2012**

7 – 9PM at Bethpage Community Center

Northrop Grumman Former Grumman Settling Ponds

Comment Period extended to July 30, 2012

Send written comments to:

Steven M. Scharf, P.E.
NYSDEC
625 Broadway 12th Floor
Albany, NY 12233-7015
sxscharf@gw.dec.state.ny.us
(518) 402-9620

Northrop Grumman Former Grumman Settling Ponds

- Public Comments

Northrop Grumman Former Grumman Settling Ponds

- Thanks for Coming!