Draft Work Plan

Basewide Well Decommissioning
Naval Weapons Station Seal Beach
Seal Beach, California

September 2014

Prepared for:
Naval Facilities Engineering Command Southwest
San Diego, California

Contract No. N62473-09-D-2627
CTO NO. 0010
DCN: CEKA-2627-0010-0001

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Prepared by:

CE2-KLEINFELDER JV
Pleasanton, CA

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Date: September 24, 2014

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Date: September 24, 2014

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Executive Summary

This Work Plan was prepared to support the work to be performed by CE2 Kleinfelder Joint Venture (CE2-K) for the Naval Facilities Engineering Command (NAVFAC) Southwest under Performance Based Small Business Environmental Multiple Award Contract No. N62473-09-D-2627, Task Order N0. 0010. The task order involves groundwater monitoring well decommissioning activities at several former remedial project locations within Naval Weapons Station (NAVWPNSTA) Seal Beach (Figure 1 and 2). This Work Plan provides the technical approach and scope of work (SOW) to be performed to complete the well decommissioning activities.

The wells scheduled for decommissioning as part of this Work Plan at NAVWPNSTA Seal Beach are included in Table ES-1. The project schedule is included as Figure 3. Specific well construction details and installation dates are included in Appendix A**,** and site-specific monitoring well locations are shown in Appendix B, which are presented at the end of the Work Plan text and were provided by the NAVWPNSTA Seal Beach Installation Restoration Program (IRP) Coordinator.

Table ES-1: Well Inventory List

Site	Well Identification
01	01M02, 01M03, and 01M04
04	MW-4-01, MW-4-02, MW-4-03, MW-4-04, and MW-4-05
05	MW-5-01, MW-5-02, MW-5-03, MW-5-04, and MW-5-05
06	MW-6-01, MW-6-02, MW-6-03, MW-6-04, and MW-6-05
07	07M01, 07M02, 07M03, 07M04, W-41, W-42, W-43, W-44, W-45, and W-46
12	12_M01 and 12_M02
14	BSW-14-01, BSW-14-02, BSW-14-03, BSW-14-04, BSW-14-05, BSW-14-06, BSW-14-07, BSW-14-08, BSW-14-09, BSW-14-10, and BSW-14-11
16	16_M01 and 16_M02
UST 229	SB229-MW01, SB229-MW02, SB229-MW03, and SB229-MW04

Well decommissioning activities for the Sites that are described in this work plan consist of the following:

- Investigate the presence and location of the 47 wells reported to be present and the additional 24 suspected wells;
- Mobilization of drill rig, associated equipment, and personnel;
- Proper decommissioning of 47 groundwater monitoring wells in general accordance with Orange County Environmental Health Division (OCEHD) guidelines and California Department of Water Resources, California Well Standards;
- Proper decommissioning of an optional 10 wells out of the additional 24 suspected wells (upon Navy approval);
- Decontamination of equipment;
- Management and disposal of wastes derived during well decommissioning activities;
- Demobilization and site cleanup; and,
- Preparation of a well decommissioning report.

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Abbreviations and Acronyms

bgs	Below Ground Surface
APP	Accident Prevention Plan
BMPs	Best Management Practices
CE2-K	CE2 Kleinfelder Joint Venture
CSWRCB	California State Water Resources Control Board
DOD	United States Department of Defense
DON	Department of the Navy
DTSC	California Department of Toxic Substances Control
FEAD	Facilities Engineering & Acquisition Division
IDW	Investigative Derived Waste
IRP	Installation Restoration Program
JV	Joint Venture
NAVFAC	Naval Facilities Engineering Command
NAVWPNSTA	Naval Weapons Station
NWR	National Wildlife Refuge
OCEHD	Orange County Environmental Health Division
OSHA	Occupational Safety and Health Administration
PG	Professional Geologist
PM	Project Manager
POC	Point of Contact
PVC	Polyvinyl Chloride
RPM	Remedial Project Manager
RWQCB	Santa Ana Regional Water Quality Control Board
SOW	Scope of Work
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
UST	Underground Storage Tank

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1.0 Introduction

This Work Plan was prepared to support the work to be performed by CE2-K for the Naval Facilities Engineering Command (NAVFAC) Southwest under Performance Based Small Business Environmental Multiple Award Contract No. N62473-09-D-2627, Task Order N0. 0010. The task order involves groundwater monitoring well decommissioning activities at several former remedial project locations within Naval Weapons Station (NAVWPNSTA) Seal Beach (Figure 1 and 2). This Work Plan provides the technical approach and scope of work (SOW) to be performed to complete the well decommissioning activities.

***Figures 1 and 2**, located in the Figures section at the end of the text, show the location of NWS Seal Beach and the project sites included in the well decommissioning activities.*

The well decommissioning activities at Sites 01, 04, 05, 06, 07, 08_42, 12, 13, 14, 16, 19, 35, and Underground Storage Tank (UST) Site 229 (the Sites) will be conducted in accordance with NAVFAC's SOW included in the contract, dated July 11, 2014; the approved final Work Plan; and, the final Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP) that will be submitted jointly under a separate cover. The Sites and their corresponding California State Water Resources Control Board's (CSWRCB) Geo-Tracker identification numbers are included in Table 1-1 below.

Table 1-1: Remedial Project Sites and Geo-Tracker ID #

Site	Geo-Tracker ID #
01	SLT8R2604067
04	DOD100379000
05	DOD100379100
06	DOD100350500
07	DOD100350600
08_42	(8) - DOD100350700, (42) - T0605953305
12	DOD100352200
13	DOD100352300
14	T0605901139
16	DOD100352400
19	DOD100352500
35	DOD100355600
UST 229	T0605901373

1.1 Scope of Work

Well decommissioning activities for the Sites that are described in this work plan consist of the following:

- Investigate the presence and location of the 47 wells reported to be present and the additional 24 suspected wells;
- Mobilization of drill rig, associated equipment, and personnel;
- Proper decommissioning of 47 groundwater monitoring wells in general accordance with Orange County Environmental Health Division (OCEHD) guidelines and California Department of Water Resources, California Well Standards;
- Proper decommissioning of an optional 10 wells out of the additional 24 suspected wells (upon Navy approval);
- Decontamination of equipment;
- Management and disposal of wastes derived during well decommissioning activities;
- Demobilization and site cleanup; and,
- Preparation of a well decommissioning report.

1.2 Project Schedule

The activities detailed in this work plan will be completed over the next 6 months, between September 2014 and February 2015. Well decommissioning activities are anticipated to occur between October 2014 and January 2015. A more detailed schedule showing various phases, specific project tasks, and submittals can be found on Figure 3.

1.3 Project Team

The Project Team will include Mr. Edward Kilduff P.G. as the Program Manager, who will be responsible for overall management of contract activities. The Project Manager for this task order will be Mr. Sean Roy P.G., and he will be responsible for project oversight and verifying that all tasks are completed properly and in a timely fashion. Mr. Neil Fajardo will serve as the Field Team Leader/Site Safety and Health Officer (SSHO).

1.4 Project Responsibilities

NAVFAC's Remedial Project Manager (RPM) for this project is Ms. Brenda Reese and the NAVWPNSTA Seal Beach Installation Restoration Program (IRP) Coordinator is Ms. Pei-Fen Tamashiro, P.G. Together, the RPM and IRP Coordinator are responsible for project management, regulatory

agency contacts and community relations, and coordinating field activities with different NAVWPNSTA Seal Beach departments and personnel. Vincent Pankoski, Facilities Engineering & Acquisition Division (FEAD) Point of Contact (POC), will be responsible for overall safety oversight and quality control of the project. They will also promote compliance of applicable rules and regulations of field and remedial activities.

CE2-K's Project Manager (PM), Sean Roy, will be responsible for general project administration and will be the lead technical professional. Mr. Roy will oversee budget, schedule, and document preparation, and will promote quality of project activities and deliverables. The Field Team Leader, Mr. Neil Fajardo, will manage fieldwork and provide oversight to the subcontractors. Mr. Fajardo will coordinate the field activities with the senior technical staff to promote compliance of field activities with the project specifications. He will also serve as the Site Safety and Health Officer (SSHO), interact with Department of the Navy (DON) personnel, and coordinate efforts among subcontractors.

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2.0 Background

This section provides a general description and historical information for NAVWPNSTA Seal Beach and a well inventory list for the Sites.

2.1 Site Description and History

NAVWPNSTA Seal Beach is located in the City of Seal Beach, northwest Orange County, approximately 25 miles south of downtown Los Angeles, California (Figure 1). NAVWPNSTA Seal Beach comprises approximately 5,000 acres of land originally purchased between 1941 and 1944, commissioned as the Naval Ammunition and Net Depot in 1944 and as NAVWPNSTA Seal Beach in 1964. A portion of the Anaheim Bay and its adjoining salt marsh, recognized as Seal Beach National Wildlife Refuge (NWR), are also located within the extent of NAVWPNSTA Seal Beach (SWDIV 1990).

2.2 Geologic Setting

NAVWPNSTA Seal Beach is situated in the coastal plain of Los Angeles-Orange Counties, regionally underlain with Recent Alluvium to a depth of approximately 80 to 100 feet below ground surface (bgs). The upper-most 50 feet consists of varying soil types, including fine sand, silt, and clay which overlies deeper unconsolidated sands, gravels, silty sands and clays, and clays.

The Recent Alluvium is underlain by the Upper Pleistocene Lakewood Formation, extending from approximately 80 to 100 feet bgs to approximately 350 feet bgs, followed by the Lower Pleistocene San Pedro Formation, and the Pliocene Pico Formation (DWR 1961).

2.3 Hydrogeology

Groundwater beneath NAVWPNSTA Seal Beach is situated in the Orange County groundwater management zone, beneath the Lower Santa Ana River Basin – East Coastal Plain hydrologic subarea (801.11) (Water Board 1995, amended 2004).

The four aquifer zones identified at NAVWPNSTA Seal Beach include (JEG 1995):

- A semi-perched, unconfined zone in the upper portion of the Recent Alluvium

- A confined fresh groundwater zone in the lower portion of the Recent Alluvium
- Pleistocene deposits of the Lakewood and San Pedro Formations, and localized portions of the Late Pliocene Pico Formation
- Confined saline water underlies the freshwater zone

According to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), beneficial uses of the groundwater supply in the Orange County groundwater management zone include industrial process supply, industrial service water supply, agricultural supply, and municipal supply (Water Board, 1995, amended 2004).

2.4 Regulatory Framework

NAVWPNSTA Seal Beach is the lead agency for the former remedial project sites included in the well decommissioning activities of this Work Plan. The Santa Ana Regional Water Quality Control Board (RWQCB) and California Department of Toxic Substances Control (DTSC) varied as the lead regulatory agency on a site-specific basis. The applicable RWQCB and DTSC case numbers for the Sites are included below in Table 2-1. Additionally, a case number is also setup by OCEHD for the UST 229 Site (Case #91UT32). Except for Site 7, each of the Sites have received no further action/closure approval from their respective regulatory agency or agencies. Additional landfill cover vegetation is still on-going for Site 7, but no further action is required for groundwater.

Table 2-1: Applicable Regulatory Case Numbers

Site	RWQCB Case #	DTSC Case #
01	SLT8R260	CA0170024491
04	166-69 -- 2	400136 -- 2
05	166-69 -- 1	400136 -- 1
06	166-69 -- 21	400136 -- 21
07	16583—20	--
08_42	(8) - 166-69 – 19, (42) - 16583-22	(8) - 400136 – 19, (42) – 400136 - 22
12	16583 -- 17	400136 -- 17
13	16583 -- 16	400136 -- 16
14	083001494T	--
16	166-69 -- 15	400136 -- 15
19	16583 -- 14	400136 -- 14

35	16583 -- 9	400136 -- 9
UST 229	083001835T	--

The activities described in this Work Plan will be conducted under the current requirements of the RWQCB, DTSC, and the DON. Well decommissioning activities will follow the OCEHD and California Department of Water Resources, California Well Standards Bulletins 74-81 and 74-90 guidelines.

Although not required, a groundwater monitoring well destruction permit application will be assembled and submitted to the IRP coordinator for NAVWPNSTA as requested. The IRP Coordinator will forward the well destruction permit application to the OCEHD for informational purposes only.

A well decommissioning report will be prepared for submittal following the decommissioning activities; the report will include the method, type and quantity of materials used in the decommissioning process.

2.5 Well Inventory List

The 47 wells scheduled for decommissioning as part of this Work Plan at NAVWPNSTA Seal Beach are included in Table 2-2 below. The 24 suspected (optional item) wells, to be located during well decommissioning are included in Table 2-3 below. Specific well construction details and installation dates are included in Appendix A (Well Inventory List), and the reported site-specific monitoring well locations are shown in Appendix B, which are presented at the end of the Work Plan text.

Table 2-2: Wells Scheduled for Decommissioning

Site	Well Identification
01	01M02, 01M03, and 01M04
04	MW-4-01, MW-4-02, MW-4-03, MW-4-04, and MW-4-05
05	MW-5-01, MW-5-02, MW-5-03, MW-5-04, and MW-5-05
06	MW-6-01, MW-6-02, MW-6-03, MW-6-04, and MW-6-05
07	07M01, 07M02, 07M03, 07M04, W-41, W-42, W-43, W-44, W-45, and W-46
12	12_M01 and 12_M02
14	BSW-14-01, BSW-14-02, BSW-14-03, BSW-14-04, BSW-14-05, BSW-14-06, BSW-14-07, BSW-14-08, BSW-14-09, BSW-14-10, and BSW-14-11

16	16_M01 and 16_M02
UST 229	SB229-MW01, SB229-MW02, SB229-MW03, and SB229-MW04

An optional Work Element exists for the decommissioning of 10 additional wells. This Work Element will be based on the results of further investigation into the location or existence of any of the 24 suspected wells listed below in Table 2-3.

Table 2-3: Optional Wells for Decommissioning

Site	Well Identification
05	05-MW01 and 05-MW02
06	06-MW01, W-38, W-39, and W-40
08-42	USGS-1, USGS-1A, USGS-2, USGS-23, and USGS-24
13	13-MW01, 13-MW02, and 13-MW03
14	N35, N36, N37, N38, and N39
19	W54, W55, and W56
35	35_M01 and 35_M02

3.0 Well Decommissioning Activities

This section provides information on the various practices that will be utilized by CE2-K to complete the well decommissioning activities.

3.1 Pre-field Activities

Well decommissioning activities at NAVWPNSTA Seal Beach will be conducted in accordance with the OCEHD and California Department of Water Resources, California Well Standards Bulletins 74-81 and 74-90 guidelines. As requested, a well destruction permit application summarizing the wells to be decommissioned will be completed and submitted to the RPM and IRP Coordinator prior to initiating field activities. The Navy RPM will forward the application to the OCEHD for information purposes.

Before preparing the well destruction permit application, CE2-K will request well records from the OCEHD, Orange County Water District, and the Navy's Administrative Records to assess if any of the wells listed in Table 2-2 or 2-3 had been previously decommissioned.

3.2 Site Access

Before conducting any site visit or work activity, CE2-K will provide a minimum of 2-week notice to the Navy. Additional notice will be provided dependent upon the task being completed, and the level of coordination required to gain access to well decommissioning locations.

CE2-K personnel and subcontractor(s) will utilize the Westminster Gate as the primary access point to NAVWPNSTA Seal Beach. Personnel will utilize proper Rapid Gate credentials in addition to appropriate NAVWPNSTA Seal Beach credentials.

3.3 Mobilization

Mobilization activities include the movement of personnel and equipment to the site that are necessary for the implementation of fieldwork. Prior to the initiation of any mobilization activities, site personnel will be trained on health and safety matters anticipated at the site by the IRP Coordinator.

Mobilization will include conducting a site inspection to confirm the presence and location of wells included in the scope of work.

A site inspection will be conducted at the start of field work to assess the physical location of the 47 wells reported to be present and the 24 suspected wells. During a preliminary site inspection during the project kickoff meeting several of the 47 wells reported to be present could not be located. CE2-K will utilize a handheld Trimble™ 2005 GeoXT GPS unit and a metal detector to assess the well locations and their current condition (present, damaged, decommissioned, etc.). Prior to preliminary to site inspection, the specifications for the GPS Unit and metal detector will be submitted to the IRP Coordinator to clear equipment for Hazards of Electromagnetic Radiation to Ordnance (HERO) by the NAVWPNSTA explosives safety office. Upon completion of the site inspection the findings will be provided to the Navy RPM and IRP Coordinator to assess if additional efforts are required, e.g. hiring a professional land surveyor.

CE2-K will coordinate our fieldwork with on-site personnel to safely conduct this work with reduced conflicts with current base operations.

3.4 Traffic Control

The scope of work for each of the Sites does not include any activities in a public or private right of way. A traffic control plan that describes alternate routes or lane control was not deemed necessary.

However, the safety of CE2-K and NAVWPNSTA Seal Beach personnel is of the utmost importance. As such, traffic control at each of the Sites will include maintaining high visibility cones at a perimeter of no less than 8 feet in each direction of the operating equipment. Based on an initial site inspection during the project kickoff meeting, no overhead wires were observed in the vicinity of the wells proposed for decommissioning. In addition, CE2-K does not anticipate the need for flag personnel or lane closures based on observed well locations.

3.5 Safety and Site Security

The planned work areas will be secured on a daily basis such that non-project personnel will not be able to enter the work areas.

Any field personnel working on this project will have the appropriate Occupational Safety and Health Administration (OSHA) health and safety training. Daily tailgate meetings will be conducted prior to the start of work each day to discuss health and safety issues as well as site security issues.

Caution tape will be used around the staging area and at each well decommissioning Site to keep military and other personnel away from the work area while work is being performed.

3.6 Biological Assessment and Avoidance and Minimization Measures

Many of the wells to be decommissioned under this contract are located inside the boundaries of the Seal Beach National Wildlife Refuge (NWR), which is one of the largest remaining salt marshes along the southern California coast. About 740 acres of the 911-acre Seal Beach NWR are subject to unobstructed tidal influence, including 565 acres of salt marsh vegetation, 60 acres of intertidal mudflats, and 115 acres of tidal channels and open water. Since it was established in 1974, Seal Beach NWR's principal focus has been on protecting federally listed species and coastal wetlands used for foraging and resting by migratory waterfowl, shorebirds, and raptors that travel along the Pacific Flyway (USFWS, 2007). The Seal Beach NWR supports federally and state listed sensitive, threatened, and endangered species, as presented in this section.

Several bird species known to be residents or migrants at NAVWPNSTA Seal Beach are listed by federal or state agencies, or both, as threatened or endangered. They include the light-footed clapper rail (Rallus longirostris levipes), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), green sea turtle (Chelonia mydas), southern sea otter (Enhydra lutris nereis), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). The breeding season for these bird species extends from approximately mid-March to October. The light-footed clapper rail is a subspecies of clapper rail that is a resident of the NWR, thus obtaining its entire food supply there. The mangrove clapper rail (*R. l. insularium*), California clapper rail (*R. l. obsoletus*), and Yuma clapper rail (*R. l. yumanensis*) are also subspecies of clapper rail in California. Life history and risk estimates are assumed to be similar among these four subspecies (Eddleman and Conway, 1998). The California least tern occupies the NWR only during the breeding season, but most of its food supply comes from the NWR during that period (USFWS, 1990).

Small mammals such as voles, shrews, and ground squirrels, and other mammals such as Audubon's cottontail (*Sylviagus audubonii*) and the brush rabbit are likely to be found in the upland area east of Case Road.

The breeding season for the aforementioned bird species generally occurs between mid-February and September. The well decommissioning activities will be conducted to avoid the breeding season; therefore, it is unlikely that these endangered and threatened species will be impacted during the field work. In addition, the field crew will adhere to general installation practices to avoid impacts to these species and other

ecological receptors located on the NAVWPNSTA Seal Beach. Of particular, the Navy and the Seal Beach NWR biologists will be notified of the field work kickoff meeting and the field schedule prior to the commencement of the field activities. If necessary, a representative from the project, in coordination with the Navy and the Seal Beach NWR biologists, will conduct a preliminary site walk at each site prior to field work commencement to check that no ground nests are present in the area.

During field work, the project team will adhere to general installation practices to minimize the impact to natural resources at the project sites. Such practices include minimizing off-road vehicle and foot traffic as much as possible. However, since some of the wells are located inside tidally influenced areas, it is recognized that vehicle and foot traffic inside wetlands is necessary and will be closely coordinated with the Navy and the Seal Beach NWR biologists. Staging and equipment decontamination will avoid taking place in areas where wildlife activity is observed.

3.7 Spill, Discharge, and Water Pollution Control

BMPs will be installed and updated, as needed, throughout field activities.

A comprehensive spill, discharge and water pollution control plan is not required as part of the Work Plan. However, spill and discharge best management practices (BMPs) will be utilized at each well decommissioning Site and around materials/equipment in the designated staging area. These measures will include the use of drip pans, covered storage enclosures/bins, good housekeeping practices, and storm water inlet protection (as needed).

These measures will be utilized for the duration of the project to avoid impacts to water quality from an accidental release or inadvertent contact with waste material generated at the various well decommissioning Sites.

3.8 Equipment Storage

Upon mobilization to NAVWPNSTA Seal Beach, care will be taken to minimize potential disruptions to base operations in the vicinity of the Sites. In the unlikely event that it is necessary to leave boreholes open and unsupervised, an approval will be obtained from the IRP Coordinator and they will be appropriately covered and barricaded.

At each of the Sites where well decommissioning activities will be conducted, as described in Section 2.0 above, there will be a designated area for any temporary use of materials required for each well. Examples of bulk materials that will be temporarily used onsite include

miscellaneous drilling equipment and small quantities of bentonite and cement used for the grout mixture and surface completions. These materials will be removed at the end of each day and kept in the proposed staging area.

IDW generated during decommissioning activities are anticipated to be concrete, polyvinyl chloride (PVC) pipe, metal debris, and a small volume of soil spoils. None of the IDW is anticipated to be hazardous waste. The IDW will be segregated and temporarily kept at the Sites until decommissioning activities have been completed and transfer of the materials to the staging area can be completed at the end of each day.

The proposed staging area, located southeast of the intersection of Bolsa Avenue and Devlin Road within the fenced in area around the decontamination pad, will be utilized for the overnight storage of decommissioning equipment and waste storage. Covered roll-off storage bins and/or 55-gallon drums will be used to store the waste appropriately until offsite disposal can be completed. The storage, characterization, transportation and disposal will be managed in accordance with the Waste Management Plan included in Appendix C. The staging area will be inspected at the start and end of each day for appropriate housekeeping practices and as an additional security measure.

Material/waste staging will prevent disruption to base operations in the area. Signs, temporary fencing, etc., will be used as needed to secure and identify materials while they remain onsite.

3.9 Well Decommissioning Methodology

The well decommissioning activities will be completed by a California licensed C-57 drilling subcontractor in accordance with Orange County OCEHD well decommissioning requirements and California Department of Water Resources, California Well Standards, Bulletins 74-81 and 74-90 guidelines. Well decommissioning equipment anticipated to be used on the project includes a vacuum truck with a grout pump, a track-mounted limited access rig, a jack hammer with an air compressor, and a fork lift. The well decommissioning process includes the following procedures:

- Destruction of the existing well completion components, including the concrete pad, crash posts, and well box structure.
- Pressure grout in place, using a Tremie pipe to properly inject the bentonite grout from total depth to approximately 5 feet below ground surface. The grout will be applied with a minimum of 25 pounds per square inch pressure for five minutes or until refusal.

The grout slurry will consist of Portland cement mixture, 20% bentonite solids and potable water.

- The approximate volume of grout used will be compared to theoretical volume of the voids in the sand pack and the casing volume for each well t
- Removal of the PVC riser pipe to a depth of 5 feet bgs
- Approximately 3-4 feet of hydrated medium bentonite chips will be placed on top of the grout.
- Complete the decommissioning at each borehole location by restoring the area to surrounding grade including matching the surrounding material (soil, asphalt, or cement) as necessary.

Please note that several of the wells (MW-05-03, MW-05-04, and MW-05-05) are located well into the salt marsh and require equipment access through intertidal mud flats and tidal channels. Wells in these locations cannot be decommissioned with traditional equipment, i.e. vacuum truck or a limited access rig due to the risk of sinking or becoming stuck in the mud.

Therefore CE2-K is proposing the following method for these select wells. A breaker bar will be lowered down the well to break up the bottom of the PVC well screen. If the equipment with the grout pump and hoses can get close enough to the wells than they will be pressure grouted. If the equipment with the grout pump and hoses can't get close enough than the grout will be carried over and placed into the well by hand.

A large capacity (50,000 pound) forklift with large "balloon" tires will drive over landing matts placed along the pathway to the well and used to lift the entire well pad, well box, and well casing off the ground surface. The forklift will remove the well materials from the salt marsh to a location where it can be broken up in an environmentally safe location. The boreholes will be backfilled with grout and the upper one to two feet of the open borehole will be filled with native soils and the ground surface restored to existing grade. This method will minimize the damage to the tidal mudflats, salt marsh, and reduce the likelihood of drilling equipment becoming stuck in the mudflats and tidal channels. This work will be conducted during a low tidal window.

3.10 Decontamination Procedures

Non-disposable field equipment will be decontaminated after use in an enclosed self-decontamination trailer provided by ABC Drilling. The decontamination trailer will be stored and used in the staging area. This

includes, but is not limited to, drilling equipment, excavation equipment, Tremie pipe, or other equipment that comes in contact with soil or groundwater. The decontamination water from the decontamination trailer will be managed in accordance with the Waste Management Plan (Appendix C).

3.11 Demobilization and Site Cleanup

Upon completion of decommissioning activities at each well, demobilization will include the removal of the remaining equipment, waste, and material. Decommissioning wastes will be removed from each well location and transferred to the staging area until offsite disposal can be completed. The well decommissioning Sites will then be cleaned of debris or wastes, and a final site inspection will be performed.

3.12 Waste Management and Disposal

A variety of IDW will be generated during the implementation of this scope of work. As such a waste management plan is provided as Appendix C. The plan describes waste management and minimization practices that will be implemented at the various UST Sites.

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4.0 Reporting

Following completion of groundwater monitoring well decommissioning activities, as described above, CE2-K will prepare a well destruction completion report. The report will describe the method of well decommissioning, the materials and quantities used for each well will be documented. The well destruction permit application, and investigative derived waste (IDW) disposal documentation (manifest) will be included as appendices to the report.

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5.0 References

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Figures

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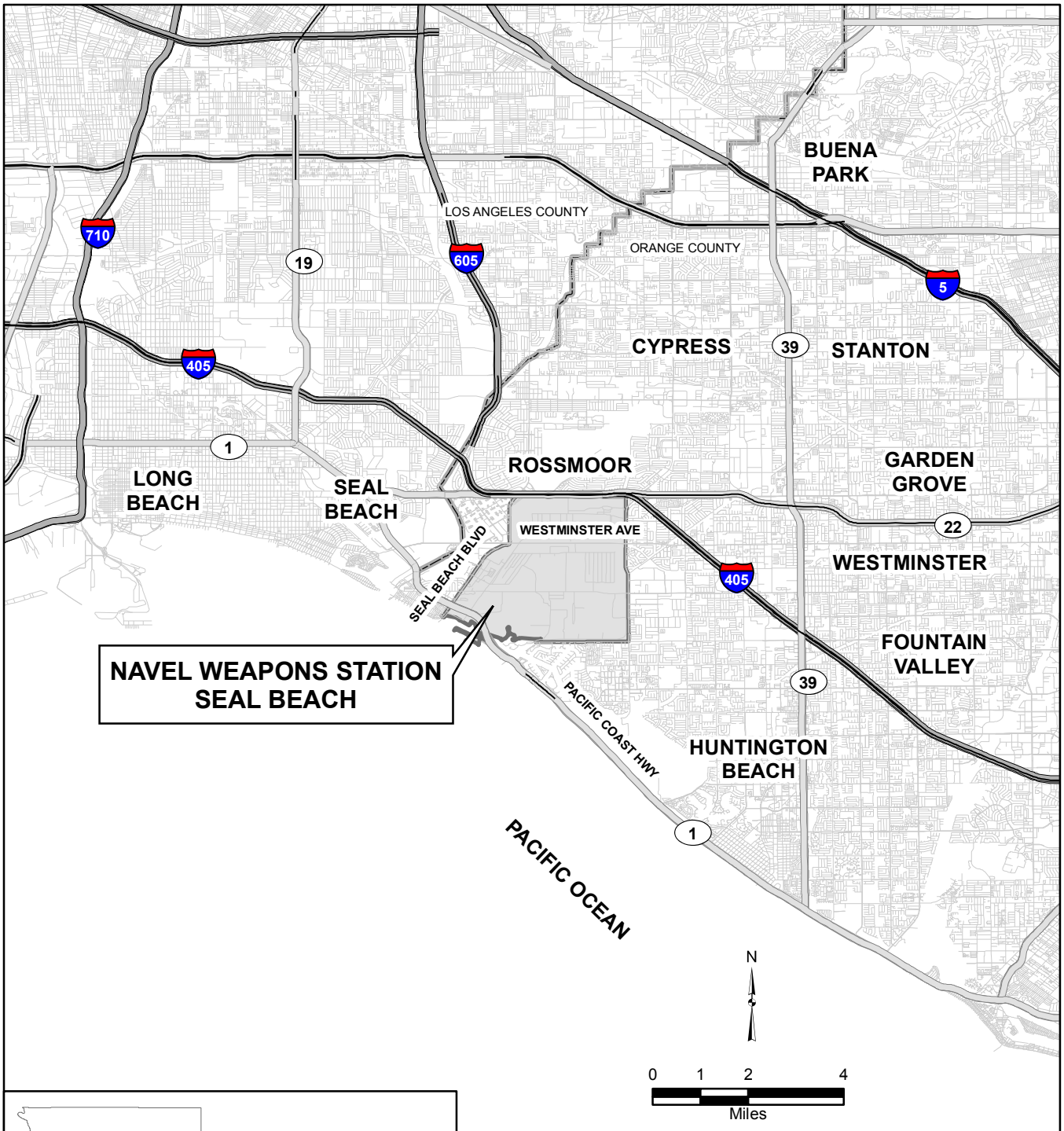

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST

PREDRAFT WORK PLAN
AUGUST 2014

FIGURE 1

FACILITY LOCATION MAP

BASEWIDE WELL DECOMMISSIONING
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

REVIEW: DM
AUTHOR: RD
FILE NUMBER: Figure 1.mxd

CE² KLEINFELDER

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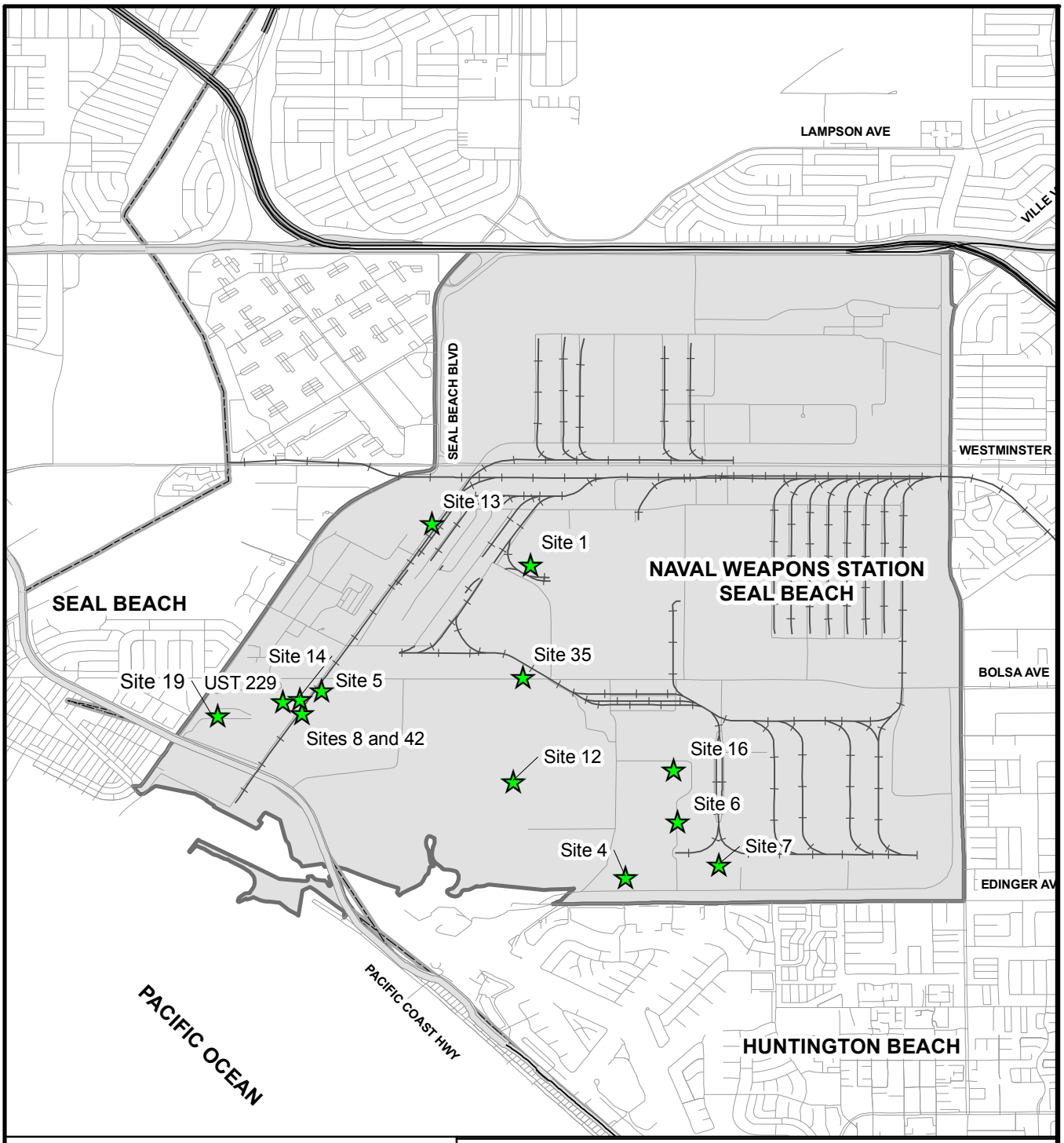

N

0 0.25 0.5 1

Miles

NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST

PREDRAFT WORK PLAN
AUGUST 2014

FIGURE 2

SITE LOCATION MAP

BASEWIDE WELL DECOMMISSIONING
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

REVIEW: DM
AUTHOR: RD
FILE NUMBER: Figure 2.mxd

CE² KLEINFELDER

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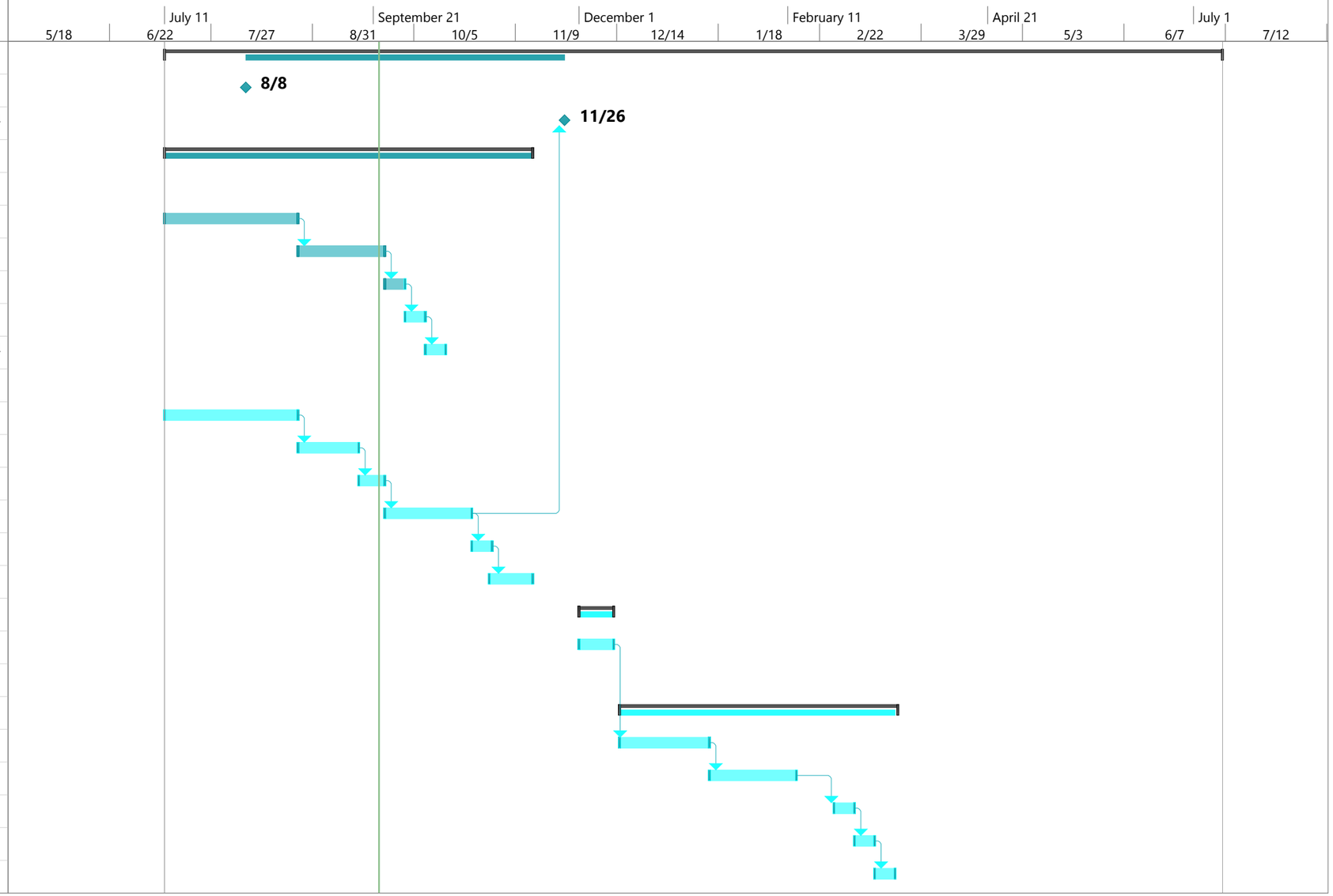
Figure 3.
Seal Beach Project Schedule

ID	Task Name	Duration	Start	Finish
1	**WE 1: Project Management**	**365 days**	**Fri 7/11/14**	**Fri 7/10/15**
2	Kick Off Meeting	0 days	Fri 8/8/14	Fri 8/8/14
3	Pre-Field Work Meeting	0 days	Wed 11/26/14	Wed 11/26/14
4	**WE 2: Project Specific Plans**	**127 days**	**Fri 7/11/14**	**Fri 11/14/14**
5	**SSHP/ APP**			
6	Draft SSHP/APP	46 days	Fri 7/11/14	Mon 8/25/14
7	SSHP/ APP Review	30 days	Tue 8/26/14	Wed 9/24/14
8	SSHP/ APP RTC	7 days	Thu 9/25/14	Wed 10/1/14
9	Navy review of RTC	7 days	Thu 10/2/14	Wed 10/8/14
10	Final SSHP/APP	7 days	Thu 10/9/14	Wed 10/15/14
11	**Workplan**			
12	Pre-Draft Workplan	46 days	Fri 7/11/14	Mon 8/25/14
13	Workplan Review	21 days	Tue 8/26/14	Mon 9/15/14
14	Workplan RTC/Draft	9 days	Tue 9/16/14	Wed 9/24/14
15	Draft Review	30 days	Thu 9/25/14	Fri 10/24/14
16	Workplan RTC/Final	7 days	Sat 10/25/14	Fri 10/31/14
17	Final Concurrence	15 days	Fri 10/31/14	Fri 11/14/14
18	**WE 3: Field Work**	**12 days**	**Mon 12/1/14**	**Fri 12/12/14**
19	Field Work	12 days	Mon 12/1/14	Fri 12/12/14
20				
21	**WE4: Reports**	**96 days**	**Mon 12/15/14**	**Fri 3/20/15**
22	Draft Field Report	31 days	Mon 12/15/14	Wed 1/14/15
23	Field Report Review (Navy	30 days	Thu 1/15/15	Fri 2/13/15
24	Field Report RTC	7 days	Fri 2/27/15	Thu 3/5/15
25	Navy review of RTC	7 days	Fri 3/6/15	Thu 3/12/15
26	Final Field Report	7 days	Fri 3/13/15	Thu 3/19/15



Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

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Appendix A:
Well Inventory List

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Well Inventory List
Naval Weapons Station Seal Beach
Installation Restoration Program

Site No.	Well ID	Borehole Depth (ft)	Casing Depth (ft)	Borehole Diameter (in)	Casing Diameter (in)	Casing Type	Surface Completion	Northing	Easting	Datum	Date Installed
1	01M02	25	24	10	4"	PVC	Above Ground	582115.43	1446154.12	NAD 27/CA Zone 6	12/17/1993
1	01M03	22	21	10	2"	PVC	Above Ground	581607.34	1446597.25	NAD 27/CA Zone 6	12/20/1993
1	01M04	22	21	10	2"	PVC	Above Ground	581722.21	1446167.18	NAD 27/CA Zone 6	12/20/1993
4	MW-04-01	19	18	10	4"	PVC	Above Ground	2214306.05	6009093.46	NAD83/CA Zon VI	9/29/2003
4	MW-04-02	31	30	10	4"	PVC	Above Ground	2214259.37	6010788.5	NAD83/CA Zon VI	9/29/2003
4	MW-04-03	30.5	29.5	10	4"	PVC	Above Ground	2214260.45	6011053.57	NAD83/CA Zon VI	9/25/2003
4	MW-04-04	30.5	29.5	10	4"	PVC	Above Ground	2214251.25	6011327.24	NAD83/CA Zon VI	9/25/2003
4	MW-04-05	19	18	10	4"	PVC	Above Ground	2214248.53	6011724.27	NAD83/CA Zon VI	9/25/2003
5	05-MW01	18	15	8	2"	PVC	Above Ground	579001.1	1442318.8	NAD 27/CA Zone 6	1/13/1993
5	05-MW02	18	18	8	2"	PVC	Above Ground	578828.73	1442208.08	NAD 27/CA Zone 6	1/11/1993
5	MW-05-01	31	30	8	4"	PVC	Above Ground	2219636.19	6003393.59	NAD83/CA Zon VI	12/3/1998
5	MW-05-02	30.5	29	8	4"	PVC	Above Ground	2219591.15	6003776.37	NAD83/CA Zon VI	9/22/2003
5	MW-05-03	30.5	29.5	8	4"	PVC	Above Ground	2219183.74	6003948.87	NAD83/CA Zon VI	10/20/2003
5	MW-05-04	30	29	8	4"	PVC	Above Ground	2218960.65	6003792.24	NAD83/CA Zon VI	9/23/2003
5	MW-05-05	30.5	29	8	4"	PVC	Above Ground	2218903.76	6003574.37	NAD83/CA Zon VI	9/22/2003
6	06-MW01	20	15.5	8	2"	PVC	Above Ground	575527.63	1449777.21	NAD 27/CA Zone 6	1/14/1993
6	W-38	30	28	8	2"	PVC	Above Ground	575222.43	1448740.31	NAD 27/CA Zone 6	
6	W-39	30	29	8	2"	PVC	Above Ground	574896.25	1449515.05	NAD 27/CA Zone 6	11/1/1988
6	W-40	30	29	8	2"	PVC	Above Ground	2216274.42	6010963.97	NAD83/CA Zon VI	11/1/1988
6	MW-06-01	31.5	26	8	4"	PVC	Above Ground	2215757.89	6010345.96	NAD83/CA Zon VI	12/3/1998
6	MW-06-02	30.5	30	10	4"	PVC	Above Ground	2216078.54	6010648.64	NAD83/CA Zon VI	9/19/2003
6	MW-06-03	30.5	29.5	10	4"	PVC	Above Ground	2215525.23	6010371.32	NAD83/CA Zon VI	9/19/2003
6	MW-06-04	30.5	29.5	10	4"	PVC	Above Ground	2215651.27	6010753.98	NAD83/CA Zon VI	9/24/2003
6	MW-06-05	30.5	29.5	10	4"	PVC	Above Ground	2215548.19	6011294.93	NAD83/CA Zon VI	9/24/2003
7	07M01	22	21	10	4"	PVC	Above Ground	573945.93	1449700.05	NAD 27/CA Zone 6	12/22/1993
7	07M02	22	21	10	4"	PVC	Above Ground	574235.98	1449848.62	NAD 27/CA Zone 6	12/21/1993
7	07M03	22	21	10	4"	PVC	Above Ground	574549.82	1449855.17	NAD 27/CA Zone 6	12/22/1993
7	07M04	22	21	10	4"	PVC	Above Ground	574048.49	1450000.13	NAD 27/CA Zone 6	12/20/1993
7	W-41	30	30	8	2"	PVC	Above Ground	574690.71	1449457.34	NAD 27/CA Zone 6	11/4/1988
7	W-42	30	29	8	2"	PVC	Above Ground	573819.91	1449550.1	NAD 27/CA Zone 6	11/4/1988
7	W-43	30	29	8	2"	PVC	Above Ground	574279.55	1449397.51	NAD 27/CA Zone 6	11/7/1988
7	W-44	30	29	8	2"	PVC	Above Ground	574711	1450026.52	NAD 27/CA Zone 6	11/7/1988
7	W-45	28	28	7	2"	PVC	Above Ground	574473.56	1450467.61	NAD 27/CA Zone 6	11/10/1988
7	W-46	34	30	7	2"	PVC	Above Ground	574168.94	1450446.85	NAD 27/CA Zone 6	11/10/1988
8_42	USGS-1					Steel					Pre-1984
8_42	USGS-1A					Steel					Pre-1984
8_42	USGS-2		10.3	2	2"						Sep-84
8_42	USGS-23		13	6	2"		Above grade				Nov-84
8_42	USGS-24		11.7	6	2"		Above grade				Nov-84
12	12_M01	26	26	10.375	4"	PVC	Flush, no cover	576796.17	1445965.92	NAD 27/CA Zone 6	2/24/1995
12	12_M02	26	25.5	10.375	4"	PVC	Flush, no cover	576682.63	1445737.21	NAD 27/CA Zone 6	2/24/1995
13	13-MW01	26.4	25.4	8	2"	PVC	Flush Mounted	578455.54	1440808.13	NAD 27/CA Zone 6	12/16/1992
13	13-MW02	27	21	8	2"	PVC	Above Ground	583395.62	1444811.75	NAD 27/CA Zone 6	12/16/1992
13	13-MW03	20	19	8	2"	PVC	Above Ground	582428.63	1444192.44	NAD 27/CA Zone 6	12/15/1992
14	BSW-14-1	25	25	10	4.5"	PVC	Flush Mounted	218993.11	3288.67		10/20/1999

Well Inventory List
Naval Weapons Station Seal Beach
Installation Restoration Program

Site No.	Well ID	Borehole Depth (ft)	Casing Depth (ft)	Borehole Diameter (in)	Casing Diameter (in)	Casing Type	Surface Completion	Northing	Easting	Datum	Date Installed
14	BSW-14-2	25	25	10	4.5"	PVC	Flush Mounted	219037.23	3263.83		10/20/1999
14	BSW-14-3	25	25	10	4.5"	PVC	Flush Mounted	219070.47	3281.81		10/20/1999
14	BSW-14-4	25	25	10	4.5"	PVC	Flush Mounted	219040.69	3217.05		10/20/1999
14	BSW-14-5	25	25	10	4.5"	PVC	Flush Mounted	219111.56	3188.82		10/20/1999
14	BSW-14-6	25	25	10	4" **	PVC	Flush Mounted	2218939.73	6003087.47	NAD83/CA Zon VI	10/2/2001
14	BSW-14-7	25	25	10	4"	PVC	Flush Mounted	2219190.37	6003266	NAD83/CA Zon VI	10/1/2001
14	BSW-14-8	24	24	10	4" **	PVC	Flush Mounted	2219111.49	6003422.59	NAD83/CA Zon VI	10/1/2001
14	BSW-14-9	25	25	10	4" **	PVC	Flush Mounted	2218898.6	6003286.58	NAD83/CA Zon VI	10/1/2001
14	BSW-14-10	25	25	10	4"	PVC	Flush Mounted	2219187.93	6003326.57	NAD83/CA Zon VI	8/1/2006
14	BSW-14-11	27.5	25	10	4"	PVC	Flush Mounted	2219121.19	6003364.7	NAD83/CA Zon VI	8/2/2006
14	N35	20	19.5		2"	PVC	Flush Mounted				10/11/1990
14	N36	20.5	20		2"	PVC	Flush Mounted				10/11/1990
14	N37	20.5	20		2"	PVC	Flush Mounted				10/11/1990
14	N38	20	19.7		2"	PVC	Flush Mounted				10/12/1990
14	N39	20.5	20		2"	PVC	Flush Mounted				10/12/1990
16	16_M01	21.5	21.5	10.375	4"	PVC	Above Ground	577026.31	1449028.91	NAD 27/CA Zone 6	5/3/1995
16	16_M02	21.5	19.5	10.375	4"	PVC	Above Ground	577011.49	1449548.6	NAD 27/CA Zone 6	5/3/1995
19	W54	30	29	8	2"	PVC	Above Ground	578268.88	1440005.14	NAD 27/CA Zone 6	
19	W55	30	29	8	2"	PVC	Above Ground	578311.35	1440049.69	NAD 27/CA Zone 6	
19	W56	30	29.5	8	2"	PVC	Above Ground	578238.86	1440053.19	NAD 27/CA Zone 6	
35	35_M01	20.8	20	10.375	4"	PVC	Flush Mounted	579374.64	1446186.21	NAD 27/CA Zone 6	4/19/1995
35	35_M02	21.5	20	10.375	4"	PVC	Flush Mounted	579353.94	1446315	NAD 27/CA Zone 6	4/17/1995
UST229	SB229-MW01	16.5	16		2"	PVC	Flush Mounted	2219079.38	6003027.76	NAD83/CA Zon VI	7/21/2009
UST229	SB229-MW02	15	15		2"	PVC	Flush Mounted	2219056.78	6002991.22	NAD83/CA Zon VI	7/21/2009
UST229	SB229-MW03	14.5	14.5		2"	PVC	Flush Mounted	2219011	6003086.85	NAD83/CA Zon VI	7/21/2009
UST229	SB229-MW04	16.5	16		2"	PVC	Flush Mounted	2219119.88	6002990.98	NAD83/CA Zon VI	7/30/2009
Notes:											
	ft - feet			*- unknown well*							
	ID - identification										
	in - inches										
	PVC - Polyvinyl Chloride										
	*** - Schedule 80 PVC*										

Appendix B: Site-Specific Monitoring Locations

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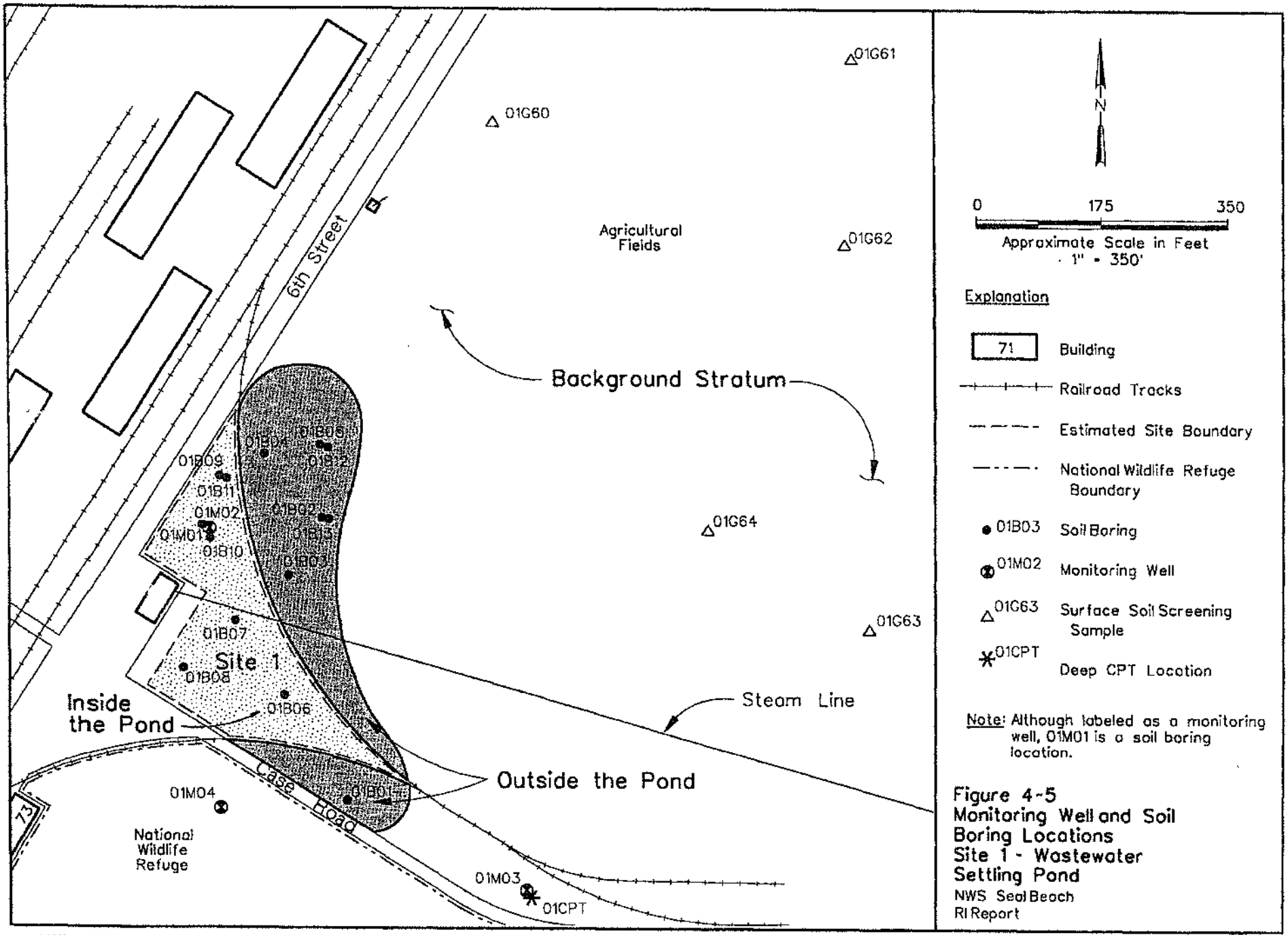

Figure 4-5
Monitoring Well and Soil Boring Locations
Site 1 - Wastewater Settling Pond
NWS Seal Beach
RI Report

0242f041.dgn 26-Apr-1994

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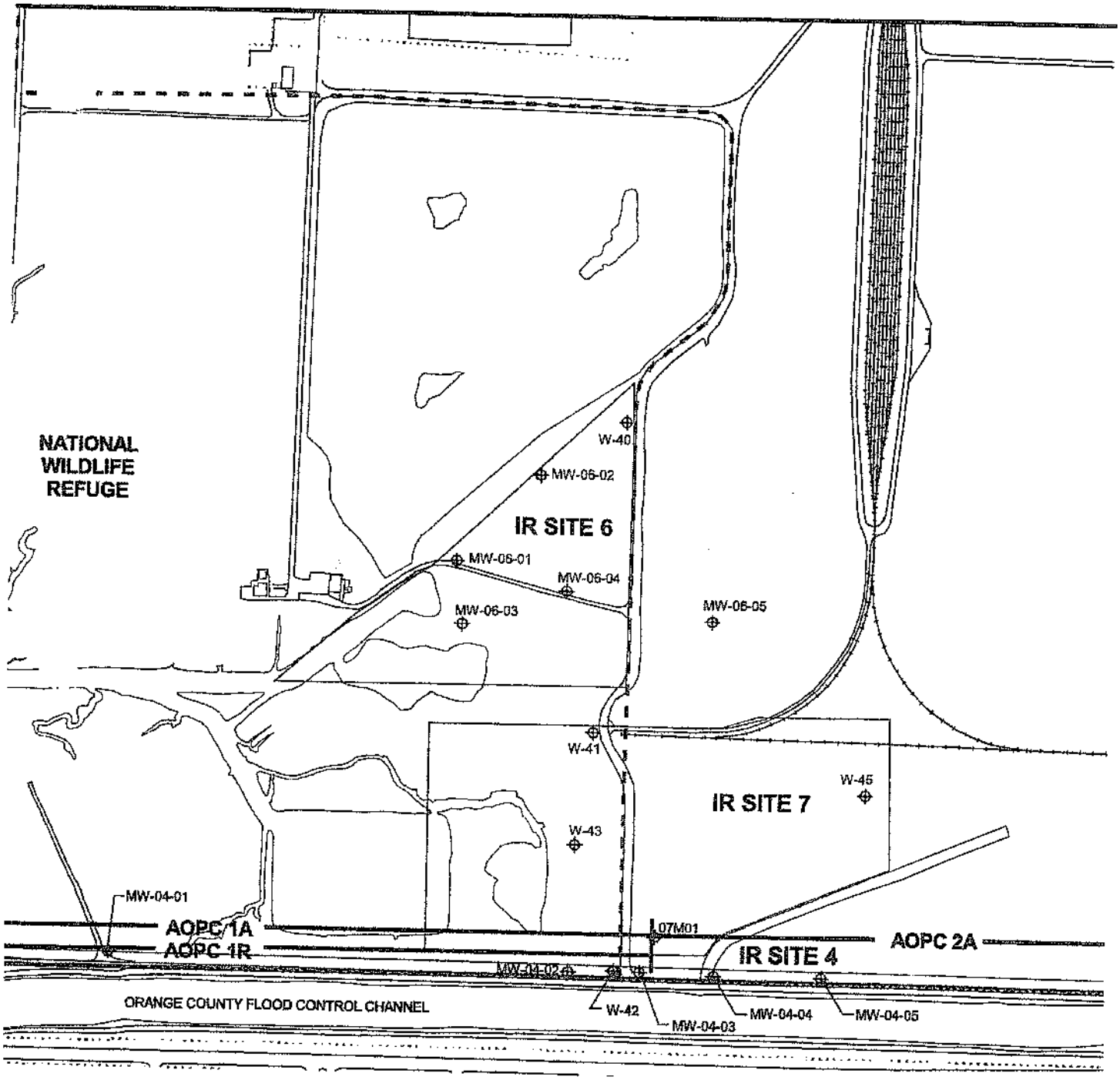
NATIONAL
WILDLIFE
REFUGE
W-40
MW-06-02
IR SITE 6
MW-06-01
MW-06-04
MW-06-03
MW-06-05
W-41
W-45
IR SITE 7
W-43
MW-04-01
AOPC 1A
AOPC 1R
07M01
AOPC 2A
IR SITE 4
MW-04-02
ORANGE COUNTY FLOOD CONTROL CHANNEL
W-42
MW-04-03
MW-04-04
MW-04-05

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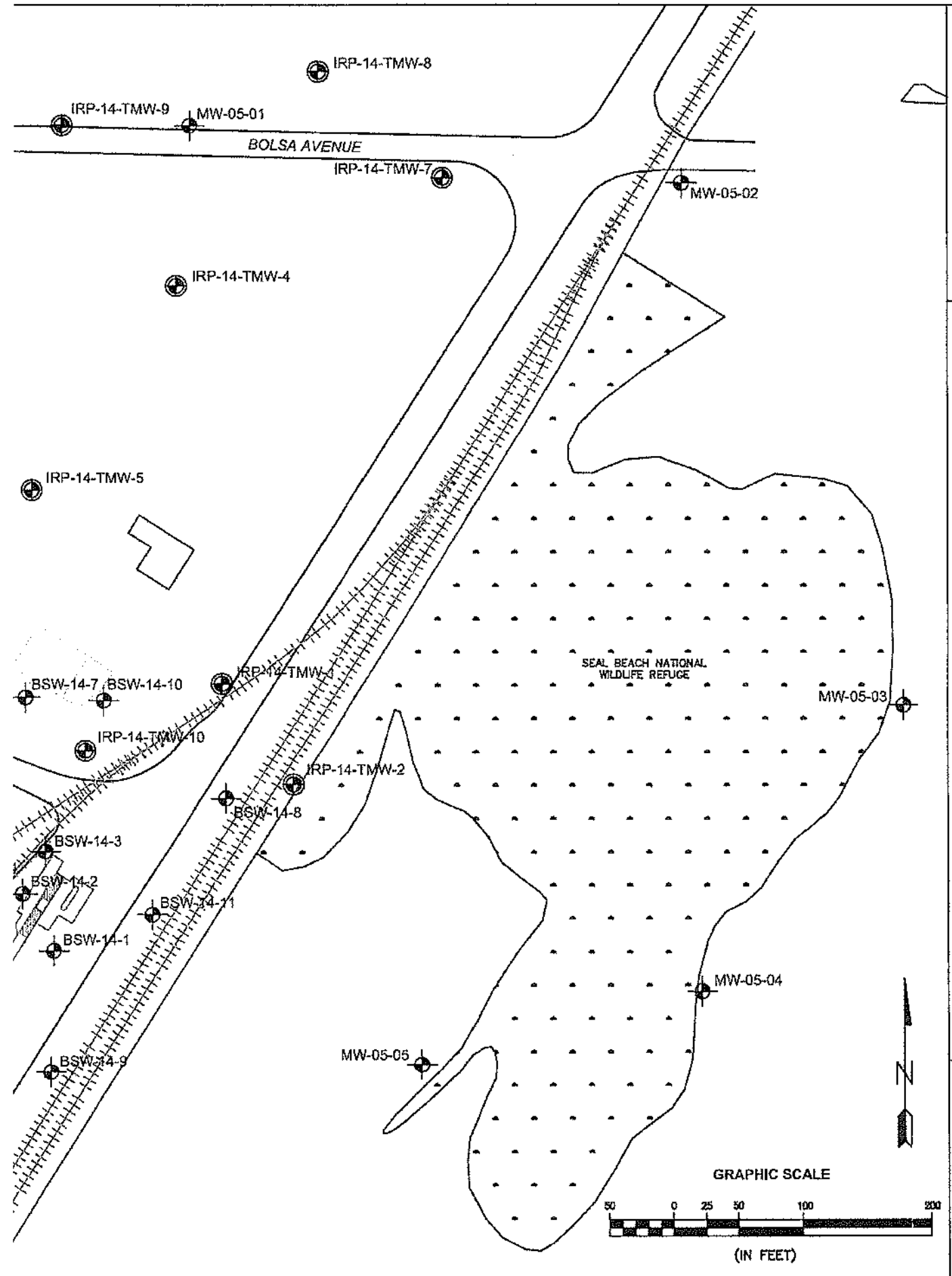

LEGEND:

BSW-14-1

MW-05-01

IRP-14-TMW

NOTES:

1. TEMPORARY MON
CONVERTED TO PERI
RESPECTFULLY.

DEPARTMENT OF TH
NAVFAC S
SAN DIEGO, CALIFOR

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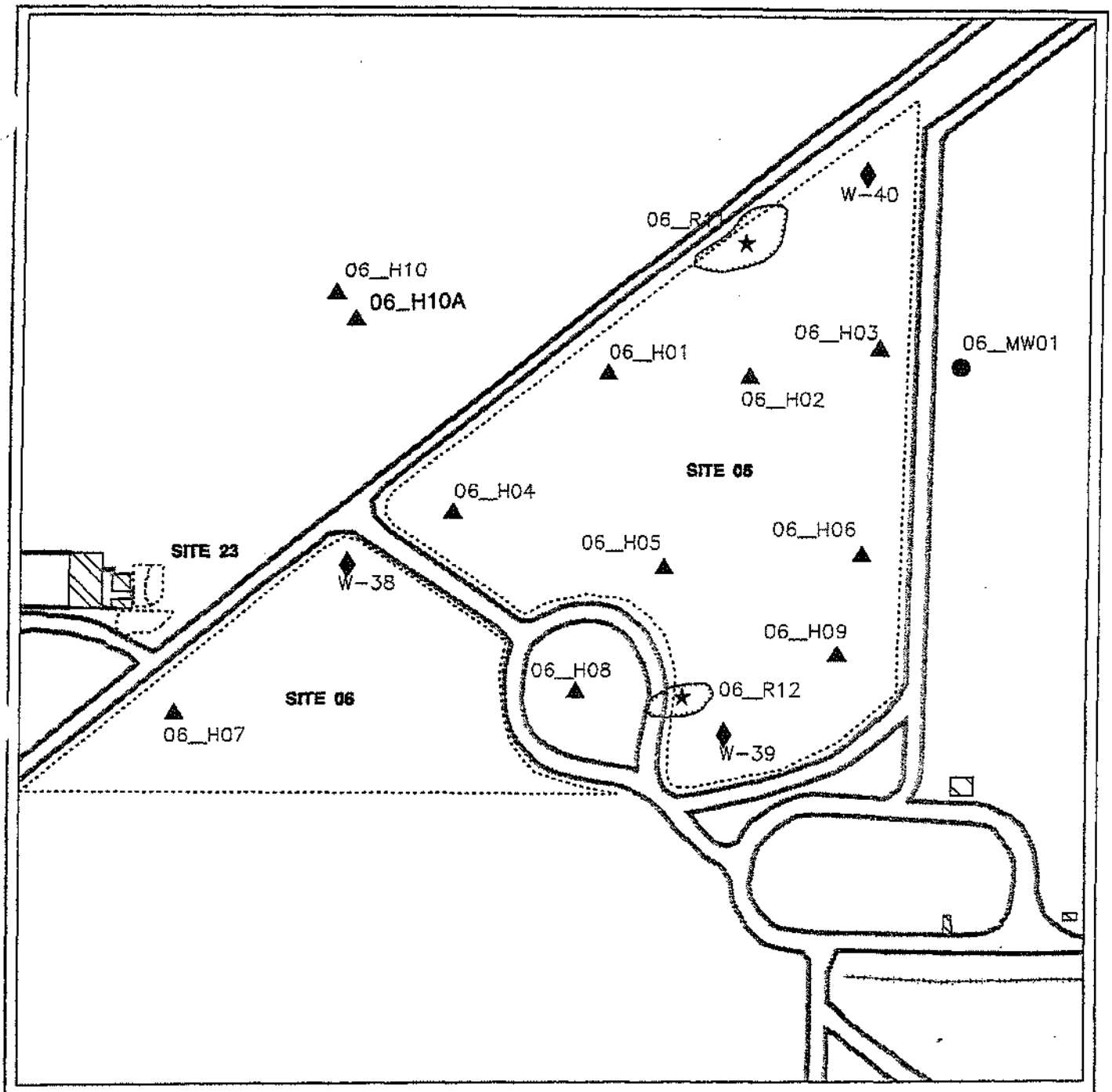

FIGURE 6-3

SITE 6

NWS SEAL BEACH
OU4 SITE INSPECTION REPORT

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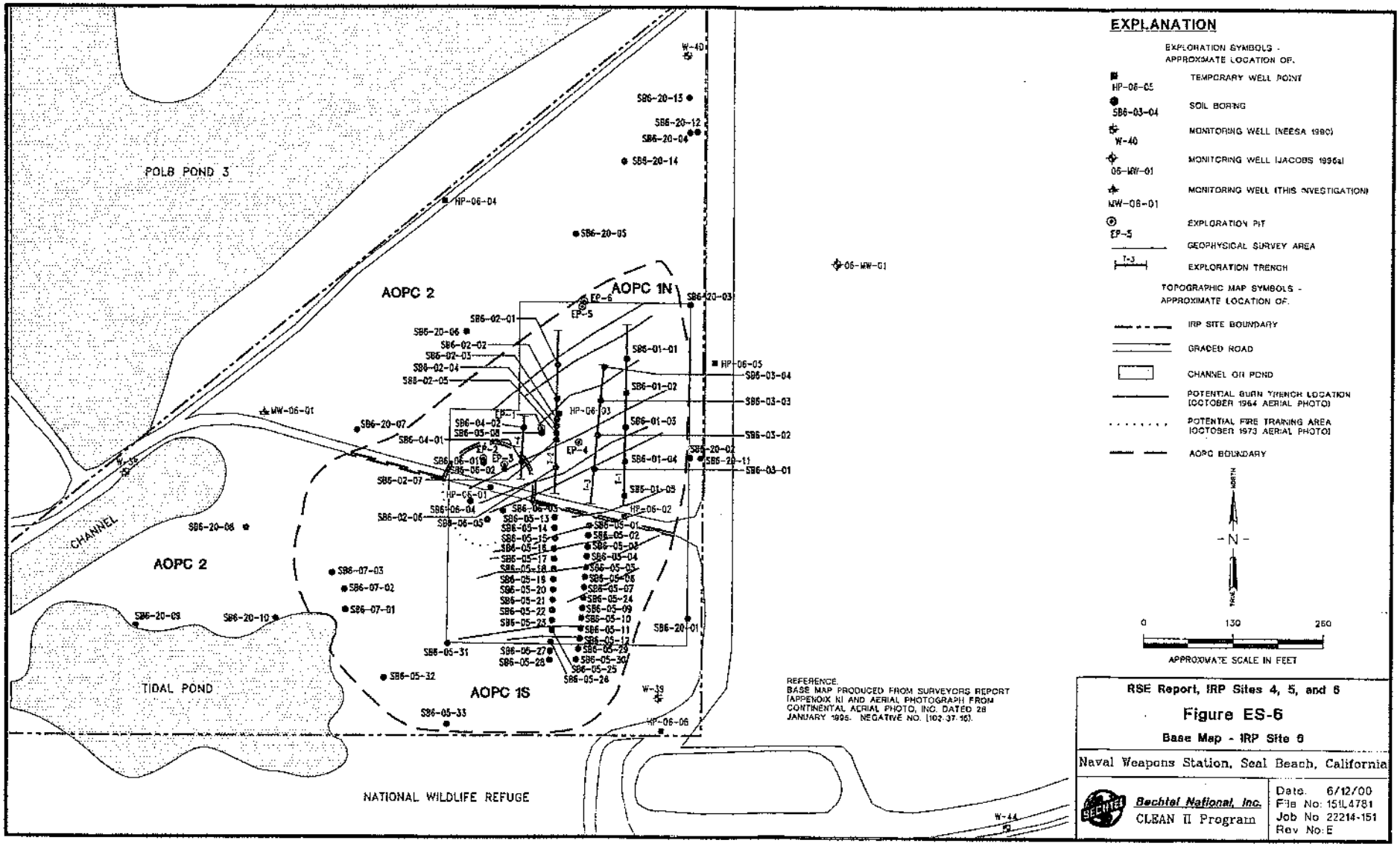
POLB POND 3
AOPC 2
AOPC 1N
AOPC 2
AOPC 1S
CHANNEL
TIDAL POND
NATIONAL WILDLIFE REFUGE
W-40
SB6-20-13
SB6-20-12
SB6-20-04
SB6-20-14
HP-06-04
SB6-20-05
06-MW-01
SB6-20-03
EP-6
EP-5
SB6-02-01
SB6-20-06
SB6-02-02
SB6-02-03
SB6-02-04
SB6-02-05
SB6-01-01
HP-06-05
SB6-03-04
SB6-01-02
SB6-03-03
MW-06-01
SB6-20-07
SB6-04-02
SB6-03-08
SB6-04-01
SB6-03-02
SB6-20-02
SB6-20-11
SB6-03-01
EP-2
EP-3
EP-4
SB6-06-01
SB6-06-02
SB6-02-07
HP-06-01
SB6-01-04
SB6-01-05
HP-06-02
SB6-06-04
SB6-06-05
SB6-02-06
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SB6-05-22
SB6-05-23
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SB6-05-02
SB6-05-06
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SB6-07-02
SB6-07-01
SB6-20-08
SB6-20-09
SB6-20-10
SB6-05-32
SB6-05-33
W-39
HP-06-06
W-44
HP-06-03
T-1
T-2
T-3
E-1
E-2
W-38
EXPLANATION
EXPLORATION SYMBOLS - APPROXIMATE LOCATION OF:
HP-06-05 TEMPORARY WELL POINT
SB6-03-04 SOIL BORING
W-40 MONITORING WELL (KEESA 1980)
06-MW-01 MONITORING WELL (JACOBS 1996a)
MW-06-01 MONITORING WELL (THIS INVESTIGATION)
EP-5 EXPLORATION PIT
GEOPHYSICAL SURVEY AREA
T-3 EXPLORATION TRENCH
TOPOGRAPHIC MAP SYMBOLS - APPROXIMATE LOCATION OF:
IRP SITE BOUNDARY
GRADED ROAD
CHANNEL OR POND
POTENTIAL BURN TRENCH LOCATION (OCTOBER 1964 AERIAL PHOTO)
POTENTIAL FIRE TRAINING AREA (OCTOBER 1973 AERIAL PHOTO)
AOPC BOUNDARY
NORTH
- N -
TRUE
0
130
260
APPROXIMATE SCALE IN FEET
REFERENCE:
BASE MAP PRODUCED FROM SURVEYORS REPORT (APPENDIX K) AND AERIAL PHOTOGRAPH FROM CONTINENTAL AERIAL PHOTO, INC. DATED 28 JANUARY 1995. NEGATIVE NO. (102-37-16).
RSE Report, IRP Sites 4, 5, and 6
Figure ES-6
Base Map - IRP Site 6
Naval Weapons Station, Seal Beach, California
Bechtel National, Inc.
CLEAN II Program
Date: 6/12/00
File No: 151L4781
Job No 22214-151
Rev No: E

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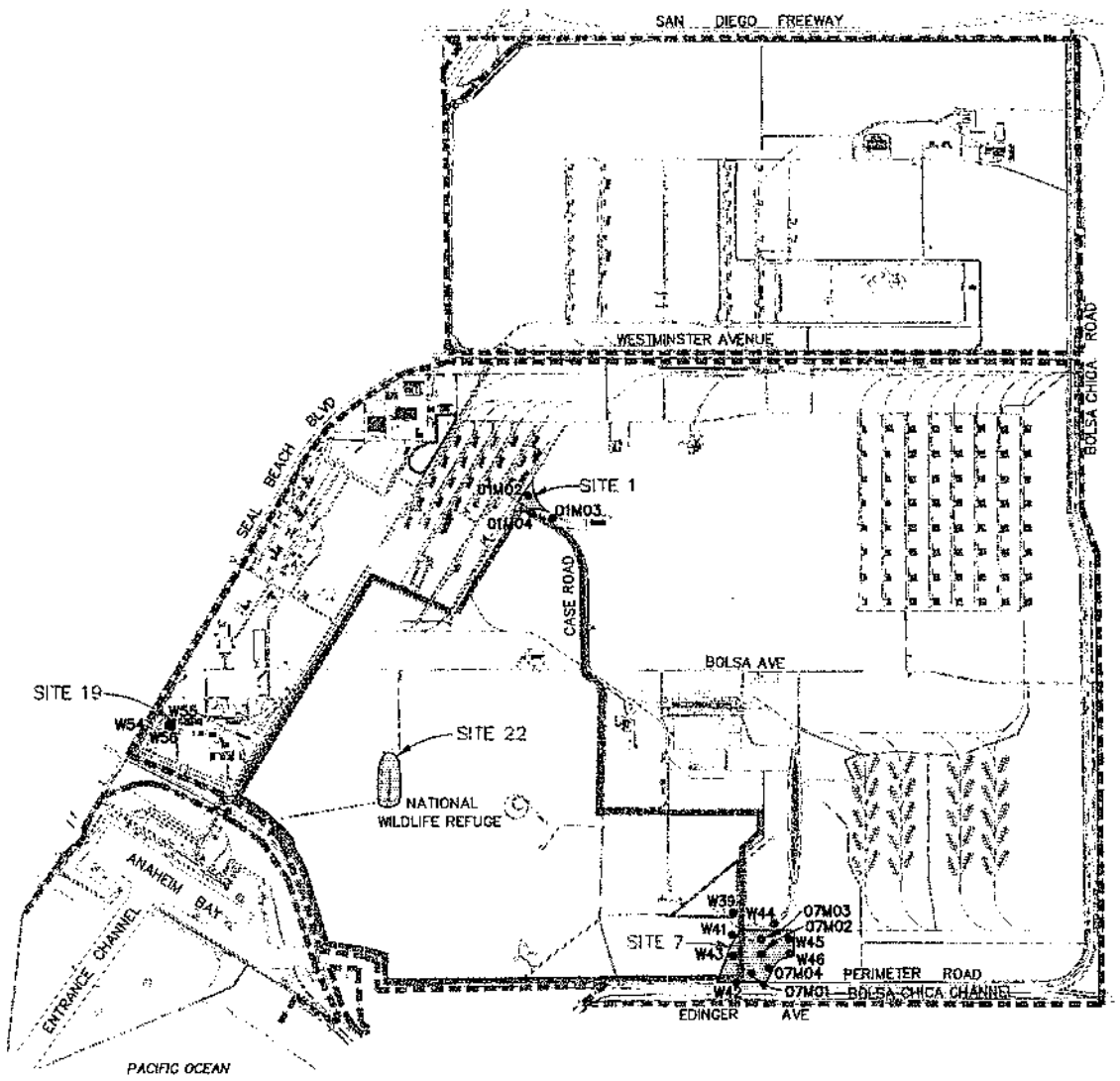
09-20-94



LEGEND

- W40 — WELL SAMPLE LOCATION
- EXISTING BOUNDARY
- NATIONAL WILDLIFE REFUGE BOUNDARY
- SITE 1 — WASTEWATER SETTLING POND (OU-1)
- SITE 7 — STATION LANDFILL (OU-2)
- SITE 19 — BUILDING 241 DISPOSAL PIT (OU-2)
- SITE 22 — OIL ISLAND (OU-3)
- APPROXIMATE RI/FS SITE AREA

N

1000 0 1000 2000

SCALE IN FEET

FIGURE 1-1
GROUNDWATER SAMPLING LOCATIONS
NWS SEAL BEACH
SECOND QUARTER GROUNDWATER SAMPLING SUPPLEMENTAL REPORT

I:\FIGURES\SC070242.CI\SURV2A.DWG

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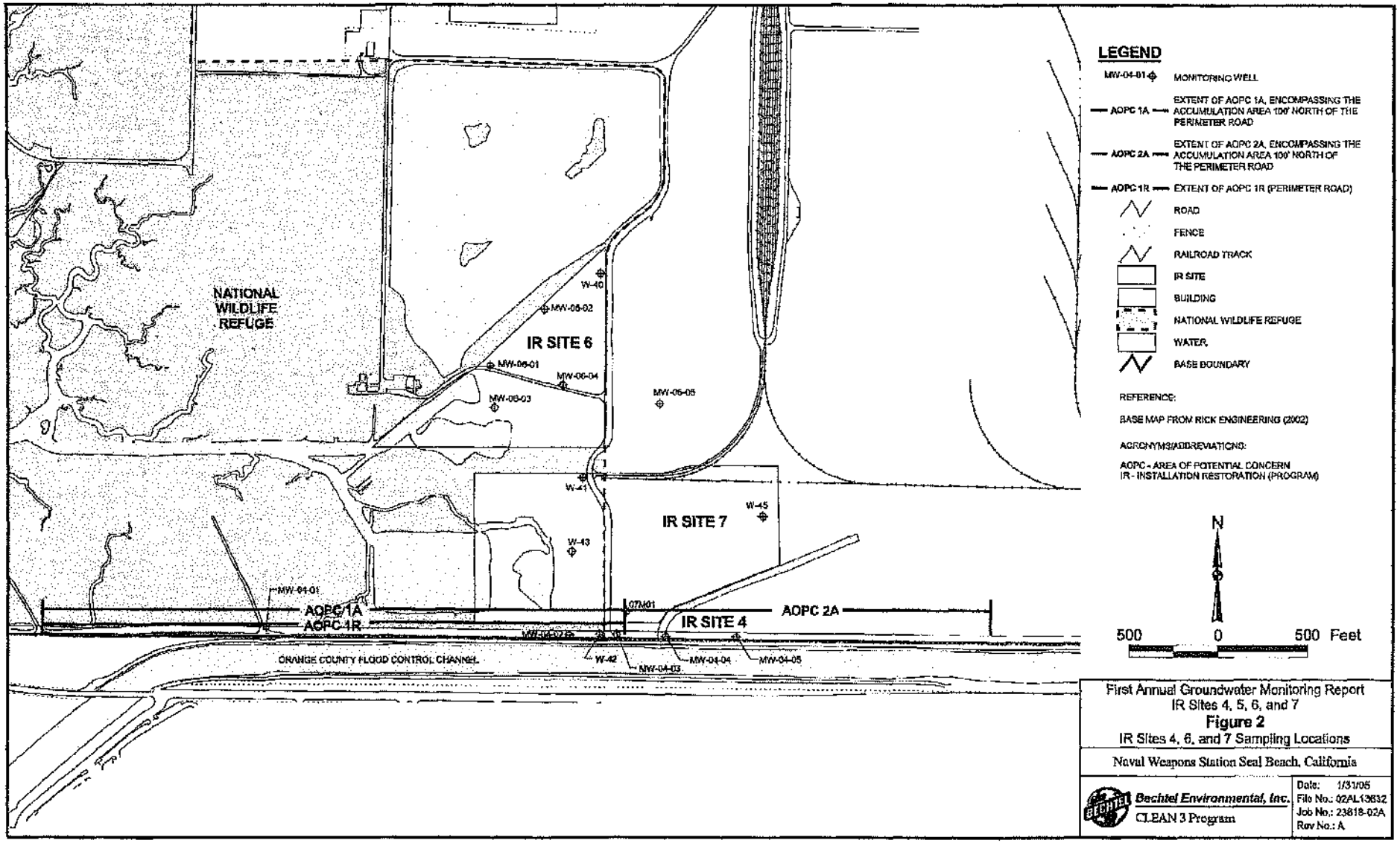

First Annual Groundwater Monitoring Report
IR Sites 4, 5, 6, and 7

Figure 2

IR Sites 4, 6, and 7 Sampling Locations

Naval Weapons Station Seal Beach, California

Bechtel Environmental, Inc.
CLEAN 3 Program

Date: 1/31/05
File No.: 02AL13632
Job No.: 23818-02A
Rev No.: A

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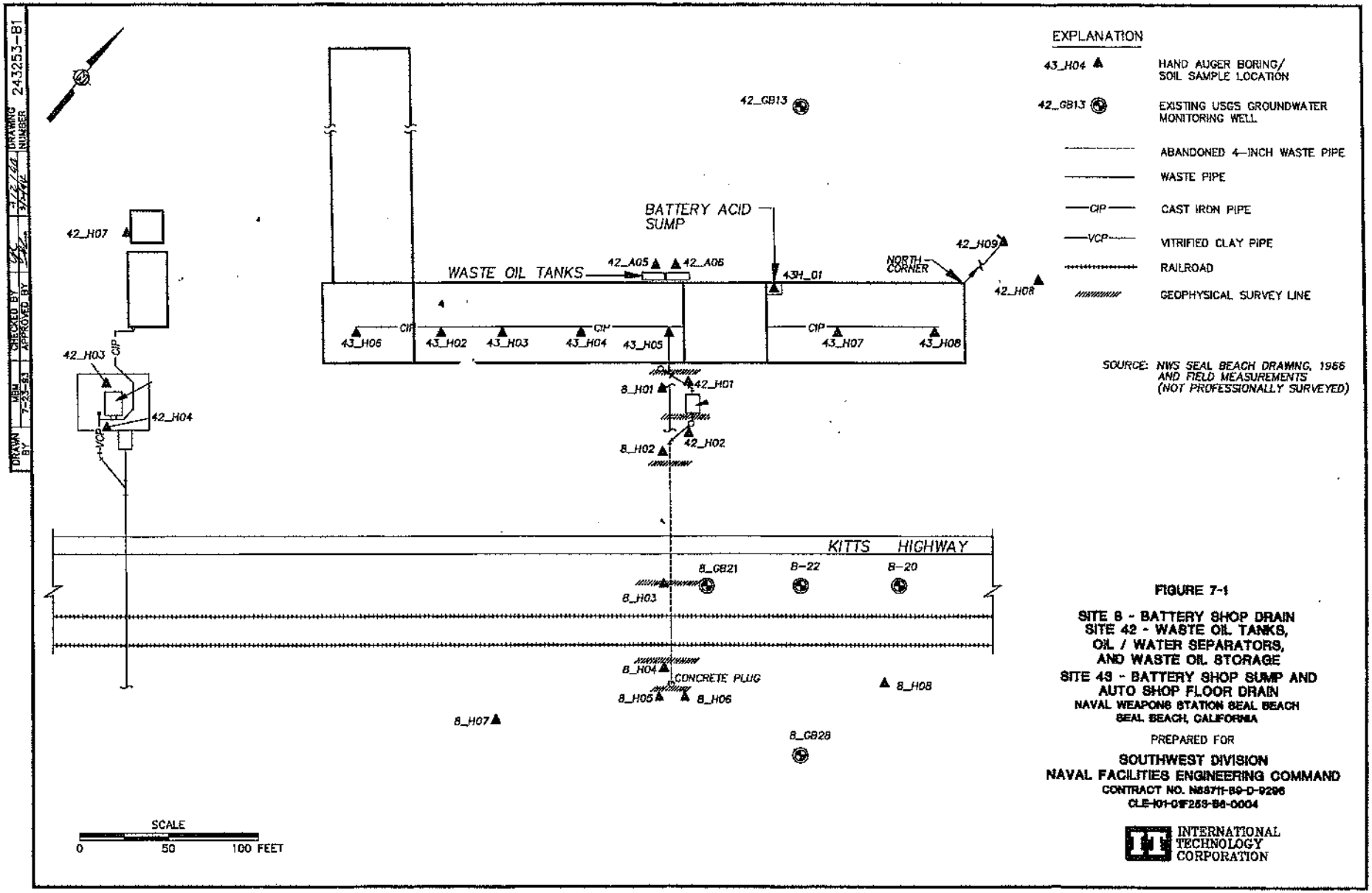

FIGURE 7-1

SITE 8 - BATTERY SHOP DRAIN
SITE 42 - WASTE OIL TANKS, OIL / WATER SEPARATORS, AND WASTE OIL STORAGE
SITE 43 - BATTERY SHOP SUMP AND AUTO SHOP FLOOR DRAIN
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

PREPARED FOR

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N68711-89-D-9296
CLE-101-01F253-B6-0004

INTERNATIONAL TECHNOLOGY CORPORATION

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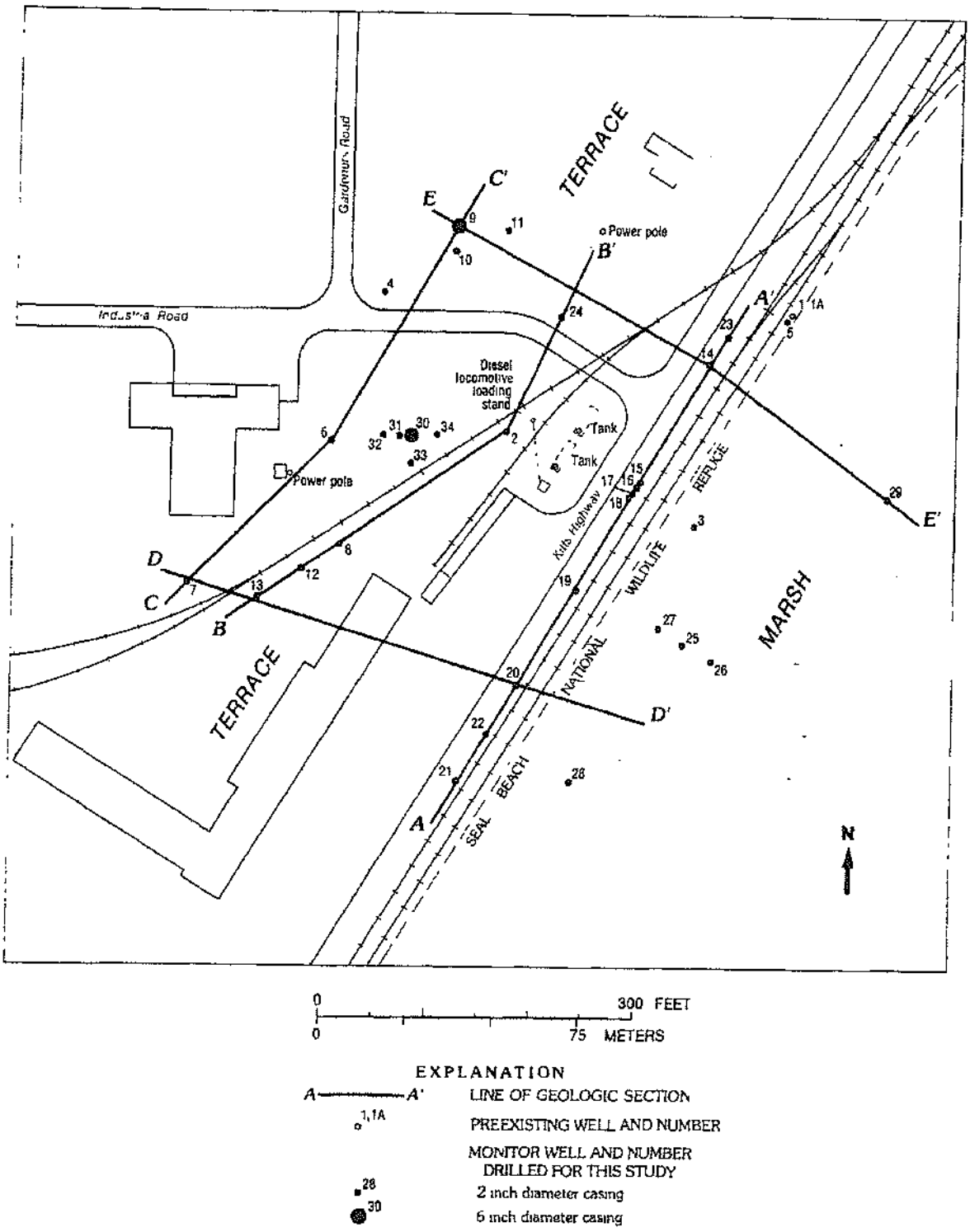

Figure 3. Location of monitor wells and geologic sections in the study area

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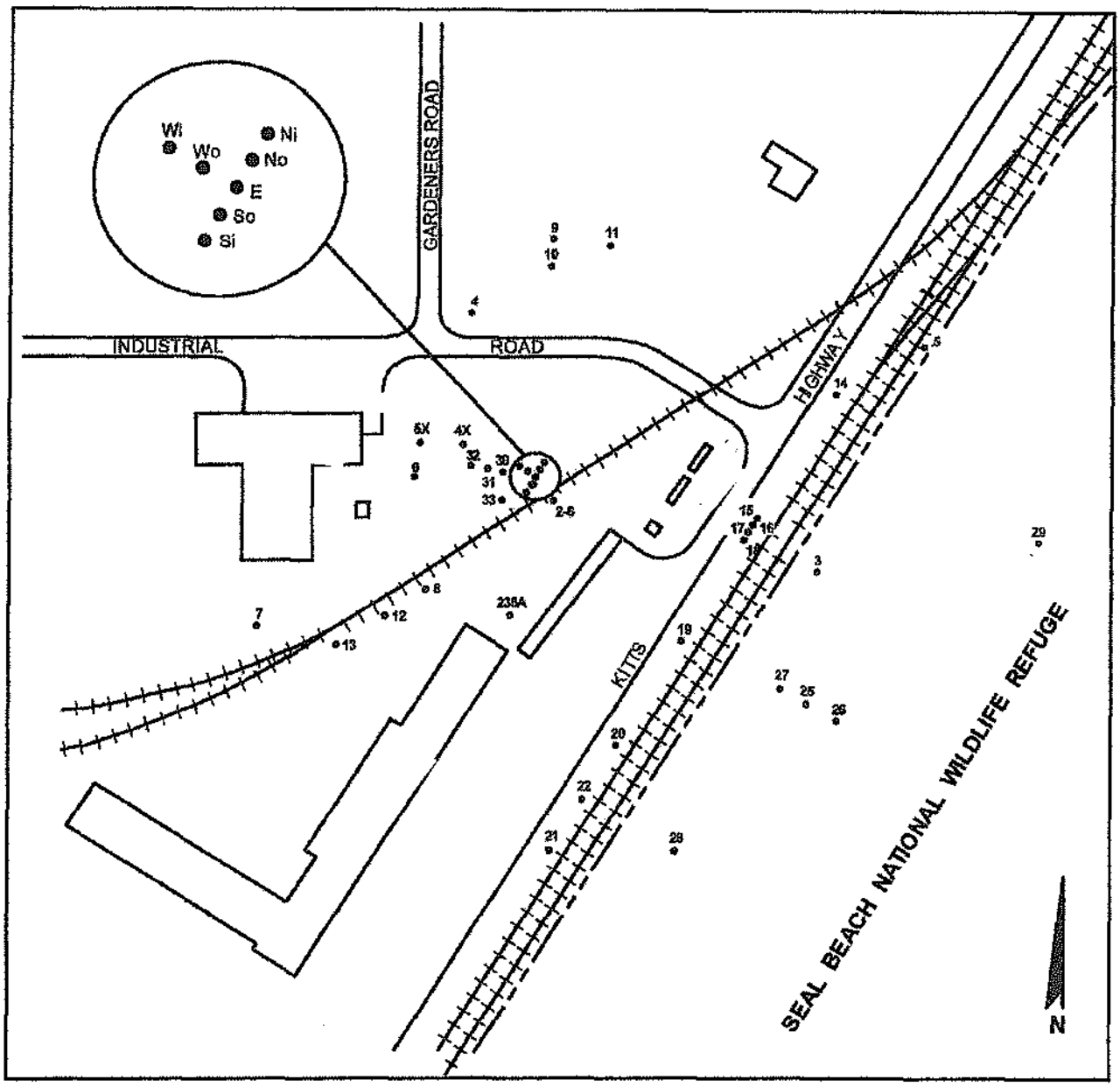

Approximate Scale (feet)

0 75 150 300

EXPLANATION
● 17 MONITORING WELL AND NUMBER
● 4 MONITORING WELL AND NUMBER TO BE REMOVED IN SPRING/SUMMER 1988

GEOFON INCORPORATED

PROJECT NO.: 95-333.160

WELL LOCATIONS MAP

10/97

Figure 2

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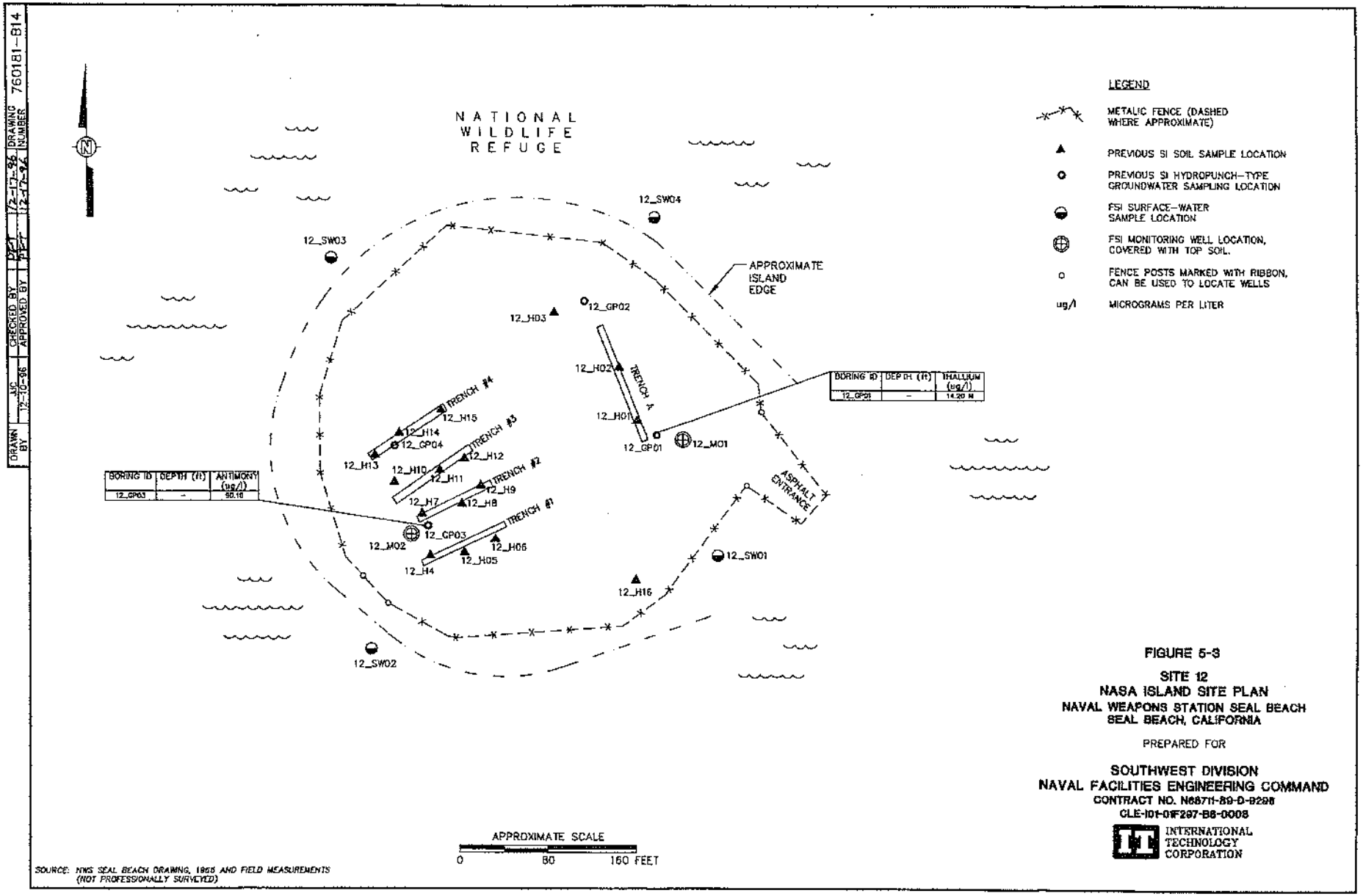

FIGURE 5-3

SITE 12
NASA ISLAND SITE PLAN
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

PREPARED FOR

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N68711-89-D-9298
CLE-101-01F297-B6-0008

INTERNATIONAL TECHNOLOGY CORPORATION

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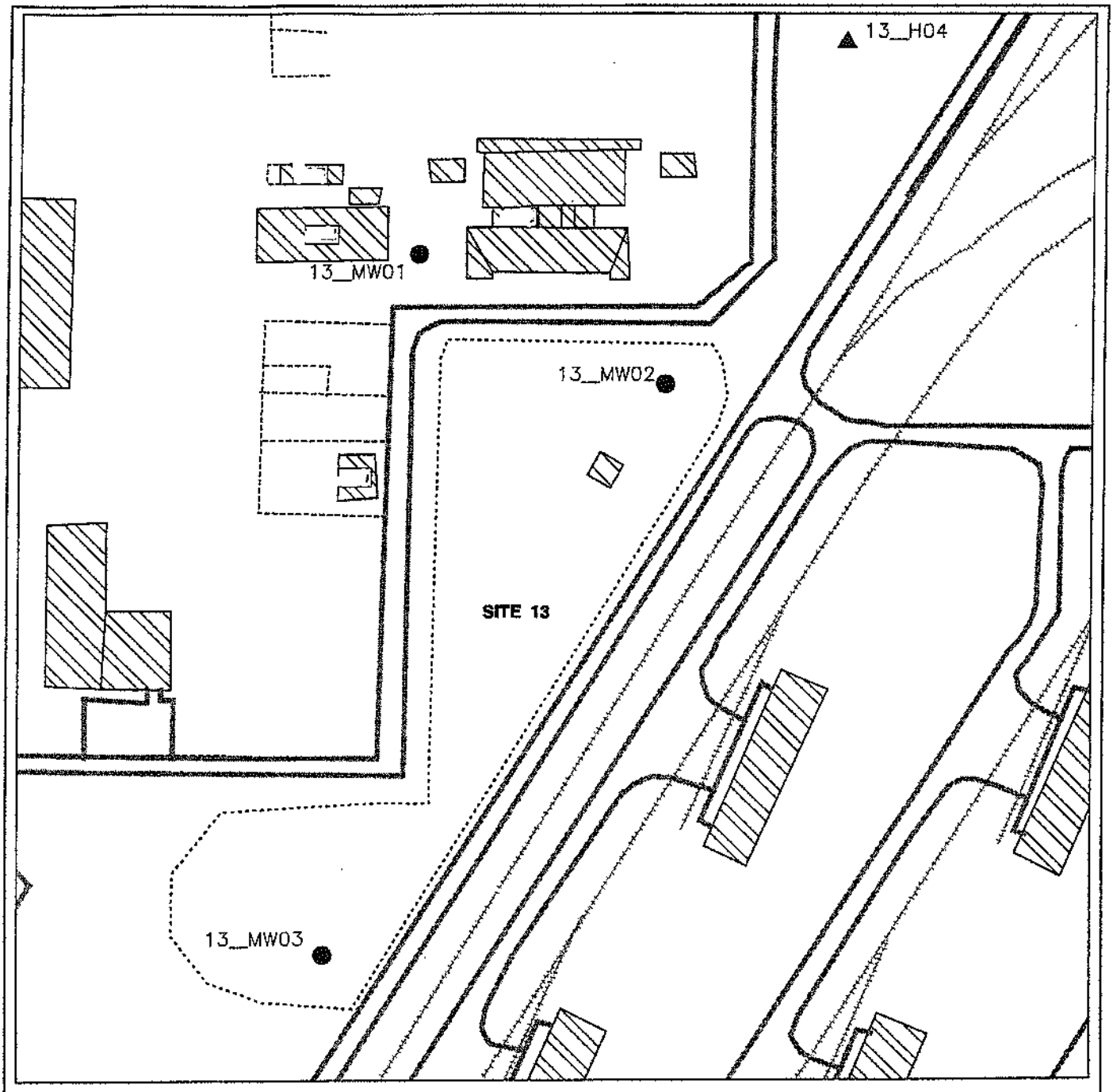

Features

- Building
- Site
- Fence
- Railroad
- Street

Type

- Boring
- Hand Auger
- Monitoring Well
- Pre-SI Monitoring Well

Feet

0 50 100 150

N

FIGURE 6-5

SITE 13

NWS SEAL BEACH
OU4 SITE INSPECTION REPORT

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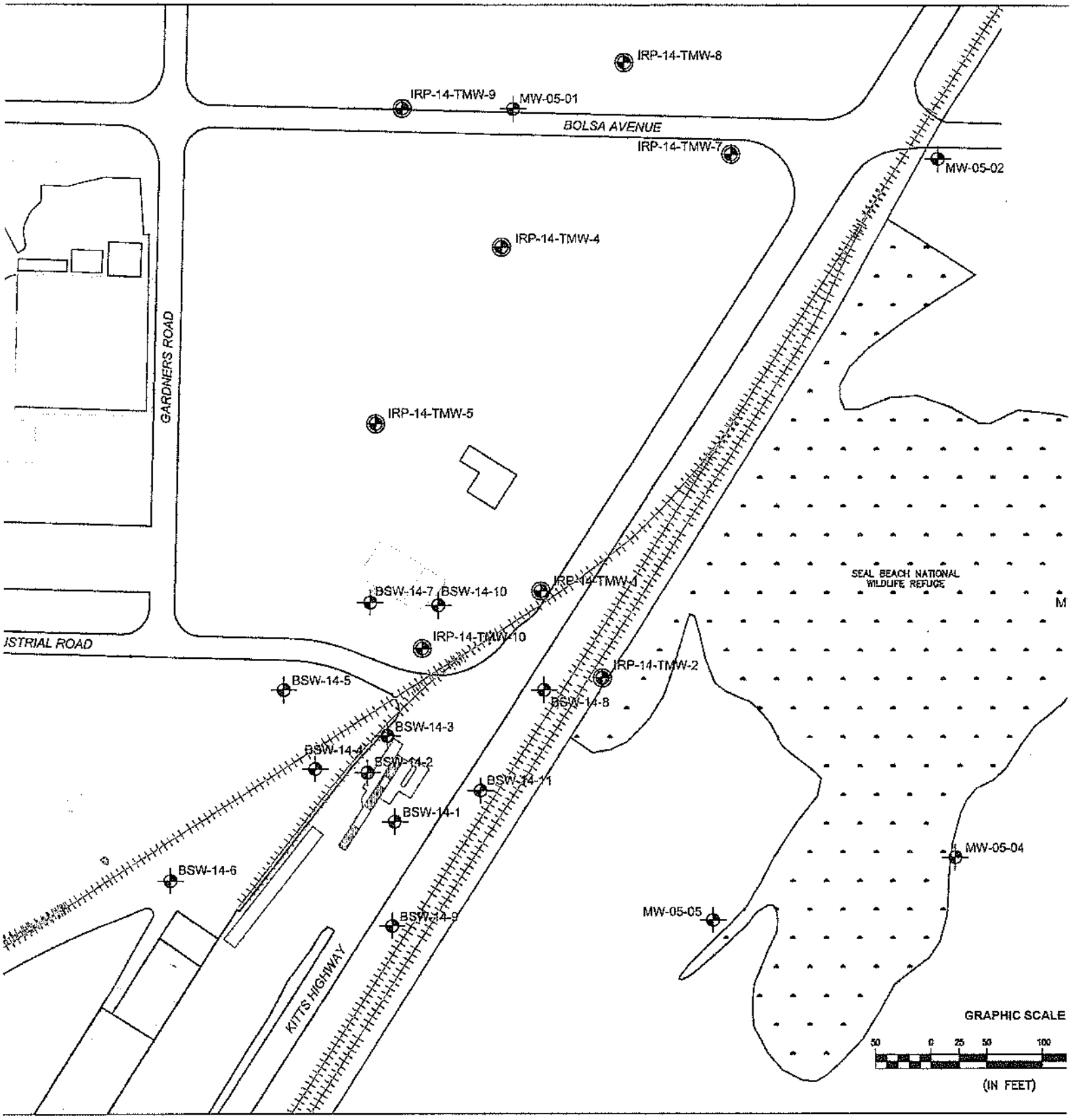
IRP-14-TMW-8
IRP-14-TMW-9
MW-05-01
BOLSA AVENUE
IRP-14-TMW-7
MW-05-02
IRP-14-TMW-4
GARDNERS ROAD
IRP-14-TMW-5
SEAL BEACH NATIONAL WILDLIFE REFUGE
BSW-14-7
BSW-14-10
IRP-14-TMW-1
IRP-14-TMW-10
ISTRIAL ROAD
IRP-14-TMW-2
BSW-14-5
BSW-14-8
BSW-14-3
BSW-14-4
BSW-14-2
BSW-14-11
BSW-14-1
MW-05-04
BSW-14-6
MW-05-05
BSW-14-9
KITTS HIGHWAY
GRAPHIC SCALE
50 0 25 50 100
(IN FEET)

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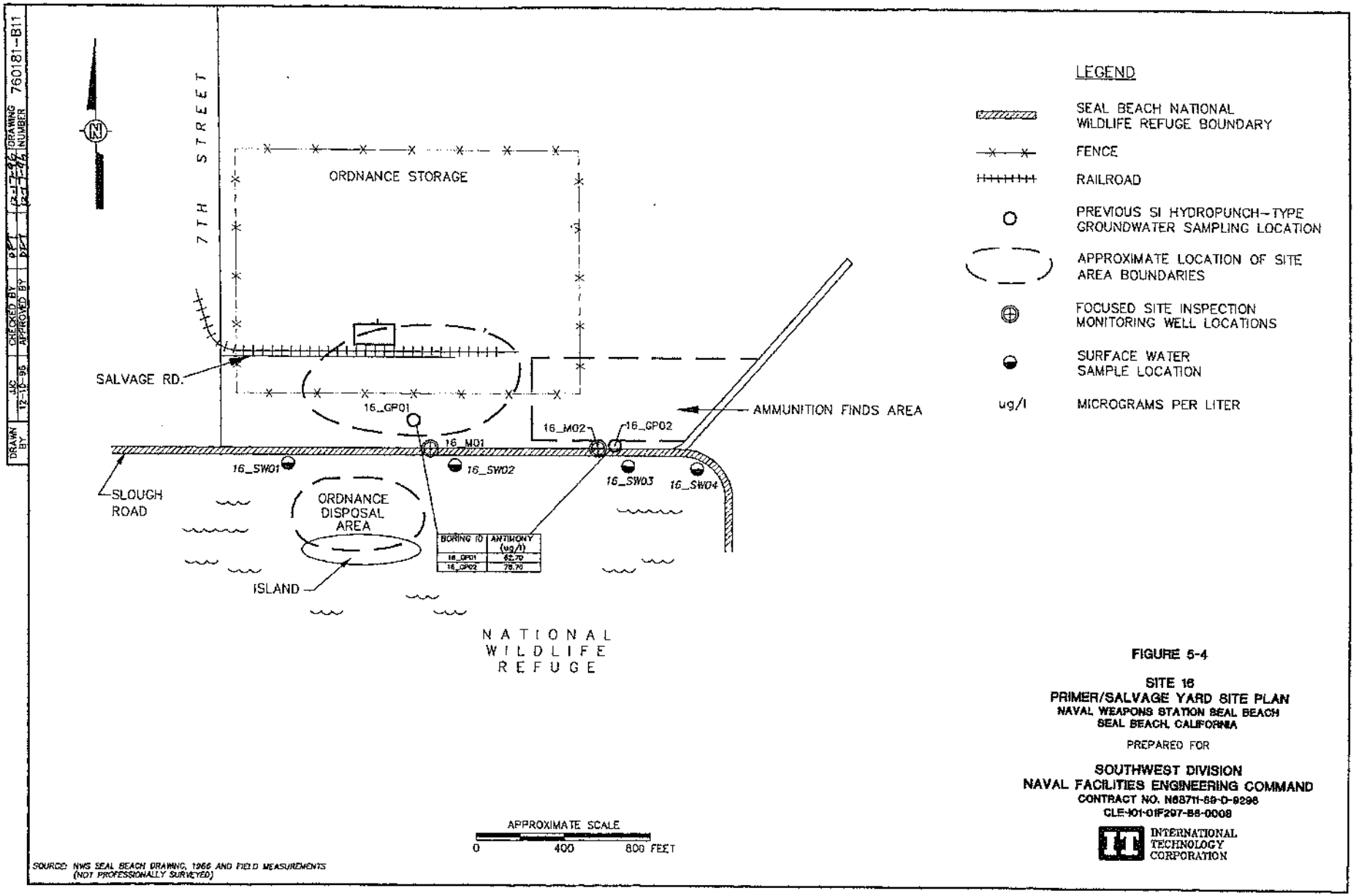

FIGURE 5-4

SITE 16
PRIMER/SALVAGE YARD SITE PLAN
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

PREPARED FOR

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N68711-89-D-9298
CLE-101-01F297-88-0008

INTERNATIONAL TECHNOLOGY CORPORATION

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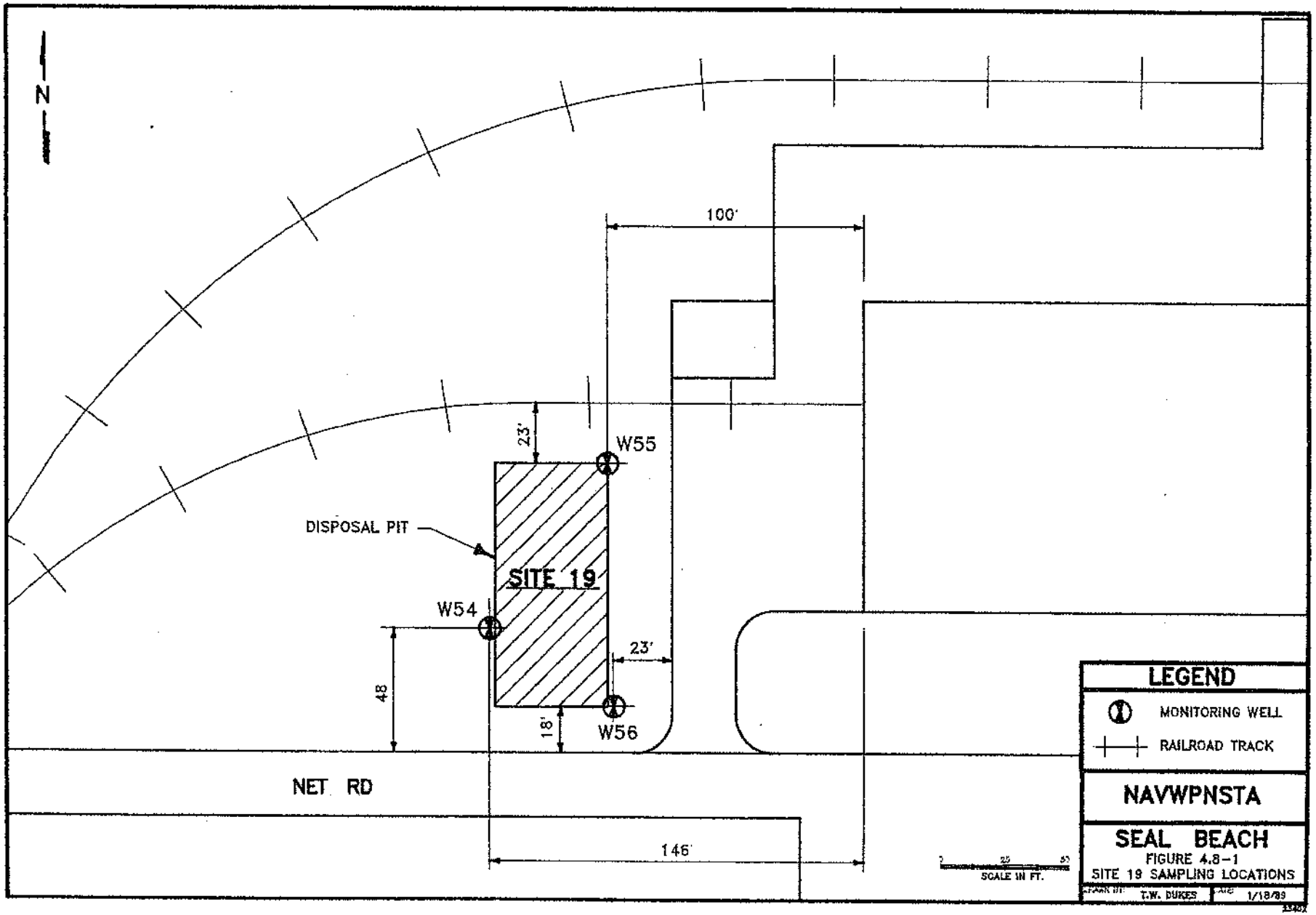
N
100'
23'
W55
DISPOSAL PIT
SITE 19
W54
23'
48
18'
W56
NET RD
146'
LEGEND
MONITORING WELL
RAILROAD TRACK
NAVWPNSTA
SEAL BEACH
FIGURE 4.8-1
SITE 19 SAMPLING LOCATIONS
DRAWN BY: T.W. DUKES
DATE: 1/18/89
SCALE IN FT.

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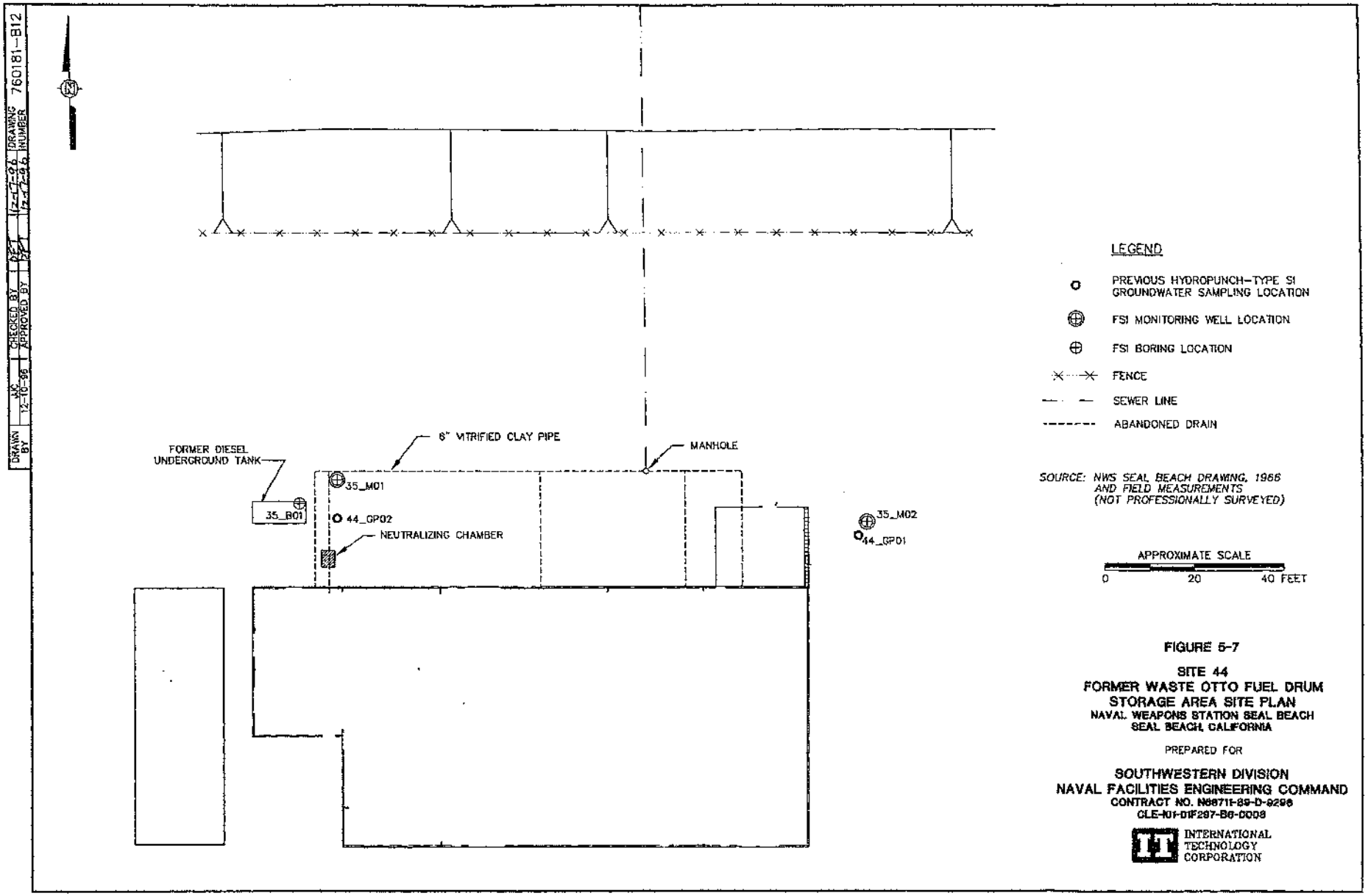

FIGURE 5-7

SITE 44
FORMER WASTE OTTO FUEL DRUM STORAGE AREA SITE PLAN
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

PREPARED FOR

SOUTHWESTERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N68711-89-D-9296
CLE-101-01F297-B6-0003

INTERNATIONAL TECHNOLOGY CORPORATION

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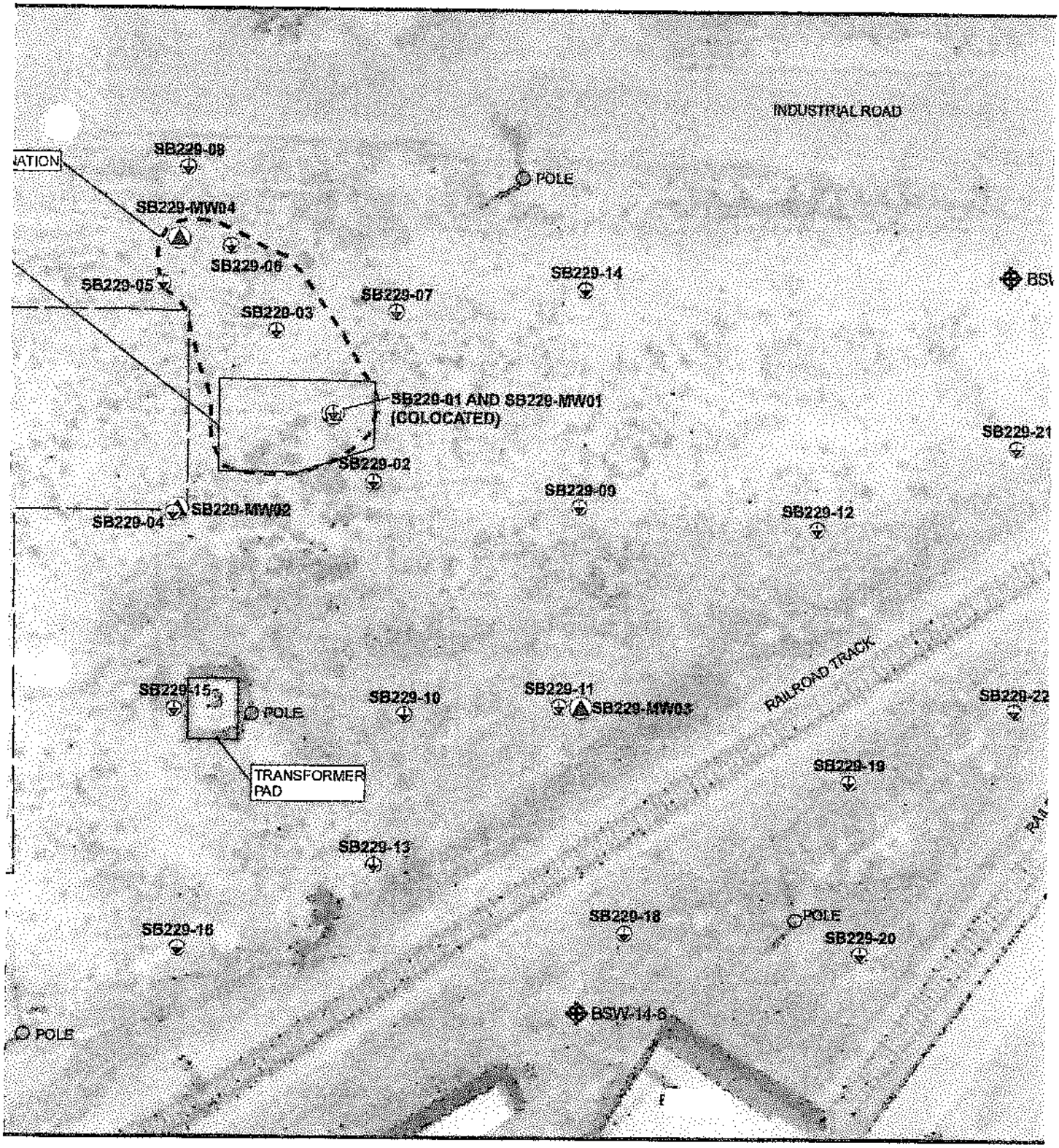
INDUSTRIAL ROAD
SB229-08
POLE
SB229-MW04
SB229-06
SB229-05
SB229-14
SB229-07
SB229-03
SB229-01 AND SB229-MW01
(COLOCATED)
SB229-02
SB229-21
SB229-09
SB229-MW02
SB229-04
SB229-12
RAILROAD TRACK
SB229-15
POLE
SB229-10
SB229-11
SB229-MW03
SB229-22
TRANSFORMER
PAD
SB229-19
SB229-13
SB229-18
POLE
SB229-16
SB229-20
BSW-14-6
POLE
LEGEND
MONITORING WELL
SCAPS LOCATION
EXISTING MONITOR

60

VEY FEET

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Appendix C:
Waste Management Plan

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Waste Management Plan

This Waste Management Plan provides information on how wastes will be managed and disposed of during the execution of this project. A secondary goal of this section is to ensure that waste minimization practices are followed, to the extent practicable, and to reduce the volume of waste that will be generated, stored, and removed from the site for disposal.

1.0 Project Waste Descriptions

Resultant waste streams associated with project activities can be categorized as follows:

- Well materials, sand pack, grout, crash posts, well boxes, concrete, and polyvinyl chloride (PVC) pipe from the monitoring well decommissioning activities
- Wastewater including displaced groundwater and decontamination water
- Disposable equipment and materials (used HDPE tubing, gloves, paper, etc.)
- Used personal protective equipment (PPE)

2.0 Waste Handling

Hazardous waste is not expected to be generated as a result of the project activities. However, in the unlikely event that hazardous waste is generated, it will be stored temporarily, less than 60 days. These wastes will be labeled, managed, accumulated, and inspected in accordance with the applicable Title 22 CCR regulations.

Construction debris (concrete, metal components, and PVC pipe) generated during the well decommissioning activities will be stored at the various project sites until transfer to the proposed staging area can be completed at the end of each day. The staging area is proposed to be located southeast of the intersection of Bolsa Avenue and Devlin Road, in the fenced in decontamination pad area.

Well materials generated during field activities at NAVWPNSTA Seal Beach will be segregated and stored on site in labeled, 55-gallon drums and/or covered roll-off bins at the staging location approved by the Installation Restoration Program (IRP) Coordinator.

Wastewater generated during field activities will also be stored in 55-gallon drums at the staging area. To comply with the requirement for

secondary containment, drums with wastewater will be stored in the concrete decontamination pad located at the staging area.

In the event of drum accumulation, these containers will be handled as potentially hazardous, and an "Analysis Pending – Potentially Hazardous Waste" label will be used on the drums until analytical results are available.

All solid waste and liquid waste containers will be labeled with the following information: date, project name and number, generator name, IRP Coordinator name, applicable contact numbers, contents of drum, and the well/site identification number. Empty containers will be labeled as such to avoid confusion. These containers will be stored in the approved staging area for no more than 60 days prior to disposal. The method of disposal will be determined based on the analytical results from well materials and wastewater samples collected from the respective drums/roll-off bins (if needed).

Solid waste from field activities, including PPE, disposable supplies, and materials used during destruction activities, will be double-bagged and disposed of as municipal waste, unless site conditions indicate that more stringent disposal requirements are required.

3.0 Waste Characterization/Classification

Applicable waste (including but not limited to well materials, wastewater, and minimal excavated soil) will be sampled and analyzed for characterization purposes and in accordance with the disposal facility waste acceptance criteria (if offsite disposal is required).

3.1 Waste Profiling

Waste profiles will be completed for both hazardous and nonhazardous wastes, once analytical results have been received and waste is characterized. Blank profiles will be obtained from the specific disposal facility that will be used. They will be completed to accurately characterize the waste. Waste profiles will be signed by the IRP Coordinator, who will have oversight of the sampling used for the profile.

3.2 Hazardous Waste Manifests and Land Disposal Restrictions Certification

Based on previous site investigations, hazardous waste is not expected to be generated on this project. However, this section provides necessary provisions to address handling and disposal of hazardous waste in the event such waste is encountered. Hazardous waste transported from the site will be accompanied by a Hazardous Waste Manifest. NAVWPNSTA Seal Beach hazardous waste personnel will be responsible for reviewing

and signing both the waste manifest and Land Disposal Restriction (LDR) notifications (manifest packages). The generator copy and the DTSC copy of the manifests will be provided to the Navy.

To avoid signing delays, waste manifests must include the following: generator name and address, generator emergency response number, generator US EPA ID, analytical profiles, and generator hour of operations.

An LDR form will accompany any shipments of RCRA hazardous waste to the treatment, storage, and disposal facility (TSDF). The TSDF will be notified prior to the waste being sent.

3.3 NONHAZARDOUS WASTE MANIFESTS

Waste that is characterized as nonhazardous will be transported using a nonhazardous waste manifest, which will be reviewed and signed by the NAVWPNSTA Seal Beach hazardous waste personnel. The generator copy of the manifest will be provided to the Department of the Navy (DON). Copies of manifests for waste generated at the site will be maintained in CE2-K JV's project files.

4.0 Waste Transportation

RCRA hazardous waste material is not expected to be encountered or generated from the destruction activities. However, if such waste material is generated, it will be transported under Department of Transportation (DOT) hazardous material regulations. Hazardous wastes sent off-site for disposal will be done so in accordance with the DOT Hazardous Material Transportation regulations of 49 CFR Parts 171 through 177; 40 CFR Part 262, Subpart B; and 22 CCR Section 66262. A NAVWPNSTA Seal Beach authorized representative will sign the manifests. Under no circumstances will CE2-K JV personnel sign hazardous waste manifests.

5.0 Waste Disposal

This section describes the disposal methods for the waste materials generated at the site including construction debris, well materials and wastewater from the well destruction, and disposable equipment and materials (used/dedicated HDPE tubing, gloves, paper, PPE, etc.). The CE2-K JV Field Team Leader will coordinate the disposal of non-hazardous materials off site with the NAVWPNSTA Seal Beach IRP Coordinator.

Construction debris will be containerized and disposed of offsite as bulk non-hazardous waste. Profiling and waste manifestation for the construction debris will likely not be required. Documentation of the construction debris' final disposal location and quantity will be retained by CE2-K JV and provided to the DON.

The well materials and wastewater generated during well destruction will be scheduled for disposal off site at an approved disposal facility, wastewater recycler, or Class I/II landfill (if necessary). Disposal will occur after CE2-K JV receives proper approval from the NAVWPNSTA Seal Beach representative and in accordance with acceptance requirements for the facility. To avoid delays, nonhazardous waste manifests must include the following: generator name and address, generator emergency response number, generator US EPA ID, analytical profiles, and generator hour of operations.

Disposable sampling equipment and materials (used HDPE tubing, gloves, paper, used PPE, etc.) will be double-bagged and disposed of as municipal waste, unless site conditions indicate that more stringent disposal requirements are necessary.

6.0 Waste Inspection and Documentation Program

This section presents the waste inspection procedures and documentation program to be employed during the project field activities.

6.1 INSPECTIONS

While the proposed staging area will be informally inspected on a daily basis, formal inspections of accumulation areas will be conducted and recorded weekly at a minimum and documented. Daily inspections will be conducted for any containers or tanks containing hazardous waste (if encountered). The Site Safety and Health Officer (SSHO) or designee will conduct inspections. Inspections will be logged in a bound, numbered field notebook. The container storage area will be inspected to ensure the following:

- Container labels and markings are present, complete, accurate, and legible.
- Containers are in good condition. If a container is not in good condition or appears to be leaking, the waste will be transferred to another container.
- Containers are made of materials that will not react with, and are otherwise compatible with, the hazardous waste to be stored.
- Containers are closed at all times, except when adding or removing waste.
- Containers are stored on-site less than 60 days.

7.0 Waste Minimization

To minimize the volume of waste, the following general guidelines will be followed:

- *Wastewater Minimization.* Field personnel will be trained in decontamination of field sampling equipment and PPE, minimizing the generation of decontamination water.
- The staging area is proposed to be located southeast of the intersection of Bolsa Avenue and Devlin Road, in the fenced in decontamination pad area.
- *PPE Minimization.* Field personnel will be trained in the proper use of PPE. Based on the anticipated low site exposures (as outlined in the APP/SSHP), work will largely be performed in Level D wear, thereby minimizing PPE.
- Materials will not be contaminated unnecessarily.
- Work will be planned ahead, based on the work procedure to be used.
- Only the material (e.g., chemicals) needed to perform the work activity will be taken to the work location (if any). Any chemicals that are used need to be reviewed (using SDS) by the Environmental office before they are brought on base. Additional material can be brought to the work location if it is found to be necessary.
- Materials can be stored in large containers, but the smallest reasonable container will be used to transport the material to the location where it is needed.
- Cleaning and extra sampling supplies will be maintained outside any potentially contaminated area to keep them clean and to minimize additional waste generation.
- Mixing of detergents or decontamination solutions will be performed outside potentially contaminated areas.
- Drop cloths or other absorbent material will be used to contain small spills or leaks.
- Containers will be used to minimize the spread of contamination.
- Contaminated materials will not be placed with clean materials.
- Material and equipment will be decontaminated and reused when practical.
- Volume reduction techniques will be used when practicable.
- Waste containers will be verified to ensure they are solidly packed to minimize the number of containers.
- Only waste containers with adequate size to contain the volume of waste generated will be used.
- The DOT packaging weight limit for each container will be verified to ensure the limit is not exceeded by the weight of the waste.

8.0 Spill Prevention and Control Measures

CE2-K JV personnel are trained to contain and control minor spills of petroleum and hazardous substances. A hazardous materials spill kit, including a 55-gallon drum, clay absorbent, spill booms, absorbent pads, and shovels, will be kept readily available at active closure sites. Cleanup of minor spills will be initiated immediately following the occurrence of a spill event.

Upon discovery of a spill, on-site CE2-K JV personnel will contain the material, assess the spill using photographic and written documentation, and immediately notify the NAVWPNSTA Seal Beach IRP Coordinator, who will notify the base spill response authorities. Any sewer spill or spills on soils, rains, or waterway, the Regional Dispatch Center will be notified. CE2-K JV will respond to the spill depending on the incident level in accordance to the APP/SSHP; federal, state, and local regulations; and DON policies and procedures. CE2-K JV personnel will use sewer spill response procedures if spill flows into a storm drain or sanitary sewer.

8.1 MINOR SPILL

The main goal of a response to a minor spill at the site is to contain the spread of the spill. The following procedures will be implemented by on-site CE2-K JV personnel if a minor spill occurs:

- If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (i.e., absorbent pads, clay absorbent, and rags).
- If the spill occurs in unpaved or exposed soil areas, contain the spill by constructing an earthen dike. Dig up the affected soil and place in soil stockpile for disposal.
- If the spill occurs during rain, cover the affected area to avoid runoff.
- Record steps taken to report and contain the spill.
- If any spill occurs, immediately contact the NAVWPNSTA Seal Beach IRP Coordinator at 562-626-7897.

8.2 MAJOR SPILL

If a major spill occurs, CE2-K JV personnel will contact the IRP Coordinator immediately at 562-626-7897 and Regional Dispatch Center (RDC) at 662-626-7229. Appropriate base personnel will initiate emergency response notifications. CE2-K JV personnel will complete both written and photo documentation of the incident until the appropriate authorities arrive.

8.3 SEWER SPILL

The main goal of a response to a sewer spill at the site is to contain the spread of the spill immediately. The following procedures will be implemented by on-site CE2-K JV personnel if a minor spill occurs:

- If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (i.e., absorbent pads, clay absorbent, and rags).
- If the spill occurs in unpaved or exposed soil areas, contain the spill by constructing an earthen dike. Dig up the affected soil and place in soil stockpile for disposal.
- If the spill occurs during rain, cover the affected area to avoid runoff.
- Prevent discharge to storm drains, waterways, and public areas
- Record steps taken to report and contain the spill.
- Contact the NAVWPNSTA Seal Beach IRP Coordinator immediately at 562-626-7897 as well as the RDC at 662-626-7229

8.4 REPORTING SPILLS AND RELEASES

Precautions will be taken to prevent hazardous material spills. Informal daily inspections of equipment, structure(s), and containers will be conducted by site personnel. In addition, personnel using hazardous materials will inspect containers before and after use. In the event of a spill/release, the Field Team Leader will notify the CE2-K JV Project Manager (PM), and spill response will be conducted in accordance with the APP/SSHP; federal, state, and local regulations; and DON policies and procedures.

9.0 Training/Certification Requirements

This section presents the DOT and waste management training and certification requirements for personnel involved with waste management and transportation. Employees will be 40-hour Hazardous Waste Operations trained with annual refresher training as required. Employees involved in waste management operations will be trained in CE2-K JV's Waste Management and Environmental Compliance policies and procedures to ensure that they are familiar with the program. This training is required annually. These policies and procedures provide for a sound environmental management program and satisfy the hazardous waste management training requirements under 22 CCR Section 66265.16. In addition, personnel who perform or oversee DOT-related activities will be DOT-trained. DOT training is required every 3 years. DOT and waste management training records of project personnel will be maintained in CE2-K JV's Corporate Department files and copies will be available on-site for potential audits by the Navy during the course of activities.

10.0 Updating the Waste Management Plan

The Waste Management Plan (WMP) will be updated as changes in site activities or changes in applicable regulations occur.

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