Executive Summary

Introduction

The following document was developed by the United States Department of the Army (Army), the California Department of Toxic Substances Control (DTSC), and the San Francisco Bay Regional Water Quality Control Board (RWQCB). The former Hamilton Army Airfield (HAAF) has been owned and operated by various branches of the Department of Defense from 1932 to the present. This closed military facility is on the State's Cortese List, but not on the National Priority List (NPL). The Army is responsible for environmental remediation of the Main Airfield Parcel at HAAF as the Department of Defense owner of the property at the time of closure under the Base Realignment and Closure Act of 1988 (BRAC).

This Record of Decision/Remedial Action Plan (ROD/RAP) presents the environmental response actions to be taken by the Army BRAC restoration program and additional environmental assurances to be provided by the Army Civil Works Program through the Hamilton Wetland Restoration Project (HWRP) to address potential risks associated with residual contaminants on the Main Airfield Parcel and restoration of a wetland at HAAF. For the Army, the term "environmental action" relates to Army BRAC response actions and the environmental assurance actions by the Army Civil Works Program.

The HAAF Main Airfield Parcel consists of two distinct areas: the Inboard and the Coastal Salt Marsh. The Inboard Area includes the eastern perimeter levee and property to the west of the eastern perimeter levee. The Coastal Salt Marsh Area includes the property east of the eastern perimeter levee. The Army BRAC program will perform the environmental response actions for the sites listed in Table ES-1, in accordance with: Executive Order 12580; the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (42 USC section 9601 et seq.); and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). (All tables are included at the end of this Executive Summary.) These response actions will benefit the future land use plans for wetland restoration. The Army Civil Works Program, through the HWRP, and in accordance with Section 101(b)(3) of the Water Resources Development Act of 1999 (WRDA), will take actions to address the potential risks posed by Inboard Area-Wide DDTs and polynuclear aromatic hydrocarbons (PAHs) in soils adjacent to the runway. The Civil Works' ability to participate in the project is subject to the limitations of the project authority.

DTSC and RWQCB (collectively, the "State") are regulating these environmental actions as environmental response actions in accordance with the provisions of California Health and Safety Code; this document constitutes a RAP, subject to Chapter 6.8 of Division 20 of the California Health and Safety Code Section 25356.1. The RWQCB, with DTSC support, will be the lead state agency for oversight of the implementation of this ROD/RAP. The RWQCB, as authorized by the Porter Cologne Water Quality Control Act, will adopt site cleanup requirements (SCRs) to ensure implementation of the final approved ROD/RAP. Through these SCRs, the State will ensure that agreed-upon environmental assurance actions are taken to address residual concentrations of Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway through the imposition of Waste Discharge Requirements (WDRs) governing the implementation of the HWRP.

The State and Army acknowledge that they have different views regarding the scope of the Army's legal responsibility for the residual concentrations of Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway. Nevertheless, both parties are in full agreement regarding the measures necessary to address the remaining contamination, including these residuals, on the HAAF site.

The Army anticipates transferring 630 of the 644-acre HAAF Main Airfield Parcel to the California State Coastal Conservancy (SCC) to become part of the HWRP. The remaining 14 acres are located under the New Hamilton Partners' levee; it is anticipated that this acreage will be transferred to the City of Novato. The majority of the coastal salt marsh is currently owned by the California State Lands Commission (SLC), having been transferred to the State of California from the Army in 1984. The HWRP is a federal project authorized by the WRDA. The U.S. Army Corps of Engineers, San Francisco District (USACE), will construct the HWRP, and will monitor and adaptively manage it for 13 years thereafter. The SCC, as the local sponsor, will be responsible for operation and maintenance of the HWRP from project completion forward. This ROD/RAP presents the environmental actions that will be conducted by the Army to protect public health and the environment based on the proposed future use of the property for wetland restoration. The Hamilton Reuse Plan designates the Main Airfield Parcel as open space for wildlife habitat restoration and wetland restoration use. If the HWRP does not proceed or is not completed, then this ROD/RAP may be reopened to address environmental actions for other land uses.

The information supporting the environmental actions is contained in the Administrative Record (see Appendix A). The content of the ROD/RAP is based on DTSC policy EO-95-007-PP and the U.S. Environmental Protection Agency's (EPA's) *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA, 1999).

Site Description and History

HAAF is a former military installation located on a diked and subsided bayfront parcel in Novato, California. A perimeter levee excludes tidal waters from the inboard area of the former installation. The 644-acre Main Airfield Parcel and other parts of HAAF were identified for closure under BRAC. There are 10 acres of the Main Airfield Parcel that lie outboard of the perimeter levee in the coastal salt marsh. The remaining portion of the coastal salt marsh (78 acres) is on property owned by the SLC. Some of the sites addressed in this ROD/RAP extend beyond the Army Main Airfield Parcel boundary onto property owned by SLC. Figure ES-1 shows the areas that are the subject of this ROD/RAP. (All figures are included following the tables at the end of this Executive Summary.)

The U.S. Army Air Corps constructed HAAF on reclaimed tidal wetland in 1932. Before 1932, the area was known as "Marin Meadows" and had been used as ranch and farm land since the Mexican Land Grant (USACE, undated). Military operations began in December 1932. Bomber, transport, and fighter aircraft were based at the airfield. HAAF played a major role in World War II as a training field and staging area for Pacific Theater operations. The Airfield was renamed Hamilton Air Force Base in 1947, when it was transferred to the newly created U.S. Air Force (USAF).

In the mid-1960s, the USAF began to curtail Base operations because of increased complaints about aircraft noise and concerns for air traffic and public safety (Earth Technology Corporation [ETC], 1994). In 1974, the USAF deactivated the Base and initiated transfer of the property to other military or government agencies. In the transfer process, the residential portion of the installation, along with support facilities, was transferred to the U.S. Navy in 1975. Custodial management of other areas was taken over by the General Services Administration (GSA). In 1976, the Army was given permission to use the runway and ancillary facilities and several other buildings for regular Army and Army Reserve operations. A parcel in the hangar area was transferred to the U.S. Coast Guard in 1983. The Army continued to use portions of HAAF on a permit basis until 1984, when the Army officially acquired portions of the airfield and property management responsibilities were transferred to the Presidio of San Francisco. Aircraft operations were again discontinued in 1994 when the base was closed.

The Inboard Area was used for various military functions. These functions were supported by underground storage tanks (UST), aboveground storage tanks (AST), transformers and transformer pads, storm drain and sanitary sewer systems, the Former Sewage Treatment Plant (FSTP) (including sludge drying beds), fuel lines, revetment areas, and the Perimeter Drainage Ditch (PDD), which collected runoff from the Base and some surrounding agricultural lands. Portions of the coastal salt marsh were used to support Department of Defense operations on the main airfield. Activities in the coastal salt marsh included emergency rescue operations in San Pablo Bay and disposal of construction debris. Transformers and transformer pads, a winch at the boat dock, and a burn pit at the East Levee Construction Debris Disposal Area (ELCDDA) supported these activities. Additional features of the coastal salt marsh include the Outfall Drainage Ditch (ODD), which receives stormwater runoff and drainage from the main airfield, and the FSTP Outfall, which received main airfield sanitary and industrial wastes from the FSTP.

Based on historical investigations and removal actions to date, the types of contaminants detected at various sites in the HAAF Main Airfield Parcel and adjacent coastal salt marsh include:

- Total petroleum hydrocarbons (TPH), TPH-diesel (TPH-d), TPH-gasoline (TPH-g), jet fuel (JP-4), or TPH-motor oil (TPH-motor)
- Metals
- Dioxins and furans
- Volatile organic compounds (VOCs), such as benzene, ethylbenzene, toluene, and xylenes
- Semivolatile organic compounds (SVOCs) including PAHs
- Polychlorinated biphenyls (PCBs)
- Pesticides/herbicides

Analytical data indicate the presence of residual DDTs throughout the Inboard Area (see Figure ES-2). Analytical data also indicate the presence s of residual PAHs in soils adjacent to the southern end of the runway (see Figure ES-2).

Goals and Objectives

The objective of this ROD/RAP is to remove and/or cover contamination in the Inboard Area, rendering it suitable for open-space wetland restoration. For the coastal salt marsh, the alternative is to remove contaminated soils to the maximum extent practical to protect public health and to maintain its wetland function. For the coastal salt marsh, if any contaminants remaining above action goals are still a concern within the excavated areas, the site will be backfilled to prevent direct exposure to those contaminants. To achieve these objectives, environmental action contaminant concentration goals (action goals) protective of wetland receptors (including sensitive species) are established in this ROD/RAP. The action goals are based primarily on site-specific ambient concentrations, in combination with RWQCB-developed numbers for San Francisco Bay Ambient sediments and NOAA effects-range low (ER-L) sediment concentrations. Table ES-2 presents these action goals. DDTs (DDT and its breakdown products DDE and DDD) have been found throughout the HAAF in surface soils. DDTs are persistent and bioaccumulative toxic substances. Based on professional judgment, in order to protect future receptors from potential risks associated with DDTs, the Army, DTSC, and RWQCB agreed that soils containing a total concentration of DDTs in excess of 1 part per million (ppm) will be excavated and disposed of offsite.

Alternatives

Four environmental action alternatives are presented in this document to address risks to human health and ecological receptors in a wetland environment. The four environmental action alternatives are:

- No Further Action
- Excavation and Offsite Disposal
- Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites
- Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues

Table ES-3 provides a determination of the preferred alternative for all known areas of chemical contamination.

Alternative 1, No Further Action

Under this alternative, no further action will be taken, and there will be no restrictions placed on the use of the site. For those sites in Table ES-3 that require no further action, the soil contaminant concentrations are currently at levels that do not pose an unacceptable risk to human health and the environment. This low level of residual contamination may have been achieved through previous soil removal actions; or the site did not initially have contaminants at concentrations that posed an unacceptable risk.

Alternative 2, Excavation and Offsite Disposal

Under this alternative, a site will be excavated and the soils will be disposed of at an appropriate offsite landfill facility. For a site that has been determined to require excavation, Table ES-2 lists the action goals. For the Inboard Area Sites, excavation would continue until the action goals have been achieved. For the coastal salt marsh, excavation will continue until the action goals have been achieved, it is determined by joint agreement of the State and

Army that further excavation is impractical, or the State and Army agree that the remaining contamination will not pose an unacceptable risk to human health and the environment.

Alternative 2 would only be considered for sites being addressed by the Army BRAC program shown on Table ES-1. This alternative was not considered for Inboard Area-Wide DDTs or PAHs near the runway. Based on the final HWRP design and geomorphic and scour analyses, sites on Table ES-1 that cannot meet the requirements of Alternative 3 shall be required to be remediated in accordance with Alternative 2.

Activities in the coastal salt marsh will be conducted in a manner that is sensitive to impacts to plants and animals. The excavated areas in the coastal salt marsh will be backfilled with either clean onsite soil or rehandled dredged material of similar physical characteristics, except in the area proposed as a channel cut by the HWRP.

Sites in the Inboard Area that are excavated and shown to meet the action goals identified in Table ES-2 shall be considered to be fully remediated and there will be no institutional controls placed on the use of the site. Excavation activities in the Inboard Area will need to be completed before levee breach. Sites in the coastal salt marsh that are excavated, but do not meet the action goals in Table ES-2, will have institutional controls and monitoring, as appropriate. See Institutional Controls, below, for further information.

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites

Under this alternative, a performance criteria of 3 feet of stable cover is established for a site where residual concentrations exceed the action goals identified in Table ES-2. The purpose of the performance criteria for this alternative is to eliminate or significantly reduce any potential risk associated with residual concentrations of contaminants by preventing exposure of future wetland receptors to contaminated site soils. Alternative 3 is the final remedy for sites where residual concentrations of contaminants are greater than the action goals listed in Table ES-2 and where the performance criteria can be met.

Alternative 3 would only be considered for sites addressed by the Army BRAC program. This alternative was not considered for Inboard Area-Wide DDTs or PAHs near the runway. For sites where this alternative is selected, the remedy will be implemented by ensuring that 3 feet of stable cover, or equivalent, are provided throughout the life of the wetland. The performance criteria of 3 feet of stable cover shall be achieved from the date of the breach of the outboard levee and restoration of tidal action to the site. The HWRP design and geomorphic and scour analyses will be used to determine whether the performance criteria can be achieved. If affected soils remain in areas of the wetland restoration project that are subject to tidal scour, so that the performance criteria cannot be achieved, then the affected soils shall be excavated and disposed of offsite in accordance with Alternative 2.

The Army shall ensure that the HWRP, including implementation of its plan for monitoring and adaptive management, will achieve and maintain the 3 feet of stable cover, or equivalent, at each site where Alternative 3 is selected (Table ES-3). The duration of the HWRP obligation shall extend to a date 13 years following the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP and after, in accordance with federal law.

Throughout the period of implementation of the HWRP and after, the Army and the property owner shall ensure that the remedy for these sites is maintained to the extent necessary to protect human health and the environment.

For sites where this alternative is selected, institutional controls in the form of land-use restrictions and monitoring, will be required where contamination remains at levels above the action goals. See Institutional Controls, below, for further information.

Alternative 4, Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues

Under this alternative, performance criteria of 3 feet of stable cover or equivalent measures, as agreed to by the Army and the State, will be established for the areas specified below. The primary purpose of the performance criteria for this alternative is to eliminate or significantly reduce any potential risks associated with residual concentrations of Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway, by preventing exposure of future wetland receptors to site soils contaminated with these compounds. This alternative applies only to sites being addressed by the Army Civil Works Program; it was not considered for BRAC sites listed in Table ES-1. Alternatives 1, 2, and 3 provide requirements for the Army BRAC program to address sites listed in Table ES-1.

Sampling indicates that all surface soils in the Inboard Area are affected by DDTs and soils adjacent to the southern end of the runway are affected by PAHs. The HWRP design and geomorphic and scour analyses will be used to determine whether the performance criteria can be achieved for those portions of the Inboard Area where residual DDTs and PAHs in site soils adjacent to the runway exceed the action goals, identified in Table ES-2, for DDTs and PAHs. Where residual contamination of site soils exceed the action goals for DDTs and PAHs, and the performance criteria cannot be met, the HWRP will, with the concurrence of the State, excavate some or all of the affected soils and manage them onsite. Following any such excavation, the HWRP shall address residual contamination of site soils exceeding the action goals, identified in Table ES-2, for DDTs and PAHs, including both those soils that have been excavated for onsite management and those soils left in place, by implementing 3 feet of stable cover or equivalent measures. The performance criteria shall consist of placement of 3 feet of stable cover of dredged material, or an appropriate alternative action providing a level of protection equivalent to 3 feet of stable cover, as agreed by the Army and RWQCB. This performance criteria shall be achieved as of the date of the breach of the outboard levee and restoration of tidal action to the site, and shall be maintained throughout the life of the wetland.

The Army Civil Works Program shall ensure, through both construction and implementation of its plan for monitoring and adaptive management, that the HWRP will achieve and maintain the performance criteria of 3 feet of stable cover or its equivalent. The duration of this HWRP obligation shall extend 13 years from the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP, in accordance with federal law. Thereafter, the property owner shall ensure that the performance criteria for the Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway are maintained to the extent necessary to protect human health and the environment. The Army and the State have determined that the HWRP will likely be an appropriate and effective mechanism for implementing this alternative.

Institutional controls in the form of land use restrictions and monitoring will be required where contaminant concentrations of Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway remain at levels above the action goals in Table ES-2. See Institutional Controls, below, for further information.

Institutional Controls

Institutional controls in the form of land use restrictions will be required where contamination remains above the action goals shown in Table ES-2. The institutional controls include the following requirements:

Grading, excavation, and intrusive activities must be conducted pursuant to a plan approved by the State.

The property shall not be used for residences, schools, daycare facilities, hospitals, hospices, or similar sensitive uses.

State and federal agencies must have access to the property. The property owner shall provide access, on an as-needed basis, minimizing any interference with the implementation, operation, or maintenance of the ecosystem restoration project. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors will have the right, upon reasonable notice, to enter the property when it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors will also have the right, upon reasonable notice, to enter adjoining property, when it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP.

Areas or Activities to be Completed and Closed Out

Several areas of the HAAF property are still under investigation to determine the final activities necessary for protection of the wetlands reuse. The BRAC and GSA soil stockpiles that were generated from previous excavation activities are currently located on paved surfaces. These areas include the following sites identified in the Archive Search Report:

- Testing Range (ASR Site #4)
- Alleged HTRW Disposal Site (ASR Site #8)
- Skeet Range (ASR Site #18)
- Firing-In-Butt (ASR Site #19)

The RWQCB, through its SCR, will detail the process for further investigation and remediation (if needed) of these areas. If remediation is required, the action goals established in this ROD/RAP will apply. All required Army activities must be completed according to a schedule that does not interfere with the progress of the HWRP.

Public Participation

The ROD/RAP process provides an opportunity for public involvement in the decisionmaking process. The ROD/RAP, along with the California Environmental Quality Act (CEQA) Subsequent Environmental Impact Report (EIR), underwent a 45-day public

review between June 5, 2003, and July 21, 2003. During the public review period, a notice was published in the *Marin Independent Journal* and the *Novato Advance*. The ROD/RAP and Subsequent EIR were made available for review at the following locations:

Hamilton Administrative Record Library
Hamilton Army Airfield
1 Burma Road
Novato, CA 94949
Contact: Ed Keller, 415-883-6386

Main Branch of the Novato Public Library
Reference Desk
1720 Novato Blvd.
Novato, CA 94947
Contact: Library, 415-898-4623

State of California
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826
Contact: Lance K. McMahan, 916-255-3674

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Contact: Naomi Feger, 510-622-2328

A public meeting was held on July 9, 2003. The draft ROD/RAP and Subsequent EIR have been modified based on public input. With approval of the ROD/RAP, the action goals in this document have become the final action goals and the proposed environmental action alternatives have become the final environmental action for each site. The administrative record in Appendix A provides a list documents that provide additional information on various areas of the site.

Implementation

The RWQCB will adopt SCRs to ensure implementation of the final ROD/RAP. Future technical documents will address wetland design, implementation, operation and maintenance, and long-term monitoring. Figure ES-3 provides the schedule for completing the activities required by this ROD/RAP.

TABLE ES-1
Army BRAC Program Sites
Hamilton Main Airfield Parcel ROD/RAP

Inboard Area Sites
Revetment 18/Building 15
Building 20
Building 26
Building 35/39 Area
Building 41 Area
Building 82/87/92/94/Area (including storm drains)
Building 84/90
Building 86 (including storm drains)
East Levee Generator Pad
Former Sewage Treatment Plant (including sanitary and industrial waste lines)
Northwest Runway Area
Onshore Fuel Line • 54-inch-diameter storm drain segment • Northern segment • Hangar segment
Perimeter Drainage Ditch (PDD) • Lined outside HWRP-proposed channel cut • Lined within HWRP-proposed channel cut • Unlined
PDD Spoil Piles A, B, C, D, E, F, G, H, I, J, K, L, M, and N
Revetments 1 through 17 and 19 through 28 (including storm drains) and Historic Revetments
Tarmac East of Outparcel A-5
[illegible]
Antenna Debris Disposal Area
Area 14
Boat Dock • Channel area • Nonchannel area
East Levee Construction Debris Disposal Area (including burn pit)
Former Sewage Treatment Plant Outfall
High Marsh Area • Proposed channel cut • Nonchannel cut
Historic Outfall Drainage Ditch
Outfall Drainage Ditch

TABLE ES-2
Action Goals
Hamilton Main Airfield Parcel ROD/RAP

	Action Goals[a] (ppm)		Source[b]	
Contaminant	**Coastal Salt Marsh**	**Inboard Area**	**Coastal Salt Marsh**	**Inboard Area**
Metals				
Arsenic	23	16.7	Site-Specific Sediment Ambient	BRAC Soils Ambient
Barium	188	190	Site-Specific Sediment Ambient	BRAC Soils Ambient
Beryllium	1.68	1.03	Site-Specific Sediment Ambient	BRAC Soils Ambient
Boron	71.6	36.9	Site-Specific Sediment Ambient	BRAC Soils Ambient
Cadmium	1.8	1.2	Site-Specific Sediment Ambient	ER-L
Chromium	149	112	Site-Specific Sediment Ambient	SF Bay Ambient
Cobalt	26.7	27.6	Site-Specific Sediment Ambient	BRAC Soils Ambient
Copper	88.7	68.1	Site-Specific Sediment Ambient	SF Bay Ambient
Lead	46.7	46.7	ER-L	ER-L
Manganese	1260	943	Site-Specific Sediment Ambient	BRAC Soils Ambient
Mercury	0.58	0.43	Site-Specific Sediment Ambient	SF Bay Ambient
Nickel	132	114	Site-Specific Sediment Ambient	BRAC Soils Ambient
Silver	1	1	ER-L	ER-L
Vanadium	136	118	Site-Specific Sediment Ambient	BRAC Soils Ambient
Zinc	169	158	Site-Specific Sediment Ambient	SF Bay Ambient
Semivolatile Organic Compounds (including PAHs)				
PAHs, total	4.022	4.022	ER-L	ER-L
Pentachlorophenol	0.017	--	HHERA—Marine Invertebrate	--
Phenol	0.13	--	HHERA—Marine Invertebrate	--
Petroleum Hydrocarbons				
TPH-dl/TPH-motor oil[c]	144	144	Presidio—Saltwater Ecological Protective Zone	Presidio—Saltwater Ecological Protective Zone
TPH-g/JP-4	12	12	Presidio—Saltwater Ecological Protective Zone	Presidio—Saltwater Ecological Protective Zone
Pesticides/Herbicides/PCBs/Dioxins				
BHCs, total	0.0048	--	Lindane AET (polychaete)	--
Chlordanes, total	0.00479	--	PEL	--
DDTs, total[d]	0.03	0.03	RART—California clapper rail	RART—California clapper rail
Dichlorprop	0.14	--	HHERA—California clapper rail	--
Endrin Aldehyde	0.0064[e]	--	HHERA—Marine Invertebrate	--
Heptachlor	0.0088[f]	--	HHERA—Marine Invertebrate	--

TABLE ES-2
Action Goals
Hamilton Main Airfield Parcel ROD/RAP

	Action Goals[a] (ppm)		Source[b]	
Contaminant	**Coastal Salt Marsh**	**Inboard Area**	**Coastal Salt Marsh**	**Inboard Area**
Heptachlor epoxide	0.0088	--	HHERA—Marine Invertebrate	--
MCPA	7.9[g]	--	HHERA—Marine Invertebrate	--
MCPP	3.0	--	PQL	--
Methoxychlor	0.09	--	HHERA—Marine Invertebrate	--
PCBs, total	0.09	--	HHERA—California clapper rail	--
Dioxins (Total TCDD TEQ)[h]	0.000021	--	EPA	--

NOTE: This is a comprehensive list of action goals. All action goals do not apply at each site. Site-specific action goals are discussed in Sections 2.2 and 3.2.

-- Not applicable

TCDD = tetrachlorodibenzo-p-dioxin
TEQ = toxicity equivalence

[a] If contamination above the action goals is found in the coastal salt marsh beyond those areas already identified as requiring remediation, the Army and State will determine whether additional or continued excavation is warranted by considering the potential risk to public health and the environment from the residual contaminants and the resulting habitat destruction.

[b] The sources of the action goals are:

- **Metals:** Background concentrations for metals were primarily used as action goals unless the background concentrations were less than available risk-based numbers. Site-specific ambient levels from Appendix A—U.S. Army, 2001, *Final Human Health and Ecological Risk Assessment*; Effects Range-Lows (ER-Ls) from Long, E.R, D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995, "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments," *Environmental Management*, 19:81-97; *San Francisco Bay RWQCB Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments*, May 1998.
- **Petroleum hydrocarbons:** *Report of Petroleum Hydrocarbon Bioassay and Point-of-Compliance Concentration Determinations; Saltwater Ecological Protection Zone; Presidio of San Francisco, California,* Dated December 1997. The numbers in this report were developed for a similar site with similar ecological receptors.
- **PAHs:** ER-Ls from Long, E.R, D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995, "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments," Environmental Management, 19:81-97. The ER-Ls were used as action goals because the ER-Ls are accepted as being protective of ecological receptors.
- **SVOCs:** US Army, 2001, *Final Human Health and Ecological Risk Assessment.*
- **Pesticides, Herbicides, PCBs, and Dioxins:** Table 5-1 from the US Army, 2001, *Final Human Health and Ecological Risk Assessment* (marine invertebrate–amphipod and California clapper rail); practical quantitation limits (PQLs) from previous sampling events were used when no other ecologically-based numbers were available with achievable detection limits; U.S. EPA, 1993a, *Interim Report on Data and Methods for Assessment of 2,3,7,8-Tetrachlorodibenzo-p-dioxin Risks to Aquatic Life and Associated Wildlife.* (EPA/600/R-93/-055); for lindane and total chlordane, Screening Quick Reference Tables (SQuiRTs), NOAA, updated September 1999 were used as the best available ecological number when no other references were available. The DDT values were developed in the Coastal Salt Marsh Focused Feasibility Study (CH2M HILL, 2003).

[c] The action goal for TPH diesel/TPH motor oil is also used as the action goal for UHE (unknown hydrocarbons extractable).

[d] The total DDT concentration in the Coastal Salt Marsh Area or Inboard Area shall not exceed 1.0 ppm. Areas with total DDT concentrations greater than 1.0 ppm shall be excavated and disposed of offsite.

[e] The goal for Endrin Ketone is used as a surrogate for Endrin Aldehyde.

[f] The goal for Heptachlor Epoxide is used as a surrogate for Heptachlor.

[g] The goal for 2,4,D is used as a surrogate for MCPA.

[h] Dioxin is only considered a COC at the ELCDDA Burn Pit.

TABLE ES-3
Summary of Preferred Alternatives

Alternative	Sites
1—No Further Action	Revetment 18/Building 15 Building 20 Building 84/90 Perimeter Drainage Ditch (PDD) Spoils Piles E and H East Levee Generator Pad Tarmac East of Outparcel A-5 Northwest Runway Area Revetments 5, 8 through 10, 15, 17, 20, 24, 27, and 28 Radiological Waste Disposal Cylinders
2—Excavation and Offsite Disposal	East Levee Construction Debris Disposal Area (including burn pit) High Marsh Area • proposed channel cut • nonchannel cut Historic Outfall Drainage Ditch Outfall Drainage Ditch Boat Dock • nonchannel area • channel area Area 14 Former Sewage Treatment Plant Outfall Antenna Debris Disposal Area Building 35/39 Area PDD Unlined (Addressing DDTs > 1 ppm) Building 41 Area PDD Spoils Pile F Revetments 6 and 7 PDD, lined portion within proposed wetland channel
3—Manage In-Situ, with Monitoring, Maintenance, for Army BRAC Sites	Former Sewage Treatment Plant (including sanitary and industrial waste lines) Building 26 Building 35/39 Area Building 82/87/92/94/Area (including storm drains) Building 86 (including storm drains) PDD (lined portion outside proposed wetland channel) PDD (unlined) PDD Spoil Piles A, B, C, D, G, I, J, K, L, M, and N Onshore Fuel Line • 54-inch-diameter Storm Drain Segment • Northern Segment • Hangar Segment Revetments 1 through 4, 11 through 14, 16, 19, 21 through 23, 25, and 26 (including storm drains and historic revetments)

TABLE ES-3
Summary of Preferred Alternatives

Alternative	Sites
4—Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues	Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway

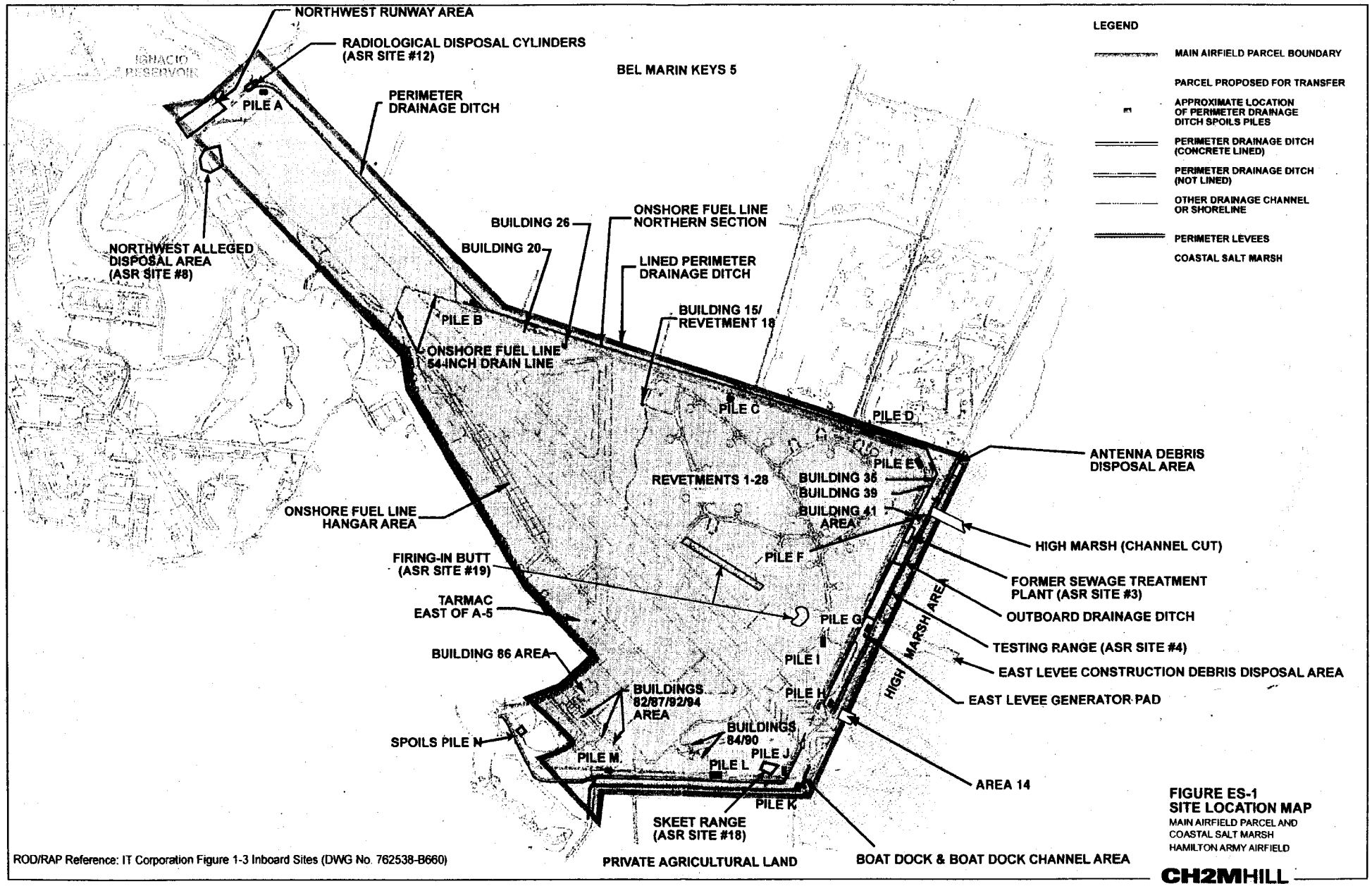

FIGURE ES-1
SITE LOCATION MAP
MAIN AIRFIELD PARCEL AND COASTAL SALT MARSH
HAMILTON ARMY AIRFIELD

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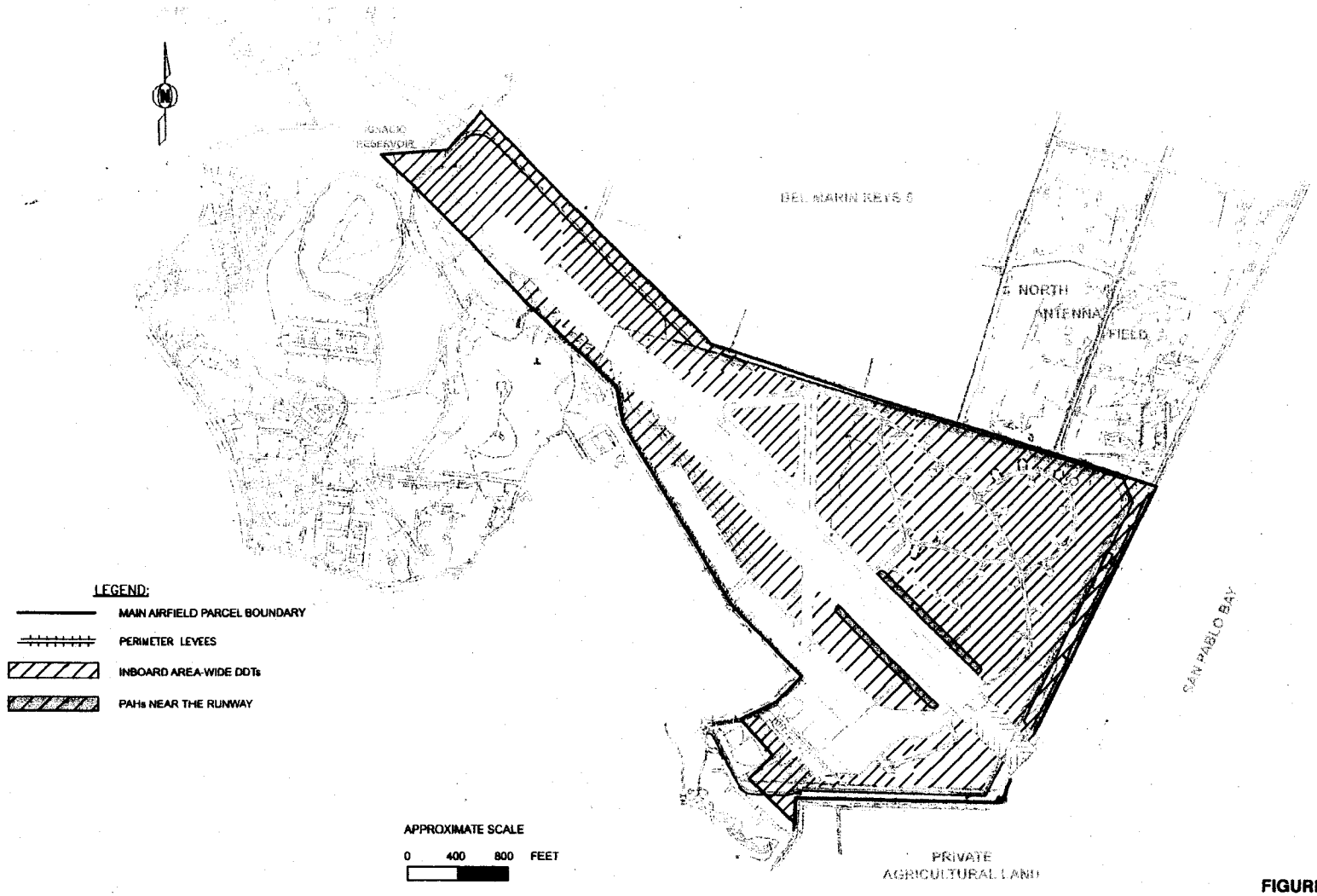

FIGURE ES-2
INBOARD AREA-WIDE DDTs AND PAHs NEAR THE RUNWAY
MAIN AIRFIELD PARCEL
HAMILTON ARMY AIRFIELD

ROD/RAP Reference: IT Corporation Figure 1-3 Inboard Sites (DWG No. 762538-B660)

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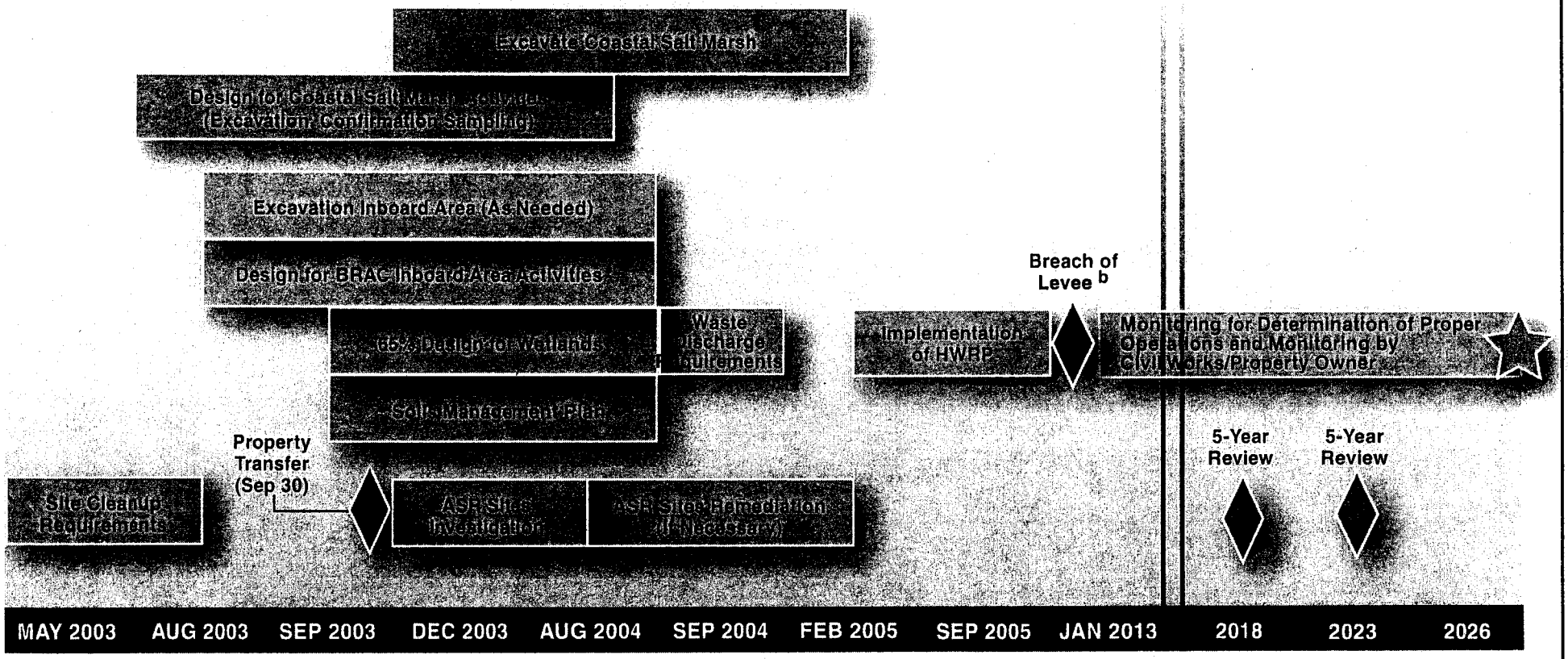

[a] *These dates are anticipated to be based on the current project understanding and are presented for planning purposes. The dates do not constitute obligations or deadlines and will be further refined through the adoption of the Site Cleanup Requirements.*

[b] *Completion of ROD/RAP requirements, except monitoring. Levee breach is currently expected to occur eight years after commencement of the HWRP implementation as along as the requirements of the ROD/RAP are met.*

FIGURE ES-3
APPROXIMATE SCHEDULE OF CLEANUP ACTIVITIES [a]
MAIN AIRFIELD PARCEL
HAMILTON ARMY AIRFIELD

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