



ecology and environment, inc.

316 SOUTH BAYLEN STREET, SUITE 550, PENSACOLA FLORIDA 32501. TEL. 904/435-8925
International Specialists in the Environment

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NAS PENSACOLA
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February 14, 1991

Commanding Officer
Attn: (Code 18214)
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, P.O. Box 10068
Charleston, SC 29411-0068

RE: Data Evaluation Summaries and Proposed Samples Location Changes,
Phase I Site Groups A through E, Contamination
Assessment/Remedial Activities Investigations, Naval Air Station
(NAS) Pensacola, Florida, Contract No. N2467-88-C-0200,
Modification No. 7.

Dear Sir:

Attached are two copies of the data evaluation summaries and proposed sample location changes prepared by Ecology and Environment, Inc., (E & E) for the above-referenced project. The summaries are a synopsis of the pre-sampling field work results and include E & E's recommendations for sample location changes. The summaries were originally sent to Southern Division by fax transmission during December 1990 and January 1991, and the sample location changes were verbally approved by David Ctisvell and Ted Campbell (Southern Division) prior to initiating soil and/or groundwater sampling for each site.

If there are any questions or comments regarding these summaries or any other matters pertaining to the project, please do not hesitate to call me at (904) 435-8925 or Gerry Gallagher at (904) 877-1978.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

John D. Barksdale
John D. Barksdale, P.G.
Program Manager

JDB/mv/370

Attachment

cc: J. Uilcox; E & E--Buffalo/Project File UH6000
C. Gallagher; E & E--Tallahassee/Project File
C. Tronolonc; E & E--Buffalo
B. Caldvell; E & E--Pensacola

FIELD TASKS/ DATA EVALUATION SUMMARY
NAS PWSACOLA - SITE 12

The following is a brief summary of field tasks conducted to date at Naval Air Station Pensacola (NASP) Site 12 by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding amended sample locations follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of Site 12 dating from 1961 to 1989 reveal that the site has been covered mostly with some kind of pavement during this period and that garbage/scrap bins, drums or other waste receptacles have occupied various areas of the site. The concrete pavement which presently occupies the northern two-thirds of the site area appears to have been added between 1976 and 1981.

Site Reconnaissance

During the site reconnaissance, visual inspections were made around the site area and around Buildings 455 and 3821. The northern two-thirds of the site area is covered with concrete pavement. In this portion of the site, scrap bins are oriented in rows in a north-south direction and contain scrap metal, paper and other surplus items. In addition, large components such as machinery, electronic equipment and aircraft parts are also located in the northern portion of the site. A compactor is also located on the site where metal parts are compacted into cubes and stacked. The southern one-third of the site area is mostly covered with asphalt pavement. In this part of the site, hazardous waste drums are lined up in storage racks.

Surface Emissions Survey and Particulate Air Sampling

An HNu and an OVA were used to monitor surface emissions at Site 12. Slightly elevated readings from 4 to 7 parts per million (ppm) above background were noted around drums stored outside the southeast corner of Building 3821 (see attached figure) and also at 9 ppm above background inside Building 3821 in the northeast corner of the building.

A Hini-Ram air monitoring device was used to determine if the site represents a source of particulates in the air. As a result of the survey, the site does not appear to be a source of particulates.

Habitat/Biota Survey

A habitat and biota survey was not conducted at Site 12 because the site is entirely covered with pavement.

Radiation Survey

A radiation survey of the site revealed that elevated readings were noted on the west side of Building 455 at 3 to 7 micro Roentgens per hour ($\mu\text{R}/\text{h}$) above background. Of greater significance, readings obtained between the northeast corner of Building 3821 and the fence, which is located at the east boundary of the site, were 30 to 35 $\mu\text{R}/\text{h}$ above background.

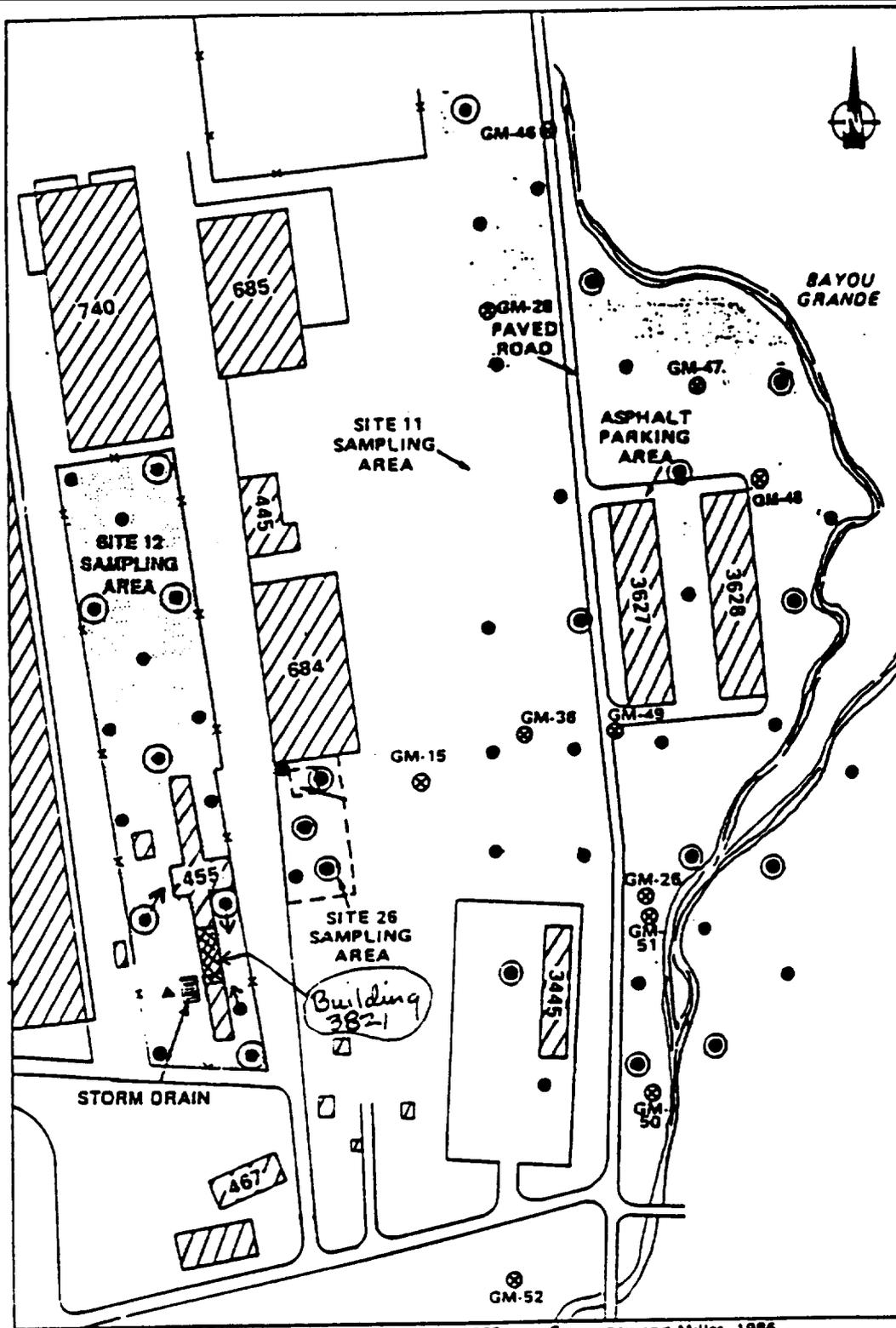
Geophysical Survey

A formal geophysical survey was not conducted due to the extensive reinforced pavement which covers the site. However, a metal detector survey was conducted and used in conjunction with the other surveys performed for detection purposes. As a result, metal was detected throughout the site area under the concrete pavement. The large quantity of surface metal associated with the site may be largely responsible for the high metallic readings.

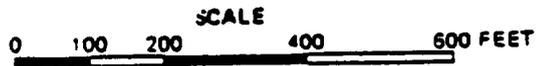
Recommendations

The results of the field tasks conducted to date indicate that a few sampling locations should be moved to areas where elevated OVA and radiation readings were noted in the southeast portion of the site (see attached figure). One soil boring and temporary monitoring well should be moved to just west of Building 455 and one soil boring and temporary well southeast of Building 455 should be moved approximately 50 feet to the south, near the northeast corner of Building 3821, near the location of elevated OVA and radiation readings. In addition, one soil boring should be moved to near the southeast corner of Building 3821 where an elevated OVA reading occurred. E & E believes that the proposed amendments in the sampling locations will be more useful in locating possible contaminated areas at this site. All other sampling locations presented in the work plan for Site 12 appear to be in locations suitable for the Phase I assessment.

Doc. Num. 307



SOURCE U.S. Naval Air Station, Pensacola, Florida, 1988; and Geraughty and Miller, 1986.



- KEY:
- ⊗ Existing Monitoring Well
 - Tentative Soil Boring
 - Tentative Temporary Monitoring Well
 - ▨ Building
 - ▲ Tentative Sediment Sample

Figure 14-1 TENTATIVE SOIL BORING AND TEMPORARY MONITORING WELL LOCATIONS, SITES 11, 12, AND 26 - PHASE I

14-4 Site 12 Sample Location Changes

FIELD TASKS/DATA EVALUATION SUMMARY
NAS PWSACOLA - SITE 11

The following is a brief summary of field tasks conducted to date at Naval Air Station Pensacola (NASP) Site 11 by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding sample locations follow the summary.

Aerial Photograph **sis**

Aerial photographs of Site 11 dating from 1961 to 1968 reveal that activities on the site have varied in nature as well as location. Clearing occurred in the northern portion of the site in 1968 and was followed by the placement of several structures. Later, this area was allowed to grow over. A bare spot in the central site area was observed in 1961; however, no other activity was seen there. The west central site area has had numerous bins or containers stored in various places and later removed. Access roads through the site have also changed over this period. Finally, activities in the southwest area of the site have varied in nature over this period. These activities have been noted as potential sources of contamination for the site area.

Site Reconnaissance

During the site reconnaissance visual inspections were made throughout the site area. Generally the western portion of the site is heavily overgrown with trees and shrubs. The east boundary of the site is a salt marsh which borders the south arm of Grande Bayou. The west portion of the site is an open area with generally light sandy soils.

Within the past year a large portion of the site has been covered with numerous sand piles approximately 4 to 8 feet in height and a portion of the road in this area has been partially covered with sand. Furthermore, in the southeast area of the site, two drains

have recently been installed coming from Building 3644 which is located immediately southeast of the site. Run-off from these drains is directed towards the wetlands area via a concrete pad. A concrete drain pad is also located south of the asphalt pavement where Buildings 3627 and 3628 are located. Drainage appears to be southeast into the wetland area of the site.

The area around Building 3445 is entirely covered with asphalt pavement and fenced in. Many old surplus vehicles are stored here. Drainage from the asphalt area is probably in many directions, however, at least one drain has been noted off the southeast corner of this fenced area.

Surface Emissions Survey and Particulate Air Sampling

An HNu and an OVA were used to monitor surface emissions at Site 11. No readings above background were noted on the site. A Mini-Ram air monitoring device was used to determine if the site represents a source of particulates in the air. A time weighted average reading over a 15 minute period in the north-central area of the site produced a reading of 0.02 milligrams per cubic meter (mg/m^3) above an upwind reading during light winds.

Habitat/Biota Survey

A habitat and biota survey was conducted to assess on-site aquatic and terrestrial habitats and to identify rare, threatened, and endangered species.

Sensitive areas include Juncus Marsh and the estuarine habitat even though they have developed on a formerly disturbed area. The wooded area east of Pat Belinger Road is considered wetland under COE jurisdiction. The area west of Pat Belinger Road was previously wetland prior to filling. Willows present in the area should not be disturbed.

Benthic coring in the marsh revealed no biota; however, wood, glass fragments, and other garbage were encountered. A trash layer was encountered 7 inches below the surface which included detritus from upland vegetation. An oily sheen was observed on a slightly deeper core layer.

The surface layer in the east to northeast portion of the site is a

recent sandy fill, which is currently eroding, revealing an older trash layer. Trash piles are also evident in the eastern portion of the site.

Live oysters were observed in the harbor area at the northeast perimeter of the site. Hermit crabs and mussels were also observed around the juncus in this area.

Radiation Survey

A radiation survey was performed over the site area. An elevated reading was observed 50 feet east of Building 3628 which was 35 to 45 micro Roentgens per hour ($\mu\text{R}/\text{h}$) above background. Slightly elevated readings above background were also observed south of this location and appear to coincide with the southeast boundary of the cleared area for Buildings 3627 and 3628. Slightly elevated readings above background were also noted along the abandoned road in the northwest portion of the site and along Pat Belinger Road in the south portion of the site. These readings can probably be attributed to road material used in the older road on the site.

Geophysical Survey

A geophysical survey was conducted over the site area using an EH-31 and EH-34-3 electromagnetic conductivity instruments and a G-856AX proton precision magnetometer. This magnetometer survey was conducted in order to identify areas of elevated ground conductivity and to determine if magnetic anomalies associated with metallic objects were associated with EM anomalies.

The results of the survey indicate that high EM conductivity readings are occurring in the eastern portion of the site and include the area around Buildings 3627 and 3628. Shallow elevated conductivities could possibly be attributed to salt water intrusion in the surficial aquifer; however, it is also possible that these could be due to a leachate plume. A very significant deep conductivity anomaly located around the north end of Building 3628 may be related to the downward migrating portion of the plume. It is not clear at this time if magnetic anomalies in this same area are associated with the EM anomaly. Numerous magnetic anomalies were observed in the central and southern area of the site. Approximately one half of the magnetic

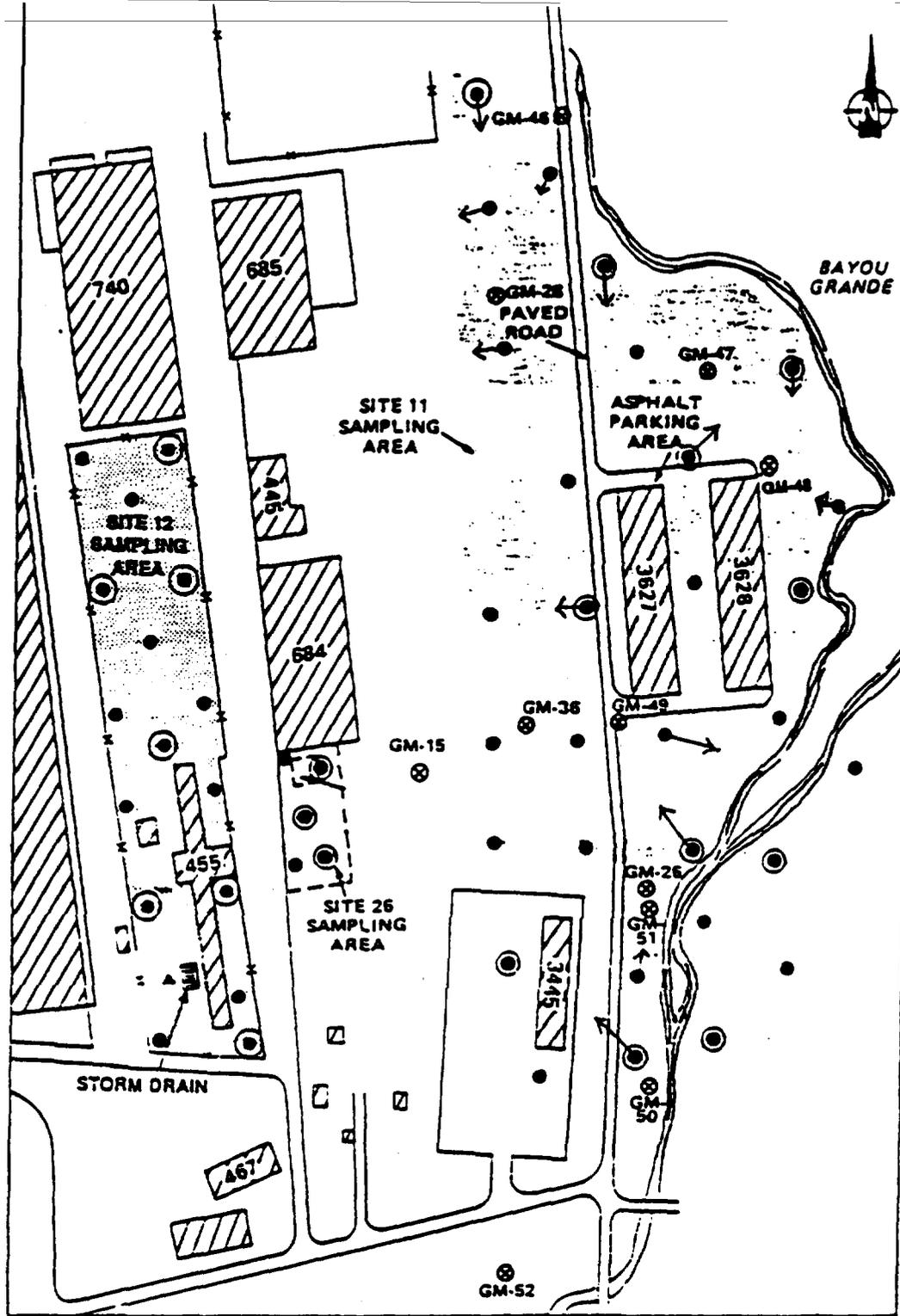
anomalies observed were not associated with EM anomalies in the central area of the site.

Meanwhile, in the southern portion of the site, there appeared to be some association of EM conductivity and magnetic anomalies. These areas include the area around Building 3445 and also along the north fence-line around Building 3644.

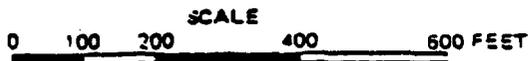
A metal detector was also used to locate near surface underground metal objects. Several areas were noted to have metal at or near the surface during the survey.

Recommendations

The results of the field tasks conducted to date indicate that some of the sampling locations should be adjusted (see attached figure). As shown in the figure, the changes to the original locations are relatively minor. The purpose of the relocations shown is to either avoid surface obstructions or other inaccessible areas, or to place the sample points in or down-gradient from areas having surface emissions, radiation or geophysical anomalies or near other areas identified on aerial photos or during the site reconnaissance as being potential sources of contamination. E & E believes that the proposed changes to the sampling locations will be more useful in locating possible contaminated areas at this site. All other sampling locations presented in the work plan for Site 11 appear to be in locations suitable for the Phase I assessment.



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1988; and Gersbucht and Miller, 1986



KEY:

- ⊗ Existing Monitoring Well
- Tentative Soil Boring
- Tentative Temporary Monitoring Well
- ▲ Tentative Sediment Sample
- ▭ Building

Site 11 - Sample Location Changes

Figure 14-1 TENTATIVE SOIL BORING AND TEMPORARY MONITORING WELL LOCATIONS, SITES 11, 12, AND 26- PHASE I

SUMMARY OF PROPOSED SAMPLING LOCATION CHANGES
NAS PENSACOLA - SITE 1 (SANITARY LANDFILL)

The proposed temporary monitoring well locations, surface soil sampling locations, and sediment and surface water sampling locations are shown on the attached figure. The changes in sampling locations from those shown in the work plan are based on the results of the aerial photograph analysis, site reconnaissance, and the surface emissions, radiation, and geophysical surveys. Also, as shown on the figure, the boundary of the former landfill areas has been changed. This change is supported by the results of the aerial photograph analysis, the site reconnaissance, and the geophysical surveys.

Sediment and surface-water sampling locations, and proposed number of samples are unchanged from those originally proposed in the work plan. Several of the temporary monitoring wells, and a number of surface soil sampling locations; however, have been repositioned from the original locations, and many of these changes are related to the changed landfill boundary. Each of the repositioned temporary monitoring well and surface soil sampling locations are listed in the two attached tables with accompanying relocation rationale.

Although 30 temporary monitoring well locations were originally shown in Figure 14-2 of the work plan, the text and Table 14-1 only refer to 28. However, based on the results of the above-described tasks, two of the original well locations are unnecessary, and have been deleted, thereby keeping the number of temporary monitoring wells at 28.

Table 1

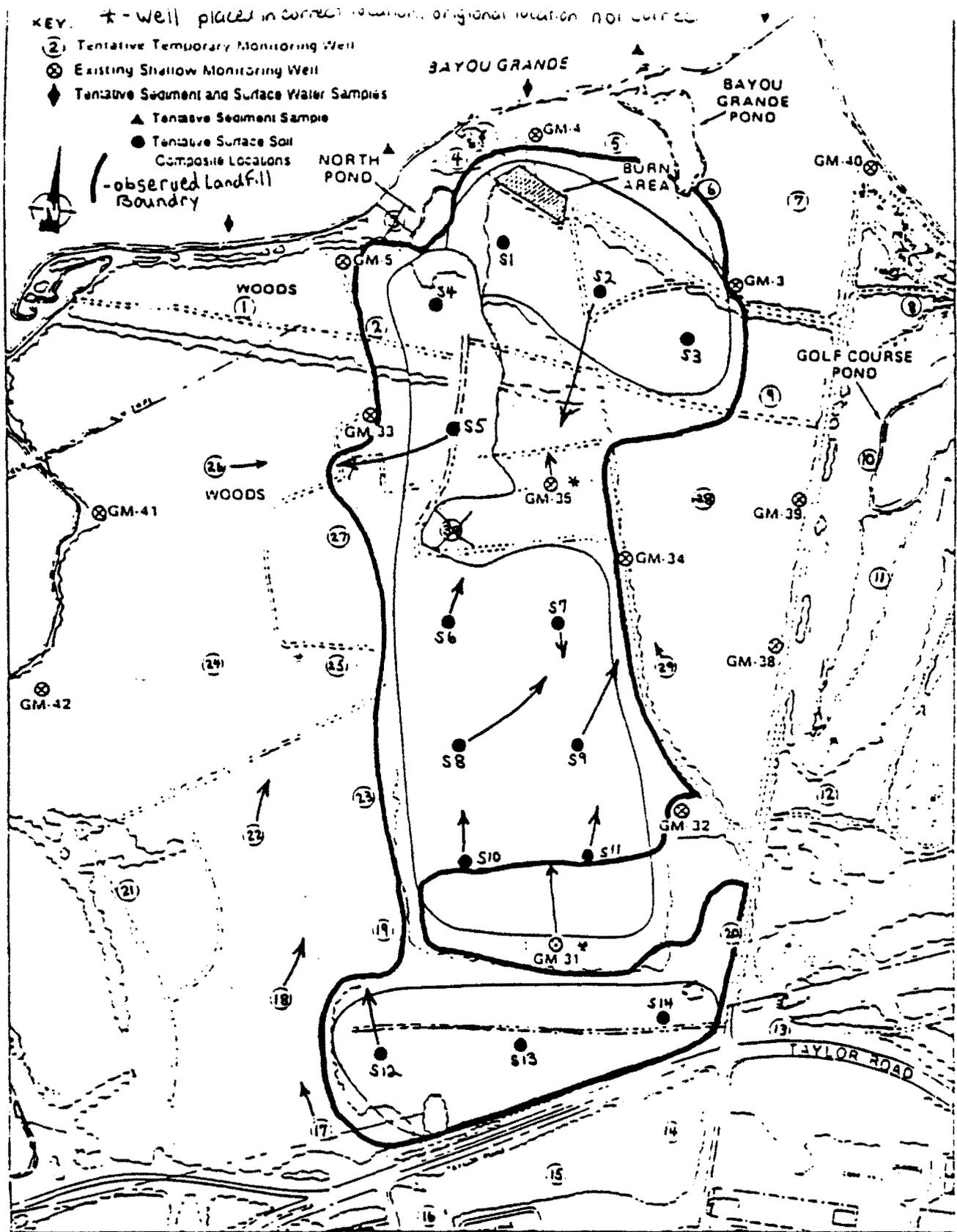
**PROPOSED CHANGES TO SURFACE SOIL SAMPLING LOCATIONS
NAS PENSACOLA - SITE 1**

Surface Soil Sample	Relocation Rationale
s2	Moved to sample an area in the northeastern portion of the 1970's landfill where organic vapors were detected during the surface emissions survey.
S5	Moved to sample a tar-like material exposed in a trench located in the northwestern portion of the 1970's landfill.
S6	Moved to assure an adequate sampling point distribution in the 1970's landfill.
s7, S8, S9	Uoved to sample stressed vegetation areas observed in the east-central portion of the 1970's landfill.
S10, S11	Moved to sample an area in the southern portion of the 1970's landfill where lov concentrations of organic vapors were detected during the surface emissions survey, and elevated conductances vere observed during the performance of the geophysical surveys.
S12	Moved to sample an area in the northwestern portion of the 1950's landfill where organic vapors vete detected during the surface emissions survey.

Table 2

**PROPOSED CHANGES TO TEMPORARY MONITORING WELL LOCATIONS
NAS PENSACOLA - SITE 1**

Temporary Monitoring Well Location	Relocation Rationale
3	Deleted because marsh surrounding north pond extends into the proposed sampling area.
17	Moved to assure an adequate sampling point distribution along the western portion of the 1950's landfill.
18	Moved to a position down-gradient (relative to the direction of groundwater flow) of an area in the northwestern portion of the 1950's landfill where organic vapors were detected during the surface emissions survey.
22	Moved to assure an adequate sampling point distribution along the southwestern portion of the 1970's landfill.
26	Moved to a position closer to, and down-gradient of, the exposed tar-like material located in the northwestern portion of the 1970's landfill.
29	Moved to a position more directly up-gradient of two suspected leachate seeps located near the southeastern portion of the 1970's landfill.
30	Deleted because 1970's landfill activities were conducted in the proposed sampling location.



TENTATIVE TEMPORARY MONITORING WELL LOCATIONS
AND SURFACE WATER, SEDIMENT, AND SOIL SAMPLING LOCATIONS,
SITE 1 PHASE I

Site 1 - Proposed Sample (well) Location Changes

FIELD TASKS/ DATA EVALUATION SUMMARY
NAS PENSACOLA - SITE 26

The following is a brief summary of field tasks conducted to date at Naval Air Station Pensacola (NASP) Site 26 by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding sample locations follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of Site 26 dating from 1961 to 1989 reveal that various activities have occurred on the site which may represent potential sources of contamination. These activities have primarily been observed in the northwest and southwest portion of the site and consists primarily of the construction of small buildings and the outside storage of unidentified containers. Generally the large overgrowth which appears on the eastern portion of the site made it difficult to determine if any activities occurred in this area of the site during that period.

Site Reconnaissance

During the site reconnaissance, visual inspections were made around the perimeter and within the site area. South of Building 684, a new open chemical storage shed has been constructed within the past year. The shed is located on a concrete pad, which covers an area of approximately 60 by 100 feet and is completely surrounded by a chain link fence. Access to the storage area is gained by a ramp leading from Building 684 or from a large gate on the west side of the storage area. The area between the road and the west gate is covered with asphalt. While the soil on the site appears mostly to be tan colored sand, the area around the new chemical storage shed is covered with an orange

colored clayey sand apparently brought in as fill material and recently seeded with grass. East of the chemical storage area, it is apparent that this fill has been dumped loosely because the slope is steep and highly unstable. South of the chemical storage area the remainder of the site is covered with low lying vegetation on the west portion of the site, while the east portion is a mounded area (natural dune) overgrown with trees and undergrowth. Construction and metallic debris have been noted on the surface of the mounded area, while the west portion of the site has long concrete "foundation-like" structures oriented north to south. Several concrete boxes have also been noted in the ground and may be associated with former utilities. A large deep hole has also been noted immediately south of the site.

Surface Emissions Survey and Particulate Air Sampling

An HNu and an OVA were used to monitor surface emissions at Site 26. No readings above background were noted on the site.

A Mini-Ram air monitoring device was used to determine if the site represents a source of particulates in the air. A time weighted average reading over a 15 minute period in the south central area of the site produced a reading of 0.02 milligrams per cubic meter (mg/m^3) above the upwind reading during light winds.

Habitat/Biota Survey

A habitat and biota survey was conducted to assess on-site terrestrial habitats and to identify rare, threatened, and endangered species. The site appears to be a natural former dune which has been cut and filled on the west side. A threatened and endangered plant species, the large-leaved jointweed (*Polygonella macrophylla*), has been found on the site. While the site is small, the overgrowth serves as a habitat for a variety of common birds, small mammals, and lizards.

Radiation Survey

A radiation survey was performed over the site area. While no significant readings were noted above background, slightly elevated readings were noted, 3 to 5 micro Roentgens per hour ($\mu\text{R}/\text{h}$) above background, at the southeast corner of Building 684 and in an area located 150 feet south of the site.

Geophysical Survey

A geophysical survey was conducted over the site area using an EM-31 and EM-34-3 electromagnetic conductivity instruments and a G-856AX proton precision magnetometer. This magnetometer survey was conducted in order to identify areas of elevated ground conductivity and to determine if magnetic anomalies associated with metallic objects are also associated with EM anomalies. The results of the survey indicated EH conductivity and magnetic anomalies were associated with areas around building 684 and the fenced-in chemical storage area where a large amount of metal and reinforced concrete have been used in the construction of these buildings. A significant EX conductivity and magnetic anomaly is located in the southeast portion of the site which may be associated with a utility line located over this area. A metal detector was also used to locate near surface underground metal objects. Several areas on the mound were noted to have metal at or near the surface during the survey.

Recommendations

Due to the relatively small size of Site 26 and the number of soil borings and temporary monitoring wells tentatively planned, E & E recommends no modifications to the proposed sampling locations for the Phase I assessment.

FIELD TASKS/DATA EVALUATION SUMMARY
NAS PENSACOLA - GROUP C SITES

The following is a brief summary of field tasks conducted to date at Naval Air Station Pensacola (NASP) Group C Sites (2, 13, and 14) by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding amended sample locations follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of the Groups C sites dating from 1961 to 1989 did not reveal any significant activities or areas which might represent potential sources of contamination for the site area.

Site Reconnaissance

Site 2 -- A walkover survey was conducted along the waterfront from Building 632 to the east and beyond the dock for the USS Lexington, and to the north to the wastewater treatment plant. All storm sewer outfalls leading into the bay were mapped and surface conditions were noted. As many as 62 storm sewer outfalls were located. Fourteen of these outfalls are located between the aircraft parking apron and Building 73 (See attached figures). According to the work plan, no sediment samples are scheduled to be collected in this area.

Site 13 -- A field reconnaissance was conducted for Site 13 to assess surface conditions, surface drainage patterns, exposed debris, leachate seeps, and stained soil. No changes from the work plan site map were noted in the overall physical condition of Site 13. All exposed debris

was mapped.

Site 14 -- A field reconnaissance was also conducted for Site 14. The overall physical appearance of Site 14 is significantly different than it appears in the work plan. The size of the site has decreased to approximately one-half the original width. The areas of depression have also changed. The site appears to be divided into two areas of depression surrounded by berms of sand approximately 20 to 30 feet high. This change in the physical appearance of Site 14 will significantly affect the sampling locations.

Radiation Survey

Site 2 -- A gamma scintillation detector was used to measure for radiation at each of the accessible storm sewer outfalls at Site 2. Low levels of radiation (less than 40 micro Roentgens per hour [$\mu\text{R}/\text{h}$]) were detected in clay pipes that led into the bay as well as around pipes that were near granitic structures. Clay and granite have naturally occurring low levels of radiation. No other areas of measured radiation were noted.

Site 13 -- A gamma scintillation detector was also used to measure radiation at 100-foot grid points at Site 13 as well as along the exposed rubble. Low levels of radiation (2 to 5 $\mu\text{R}/\text{h}$) were noted at several grid points near the unpaved road on Site 13 and background levels for granite were detected on blocks of granite at the site. One reading of 100 $\mu\text{R}/\text{h}$ was detected on some melted-down metal at the water's edge just northeast of the wastewater treatment plant.

Site 14 -- A radiation survey was not conducted for Site 14.

ce Emission Survey and Particulate Air

An **ENu** and an OVA were used to monitor surface emissions and ambient air at the sites. In addition, a Mini-Ram particulate air monitoring device was used at each site to determine if the sites represent a source of particulates in the air.

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Site 2 -- The surface emission survey was conducted for each accessible storm sewer outfall located at Site 2. Only two pipes had OVA readings above background. These were 0.5 and 4.5 parts per million (ppm) for two pipes located due south of Building 782. Offshore sediment samples are scheduled to be collected near these pipes in accordance with the Group C work plan.

Particulate air monitoring was conducted at two separate stations for Site 2. The first station was located south of Building 73. No increase in downwind particulates was noted at this station. The second station was located southeast of McDonalds. An increase of $.02 \text{ mg/m}^3$ was detected in the downwind location at this station.

Site 13 -- An OVA was used to measure surface emissions at 100-foot grid points for Site 13 as well as randomly along the exposed rubble. Only one slightly elevated reading of 0.4 ppm was noted along the shoreline approximately 500 feet north of the wastewater treatment plant. No other readings above background were noted during the surface emissions survey.

The particulate air monitoring was conducted at three locations for Site 13. The northernmost upwind and downwind station indicated an increase in particulates in the downwind location of $.02 \text{ mg/m}^3$. No change from the upwind background reading and the downwind reading was detected at the second station east of the wastewater treatment plant. An increase of $.02 \text{ mg/m}^3$ was detected in the downwind location of the southernmost station near the southern end of Site 13. The areas of increased particulates indicates the need to consider the site for particulate sampling.

Site 14 -- An OVA was used to measure surface emissions at 100-foot grid points for Site 14. No readings above background were noted at any of the grid points at Site 14.

Particulate air for Site 14 was monitored at the northern end of the eastern berm, the center of the central berm, and the southern end of the western berm. No changes were detected in the readings from the eastern berm and the western berm, however, the center berm was .03

mg/m³ less than either of these terms.

Habitat/Biota Survey

Site 2 -- A habitat and biota survey was conducted to assess the near-shore habitat of Site 2 and to identify rare, threatened, or endangered species. The seaplane ramps and concrete apron extending seaward from the seawall provide hard substrate for attached algae (primarily sargassum sp. and barnacles). A soft bottom composed of fine sand and silt is populated by a variety of polychaetes, mollusks, and crustaceans, and provides feeding grounds for rays and at least 10 species of shore and wading birds. Silverside minnows (Menidia menidia) and ctenophores were also observed in the nearshore waters. No rare, threatened, or endangered species were identified.

Site 13 -- A habitat and biota survey was also conducted at Site 13. This site encompasses four habitat types: nearshore estuarine, beach, coastal dune, and open slash pine woodland. A stand of approximately 1,000 individuals of Godfrey's golden aster, Chrysopsis godfreyi, a federal candidate species, is located on the beach and dune area near the middle of the site. Sea oats, Uniola paniculata, a species protected by state law, is also abundant in the beach/dune habitat, particularly near the north end of the site. Approximately 30 species of shore, wading, and diving birds were observed along the beach and nearshore waters. The dominant beach fauna were ghost crabs (Oxyopoda sp.). Two species of butterflies, the gulf fritillary and buckeye, and the six-lined racerunner were observed in beach and dune habitats. Evidence of marsh rabbits and squirrels were observed in the pine forest. No threatened or endangered animal species were identified.

Site 14 -- A habitat and biota survey was conducted at Site 14 which encompasses several habitat types disturbed by previous base activities. The dredged spoil fill area contains two large settling ponds with very fine sediments and pools of temporary standing water. Blooms of algae or bacteria periodically discolor the water and surrounding substrate. High sand berms surrounding the settling ponds are vegetated with small

shrubs and herbaceous plants. A brackish pond and emergent wetland to the north of the fill area harbor have numerous water fowl, including seven species of ducks and five species of wading birds. The pond is surrounded by dense stands of Phragmites and Typha. Another brackish wetland located to the south of the spoil has been ditched and planted with slash pine. An isolated creek, connected to the bay during extreme high tides, contains blue crabs and small baitfish. Sea oats, which are protected by state law, are prevalent along the back beach south of the spoil area. More than 30 species of shorebirds feed along the beachfront or within the settling ponds. Marsh rabbits also occur throughout the site. No rare, threatened, or endangered species were observed.

Asbestos Survey

An asbestos survey was conducted at Site 13 to locate and identify suspect building materials that could potentially contain asbestos. As a result of this survey, some suspect building material was identified. This material is blue floor tile that is on some of the concrete blocks southeast of the wastewater treatment plant. In accordance with EPA protocol, at least three bulk samples per suspect building material must be sampled and analyzed using polarized light microscopy.

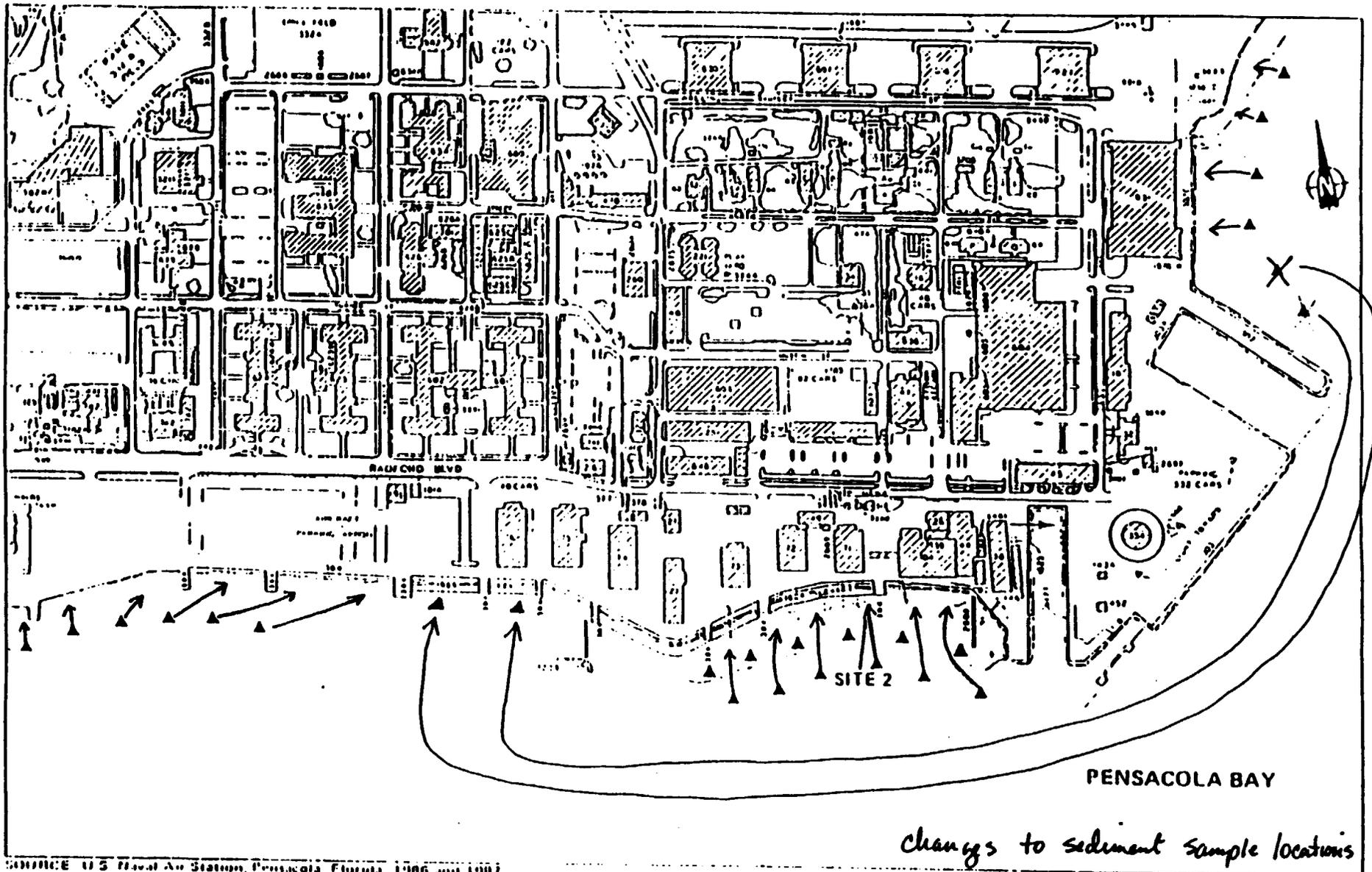
Recommendations

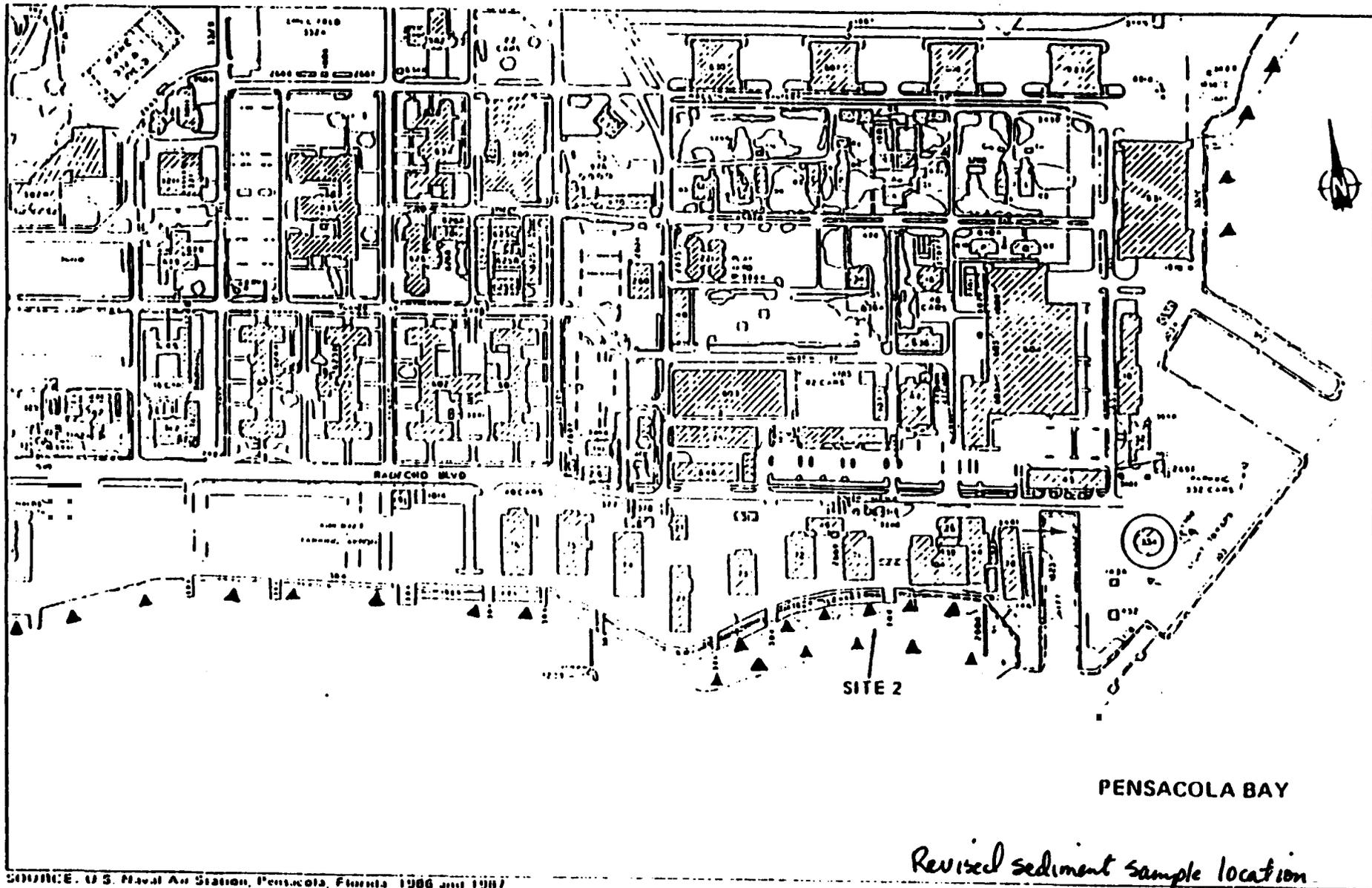
The results of the field tasks conducted to date indicate the need for some amendments to the sample locations presented in the Group C work plan (See attached Figures).

Site 2 -- As many as four sediment samples will be collected in the bay south of the outfalls between the aircraft parking apron and Building 73. E & E recommends placing two samples from the westernmost set of samples and two samples from the northernmost set of samples in this area. E & E also recommends placing the nearshore samples approximately 30 feet offshore instead of 100 feet as previously suggested. This will allow samples to be collected closer to the outfalls. The set of deeper sediment samples should be collected approximately 100 feet offshore (See attached figure).

Site 13 -- The current sample locations presented for Site 13 in the work plan will remain the same although some sample locations may need to be shifted slightly in order to avoid disturbing any threatened or endangered plant life found at the site. E & E recommends collecting three bulk samples of the blue floor tiles found among the rubble and analyzing them for asbestos using polarized light microscopy. E & E also recommends collecting a sediment sample near the area which had a 100 μ R/h reading on the radiation detector. This sample should be analyzed for gross alpha particles to determine if there is any radiation in the nearby soil.

Site 14 -- Due to the change in the physical layout of Site 14, new sample locations are needed (See attached figure). A temporary monitoring well will be placed near the northern pond and a composite sediment sample will be collected in the pond. One monitoring well will be placed between Chevalier Field and the spoil pile and two wells will be placed near the marsh area south of the spoil pile. One of these wells will be placed between the spoil pile and the marsh and the other will be placed between a concrete runoff culvert from Chevalier Field and the marsh. A composite sediment sample will also be collected in the marsh area south of the dredge pile. An additional monitoring well will be drilled just north of the berm on the beach. The five remaining monitoring wells proposed in the work plan will be placed along the berm of the dredge spoil pile. Two wells will be placed on the western berm, one on the center berm, and two on the eastern berm. Three soil borings will be drilled inside the western depression and three will be drilled inside the eastern depression. Due to the unstable nature of the soil in these depressions, the borings will be drilled just inside of the berms. Four sediment samples are proposed to be collected east of the dredge pile. One of these will be collected at each of the two outfalls that go into the bay. The other two will be collected at the foot of the berm on the bayside. E & E believes that these modified sample locations will serve to identify the principal areas and primary contaminants of concern at the site.





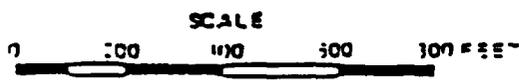
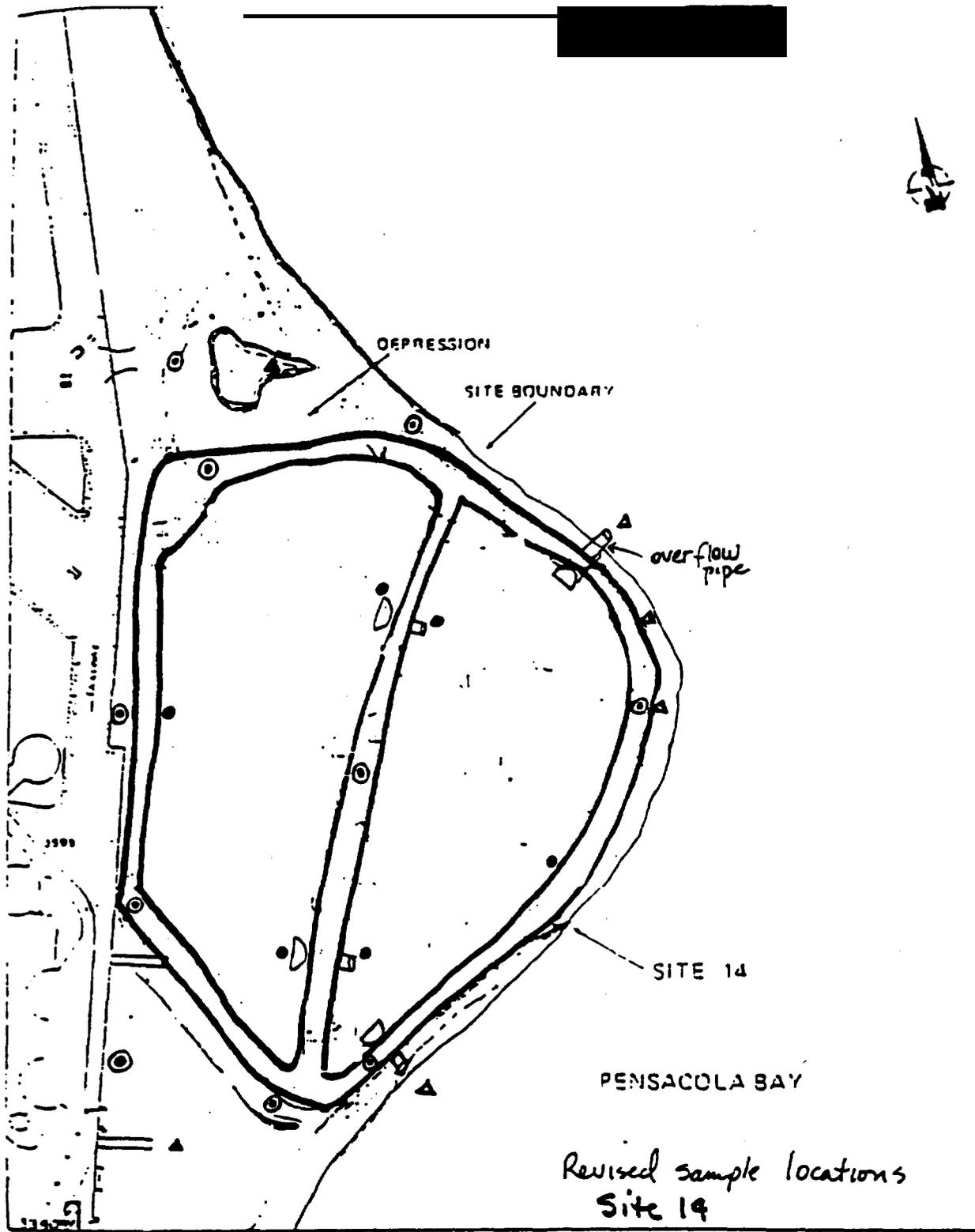
SOURCE: U.S. Naval Air Station, Pensacola, Florida 1986 and 1987

KEY:

▲ Proposed Sediment Sampling

SCALE

0 200 400 600 800 FEET



KEY:

- Tentative Soil Boring
- Tentative Composite Sediment Sample
- ▲ Tentative sediment sample
- ▲ Tentative composite sediment Figure 14-3

TENTATIVE SOIL BORING AND TEMPORARY MONITORING WELL LOCATIONS
SITE 14 - PHASE I

FIELD TASKS/DATA EVALUATION SUMMARY
NAS PENSACOLA - SITE 15

The following is a brief summary of activities conducted to date at NAS Pensacola Site 15 by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding Site 15 follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of Site 15 dating from 1961 to 1989 did not reveal any significant activities or areas which might represent potential sources of contamination for the site area other than those already known to exist.

Site Reconnaissance

During the site reconnaissance, visual inspections were made in and around Building 2692, 2640, and 747. Buildings 2692 and 2640 are presently used for storage of maintenance equipment. There are two monitoring wells on site. These are well GH-60, located near the southeast corner of Building 2692 and well GH-59, located approximately 15 feet northwest of Building 2692. In addition, a non-potable water well used for golf course equipment wash-down is located southwest of Building 2692.

Surface Emission Survey and Particulate Air Sampling

An OVA was used to monitor surface emissions along transects at 50-foot intervals at Site 15. As a result of the OVA survey, the site does not appear to be a source of organic vapor emissions.

A Mini-Ram particulate air monitoring device was used to determine if the site represents a source of particulates in the air. As a result of the particulate survey, the site does not appear to be a source of particulates.

FIELD TASKS/DATA EVALUATION SUMMARY
NAS PENSACOLA - SITE 24

The following is a brief summary of activities conducted to date at NAS Pensacola Site 24 by personnel of Ecology and Environment, Inc. (E 6 E). Recommendations regarding Site 24 follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of Site 24 dating from 1961 to 1989 was conducted. The 1976 photograph revealed a small circular sandy area which could represent the location of the former DDT mixing area. This area coincides with the area believed to be the old DDT mixing area as shown in the work plan. In addition, several objects resembling tanks, trucks, or storage buildings were noted in aerial photographs of 1968, 1970, 1973, and 1976; however, accurate identification of these objects could not be made. These objects were not near the area believed to be the former DDT mixing area.

Unfortunately, aerial photographs from the time period in which the DDT mixing area is believed to have operated, the 1950's, were unavailable for review. These photographs could further assist in identifying the former location of the DDT mixing area. E 6 E is in the process of obtaining these photographs.

Site Reconnaissance

During the site reconnaissance, inspections were made around Building 3678. A storm drain is located approximately 75 feet northwest of Building 3678. Within the fenced area and to the east of Building 3678, all objects such as cast iron pipes, and air lines are noted. A tree located 350 feet east of Building 3678, one tree appears to be stressed; however this tree is not the only area of concern for this site.

Habitat/Biota Survey

A habitat and biota survey was conducted to assess site aquatic and terrestrial habitats and to identify rare, threatened, and endangered species. As a result of the survey, no endangered species or sensitive areas are believed to exist on or near the site area.

Geophysical Survey

A magnetometer survey was conducted on the site using a Geonics G-H56 Proton Precision Magnetometer. The magnetometer was carried along transects at 50-foot intervals to identify potential buried ferro-metallic objects. The results of the survey indicated moderate changes in the magnetic field intensity around Building 2692; however, the changes are believed to be the result of the building itself, which is constructed of steel. No other significant anomalies were detected.

A metal detector was also used along transects at 50-foot intervals to locate near-surface underground metal objects such as pipes and utilities. The metal detector survey revealed no buried metallic objects.

Recommendations

Based on aerial photographic interpretation and the field tasks conducted to date at Site 15, E & E recommends no changes to the proposed soil boring or temporary monitoring well locations presented in the Site 15 work plan.

Surface Emission Survey and Particulate Air Sampling

An OVA was used to monitor surface emissions along transects at 50-foot intervals at Site 24. As a result of the OVA survey, the site does not appear to be a source of surface emissions.

A Mini-Ram particulate air monitoring device was used to determine if the site represents a source of particulates in the air. As a result of the particulate survey, the site does not appear to be a source of particulates.

Habitat/Biota Survey

A habitat and biota survey was conducted to assess site aquatic and terrestrial habitats and to identify rare, threatened, and endangered species. As a result of the survey, no endangered species or sensitive areas are believed to exist on or near the site area.

Geophysical Survey

A magnetometer survey was conducted on the site using a Geonics G-H56 Proton Precision Magnetometer. The magnetometer was carried along transects at 50-foot intervals to identify potential buried ferro-metallic objects. The results of the survey indicated moderate changes in the magnetic field intensity around Building 3678 and along the fence line; however, the changes are believed to be the result of the building and fence which are constructed of steel. No other significant anomalies were detected.

A metal detector was also used along transects at 50-foot intervals to locate near-surface underground metal objects such as pipes and utilities. The metal detector survey revealed no buried metal objects.

Recommendations

Based on aerial photographic interpretation and the field tasks conducted to date at Site 24, E & E recommends no changes to the proposed soil boring or temporary monitoring well locations at this site. The proposed locations includes a least one soil sample and one well within the above-mentioned sandy area noted on the 1976 aerial photo. E & E will obtain and review aerial photographs taken during the

1950's prior to commencing drilling activities on-site and will notify the Navy if any further adjustments to sampling locations appear to be warranted.

Doc. Num. 299

FIELD TASKS/DATA EVALUATION SUMMARY

NAS PENSACOLA - SITB 30

The following is a brief summary of field tasks conducted to date at Naval Air Station Pensacola (NASP) Site 30 by personnel of Ecology and Environment, Inc. (E & E). Recommendations regarding amended sample locations follow the summary.

Aerial Photograph Analysis

A review of available aerial photographs of Site 30 dating from 1961 to 1989 did not reveal any significant areas which might represent potential sources of contamination for the site area.

Site ss

During the inspections were made in and around gs 649 and 755, in and around the swamp, and along the banks of the creek and paved . Several pipes which appear to be outfalls were located. One pipe located southwest of the swamp area, which appeared to be a er outfall, was discharging a small volume of water into a small creek which leads to the swamp. Another pipe, of PVC ti was noted downstream south of il 649 and was discharging water into the swamp at a rate of approximately 30 gallons per minute (gpm). The water emanating from this pipe is believed to be from the cooling system in l 649. A third pipe was noted near the l of the swamp. This was a ut metal pipe and appeared to be discharging water at a rate near 50 gpm. At least three other outfall pipes were noted along the paved ditch downstream of where the creek enters the ditch. S should be collected from each of these outfalls.

Surface Emission Survey and Particulate Air Sampling

An HNu and an OVA were used to monitor surface emissions at Site 30. Readings above background were detected in and directly around Buildings 649 and 755 and in the svamp and creek. Of particular concern is the soft, vet, muddy area to the southwest of the svamp area where a reading of 100 parts per million (ppm) was detected by the OVA. This elevated reading was near one of the outfalls to the svamp and was only 25 percent methane. Other slightly elevated readings were detected east of Hurray Road in the creek and along the paved ditch. Sediment and/or surface vater samples should be collected in these areas of elevated surface emission readings.

A Mini-Ram particulate air monitoring device was used to determine if the site represents a source of particulates in the air. As a result of the particulate survey, the site does not appear to be a source of particulates.

Habitat/Biota Survey

A habitat and biota survey was conducted to assess on-site aquatic and terrestrial habitats and to identify rare, threatened, and endangered species. A threatened and endangered federal candidate species Carolina Lillaeopsis, a small, 4- to 12-inch, club-like plant, was found in the stream near the center of the svamp area. In addition, the entire steephead and drainage ditch are vetland areas with abundant plant and animal life and should be treated with caution.

Geophysical Survey

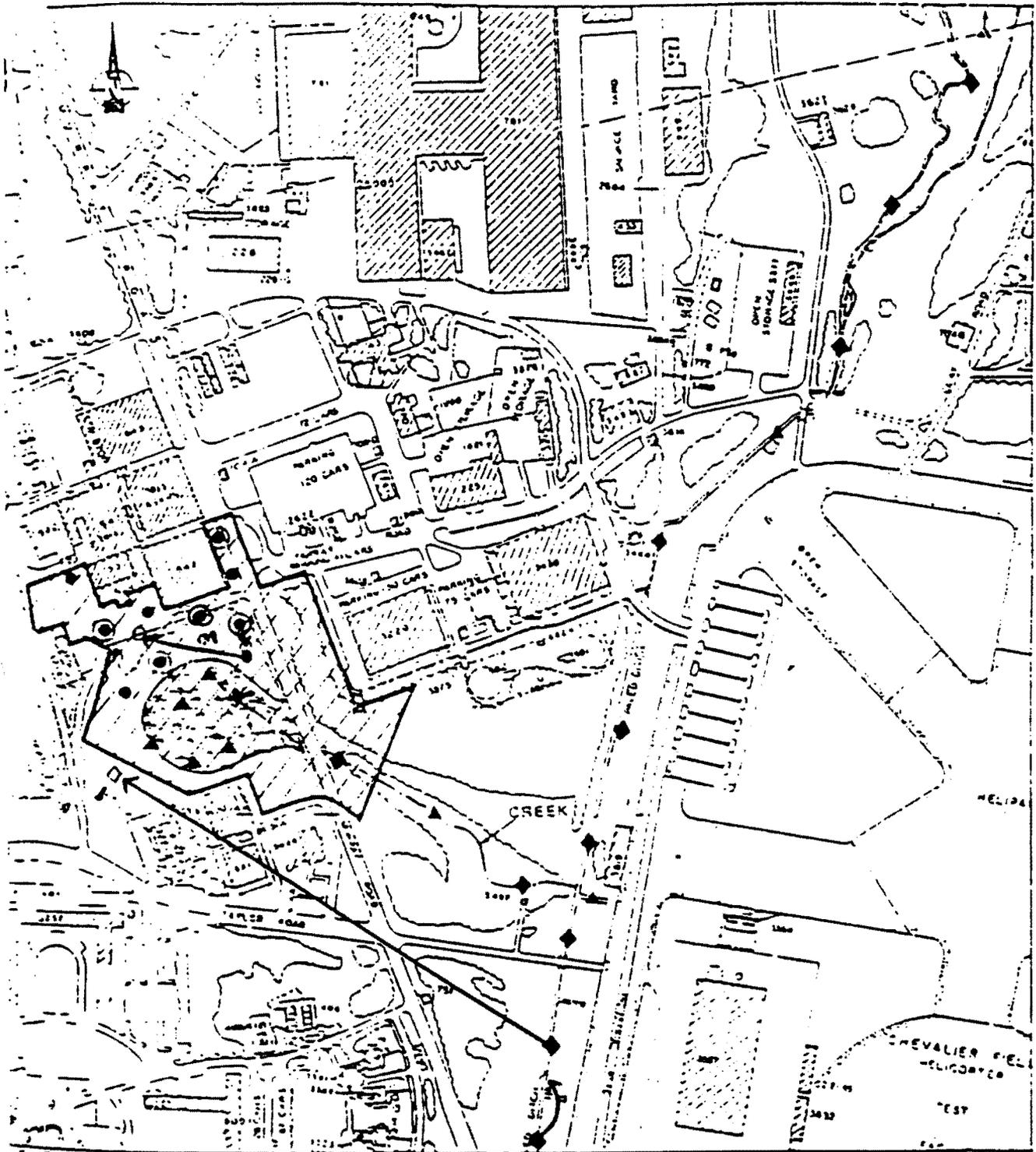
A geophysical survey was conducted in the paved area around Buildings 649 and 755 and in the vetland area using an EM-31 electromagnetic conductivity instrument. This survey was conducted in order to identify areas of elevated ground conductivity. The results of this survey indicated anomalous areas in the paved areas around the buildings as well as a linear anomaly along the fence line south of the buildings. Other anomalies occur within the wetland to the vest of the svamp and in the central and eastern portions of the svamp.

A metal detector was also used to locate near surface underground

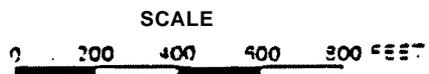
metal objects such as pipes and utilities. Several areas in the paved area as well as the wetland area were noted to have buried metal, A linear feature is detected northwest of the swamp area trending to northeast towards Hurray Road. Monitoring wells and boreholes located near these detected areas may have to be shifted slightly to avoid damage to underground utilities.

Recommendations

The results of the field tasks conducted to date indicate the need for some amendments to the sample locations presented in the Site 30 work plan. E & E recommends placing a sediment/surface water sample in the area southwest of the swamp where an outfall was noted and elevated surface emission OVA readings were detected (See figure). One of the sediment/surface water samples located in the ditch upstream from where the creek enters the ditch can be eliminated to compensate for the extra sample southwest of the swamp. E & E also recommends that the soil boring located just east of the swamp and just west of Hurray road be relocated to the northwest along the western end of the linear area of anomalies noted by the EH 31 during the geophysical survey. E & E believes that the proposed amendments in the sampling locations will be more useful in locating possible contaminated areas at this site. All other sampling locations presented in the work plan for Site 30 appear to be in locations suitable for the Phase I assessment.



SOURCE: U.S. Naval Air Station, Pensacola, Florida, 1987 and 1988.



- KEY:
- Geophysical Investigation Area
 - Tentative Soil Boring
 - Tentative Sediment Sample
 - Tentative Surface Water and Sediment Sample
 - Tentative Temporary Monitoring Well
 - Swamp Area

Site 30 -
Sample location
changes

Figure 14-1 TENTATIVE SOIL BORING, TEMPORARY MONITORING WELL, SEDIMENT AND SURFACE WATER SAMPLE LOCATIONS, SITE 30 - PHASE I