

N61414.AR.001872
NAB LITTLE CREEK
5090.3a

TIER 2 SITE VISIT NAB LITTLE CREEK VA
10/27/1998
NAB LITTLE CREEK

Little Creek Tier II Site Visit



27 October, 1998

Attendees

Cherryl Barnett	REC
Paul Leonard	EPA
Durwood Willis	VDEQ
Bruce Frizzell	Quantico
Jeff Harlow	NWS Yorktown
Doug Dronfield	CH2MHill
Kelly Greaser	NAB Little Creek
Nina Johnson	LANTDIV
Bob Schirmer	LANTDIV

Schedule

Site 5 - Buildings 9-11 Motor Oil Disposal Area
SWMU 4 – Special Boat Squadron 2 Battery Storage Area
SWMU 2 – Steam Plant Flyash Silo
Site 7 – Amphibious Base Landfill
Site 8 – Demolition Debris Landfill
Site 16 – Pole #425 PCB Capacitor Spill
SWMU 3 – Pier 10 Sandblast Yard
Site 12 – Exchange Laundry Waste Disposal Area
Site 9 – Driving Range Landfill
Site 10 – Sewage Treatment Plant Landfill
SWMU 6 – Seabee Area
SWMU 5 - Building 3896 Boat Painting Area
Site 13 – PCP Dip Tank and Wash Rack
SWMU 1 – Small Transformer Storage Area
Site 11- School of Music Plating Shop

Site 5- Buildings 9-11 Motor Oil Disposal Area

History

Building T-9 was used for motor pool maintenance and was demolished in 1996. Building 116 was constructed in approximately the same location. Reportedly 50,000 gallons of oil and antifreeze may have been dumped on the ground in between T-9 and T-11. However, in the apparent disposal area, Marsden matting was present. The matting consisted of a solid steel plate under steel braces. The existence of the matting made it highly unlikely that disposal of this magnitude ever occurred. Building T-11 was a cable tank building with 10 tanks to store/perform maintenance on mooring cables for mines. In the 1960s, 7 tanks were filled with concrete. The remaining 3 were covered with steel plates. Reportedly, 43,000 gallons of oil and antifreeze were dumped in the remaining cable tanks. In both cases, improper disposal was assumed due to the lack of disposal records. No physical/visual evidence was ever found to indicate improper disposal.

Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Preliminary Site Inspection (1991)
Site Inspection (1994)
Groundwater Monitoring (2 rounds May & Dec 1996)
Draft Final NFRAP DD (Sept 1998)

Contamination

Soil - low levels of TPH detected – nothing to indicate massive disposal

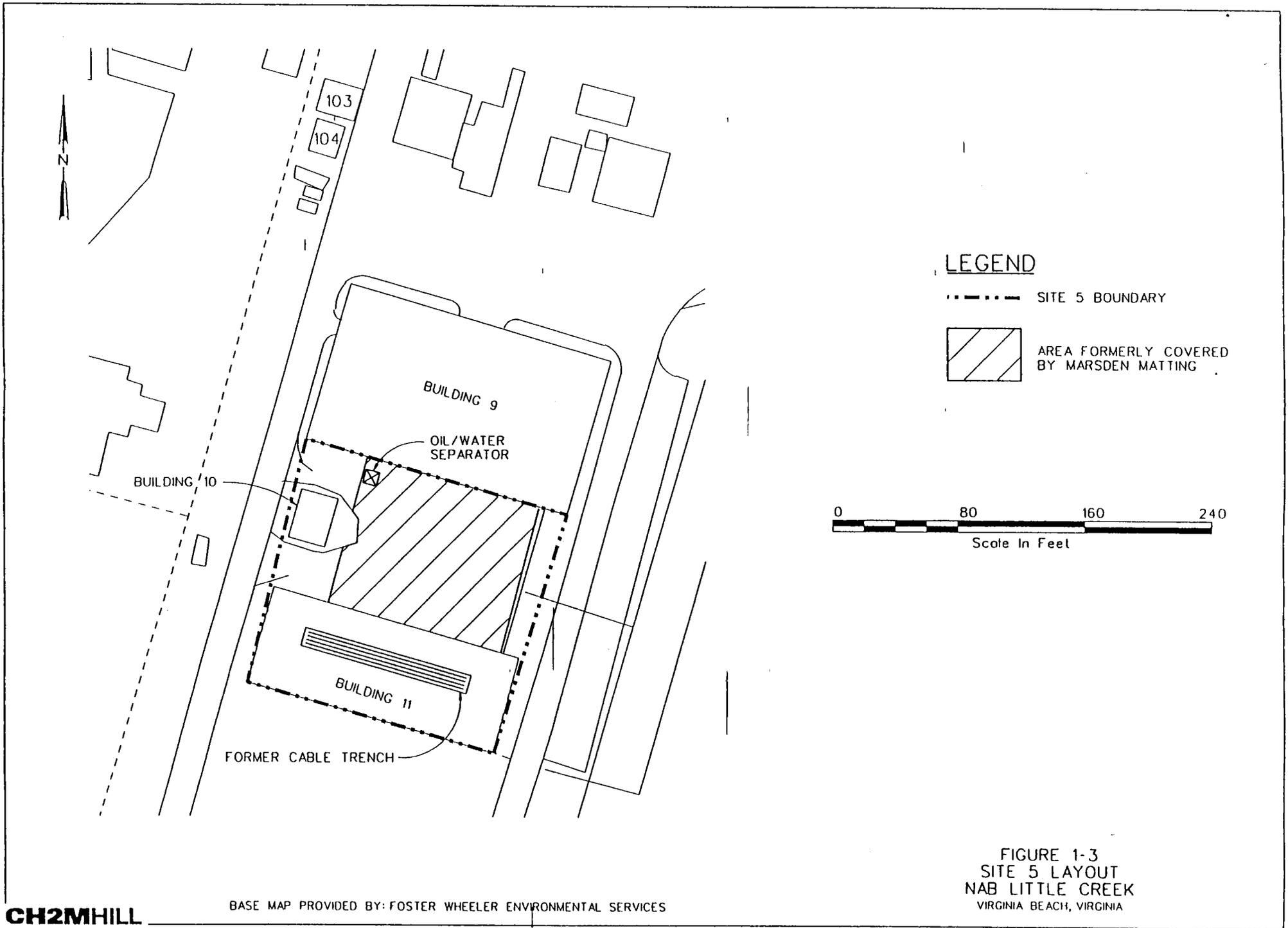
Groundwater - low levels of lead & 1,1-DCA. Two rounds of GW sampling continued to detect 1,1 DCA & chloroethane below RBCs in one well

Liquid in Cable Tanks - characteristic for lead. The liquid was removed and disposed; the tank was cleaned, filled, and covered with a concrete cap to prevent further disposal

Soil & Groundwater results indicate no risk posed by contamination.

Proposed FY 99 work

- Prepare Final No Further Response Action Planned Decision Document (NFRAP DD) and public notice. Comments on Draft Final due November 30, 1998. Public Notice announcing availability of Draft Final was published in the Virginian Pilot on October 11, 1998.



SWMU 4 – Special Boat Squadron 2 Battery Storage Yard

History

300 to 400 ft² area was used from 1943 until 1980 to store lead-acid batteries. Paint wastes, oily wastes, and scrap metals were also stored in this area. There were no release controls present. Oil stains were noted on the ground in the area. There are also reports of batteries rupturing during the winter, and their contents being released onto the ground. The site is paved with concrete and asphalt, with the exception of grass areas along the fence and around the buildings. Human contact with contaminated soil is possible in areas with exposed soil. Access to the site area is limited as the area is fenced with a controlled security gate.

Studies

Relative Risk Ranking System (RRRS)(1995)

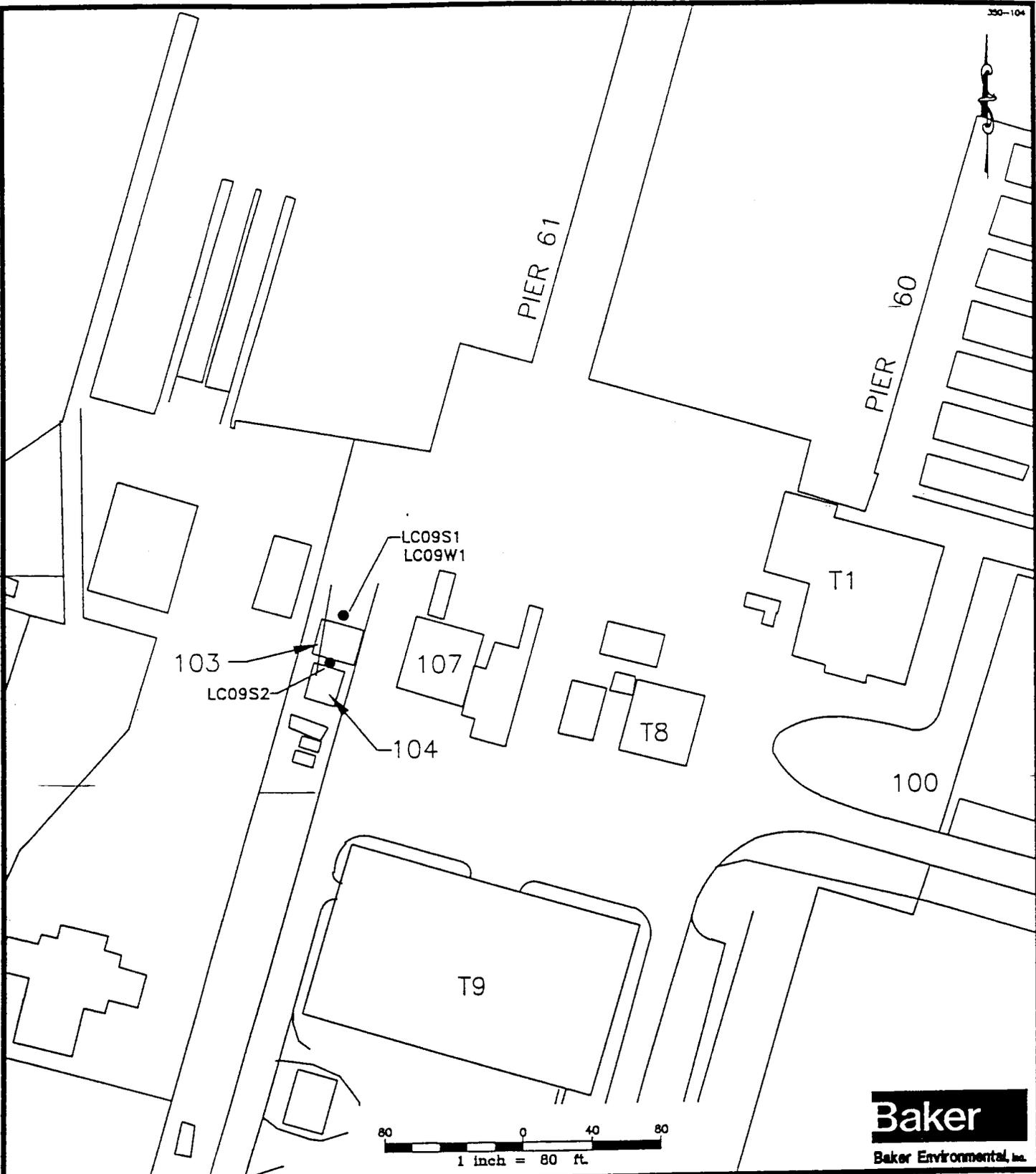
Contamination (From the RRRS)

Soil – Lead, manganese

Groundwater - Lead, antimony, manganese

Proposed FY 99 Work

- Conduct field investigations as part of the SI



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LEGEND

- - SURFACE SOIL SAMPLE
LC09S1-LC09S2
- - GROUNDWATER SAMPLE
LC09W1

SOURCE: NAB LITTLE CREEK, 1995

SAMPLE LOCATION MAP
SITE 117
SPECBOAT 2 BATTERY STORAGE AREA
SWMU 4
NAVAL AMPHIBIOUS BASE, LITTLE CREEK
NORFOLK, VIRGINIA

SWMU 2 – Steam Plant Flyash Silo

History

This area contains a flyash silo for the steam plant that has been operating since 1953. Bag houses are used to remove flyash from the steam plant exhaust. The collected flyash is transferred from the bag house to the silo by a vacuum pump system. The flyash is then stored in the silo until it is removed for disposal. Prior to transfer to railroad cars or trucks for transport, the flyash is sprayed with water for dust control. However, flyash was still released during transfer from the silo to the railroad cars. The site is partially covered with concrete under and around the flyash silo, with a paved access road to the north. The rest of the site is covered with vegetation.

Studies

Relative Risk Ranking System (RRRS)(1995)

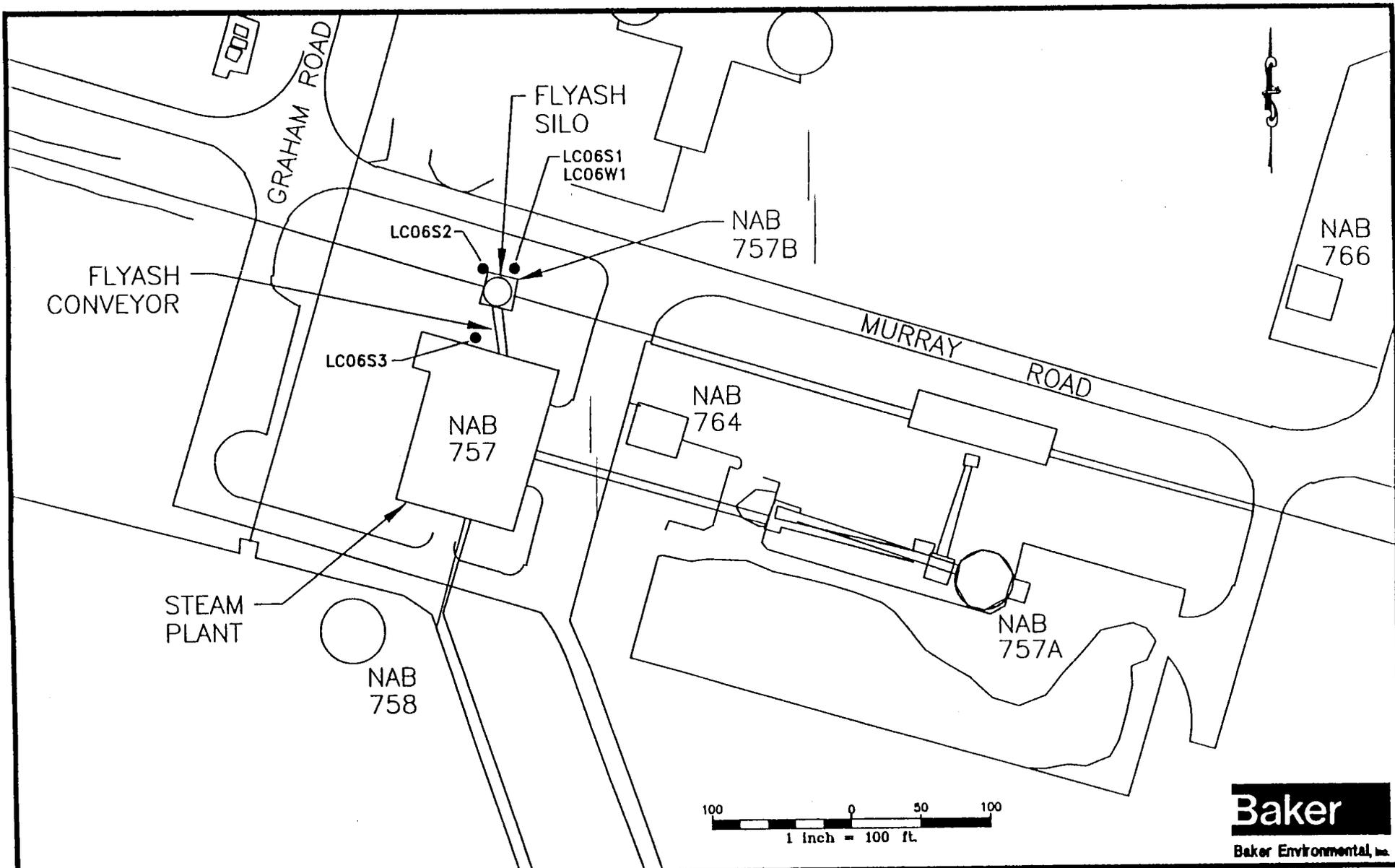
Contamination (From the RRRS)

Soil – Arsenic, antimony, beryllium, manganese

Groundwater – Arsenic, beryllium, lead, manganese, vanadium

Proposed FY 99 Work

- Conduct field investigations as part of SI
- Possible EE/CA for soil removal



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LEGEND

- LC06S1-LC06S3 - SURFACE SOIL SAMPLE
- LC06W1 - GROUNDWATER SAMPLE

SOURCE: NAB LITTLE CREEK, 1995

SAMPLE LOCATION MAP
SITE 105
STEAM PLANT FLYASH SILO
SWMU 2
NAVAL AMPHIBIOUS BASE, LITTLE CREEK
NORFOLK, VIRGINIA

Site 7-Amphibious Base Landfill

History

The landfill (38 acres-500,000 cy) operated from 1962-1979 initially as a trench type landfill then as an area landfill. During its period of operation, it accepted all wastes from NAB Little Creek. Until closure, the landfill operated under a Virginia solid waste permit. At the time of closure, the landfill was covered with 24" of compacted soil for the final cover. Open burning continued on the site until 1984. In 1994 the landfill was covered with 6 inches of soil and revegetated. Due to the landfill's location within the explosive arc of the ordnance magazine, no buildings or traveled roads can be built on the site. As part of the approved Remedial Action, in 1998, OHM removed 610 cy of debris from the shoreline and replaced the fence around the landfill. Hudgins Corp placed 20,000 cy of soil and vegetated with wildlife grasses. The landfill waste is now located approximately 30" below the ground surface. Because the institutional control issue had not been resolved, the DD for the remedial action was not signed by VDEQ.

Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Interim Remedial Investigation (1991)
Remedial Investigation/Feasibility Study (1994)
Supplemental Ecological Assessment (1996)
Site Monitoring Plan (1997)
Feasibility Study (1997)
Proposed Remedial Action Plan (1997)
Debris Removal Design (1997)
Soil Cover Design (1997)
Final Decision Document (1998)

Contamination

Soil - PCB, arsenic, cadmium, chromium, copper, manganese, nickel, zinc

Groundwater - Arsenic, chromium, silver, thallium, zinc

Sediment - SVOCs, PCBs, arsenic, beryllium, copper, iron, lead, manganese, zinc

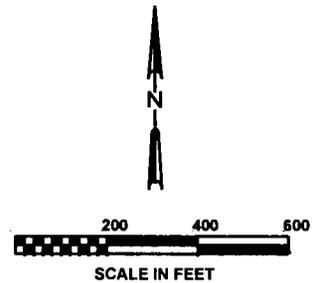
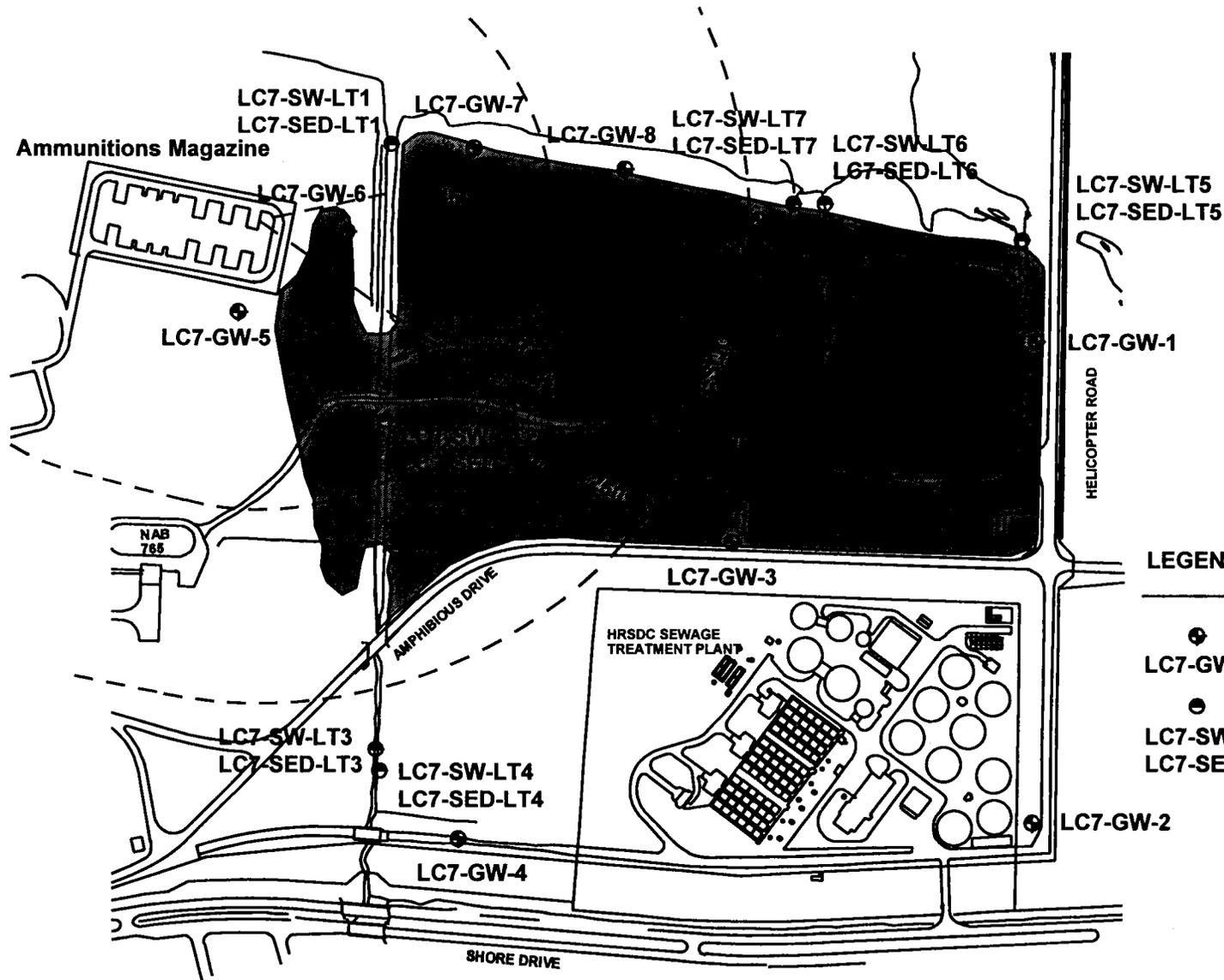
Surface Water - Arsenic, copper, iron, lead, manganese, zinc

The Supplemental Ecological Assessment concluded that there are a variety of sources for the Contaminates of Concern (COC) found in Little Creek Harbor. Although localized impacts from the COCs may be related to Site 7, there does not appear to be a significant impact on the ecological resources of Little Creek Harbor.

Proposed FY 99 Work

- Continue semi-annual groundwater, surface water, and sediment monitoring (Rounds 2 and 3)
- Submit periodic groundwater monitoring letter reports

LITTLE CREEK COVE



LEGEND

- SITE BOUNDARY
- ⊕ EXISTING MONITORING WELL
- SURFACE WATER AND SEDIMENT SAMPLING LOCATION

Site 7

Site 8 – Demolition Debris Landfill

History

Formerly classified as SWMU 84. The landfill (2 acres-4840 cy) operated from 1971 to 1979 as a disposal area for demolition debris. The landfill was constructed in a pit PWC had excavated materials from to cover parking lots. Wastes were placed to a depth of 3'. Wastes contained within the landfill included a potentially mercury-contaminated carpet from the demolition of a dental clinic, debris from buildings destroyed by fire, concrete piping, and debris removed from the bar screen in the base sewage treatment plant. Due to the lack of any records indicating hazardous waste disposal, and because the landfill operated while Site 7 was still open, it is assumed no hazardous waste was placed at Site 8. As part of the Site Investigation in September 1998, five monitoring wells were installed and sampled, as well as eight surface and subsurface soil samples, and four sediment samples.

Studies

Relative Risk Ranking System Evaluation (RRRS) (1995)
SI field investigation completed in FY 98

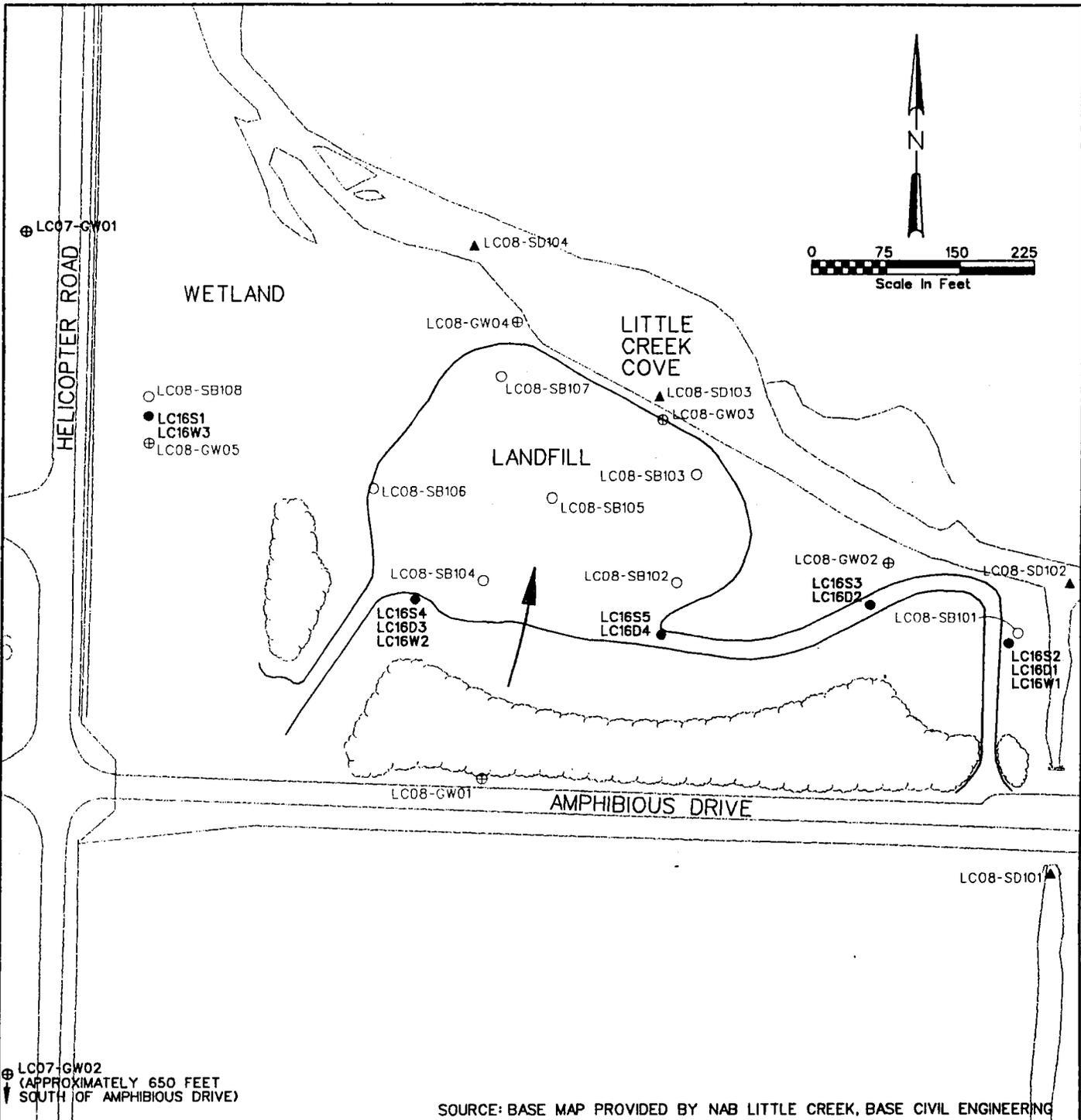
Contamination (from the RRRS)

Soil – Arsenic, antimony, lead, manganese, PCBs

Groundwater - Arsenic, barium, beryllium, cadmium, chromium, lead, manganese, nickel, vanadium

Proposed FY 99 Work

- Perform qualitative baseline human health and ecological risk assessment
- Prepare SI report



SOURCE: BASE MAP PROVIDED BY NAB LITTLE CREEK, BASE CIVIL ENGINEERING

LEGEND

- LC16S1-LC16S6 ● PREVIOUS SURFACE SOIL SAMPLE
- LC16D1-LC16D5 ● PREVIOUS SUBSURFACE SOIL SAMPLE
- LC16W1-LC16W3 ● PREVIOUS GROUNDWATER SAMPLE
- LC07-GW02 ⊕ EXISTING MONITORING WELL (ASSOCIATED WITH SITE 7)
- LC08-SB101 ○ PROPOSED SOIL SAMPLING LOCATION
- LC08-SD101 ▲ PROPOSED SEDIMENT SAMPLING LOCATION
- LC08-GW01 ⊕ PROPOSED MONITORING WELL LOCATION
- ➔ ANTICIPATED GENERAL DIRECTION OF GROUNDWATER FLOW
- APPROXIMATE DEMOLITION DEBRIS LANDFILL BOUNDARY
- ⋈ WOODED AREA

Figure 3-2
PROPOSED SAMPLING LOCATIONS
SITE 8 - DEMOLITION DEBRIS LANDFILL
NAB LITTLE CREEK
 VIRGINIA BEACH, VIRGINIA

Site 16 – Pole #425 PCB Capacitor Spill

History

In the early 1980s, a lightning strike caused less than 5 gallons of PCB-containing dielectric fluid to leak from the capacitor on pole #425. Subsequent investigations revealed Aroclor 1260 above action levels in the soil. A removal action in 1995 removed the contaminated soil, the pole, and surrounding vegetation. The Closeout Report documented the implementation of all appropriate and required response actions. It was approved with no comments from the public, state, or EPA. The site is now closed – No Further Response Action Planned (NFRAP).

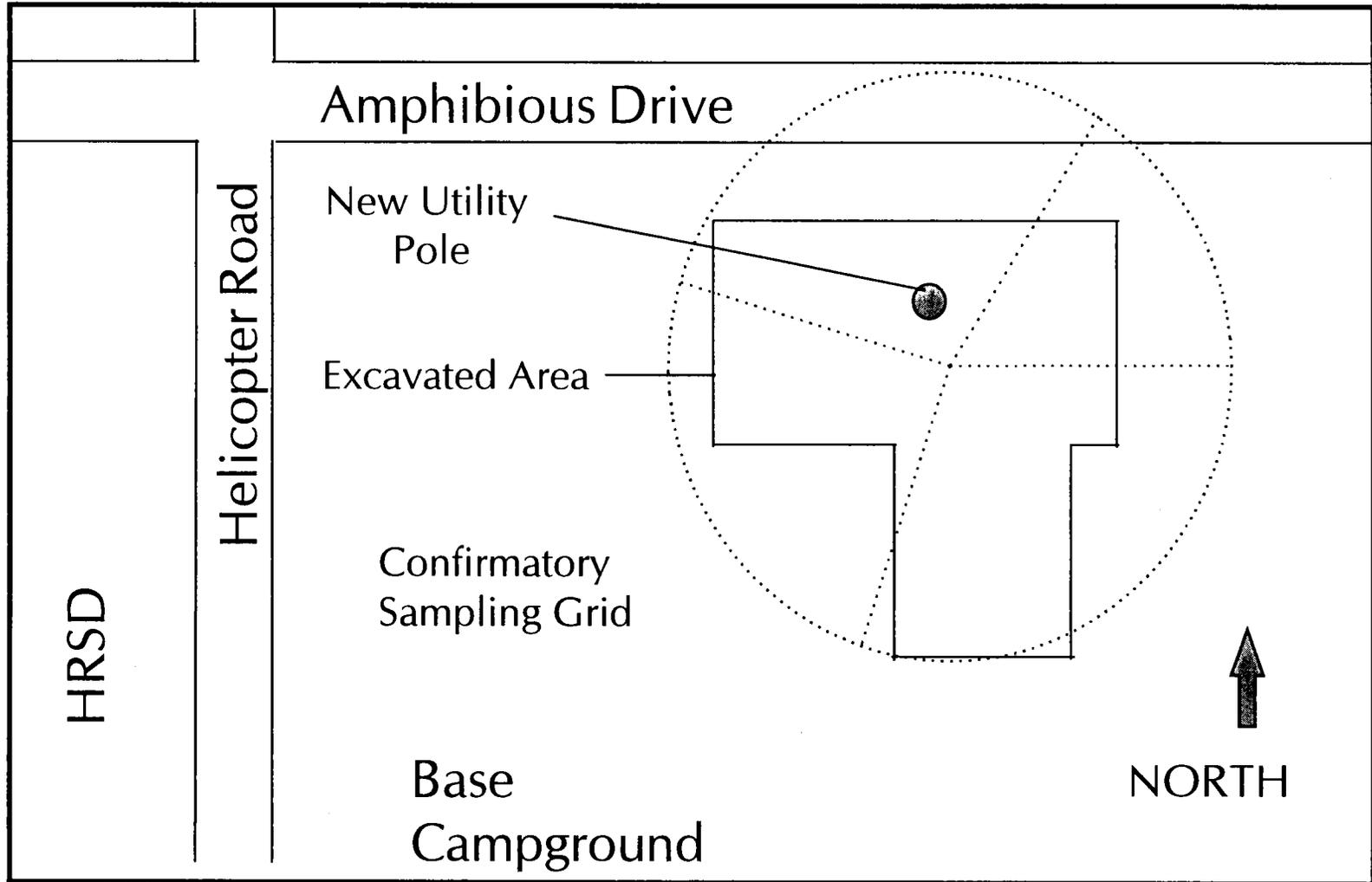
Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Preliminary Site Inspection (1991)
Site Inspection (1994)
Corrective Measures Plan (1994)
Soil Removal Action Closeout Report (1995)

Contamination

None remaining

SITE 16



SWMU 3 – Pier 10 Sandblast Yard

History

This area was used for sandblasting boats from 1962 to 1984. After 1984, anchors and anchor chains were sandblasted at the site. Up until 1995, sandblasting took place on a concrete pad located on the west side of Building 1263. The sandblast material was periodically removed from the site for disposal following EP toxicity testing indicating the residue was not hazardous. Paint chips and grit covered the unpaved ground south of the pad to the water's edge and the nearshore bottom of Little Creek Harbor. In 1982, a fence with privacy slats was installed around the sandblasting area to limit access to the site. The fence also prevents windblown sandblast materials from migrating outside the area. This fence is generally closed and locked outside working hours. In 1993 the area had been covered with asphalt, except for a small area to the northeast of the sandblasting pit. Little or no vegetation covers this unpaved area. Prior to 1993, runoff from sandblasting operations occurred as sheet flow. In 1993, a catch basin and a regulated outfall were constructed at the site. Some runoff from other areas of the site may still flow into Little Creek Harbor, located on the east side of SWMU 3. In 1995, a new sandblasting area was constructed in the northwest corner of the compound. This new area consisted of a concrete pad surrounded by a 4 to 5 foot concrete wall. The new sand blasting area was only used for about a year. Now all blasting on the base occurs *inside* building CB-125, a new facility built specifically for blasting. A picnic area located in the southwest portion of SWMU 3 is currently off-limits to personnel. A project has been funded to cover the area with 3" of soil and sod. Historic releases likely occurred in the past when sandblasting residue was lying directly on the ground surface.

Studies

Relative Risk Ranking System (RRRS)(1995)

SI field investigation completed in FY 98

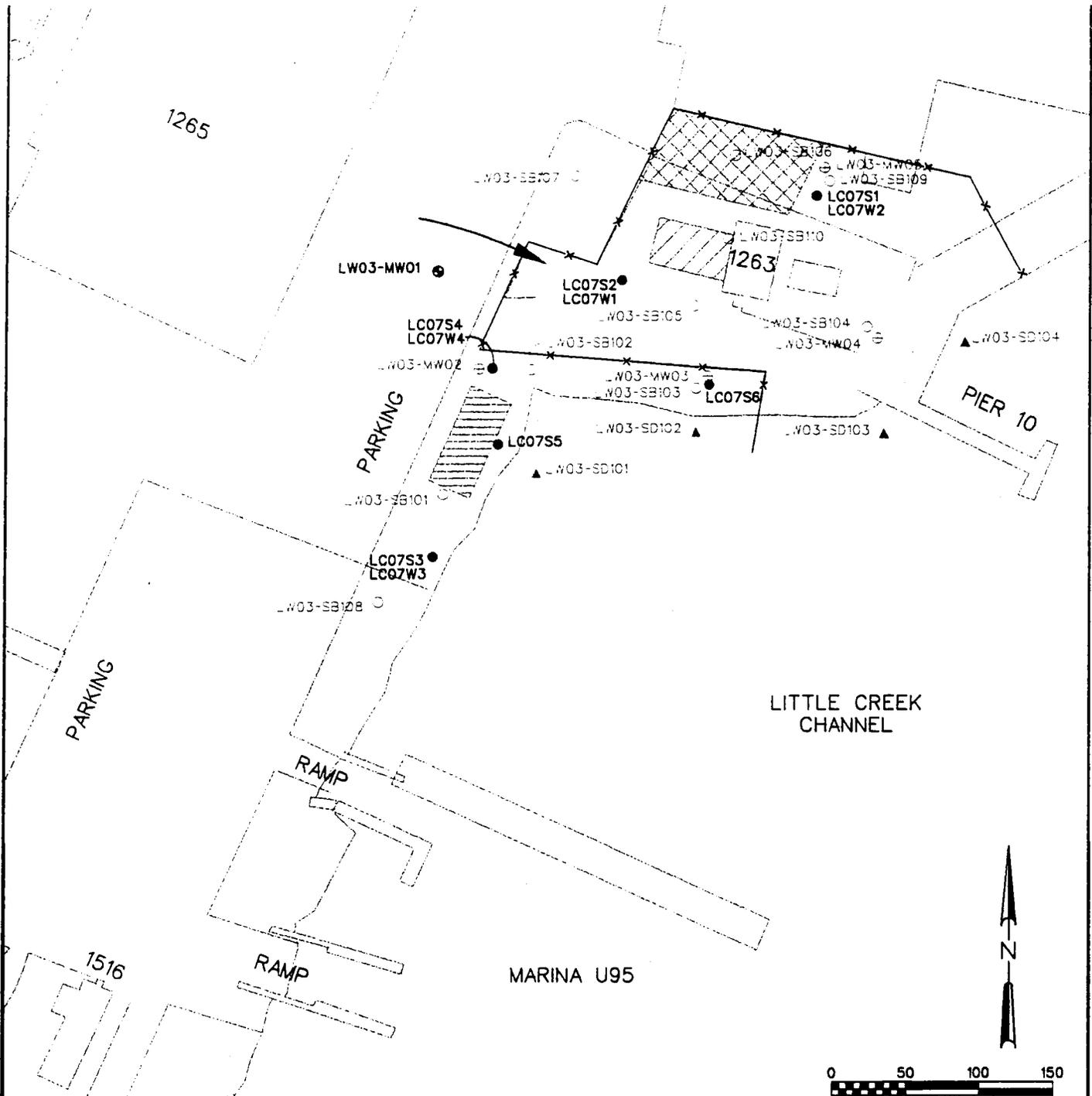
Contamination (From the RRRS)

Soil - Arsenic, antimony, beryllium, chromium, copper, lead, manganese, nickel, zinc

Groundwater - Total (unfiltered) metals: Arsenic, beryllium, cadmium, chromium, copper, lead, manganese, nickel, vanadium

Proposed FY 99 Work

- Perform qualitative baseline human health and ecological risk assessment
- Prepare SI report



SOURCE: BASE MAP PROVIDED BY NAB LITTLE CREEK, BASE CIVIL ENGINEERING

LEGEND

- LC07S1-LC07S6 ● PREVIOUS SURFACE SOIL SAMPLING LOCATION
- LC07W1-LC07W4 ● PREVIOUS GROUNDWATER SAMPLING LOCATION
- LW03-SB101 ○ PROPOSED SOIL SAMPLING LOCATION
- LW03-SD101 ▲ PROPOSED SEDIMENT SAMPLING LOCATION
- LW03-MW02 ⊕ PROPOSED MONITORING WELL LOCATION
- LW03-MW01 ⊕ EXISTING MONITORING WELL
- ➔ ANTICIPATED GENERAL DIRECTION OF GROUNDWATER FLOW

- x—x— FENCE
- [Diagonal Hatching] FORMER SANDBLASTING AREA
- [Cross Hatching] CURRENT SANDBLASTING AREA
- [Horizontal Hatching] APPROXIMATE LOCATION OF PICNIC AREA

Figure 1-2
PROPOSED SAMPLING LOCATIONS
SWMU 3 - PIER 10 SANDBLAST AREA
NAB LITTLE CREEK
VIRGINIA BEACH, VIRGINIA

Site 12 – Exchange Laundry Disposal Area

History

The former Exchange Laundry/Dry Cleaning Facility was located to the south of the current Commissary (Building 3445). A former storm drain near the building received dry cleaning wastes from 1973 to 1978. Potentially 1320 gallons of waste including PCE sludge, sizing, soap, and dye were disposed. The storm drain flowed north and discharged into a canal that flows from Lake Bradford to Little Creek Cove. The storm drain and affected soil was removed when the new commissary was built in 1993. Location of the plume indicates that little or no wastes traveled along the storm drain after disposal. Wastes may have released from the catch basin directly into the soil and down to groundwater. Recent investigations detected PCE at 23,000 ppb at ML-12 in the middle of the site. However, all of the wells bordering the canal were clean. The surface water and sediment in the canal was also clean in the past investigation. Due to the potential discharge of contaminants into the canal, water level monitoring of the site began in August 1997. The purpose of the study is to determine the relationship between groundwater and surface water flow in the canal. The study indicates that over the majority of the year groundwater flows west towards the canal, then diverts south along the canal. Surface water in the canal discharges to groundwater. However, during extreme drought periods, groundwater may recharge the canal. VA Tech is studying this site to verify a natural attenuation groundwater model. As part of the study, several multi-level samplers were installed and soil samples have been taken to perform microcosm studies in order to determine the parameters required for the model.

Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Phase 1 & 2 Environmental Assessment (1990 & 1991)
Interim Remedial Investigation (1991)
Site Characterization Report (1992)
Remedial Investigation/Feasibility Study (1994)
Phase 1 Supplemental Remedial Investigation (1996)
Phase 2 Supplemental Remedial Investigation (1997)

Contamination

Soil - VOC and SVOC, lead

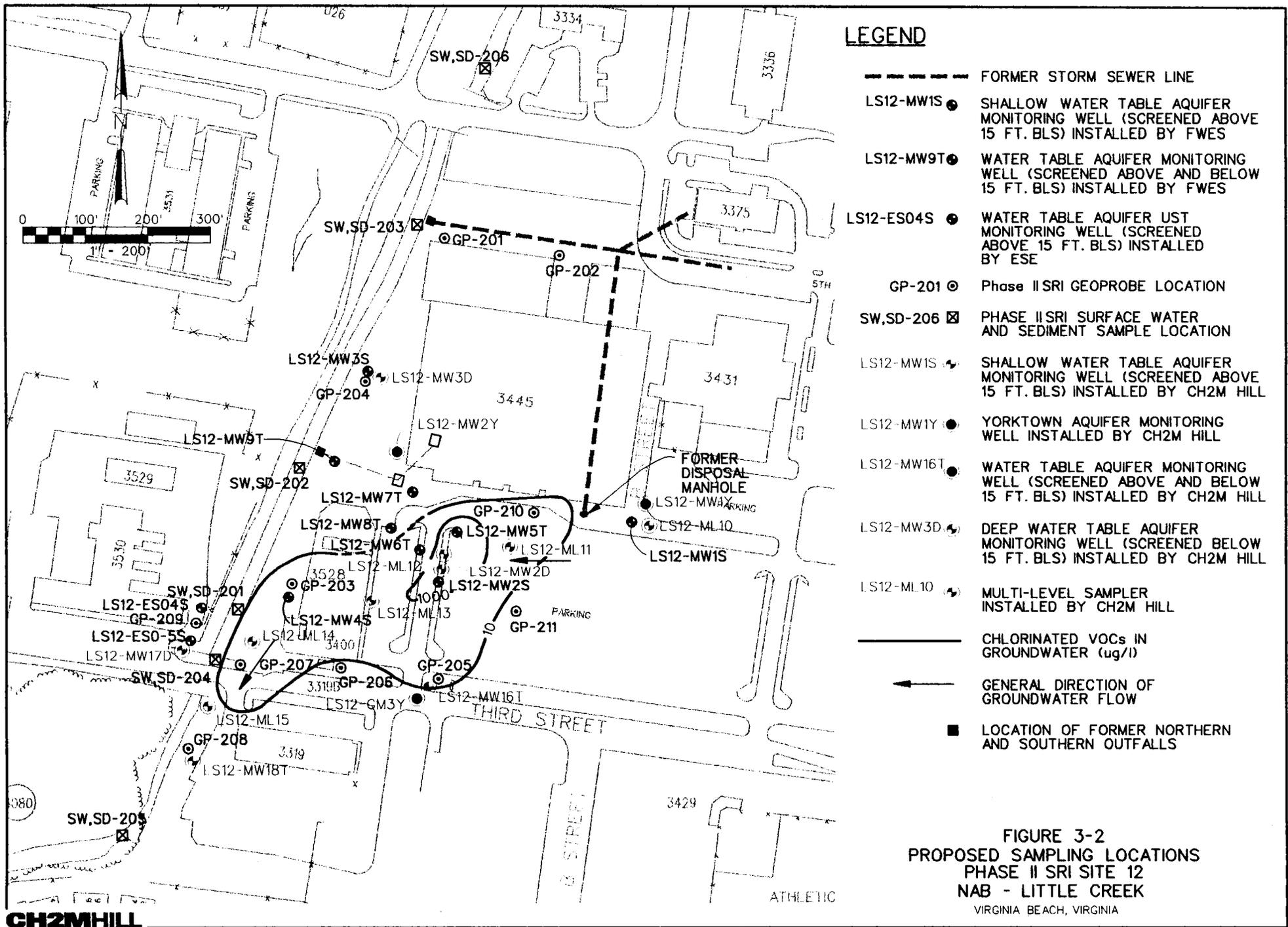
Groundwater - PCE, TCE, 1,2-DCE (total)

Surface Water - ND for chlorinated solvents in 91 and 97 and <20 ppb in 93

Sediment - ND for chlorinated solvents in 91 and 97 and <20 ppb in 93

Proposed FY 99 Work

- Conduct microcosm and sorption experiments and modeling
- Reevaluate baseline qualitative human health risk assessment
- Prepare Phase II SRI
- Conduct second round of groundwater sampling – July 1999



Site 9 – Driving Range Landfill

Site 10 – Sewage Treatment Plant Landfill

History

Site 9 - Operated from 1950 to 1956, contains 40,000 cy and is 6 acres. Contains mostly non-hazardous, solid, household waste.

Site 10 – Operated from 1941 to 1968, contains 46,500 cy and is 18 acres. From 1941 to 1952 the landfill accepted all wastes created on-base. From 1952 to 1968 sewage sludge from the nearby sewage treatment plant was disposed in the landfill.

Three rounds of groundwater and one round of soil sampling were performed at both sites. Neither site poses a current risk. The long-term remedy is institutional controls and groundwater monitoring. All analyses of groundwater monitoring data to date have met trigger levels for the two sites.

Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Interim Remedial Investigation (1991)
Remedial Investigation/Feasibility Study (1994)
Final Proposed Remedial Action Plan (1997)
Groundwater Monitoring Plan (1997)
Draft Final Decision Document (1997)

Contamination

Soil - Arsenic, beryllium, lead, manganese, nickel, zinc

Groundwater - Arsenic, barium, beryllium, lead, nickel, zinc

Proposed FY 99 Work

- Conduct 6th round groundwater monitoring Dec 1998
- 3-year Groundwater Monitoring Report expected by April 1999
- Resolve institutional control issue and finalize the DD

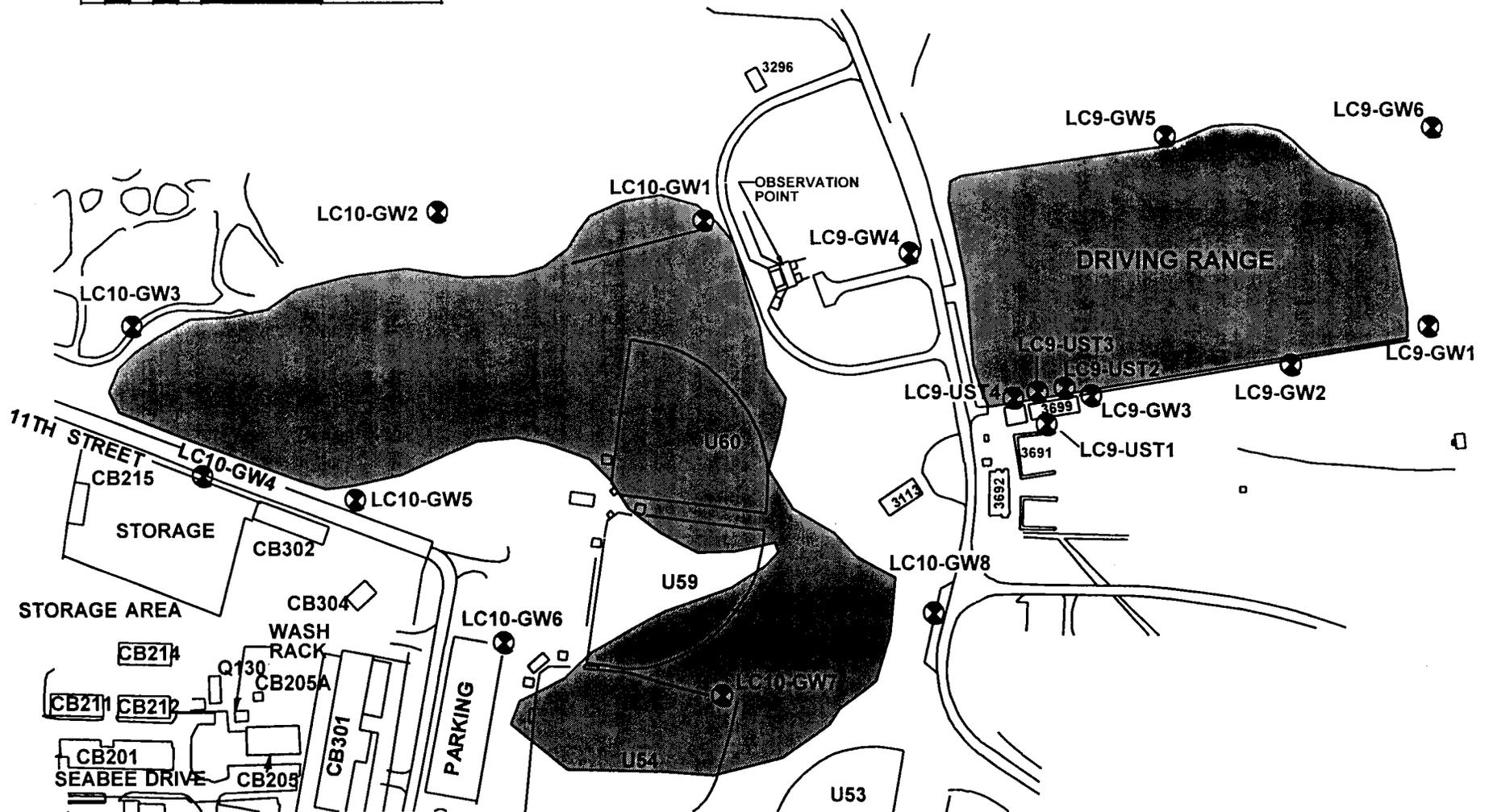


LEGEND

— SITE BOUNDARY

 EXISTING MONITORING WELL
LC9-GW6

GRAPHIC SCALE



SWMU 6 – SeaBee Area

History

This area consists of three separate waste management areas. 1) Former SWMU 131, Satellite Accumulation Point for Paint Wastes, included a 55-gallon drum and several smaller cans stored on a wooden pallet over bare soil. Wastes included paints and thinners. No release controls were present and soil staining was evident. 2) Former SWMU 132, Inoperative Wire Degreaser, was an elevated trough 20 feet long and 12 inches deep filled with JP-5 aircraft fuel to degrease wires. The degreaser has been taken out of service. No release controls were present and there was evidence that JP-5 apparently leaked from a valve and stained the soil below. 3) Former SWMU 133, Excess Material Storage Area, was a gravel yard used to store excess paints, cables and other material. The paints were stored on wooden pallets and were covered with canvas tarps. Stains were observed in this area.

An asphalt road exists along the perimeter of the site. Concrete slabs indicate the locations of former structures. The remainder of the site is soil with little to no vegetative cover. The site is completely open, with unrestricted access. Human contact with potentially contaminated soils is possible.

Studies

Relative Risk Ranking System (RRRS)(1995)

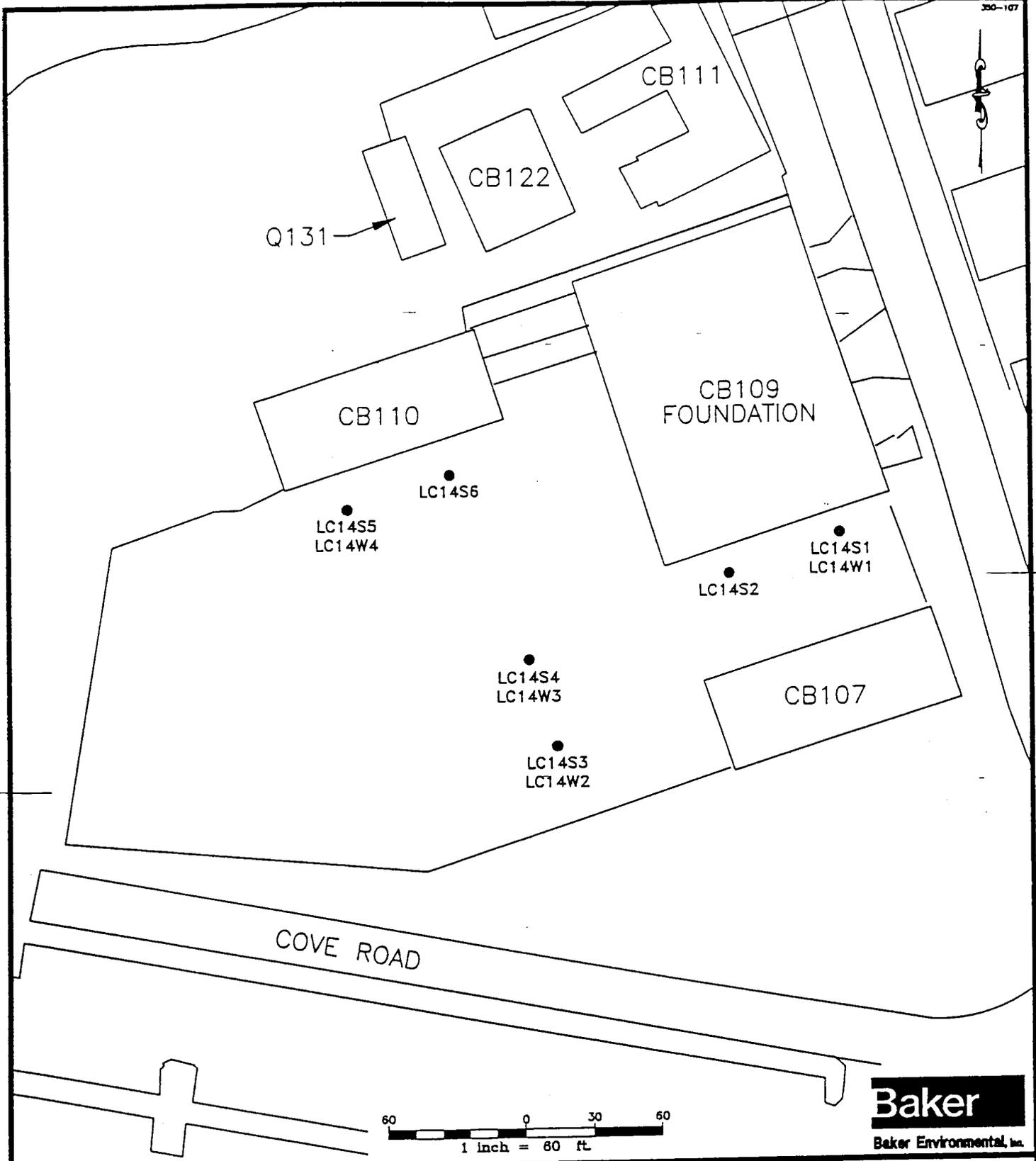
Contamination (From the RRRS)

Soil – Arsenic, antimony, chromium, lead, manganese

Groundwater - Arsenic, antimony, beryllium, chromium, lead, manganese

Proposed FY 99 Work

- Conduct field investigations as part of the SI



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LEGEND

- - SURFACE SOIL SAMPLE
LC14S1-LC14S6
- - GROUNDWATER SAMPLE
LC14W1-LC14W4

SOURCE: NAB LITTLE CREEK, 1995

SAMPLE LOCATION MAP
SITES 131, 132 & 133
SEABEE AREA

SWMU 6

NAVAL AMPHIBIOUS BASE, LITTLE CREEK
NORFOLK, VIRGINIA

SWMU 5 – Building 3896 Boat Painting Area

History

Activities at this site included grinding of boat hulls in preparation for painting, and painting of boats. Metal grindings and paint over-spray were allowed to fall onto the ground. No release controls were present. In addition, bilge water, metal grindings, paints, and thinners were released to the soil. The site was paved with concrete and/or asphalt after boat maintenance activities were initiated at the site. There is, however, an area north of the current boat maintenance area and along the compound fence that is unpaved and has little vegetative cover. Access to the site is restricted. Little Creek Cove is located south of the site and may receive some surface water discharge.

Studies

Relative Risk Ranking System (RRRS)(1995)

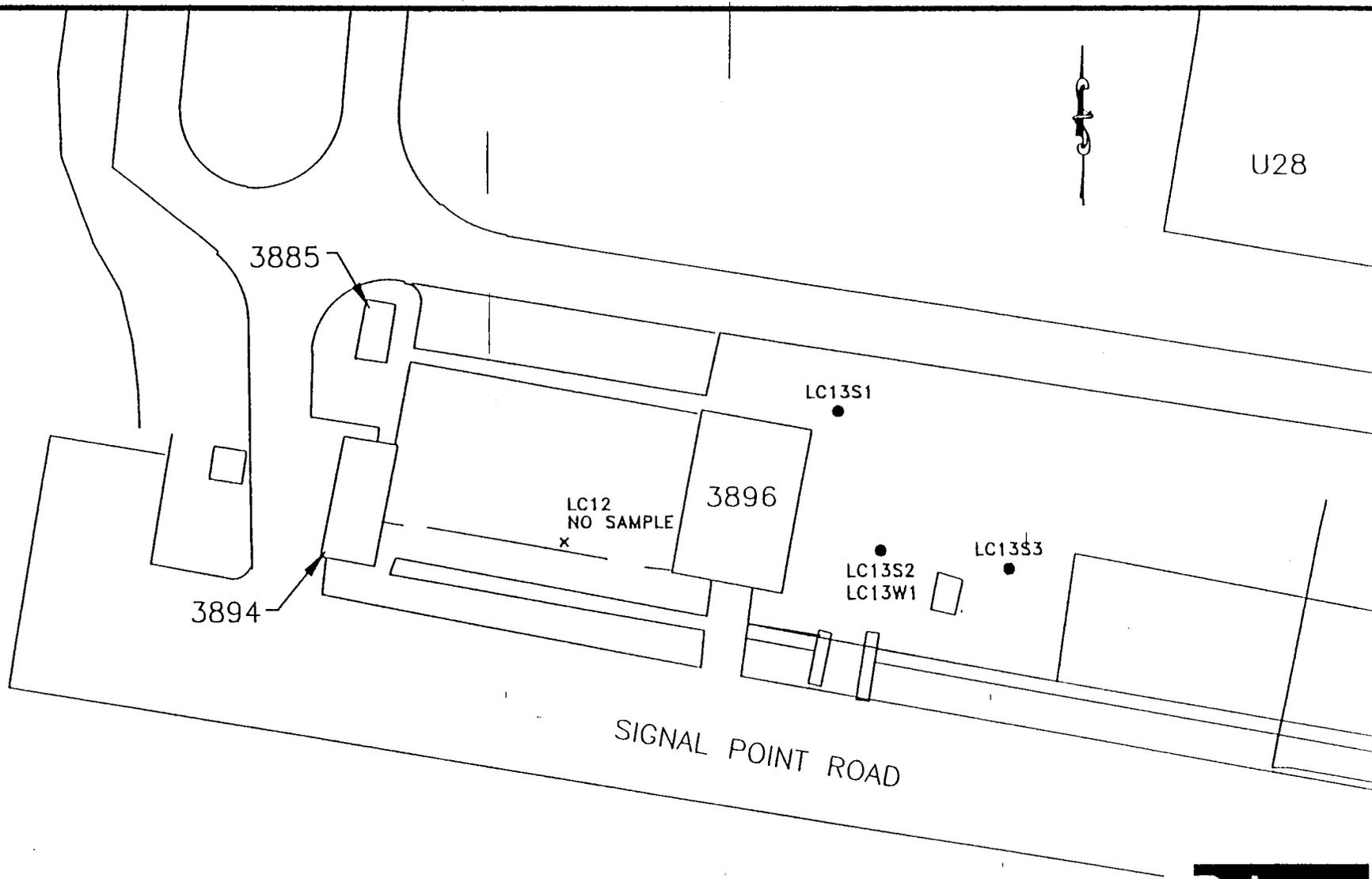
Contamination (From the RRRS)

Soil – SVOCs, antimony, beryllium, lead, manganese

Groundwater – Arsenic, antimony, beryllium, chromium, lead, manganese, vanadium

Proposed FY 99 Work

- Conduct field investigations as part of SI



U28

3885

LC13S1

LC12
NO SAMPLE
x

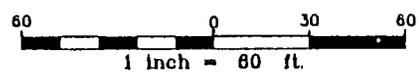
3896

LC13S2
LC13W1

LC13S3

3894

SIGNAL POINT ROAD



SWMU 5

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LEGEND

- LC13S1-LC13S3 - SURFACE SOIL SAMPLE, SITE 130
- LC13W1 - GROUNDWATER SAMPLE, SITE 130
- x LC12 - NO SAMPLE, SITE 129

SOURCE: NAB LITTLE CREEK, 1995

SAMPLE LOCATION MAP
 SITE 129 - BLDG. 3896 AREA,
 SATELLITE ACCUMULATION POINT
 SITE 130 - BLDG. 3896 AREA,
 BOAT PAINTING
 NAVAL AMPHIBIOUS BASE, LITTLE CREEK
 NORFOLK, VIRGINIA

Site 13 – Public Works PCP Dip Tank and Wash Rack

History

The site consists of 1) a PCP dip tank formerly used to treat wood with a mixture of 1 part PCP to ten parts diesel and kerosene. The tank held approximately 1500 gallons of solution and was used from the 1960s to 1974. The tank was dismantled in 1982. 2) An adjacent area containing drying racks for the PCP treated wood, directly east of the tank. 3) An open area formerly used by PWC for storage of supplies and equipment, south of the tank and drying racks. The IAS reported readily observable staining in this area by solvents, paint, fuel, and tar. 4) A concrete wash rack. PWC still uses this wash rack to clean vehicles with steam and biodegradable chemical cleaners. Water from the wash rack drains into an oil/water separator located under the driveway. The area formerly containing the PCP dip tank and drying rack has since been paved with asphalt and converted to a PWC storage area. PWC continues to use the open area for storage of inert material, and stains are no longer present. Recent investigations show PCP south of the dip tank and PCE, TCE, DCE, and VC south of the wash rack. However, the concentration of the VOCs has drastically decreased in three years. Concentrations dropped from 2170 ppb to 87 ppb. The PCP plume also drops as it reaches the previous VOC plume. It is possible that bacteria used PCP as a food source while degrading PCE and its breakdown products. Several wells have been installed to better define the chemistry in the area.

Studies

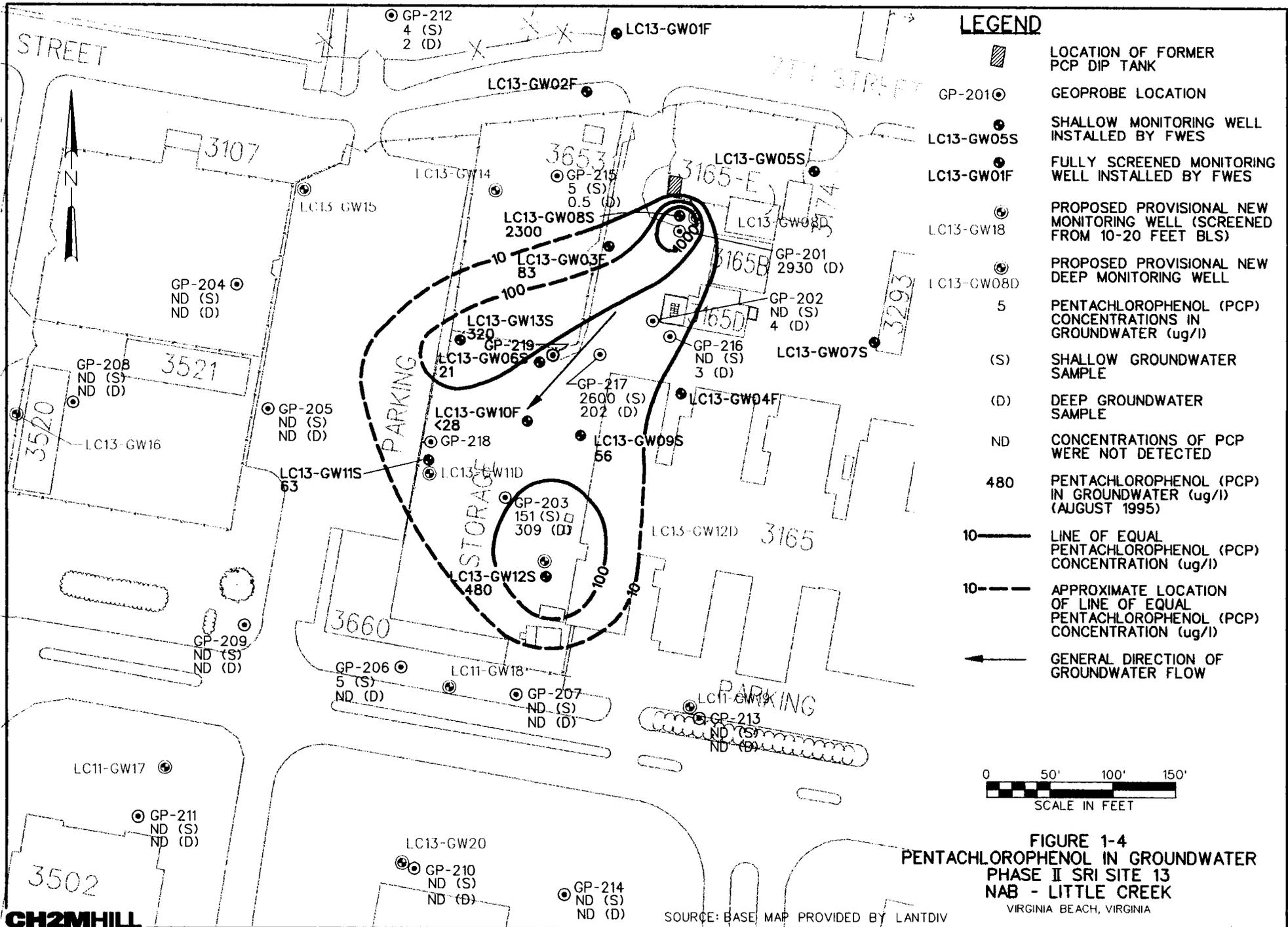
Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Interim Remedial Investigation (1991)
Remedial Investigation/Feasibility Study (1994)
Phase I Supplemental Remedial Investigation (1996)
Phase II Supplemental Work Plan (1998)
Draft Final Engineering Evaluation/Cost Assessment - Soil Removal Action (Sept 1998)

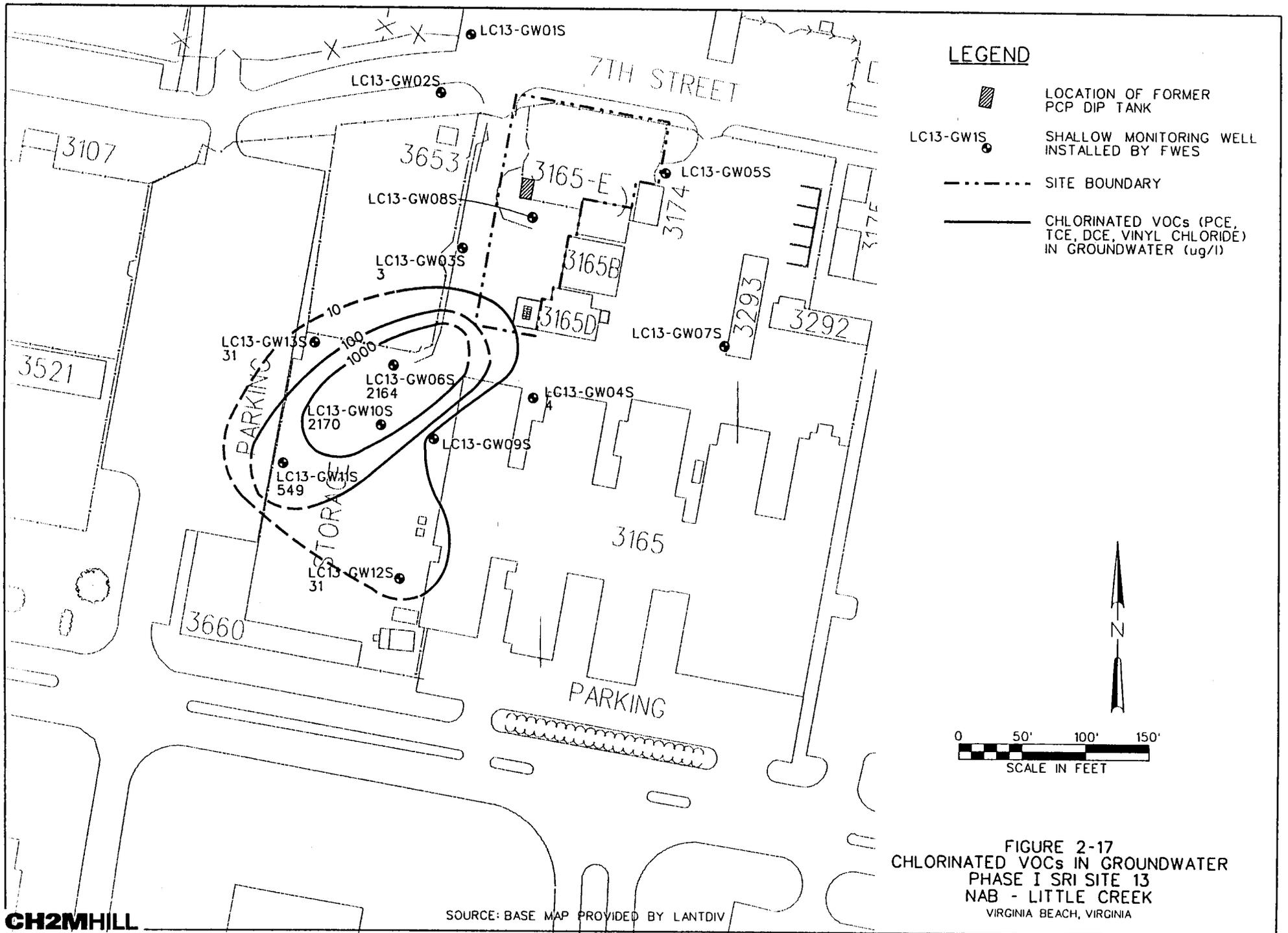
Contamination

Soil - SVOCs: PCP, and several benzo compounds. Contamination is near the dip tank.
Groundwater - Two plumes - Dip tank area: PCP; Wash rack area: PCE, TCE, 1,2-DCE, VC

Proposed FY 99 Work

- Prepare Final EE/CA for PCP Soil Removal Action
- Prepare Action Memorandum/DD for Soil Removal Action
- Conduct Soil Removal Action
- Reevaluate Baseline Risk Assessment
- Prepare Phase II Supplemental Remedial Investigation
- Prepare Feasibility Study





SWMU 1- Small Transformer Storage Area

History

The paved yard was used beginning in 1975 for storage of small, non-PCB containing transformers. However, the site may have been used for repair of PCB containing transformers. Contaminant release history is unknown. The site was later paved with asphalt.

Studies

Relative Risk Ranking System (RRRS)(1995)

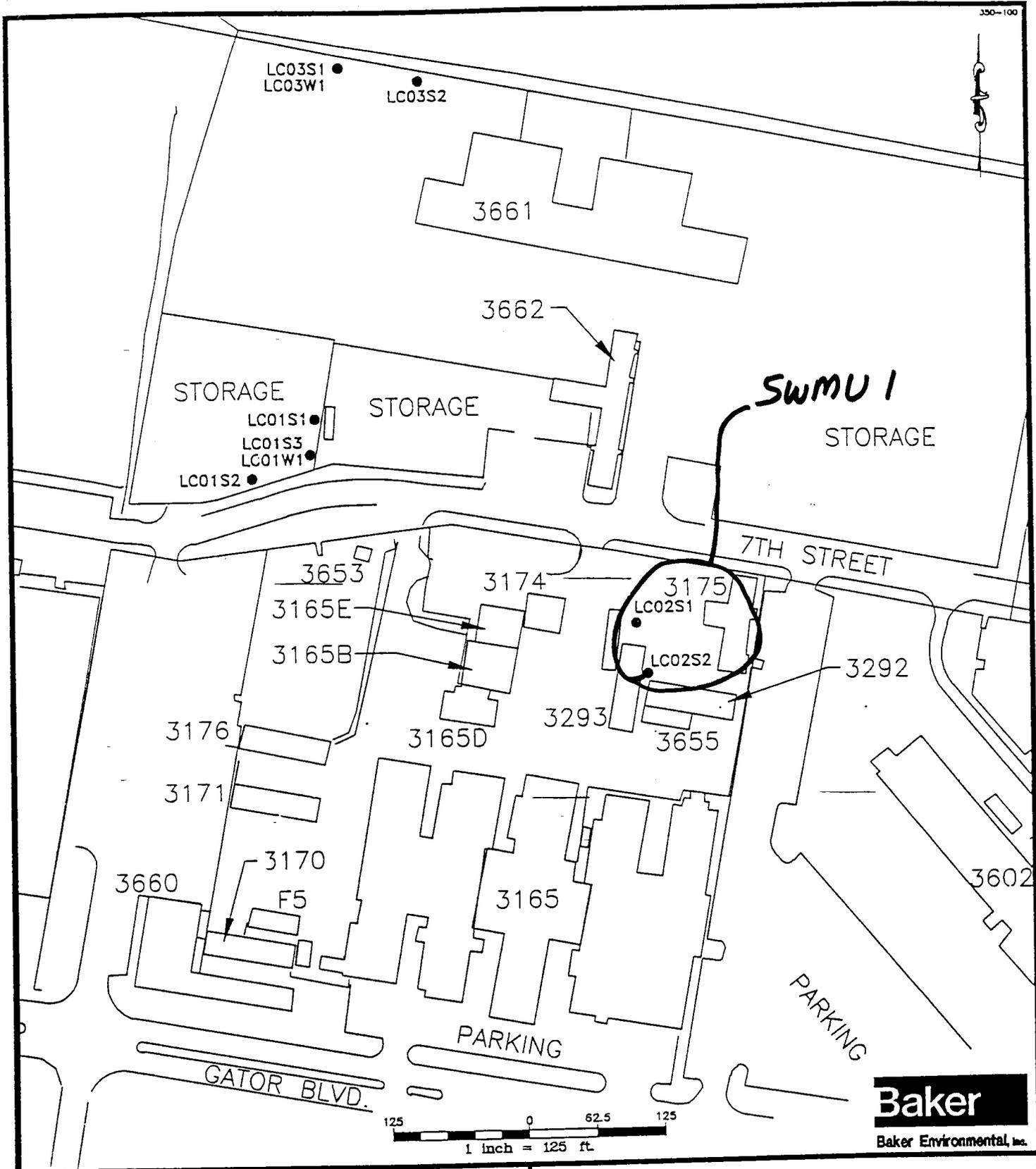
Contamination (From the RRRS)

Soil - PCBs, SVOCs, pesticides

Groundwater - None tested

Proposed FY 99 Work

- Conduct field investigations as part of SI



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LEGEND

- LC01S1-LC01S3 - SURFACE SOIL SAMPLE, SITE 16
- LC01W1 - GROUNDWATER SAMPLE
- LC02S1-LC02S2 - SURFACE SOIL SAMPLE, SITE 17
- LC03S1-LC03S2 - SURFACE SOIL SAMPLE, SITE 20
- LC03W1 - GROUNDWATER SAMPLE, SITE 20

SAMPLE LOCATION MAP
 SITE 16 - TRANSFORMER STORAGE AREA, POLE YARD
 SITE 17 - SMALL TRANSFORMER STORAGE AREA, 3175
 SITE 20 - PWD TRANSPORTATION GARAGE NAVAL AMPHIBIOUS BASE, LITTLE CREEK NORFOLK, VIRGINIA

SOURCE: NAB LITTLE CREEK, 1995

Site 11 - School of Music Plating Shop

History

From 1964 to 1974, plating of music equipment was conducted in Building 3651. Plating wastes were poured down a sink inside the building, and drained into an underground neutralization tank filled with limestone. The tank was located outside the building. The effluent from the tank entered the storm sewer system. The neutralization tank and its associated piping and contaminated soil were removed in 1995. Two rounds of groundwater monitoring were performed in 1996 to verify the effectiveness of the removal action. Results of the monitoring indicated no metals above MCLs or RBCs in the groundwater. Recent investigations found the lower portion (17-21 feet below grade) of the surficial aquifer contaminated with 1,1 DCE, *cis* 1,2 DCE and TCE exceeding MCLs. Concentrations of VOCs in the shallow portion (8-12 feet below grade) of the surficial aquifer do not exceed MCLs.

Studies

Initial Assessment Study (1984)
Round 1 Verification Step (1986)
Interim Remedial Investigation (1991)
Remedial Investigation/Feasibility Study (1994)
Final Decision Document for Removal Action (1994)
Closeout report for Soil Removal Action (1996)
Groundwater Monitoring Plan (1997)
Groundwater Monitoring Report (1998)
Supplemental RI Phase II Work Plan (1998)

Contamination

Soil - Arsenic, beryllium, and manganese were detected before the removal action.

Groundwater - Historically, TCE and 1,1-DCE were detected in one of the three wells (GW01S). The recent geoprobe investigation detected total chlorinated solvents as high as 2047 ppb.

Proposed FY 99 Work

- Reevaluate Baseline qualitative human health risk assessment
- Prepare Supplemental Remedial Investigation
- Prepare Feasibility Study

