USACE FUDS
DECISION DOCUMENT

BELLS FLATS
KODIAK, ALASKA
PROPERTY: KODIAK NAVY/ARMY
(FUDS Property No. F10AK1007-08)

FINAL
AUGUST 2005

Prepared for:
U.S. Army Corps of Engineers
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Total Environmental Restoration Contract
Contract No. DACA 85-95-D-0018
Task Order No. 06

TABLE OF CONTENTS

SECTION **PAGE**

TABLE OF CONTENTS

SECTION **PAGE**

TABLE OF CONTENTS

SECTION **PAGE**

TABLES

FIGURES

APPENDIX

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
AST	aboveground storage tank
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
COPC	chemical of potential concern
CSF	cancer slope factor
CSM	conceptual site model
DD	Decision Document
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DRO	diesel-range organics
EPA	U.S. Environmental Protection Agency
FUDS	Formerly Used Defense Sites
GRO	gasoline-range organics
HI	hazard index
HQ	hazard quotient
IRA	interim removal action
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NA	not applicable
NCP	National Contingency Plan
ND	not detected
NPL	National Priorities List
NDAI	No DoD Action Indicated
O&M	operations and maintenance
PAH	polycyclic aromatic hydrocarbon
POL	petroleum, oil, and lubricants
ppm	parts per million
RA	removal action
RAO	remedial action objective

ACRONYMS AND ABBREVIATIONS
(continued)

RecKey	record key
RfD	reference dose
RI	remedial investigation
RRO	residual-range organics
USACE	U.S. Army Corps of Engineers
USAED	U.S. Army Engineer District, Alaska
USC	United States Code
UST	underground storage tank
VOC	volatile organic compound
WWII	World War Two
°C	degrees Celsius

PART 1: THE DECLARATION

1.1 SITE NAME AND LOCATION

Bells Flats is located approximately 12 miles from the city of Kodiak and can be reached by the Kodiak (Rezanof) Highway. The Alaska Department of Environmental Conservation (ADEC) contaminated site record key (RecKey) number is 199725X101701. The Bells Flats site is not listed on the National Priorities List (NPL).

The site was divided into six exposure areas for remedial purposes:

Exposure Area	Description
1	10986 Alitak Drive, 300-gallon aboveground storage tank (AST) area
2	11102 Alitak Drive, 750-gallon underground storage tank (UST) area
3	11629 Kalsin Drive, 300-gallon UST area
4	12523 Noch Drive (Lot 15), 300-gallon UST and 1,000-gallon AST area
5	756 Preston Lane, 300-gallon UST area
6	Sargent Creek Asphalt Deposit

This Decision Document (DD) addresses all six exposure areas at Bells Flats. In addition, during the 2000 and 2003 interim removal actions (IRA) conducted at Bells Flats, four ASTs and two USTs were removed, which were not specifically associated with any of the exposure areas listed above, and no fuel-contaminated soil was observed or encountered. Following the removal of each tank and any associated piping, soil samples were collected from the excavation beneath the tank and submitted to a laboratory for analysis of fuel-related compounds. Results for all of the soil samples were below ADEC Method Two cleanup levels; therefore, these six former tank sites were not considered contaminated and no further action was required by ADEC.

During World War Two (WWII), Bells Flats served as the U.S. Seabee housing facility as an extension of the Kodiak Navy/Army Station. Since 1999, the U.S. Army Engineer District, Alaska (USAED), has conducted environmental restoration and site closure activities at Bells Flats under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense

Sites (FUDS) (USAED 2000, 2002, 2004a). Bells Flats is a project under the Kodiak Navy/Army FUDS property and is currently subdivided into private and government-owned properties.

1.2 STATEMENT OF BASIS AND PURPOSE

Authorities: DERP, United States Code (USC), Title 10, Section 2701, et seq.; Alaska Administrative Code (AAC), Title 18, Chapter 75.

This DD presents the USAED selected remedy for Bells Flats, chosen in accordance with the Administrative Record for this site and was based on the successful results of several interim removal actions. The sites within this DD fall under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) petroleum exclusion and are thus being addressed under the authority of the DERP statute. The proposed response action meets ADEC requirements for cleanup of petroleum contaminated sites, and is consistent with the response process set forth in the National Contingency Plan (NCP).

ADEC concurs with the Selected Remedy.

1.3 DESCRIPTION OF SELECTED REMEDY

The selected remedy involves ADEC site closure and No Department of Defense (DoD) Action Indicated (NDAI) status. Previous remedial actions at the site removed contaminants in the soil to meet ADEC Method Two cleanup levels.

The petroleum, oil, and lubricant (POL)-contaminated soil removed from the six exposure areas (i.e., the former tank sites) at Bells Flats was treated at a state-approved thermal treatment unit. The hardened asphalt and asphalt-contaminated soil removed from Sargent Creek were disposed of at the Kodiak Island Borough Landfill.

1.4 STATUTORY DETERMINATIONS

The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is

cost effective, and utilizes permanent solutions to the maximum extent practicable. Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

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AUTHORIZING SIGNATURES

This DD presents the selected remedy at Bells Flats. The U.S. Army Corps of Engineers (USACE) is the lead agency under the DERP at the Bells Flats FUDS and has developed this DD, which will be incorporated into the larger Administrative Record file for Bells Flats, available for public view at the Kodiak Library, 319 Lower Mill Bay Road, Kodiak, Alaska, and at the Alaska District Corps of Engineers Office on Elmendorf Air Force Base, Alaska. This DD, presenting a selected remedy with a present worth cost estimate of $14,000, is approved by the undersigned, pursuant to Memorandum DAIM-ZA, 9 September 2003, Subject: Policies for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, FUDS Program Policy.

APPROVED:

8 Sep 2005
Date

Timothy J. Gallagher
Colonel, Corps of Engineers
District Engineer
Alaska District

ADEC concurs with USACE's selected remedy. The concurrence may be reviewed and modified in the future if new information becomes available that indicates the presence of previously undiscovered contamination or exposures that may cause unacceptable risk to human health or the environment.

9/13/2005
Date

Jennifer Roberts
Federal Facilities Environmental Restoration Program Manager
Alaska Department of Environmental Conservation

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PART 2: THE DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND BRIEF DESCRIPTION

Bells Flats is located approximately 12 miles southwest of the city of Kodiak at approximately 57°43'N Latitude and 152°33'W Longitude (Figure 2-1). Historical records from WWII identified Bells Flats as the U.S. Seabee housing facility and an extension of the Kodiak Navy/Army Station, which was used by the U.S. Army and Navy from 1937 through 1975. The Seabee facility supported up to 1,400 personnel with several types of structures, including barracks, mess halls, warehouses, Quonset huts, and storage sheds. Bells Flats is currently subdivided into private and government-owned properties.

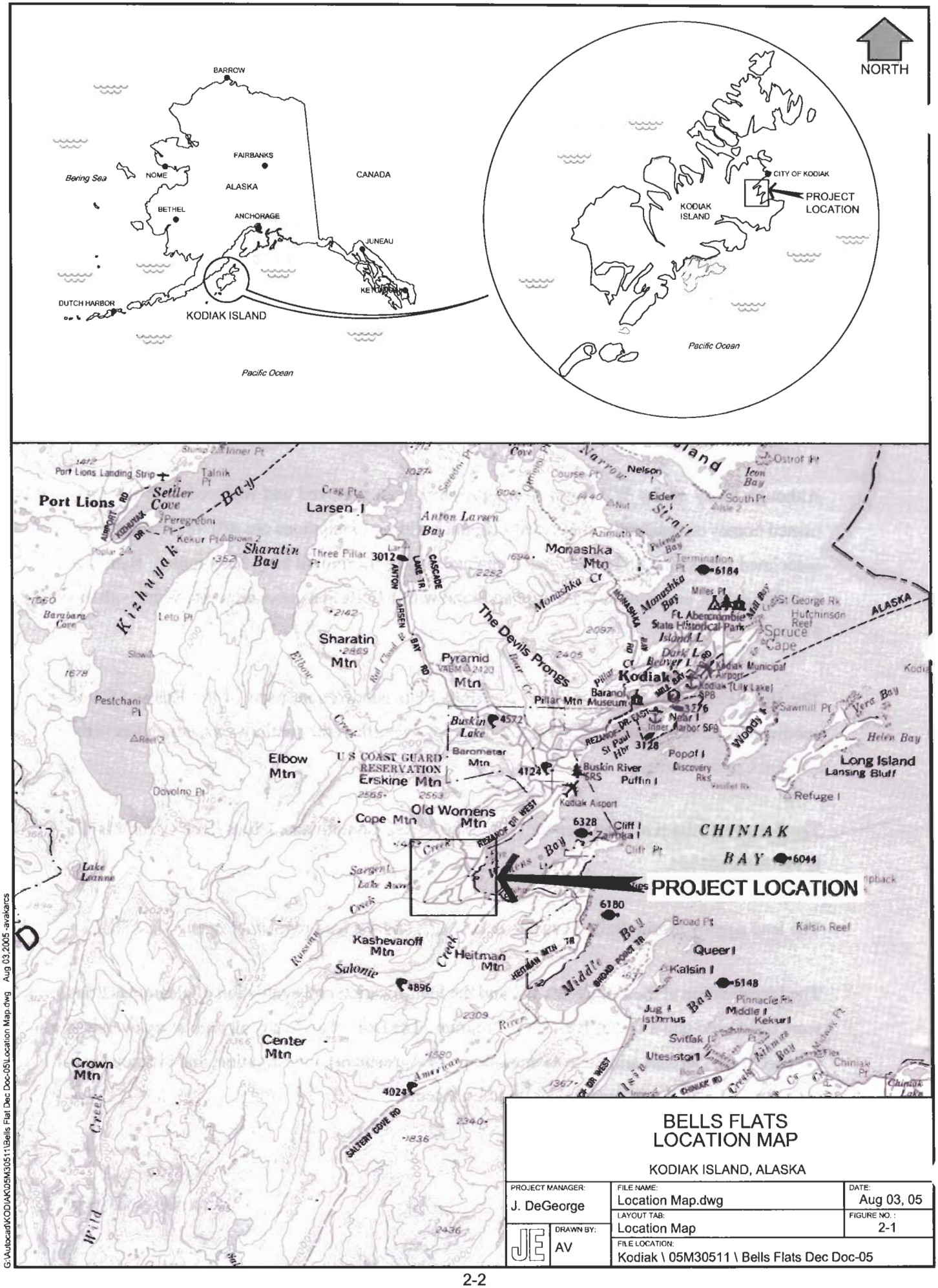
Although many of the WWII-era structures have been removed and replaced with privately owned homes on residential lots, a few original building foundations are still intact and several associated USTs and ASTs that once contained fuel or heating oil have been found. Batteries, building debris, empty drums, and asphalt found within Bells Flats were also associated with this FUDS.

The Bells Flats project area includes the Bells Flats subdivision, parts of the Russian Creek subdivision, and the Kodiak Island Borough Property north of the subdivisions, which lies in the Sargent Creek drainage.

The Bells Flats site is not listed on the NPL. The ADEC Contaminated Sites RecKey for this site is 199725X101701.

The lead agency for the Bells Flats site is USACE, and the lead regulatory agency is ADEC.

The investigation at the Bells Flats site and the identification and evaluation of cleanup actions were conducted under the DERP-FUDS Program. The DoD plans to pay all regulatory oversight (as part of the Defense and State Memorandum of Agreement), investigation, and cleanup costs from the Defense Environmental Restoration Account.



BELLS FLATS LOCATION MAP

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Location Map.dwg	DATE: Aug 03, 05
DRAWN BY: AV	LAYOUT TAB: Location Map	FIGURE NO. : 2-1
	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats Dec Doc-05	

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2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

Based on a review of historical records, it is assumed that the chemical contaminants found within Bells Flats were introduced during the operation of the Seabee facility and remained after the facility was decommissioned.

The Bells Flats sites were initially identified through reports from the local community during the Kodiak Island Alaska FUDS Open House events or during ongoing work at other Kodiak project area. In 1999, a survey was also mailed to current landowners in the Bells Flats area inquiring about the presence, or suspected presence, of FUDS-related fuel storage tanks. Site inspections were conducted in 1999 to verify reports of USTs or ASTs and to document the extent of an asphalt deposit observed in a section of Sargent Creek. During these site inspections, several former fuel storage tanks were identified along with a number of batteries and empty drums (USAED 2000).

Restoration/investigation activities for the Bells Flats site were conducted in 1999, 2000, 2001, and 2003. Site inspections, remedial investigations (RI) and IRAs were the primary restoration/investigation activities conducted.

Site inspections were conducted in 1999 to verify the reported presence of USTs or ASTs and to document the extent of an asphalt deposit observed along a section of Sargent Creek. The asphalt deposit was accessed by a dirt road and was of non-specific military origin. During these site inspections, several former fuel storage tanks were identified, along with a number of empty drums, batteries, and physical safety hazards such as open utility vaults (USAED 2000).

Based on the site inspection results, RIs and IRAs were conducted in 2000, 2001, and 2003. During the investigations and removal actions (RA), the primary contaminant sources were removed, and samples of the soil and groundwater (if encountered) were collected for laboratory analysis. The primary contaminant sources included USTs and ASTs that once contained fuel or heating oil. Six USTs and six ASTs located on nine separate properties were removed from Bells Flats (USAED 2002).

As a result of the IRAs conducted in 2000 and 2001, five USTs and six ASTs were removed. A total of 15,000 gallons of POL-contaminated liquid was treated, and 450 gallons of fuel was recovered. Residual fuel from six of the former fuel tanks had leaked into the surrounding soil; no contamination was associated with the seven other tanks. In addition to the tank removal, several physical hazards, such as open utility vaults, were made safe by covering or removal. Several batteries, empty drums, and scattered building debris were also removed and either disposed of or recycled at the Kodiak Island Borough Landfill, as appropriate. A large asphalt deposit, comprising 673 tons of hardened asphalt and asphalt-contaminated soil, was removed from Sargent Creek and disposed of in the Kodiak Island Borough Landfill. A total of 928 tons of POL-contaminated soils associated with the former tanks at Bells Flats was removed and treated.

During the 2003 RA, one UST was removed, and two presumed UST or AST locations were investigated. Analytical results of soil confirmation samples collected following the UST removal confirmed that further soil excavation was not necessary. Several field-screening samples were collected in test pits that were excavated in the two presumed UST or AST locations; however, no tanks or tank remnants were found.

There have been no enforcement activities, notices of violation, or lawsuits pertaining to the DoD activities at Bells Flats.

2.3 COMMUNITY PARTICIPATION

The following key background documents are among several made available to the public as part of the community participation process and can be found in the Information Repository located in the Kodiak Library:

- *February 2002 Bells Flats Interim Removal Action Report*
- *October 2002 Bells Flats Interim Removal Action Report*
- *February 2004 Well Installation and Groundwater Monitoring Summary Report, Bells Flats*
- *April 2004 Bells Flats Removal Action Report*
- *Proposed Plan for Site Closure Alternative, Bells Flats*

A public comment period for the Proposed Plan for Site Closure Alternative (USAED 2004a) was held from 26 May to 26 June 2004. In addition, an open house was held 4 June 2004 in the Kodiak Safeway grocery store lobby to provide the community an opportunity to meet with representatives from ADEC and USAED and to seek public input through a question-and-answer forum. The open house was advertised in the *Kodiak Daily Mirror* (local newspaper), on the GCI Cable TV information channel, and on the Kodiak radio station, KMXT. At the open house, representatives from ADEC, USAED, and the IRA contractor answered questions from the public regarding past and future cleanup activities.

A community relations plan was developed for activities associated with other sites on the former Kodiak Navy/Army Station, which preceded the IRAs at Bells Flats. As a result, a mailing list containing 103 names has evolved from public meetings, document distribution, and open houses. The Bells Flats Proposed Plan was distributed to all of the names on the mailing list. Minimal oral comments were received regarding the site activities during the open house, and no written comments were received.

At the initiation of the site investigation activities for Bells Flats, a written request was sent to all landowners, presenting information about the presence of potential contamination on their property.

2.4 SCOPE AND ROLE OF RESPONSE ACTION

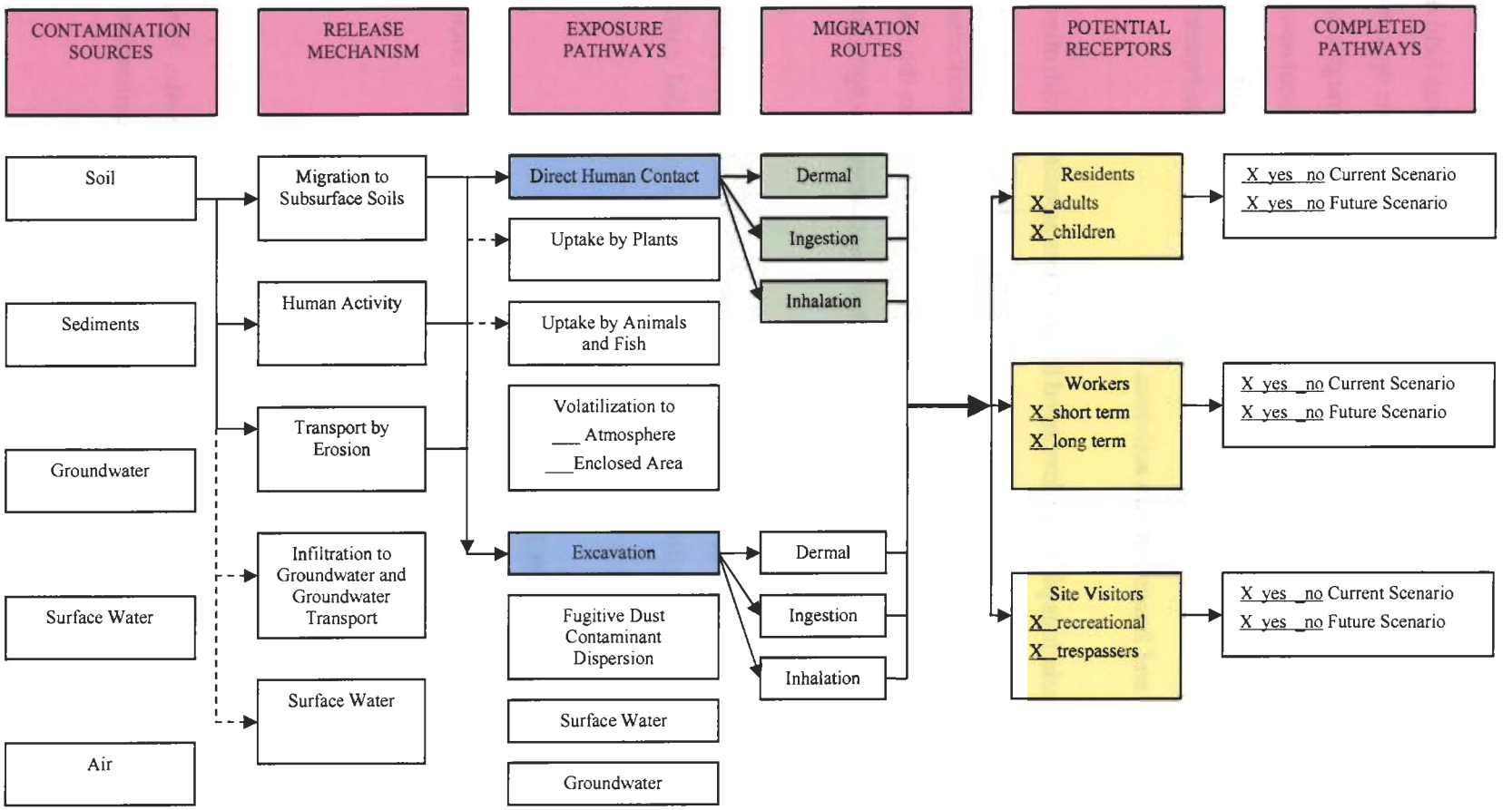
The remedy selection for the entire Bells Flats site is addressed in this document.

2.5 SITE CHARACTERISTICS

2.5.1 Conceptual Site Model

The current conceptual site model (CSM) for the Bells Flats (Figure 2-2) presents a generalized flow diagram of complete exposure pathways that may exist at the site. Potential pathways for exposure to potential human health and ecological receptors from contaminated sources include

Figure 2-2 – Conceptual Site Model



soil, sediments, groundwater, surface water, and air. Exposure pathways that are complete and applicable to the Bells Flats site are shaded.

To confirm that the migration to groundwater or surface water is not a completed pathway, sampling was conducted during the previous investigations and confirmed that contaminant levels were below cleanup standards. Release through the air is not considered viable due to the low volatility of the chemicals of concern (COC) and that the contaminants are confined to the subsurface soil. Samples collected from the sediments in Sargent Creek confirmed that the asphalt was removed to below cleanup levels; therefore, release through sediments is not a complete pathway. Samples of the soils remaining at the site show that the soil is below ADEC Method Two cleanup standards. However, for the purposes of this model, migration to subsurface soils will be used as the potential viable release mechanism. Human activity at the site could also disturb any remaining COCs and create a completed pathway, along with site erosion. Therefore, the valid release mechanisms are migration to subsurface soils, human activity, and erosion. Current and potential receptors in the area are onsite residents, nonresident workers, and visitors.

Evaluation of ecological risks indicated that the potential for significant ecological impacts was small. Based on the relatively small size of the contaminated source areas in comparison to the home ranges of the target ecological receptor habitats, there was little potential for significant exposure of wildlife to the contaminants.

2.5.2 Overview

A total of eight USTs and six ASTs located on nine separate properties were removed from the Bells Flats site. The removals occurred over several interim actions from 2000 to 2004. Each property encompasses an area less than 1 acre. In five of these areas, contaminated soil was encountered and subsequently excavated. These sites are located in a housing development situated along Russian Creek. In addition, a large asphalt deposit was removed from an area along Sargent Creek, about 1 mile northwest of the housing sites. These sites are described in detail in the following subsections.

The RA sites are listed below:

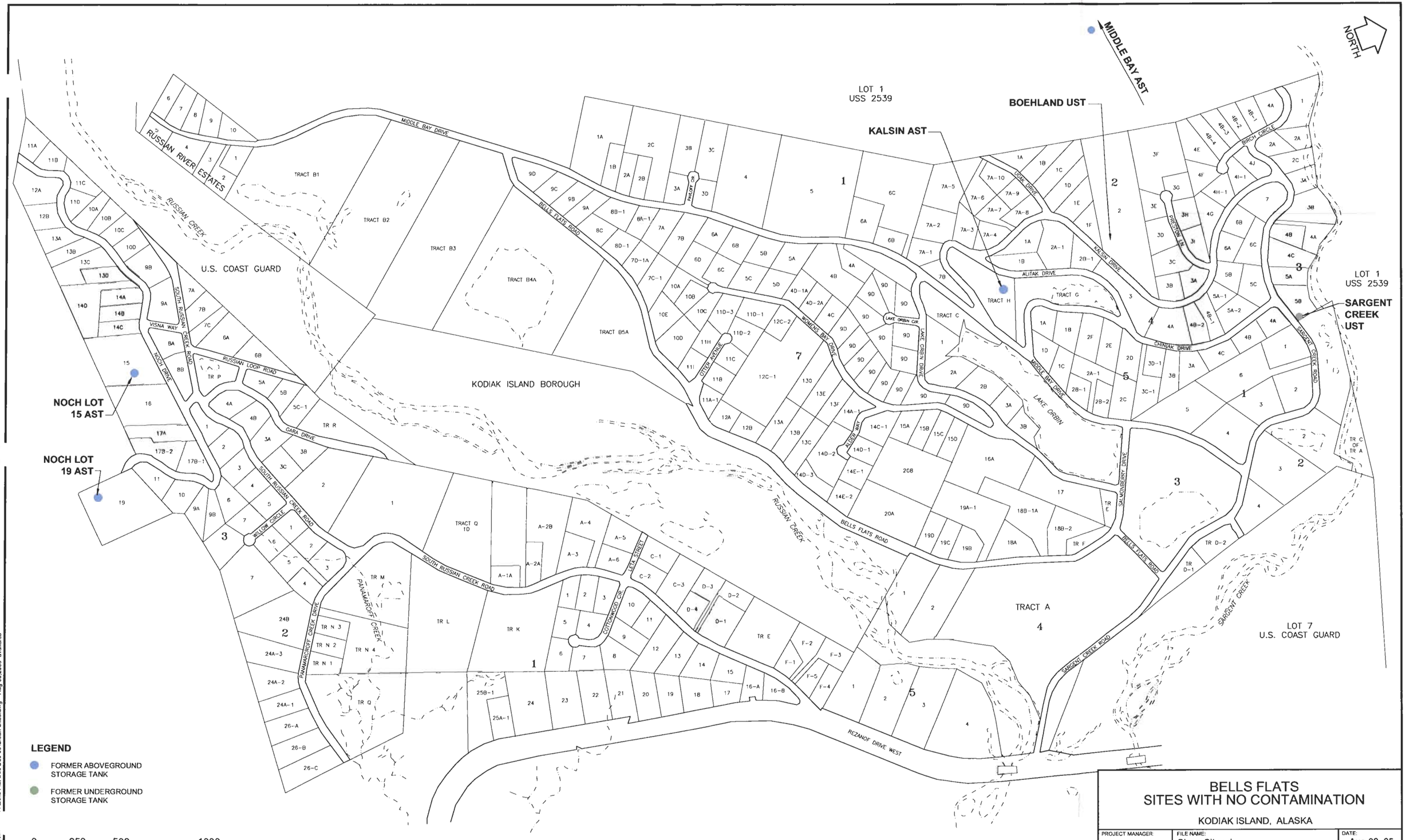
Exposure Area	Removal Action Description
1	10986 Alitak Drive, 300-gallon AST area
2	11102 Alitak Drive, 750-gallon UST area
3	11629 Kalsin Drive, 300-gallon UST area
4	12523 Noch Drive (Lot 15), 300-gallon UST and 1,000-gallon AST area
5	756 Preston Lane, 300-gallon UST area
6	Sargent Creek Asphalt Deposit

Sites with No Contamination

During the 2000 and 2003 IRAs, four ASTs and two USTs were removed, but no fuel-contaminated soil was observed or encountered. These six former tanks were located on separate properties, as shown on Figure 2-3. The tanks ranged in capacity from 300 to 500 gallons with the exception of one square, 30-gallon AST observed at 12523 Noch Drive. Following the removal of each tank, soil samples were collected from beneath the tank and any associated piping and submitted to a laboratory for analysis of fuel-related compounds. Upon closer inspection, the AST located on 11629 Kalsin Drive was determined to be a water tank, and no soil samples were collected. Results for all of the soil samples were below ADEC Method Two cleanup levels; therefore, these six former tank sites were not considered contaminated, and no further action was required.

10986 Alitak Drive AST

The Alitak AST site is within the Bells Flats subdivision accessed by Sargent Creek Road (Figure 2-4). The Kodiak Island Borough currently owns the property. During the 2000 IRA, a 300-gallon AST and approximately 21 tons of fuel-contaminated soil were removed for treatment and disposal. During the 2001 IRA, additional contaminated soil was identified, and another 26 tons of fuel-contaminated soil was removed and treated.



LEGEND

- FORMER ABOVEGROUND STORAGE TANK
- FORMER UNDERGROUND STORAGE TANK

0 250 500 1000

SCALE IN FEET

BELLS FLATS
SITES WITH NO CONTAMINATION

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Clean Sites.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Area Map	FIGURE NO.: 2-3
JE DRAWN BY: BJP	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats Dec Doc-05	

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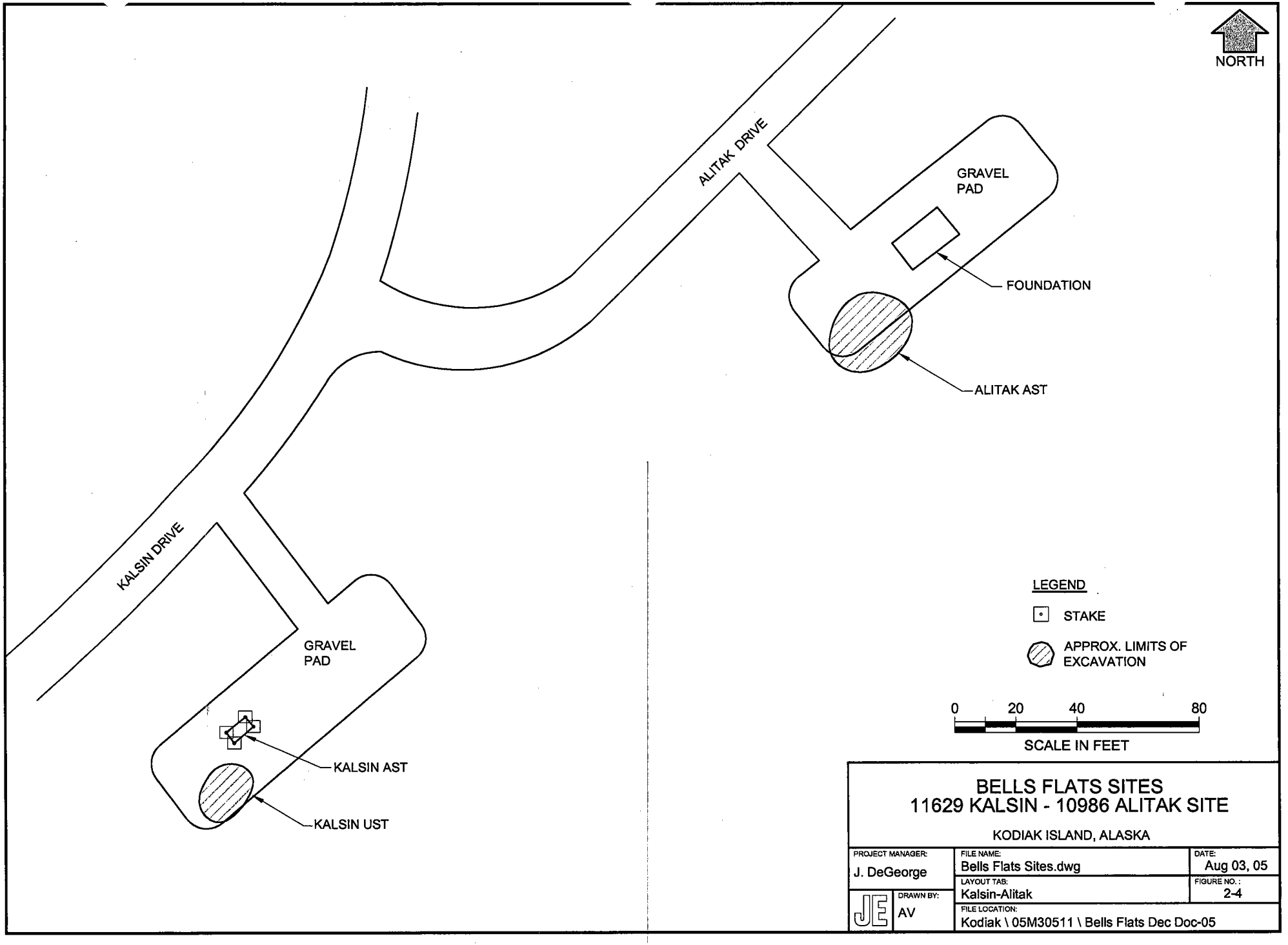


BELLS FLATS SITES
11629 KALSIN - 10986 ALITAK SITE

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Bells Flats Sites.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Kalsin-Alitak	FIGURE NO.: 2-4
JE DRAWN BY: AV	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats Dec Doc-05	

11102 Alitak Drive UST

The Alitak UST site is within the Bells Flats subdivision accessed by Sargent Creek Road and is privately owned (Figure 2-5). As part of the 2000 IRA, a 750-gallon UST, 12 feet of associated piping, and approximately 57 tons of fuel-contaminated soil were removed for treatment and disposal.

11629 Kalsin Drive UST

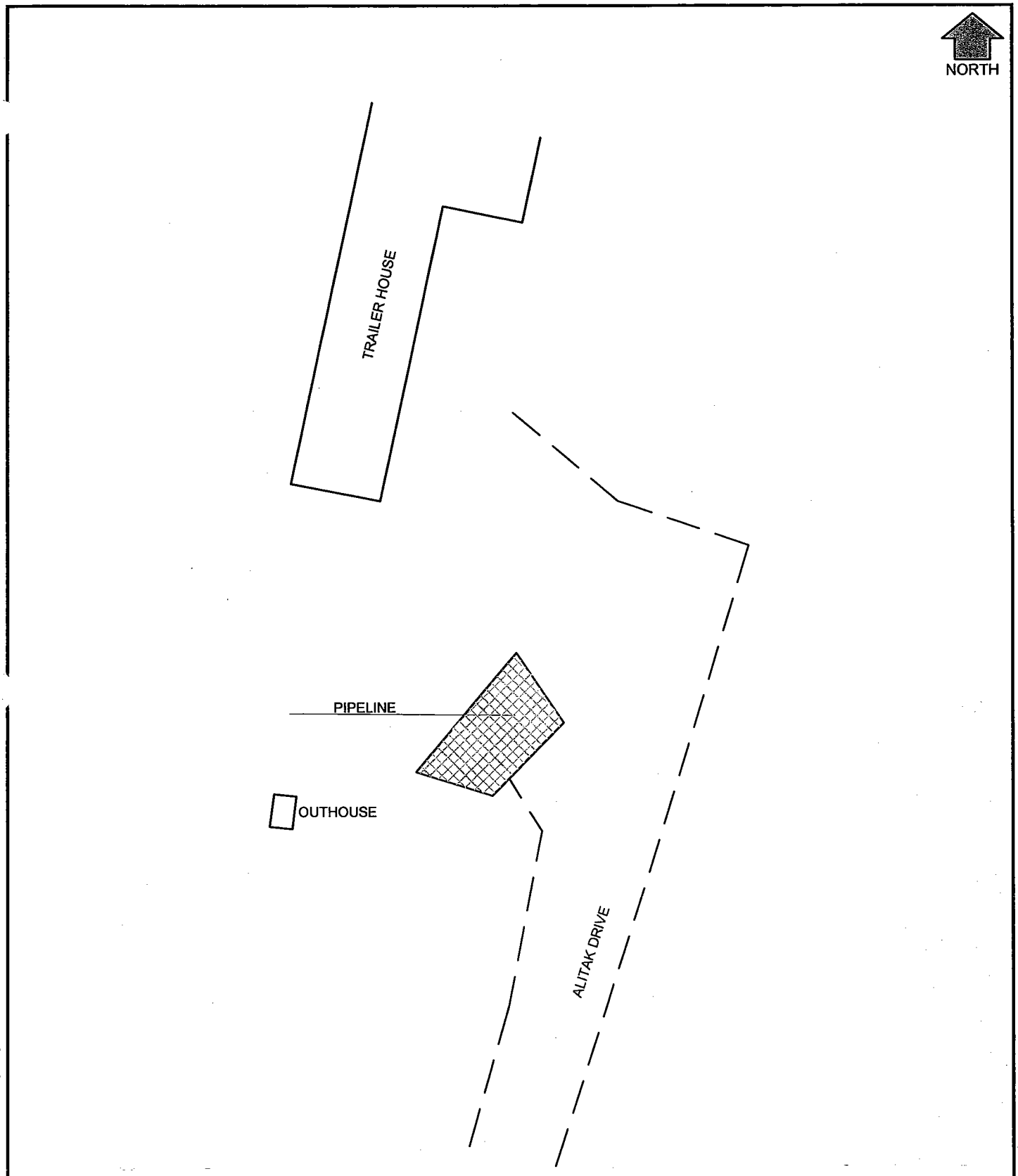
The Kalsin UST site is within the Bells Flats subdivision accessed by Sargent Creek Road and is currently owned by the Kodiak Island Borough (Figure 2-4). During the 2000 IRA, one 300-gallon UST and approximately 8 tons of fuel-contaminated soil were removed from this property for treatment and disposal.

12523 Noch Drive (Lot 15) UST and AST

During the 2000 IRA, a 300-gallon UST, a 1,000-gallon AST, and approximately 27 tons of fuel-contaminated soil were removed for treatment and disposal. The two contaminated tanks and one smaller AST were located on Noch Drive Lot 15, part of the Bells Flats subdivision accessed by Russian Creek Road and currently owned by the Kodiak Island Borough (Figure 2-6). As part of the 2001 IRA, an additional 47 tons of fuel-contaminated soil was removed for treatment and disposal.

756 Preston Lane UST

The Preston UST site is located within the Bells Flats subdivision accessed by Sargent Creek Road and is privately owned (Figure 2-7). During the 2000 IRA, a 300-gallon UST and approximately 12 tons of fuel-contaminated soil were removed from this property. As a result of the 2000 IRA, additional contaminated soil was identified at the former UST location. In response, as part of the 2001 IRA, an additional 473 tons of fuel-contaminated soil was removed. Contaminated soil from both IRAs was treated locally in Kodiak. Because of the very shallow groundwater present at the Preston site, the groundwater had to be pumped from the excavation



LEGEND

APPROX. LIMITS OF EXCAVATION

0 10 20 40

SCALE IN FEET

BELLS FLATS SITES
11102 ALITAK UST

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Bells Flats Sites.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Alitak	FIGURE NO.: 2-5
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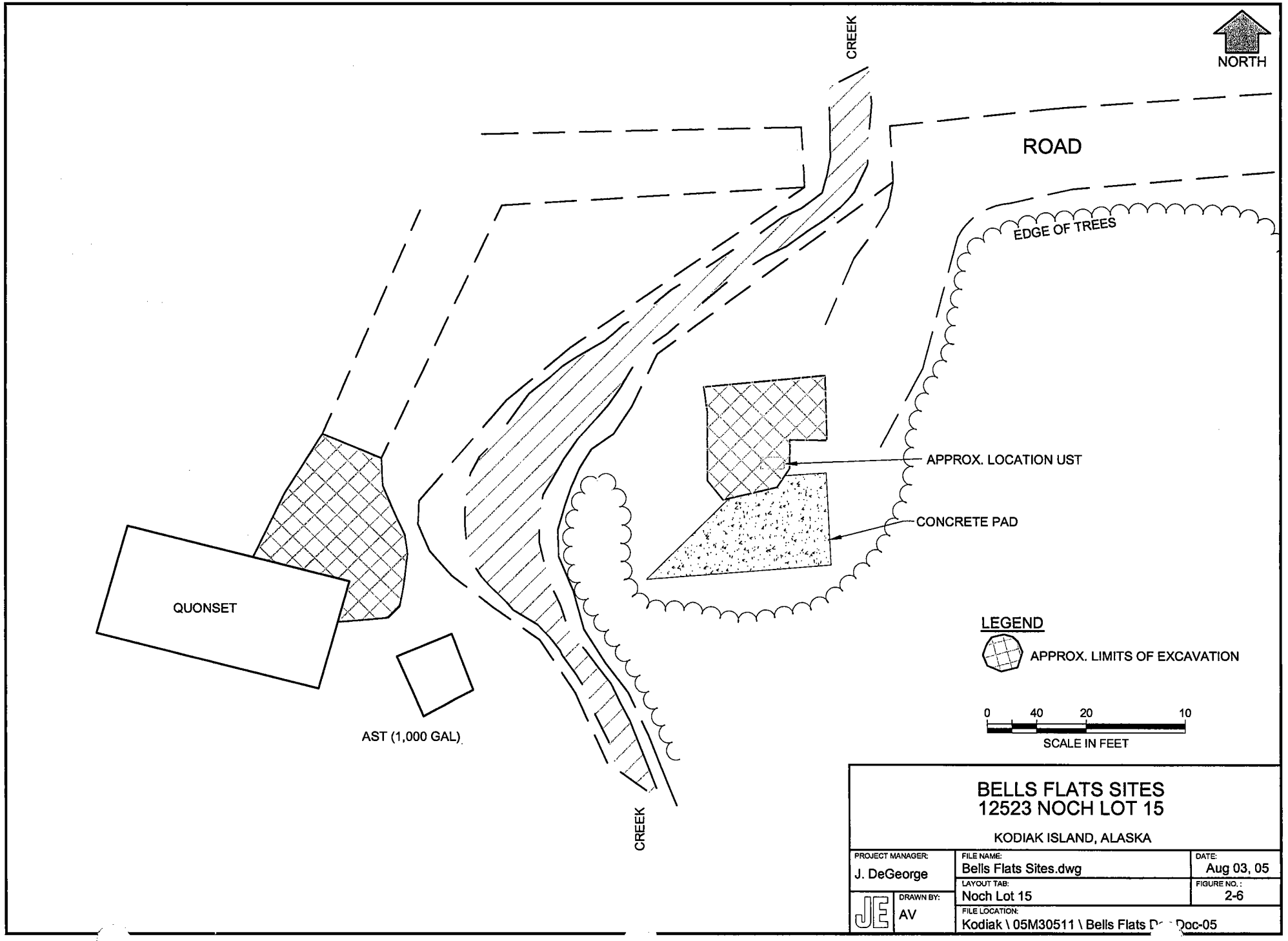
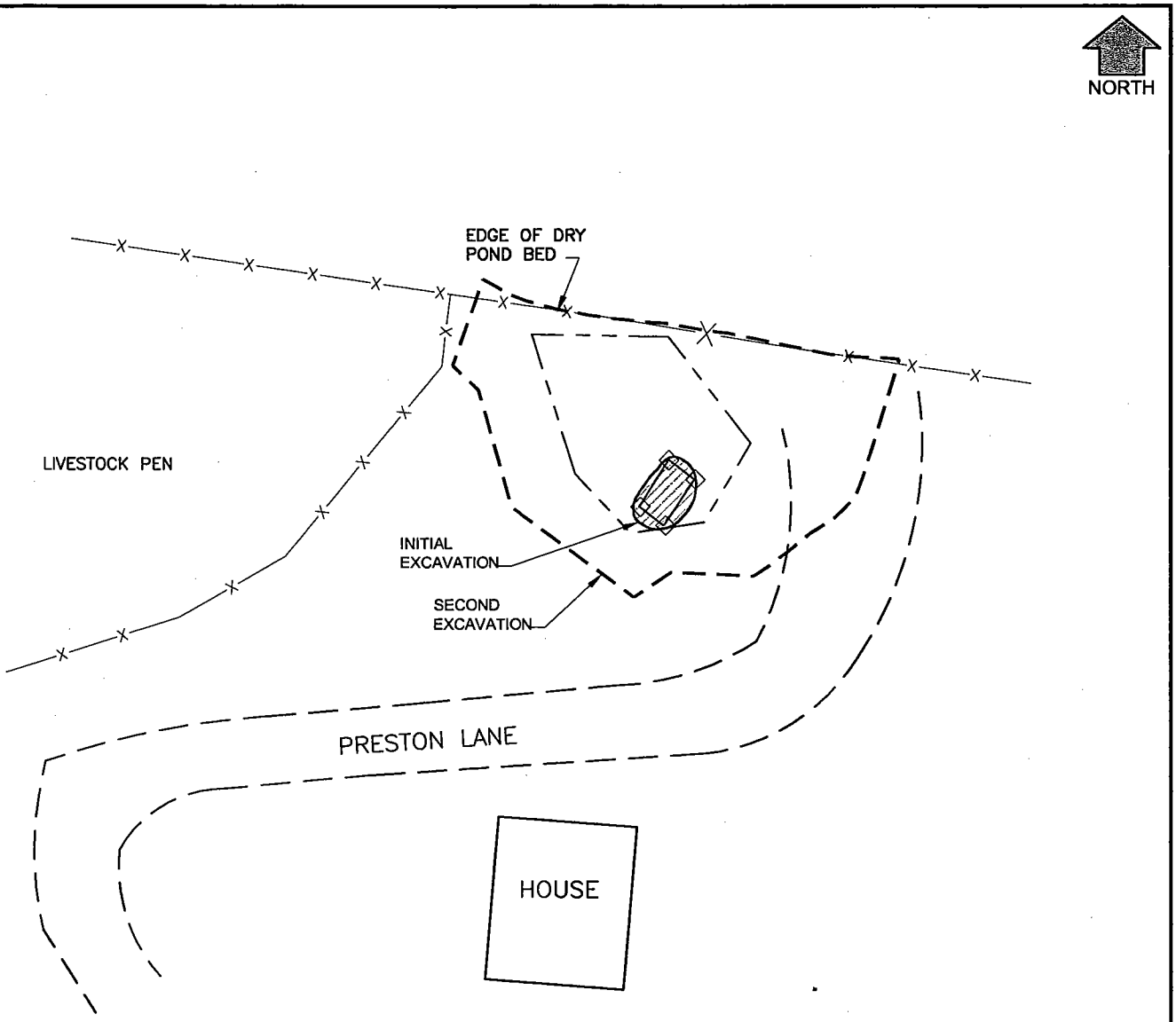


BELLS FLATS SITES
12523 NOCH LOT 15

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Bells Flats Sites.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Noch Lot 15	FIGURE NO.: 2-6
JE DRAWN BY: AV	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats D- -Doc-05	



LEGEND

APPROX. LIMITS OF EXCAVATION

FENCE LINE

STAKE

0 15 30 60

SCALE IN FEET

BELLS FLATS SITES
756 PRESTON UST

KODIAK ISLAND, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Bells Flats Sites.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Preston	FIGURE NO.: 2-7
JE DRAWN BY: AV	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats Dec Doc-05	

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into a holding tank to facilitate the removal of contaminated soil. Groundwater removed from the excavation was treated at the U.S. Coast Guard Kodiak liquid oily waste treatment system.

Sargent Creek Asphalt Deposit

The Sargent Creek site is north of the Bells Flats subdivision and is accessed by a gravel road located at the end of Sargent Creek Road (Figure 2-8). During the 1999 site visit, a large asphalt deposit was observed along the stream bank of Sargent Creek. A few sections of this asphalt had extended from the bank into the streambed itself. Deposits of hardened asphalt mixed with pea-gravel were also observed along the stream bank.

As part of the 2000 IRA, the asphalt deposit was removed and disposed of at the local Kodiak Island Borough Landfill. Prior to the removal activities, the stream flow in the main channel of Sargent Creek was diverted into a secondary channel located on the north side of the creek to prevent water from entering the excavation and to minimize environmental impact to the creek resulting from the work. Following removal activities, disturbed bank areas were stabilized to prevent erosion. Upon completion of cleanup and stabilization, it was determined that the original asphalt deposit had extended approximately 100 feet long by 22 feet wide (streamside to landside) by 4 to 5 feet deep. An additional asphalt deposit was also found intermittently along the bank, upstream from the main deposit. The asphalt in this deposit, encompassing an area approximately 70 feet long by 20 feet wide and 4 to 8 inches deep, was incorporated into the root systems of overlying trees. Approximately 672 tons of asphalt mixed with organic debris and soil was removed from the Sargent Creek site.

Approximately two months after the initial RA, a final cleanup effort was made to remove any remaining visible asphalt that had resurfaced in the streambed or gravel bars at the Sargent Creek site. One additional ton of asphalt was collected from the streambed and disposed of at the Kodiak Island Borough Landfill.

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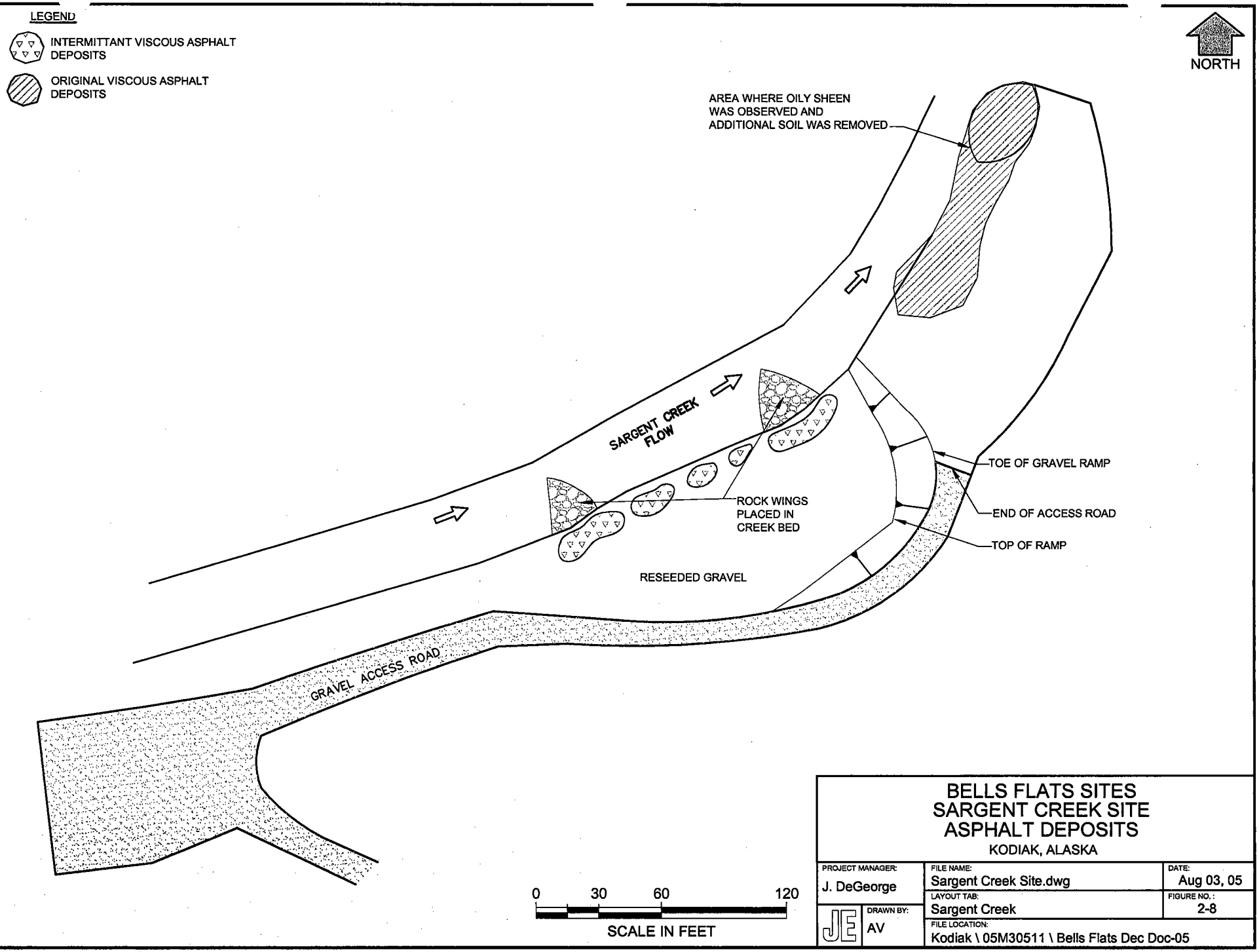

BELLS FLATS SITES
SARGENT CREEK SITE
ASPHALT DEPOSITS

KODIAK, ALASKA

PROJECT MANAGER: J. DeGeorge	FILE NAME: Sargent Creek Site.dwg	DATE: Aug 03, 05
	LAYOUT TAB: Sargent Creek	FIGURE NO.: 2-8
JE DRAWN BY: AV	FILE LOCATION: Kodiak \ 05M30511 \ Bells Flats Dec Doc-05	

2.5.3 Sampling Strategy

Sampling was performed during each investigation and removal activity conducted at the Bells Flats sites. Specifically, soil, groundwater, and sediments and were analyzed for the full suite of chemicals that could be present as a result of known historical site activities.

The following investigation/restoration activities were performed:

- Surface soil screening and sampling
- Test pit screening and sampling
- UST and AST removal verification sampling
- UST and AST contents sampling
- Microwell installation
- Groundwater sampling
- Land surveying

Test pits were excavated at areas of suspected or known UST locations to determine the presence (or absence) of a UST and the lateral and vertical extent of potential contamination, regardless of whether a UST was found. Test pit locations were sited based primarily on field observations.

Following UST removal, verification sampling of the excavation was conducted to confirm that the soil remaining in the excavation walls and floors met ADEC Method Two Cleanup standards. Whenever groundwater seeps were encountered during excavation activities, the water was sampled to determine whether site activities had affected the groundwater quality.

Seven microwells were installed to characterize the shallow groundwater extant at three UST sites. Groundwater samples were collected from only five of these wells because two wells did not produce water.

2.5.4 Known or Suspected Sources of Contamination

During WWII, the U.S. Seabee housing facility occupied the Bells Flats site, where several types of structures had been erected. In addition to barracks, support structures, such as mess halls,

warehouses, Quonset huts, and storage sheds, were erected. Ancillary equipment supporting the housing facility that has been found at the site includes USTs, ASTs, batteries, building debris, empty storage drums, and asphalt. The facility structures and/or abandoned equipment may have leaked or spilled contaminated material into the soil, water, and sediment.

2.5.5 Types of Contamination and the Affected Media

Analytes detected in each area of concern (AOC) were compared to background concentrations and ADEC Method Two cleanup levels to determine the COCs. Because no contaminants remain onsite above ADEC Method Two cleanup levels, there are no COCs onsite, and chemicals of potential concern (COPC) are discussed instead. The COPCs at the Bells Flats site are diesel-range organics (DRO), residual-range organics (RRO), and mercury. DRO is present onsite in soils and groundwater. RRO and mercury are present onsite in groundwater at the Sargent Creek site.

DRO is a refined product of crude oil and includes mid-range petroleum products such as diesel fuel, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of C_{10} to the beginning of C_{25} (n-pentacosane), having a boiling point range between approximately 170 and 400 degrees Celsius (°C). DRO is moderately mobile and volatile; the lighter fractions tend to evaporate from the soil or water and enter the atmosphere, where they are degraded.

RRO includes heavy-range petroleum products such as lubricating oils, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of C_{25} to the beginning of C_{36} (n-hexatriacontane) and a boiling point range between approximately 400 and 500°C. Higher-molecular-weight RRO components have very low water solubility and will not volatilize from soils or surface waters. Consequently, RRO will remain on the soil or in the water column, where it may be adsorbed to particulate organic matter in water or soil. It will eventually be biodegraded by microorganisms present in the soils and sediments.

Mercury is a naturally occurring element that is found in air, water, and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Elemental or metallic mercury is a shiny, silver-white metal that is liquid at room temperature. Mercury is found in many rocks, including coal. When coal is burned, mercury is released into the environment; mercury is also released from volcanic emissions. Coal-burning power plants are the largest human-caused source of airborne mercury emitted in the United States, accounting for about 40 percent of all domestic mercury emissions. Airborne mercury eventually settles into water or onto land, where it can be washed into water. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish and shellfish and the animals that eat them. The amount of mercury deposition in a given area varies, depending on the presence of naturally occurring mercury and mercury emitted from local, regional, national, and international sources.

DRO, RRO, and mercury are not carcinogens; however, large doses of DRO and RRO have adverse reactions on the kidney, liver, and blood. Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system.

2.5.6 Location and Extent of Contamination

The following subsections summarize the samples that were collected at each Bells Flats AOC and present any potential human health or ecological populations that could be affected by these contaminants.

10986 Alitak Drive AST

After the completion of the 2001 IRA cleanup activities, samples were collected from the soil that remained at the site and submitted to a laboratory for analysis of fuel-related compounds. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels.

Groundwater was encountered while removing contaminated soil at this site; therefore, an assessment of the groundwater was required to ensure that it had not been impacted by fuel. In 2003, two microwells (MW-4, MW-5) were installed, and groundwater samples were collected

and submitted to a laboratory for analysis of fuel-related compounds. Chemical concentrations in all of the groundwater samples were below ADEC Method Two cleanup levels. Table 2-1 lists the maximum concentrations of contaminants remaining at the site.

Table 2-1
10986 Alitak Drive AST

Media	COPC[a,b]	Cleanup Criteria	Maximum Remaining Site Concentration	Sample Location ID (Year)
Soil (mg/kg)	DRO	230[c]	29	BFALITAK1-01SO (2001)
Groundwater (mg/L)	DRO	1.5[d]	0.079	MW-4 (2003)
	DRO	1.5[d]	ND [0.097]	MW-5 (2003)

Notes:

[a] Soil at this site has also been tested for RRO, BTEX, and PAHs; all results were below cleanup criteria.

[b] Groundwater from MW-4 and MW-5 was analyzed for DRO, RRO, PAHs, and BTEX; all results were less than ADEC 18 AAC 75, Table C, Groundwater Cleanup Levels.

[c] ADEC 2003. 18 AAC 75, Method Two, Table B2, Over 40-Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways).

[d] ADEC 2003. 18 AAC 75, Table C, Groundwater Cleanup Levels.

For definitions, see the Acronyms and Abbreviations section.

11102 Alitak Drive UST

After the completion of the 2000 IRA cleanup activities, samples were collected from the soil remaining at the site and submitted to a laboratory for analysis of fuel-related compounds. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels. Table 2-2 lists the maximum concentrations of contaminants remaining at the site.

Table 2-2
11102 Alitak Drive UST

Media	COPC[a]	Cleanup Criteria	Maximum Remaining Site Concentration	Sample Location ID
Soil (mg/kg)	DRO	230[b]	21	BFUST04-01SO

Notes:

[a] Soil at this site has also been tested for RRO, BTEX, and PAHs; all results were below cleanup criteria.

[b] ADEC 2003. 18 AAC 75, Method Two, Table B2, Over 40-Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways).

For definitions, see the Acronyms and Abbreviations section.

11629 Kalsin Drive UST

After the completion of the 2000 IRA cleanup activities, samples were collected from the soil that remained at the site and submitted to a laboratory for analysis of fuel-related compounds. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels. Table 2-3 lists the maximum concentrations of contaminants remaining at the site.

Table 2-3
11629 Kalsin Drive UST

Media	COPC[a]	Cleanup Criteria	Maximum Remaining Site Concentration	Sample Location ID
Soil (mg/kg)	DRO	230[b]	18	BFUST03-02SO

Notes:

[a] *Soil at this site has also been tested for RRO, BTEX, and PAHs; all results were below cleanup criteria.*

[b] ADEC 2003. 18 AAC 75, Method Two, Table B2, Over 40-Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways).

For definitions, see the Acronyms and Abbreviations section.

12523 Noch Drive (Lot 15) UST and AST

After the completion of the 2001 IRA cleanup activities, samples were collected from the soil that remained at the site and submitted to a laboratory for analysis of fuel-related compounds. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels.

Groundwater was encountered while removing contaminated soil at this site. In order to characterize the groundwater, two microwells were installed; however, no groundwater was encountered after installation. To follow up, the microwells were again inspected several times during the fall and winter of 2003; still, no groundwater was detected. Table 2-4 lists the maximum concentrations of contaminants remaining at the site.

756 Preston Lane UST

After the completion of the 2001 IRA cleanup activities, samples were collected from the soil remaining at the site and submitted to a laboratory for fuel-related compound analysis. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels.

Table 2-4
12523 Noch Drive (Lot 15) UST and AST

Media	COPC[a]	Cleanup Criteria	Maximum Remaining Site Concentration	Sample Location ID
Soil (mg/kg)	DRO	230[b]	2.3	BFNOCH-03SO

Notes:

[a] Soil at this site has also been tested for RRO, BTEX, and PAHs; all results were below cleanup criteria.

[b] ADEC 2003. 18 AAC 75, Method Two, Table B2, Over 40-Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways).

For definitions, see the Acronyms and Abbreviations section.

In 2003, three microwells (MW-1, MW-2, and MW-3) were installed to characterize the groundwater at the Preston UST site. Groundwater samples were collected and submitted to a laboratory for fuel-related compound analysis. Chemical concentrations in all of the groundwater samples were below ADEC Method Two cleanup levels. In addition, due to the apparent fuel sheen in the groundwater encountered at the Preston UST site, the neighboring landowner was contacted to have their drinking water well sampled during the 2000 IRA. A groundwater sample was collected from his well and sampled for benzene, toluene, ethylbenzene, and xylenes; DRO; polycyclic aromatic hydrocarbons (PAH); and RRO. The well was sampled again in 2001 for DRO and RRO compounds. Chemical concentrations in all of the groundwater samples collected from the well were below ADEC Method Two cleanup levels. Table 2-5 lists the maximum concentrations of contaminants remaining at the site.

Table 2-5
756 Preston Lane UST

Media	COPC[a,c]	Cleanup Criteria	Maximum Remaining Site Concentration	Sample Location ID (Year)
Soil (mg/kg)	DRO	230[d]	28	BFPRESTON-13SOD (2001)
Groundwater (mg/L)	DRO[b]	1.5[e]	ND [0.050]	Water well on Kalsin (2000)
	DRO[b]	1.5[e]	ND [0.105]	MW-1 (2003)
	DRO[b]	1.5[e]	0.113	MW-2 (2003)
	DRO[b]	1.5[e]	0.104	MW-3 (2003)

Notes:

[a] Soil at this site has also been tested for RRO, BTEX, and PAHs; all results were below cleanup criteria.

[b] Groundwater from private drinking well on Kalsin Drive was analyzed for DRO, RRO, PAHs, and BTEX; all results were less than ADEC 18 AAC 75, Table C, Groundwater Cleanup Levels.

[c] Groundwater from MW-1, MW-2 and MW-3 was analyzed for DRO, RRO, PAHs and BTEX; all results were less than ADEC 18 AAC 75, Table C, Groundwater Cleanup Levels.

[d] ADEC 2003. 18 AAC 75, Method Two, Table B2, Over 40-Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways).

[e] ADEC 2003. 18 AAC 75, Table C, Groundwater Cleanup Levels.

For definitions, see the Acronyms and Abbreviations section.

Sargent Creek Asphalt Deposit

After the completion of the 2000 IRA cleanup activities, samples were collected from the soil remaining at the site and submitted for analysis of DRO, RRO, and PAH compounds. Chemical concentrations in all of the samples were below ADEC Method Two cleanup levels.

While removing contaminated soil in the main asphalt deposit, a groundwater seep was observed in the excavation. A groundwater sample was collected from this seep and analyzed for gasoline-range organics (GRO), DRO, RRO, PAHs, volatile organic compounds (VOC), and metals. A soil sample also was collected beneath this groundwater seep and analyzed for the same chemical compounds. Chemical concentrations in the groundwater sample were below ADEC Method Two cleanup levels. Chemical concentrations in the soil sample also were below the Method Two cleanup levels, with the exception of arsenic and chromium. Total chromium was detected at 26.8 milligrams per kilogram (mg/kg), which exceeds the Method Two cleanup level of 23 mg/kg. However, in samples collected from other Kodiak area soils, the amount of trivalent to hexavalent chromium has been demonstrated to be predominately trivalent. The cleanup level for trivalent chromium is 120,000 mg/kg (ingestion); therefore, the chromium concentration in this soil sample collected at Sargent Creek is well below this cleanup level. Arsenic also exceeded the ADEC Method Two cleanup level with a concentration of 28.2 mg/kg. However, the concentration of arsenic is below twice the Kodiak background concentration, which is considered within acceptable limits and is, therefore, considered a naturally occurring level rather than a site-related contaminant. Table 2-6 lists the maximum concentrations of contaminants remaining at the site.

2.5.7 Hydrogeology

The limited soil development and shallow bedrock on Kodiak Island result in very little infiltration and groundwater storage and, in turn, result in rapid runoff during rainfall events. Groundwater occurs both in bedrock and in unconsolidated deposits. Because permeable unconsolidated materials are believed to be limited to the bottom of drainage courses and in the thin soil horizon in upland areas, groundwater at the site is limited to the fractures in the

Table 2-6
Sargent Creek Asphalt Deposit

Media	COPC[a]	Cleanup Criteria[b,c]	Kodiak Background	Maximum Remaining Site Concentration[d]	Sample Location ID
Soil (mg/kg)	Arsenic	1.8	32.4[e]	28.2[f]	BFASP01-002SO (2000)
	Chromium	120,000	17.84[e]	26.8	BFASP01-002SO (2000)
	Barium	982	14.80[e]	18.2	BFASP01-002SO (2000)
	Lead	400	7.96[e]	5.7	BFASP01-002SO (2000)
	Mercury	1.24	0.24[e]	0.05	BFASP01-002SO (2000)
	DRO	230	NA	49	BFASP01-001SO (2000)
	RRO	9,700	NA	200	BFASP01-001SO (2000)
Groundwater (mg/L)	DRO	1.5	NA	0.65	BFASP01-001WS (2000)
	RRO	1.1	NA	1.1	BFASP01-001WS (2000)
	Arsenic	0.05	0.128[e]	0.012	BFASP01-001WS (2000)
	Barium	2.0	NA	0.047	BFASP01-001WS (2000)
	Chromium	0.1	0.178[e]	0.011	BFASP01-001WS (2000)
	Lead	0.015	0.067[e]	0.012	BFASP01-001WS (2000)
	Mercury	0.002	NA	0.001	BFASP01-001WS (2000)

Notes:

[a] ADEC 2003. Soil at this site also was tested for BTEX and PAHs; all results were below cleanup criteria.

[b] ADEC 2003. 18 AAC 75 Method Two, Table B2, Over 40 Inch Zone Soil Cleanup Levels (most conservative of ingestion, inhalation, and migration-to-groundwater pathways). Chromium III cleanup value (ingestion pathway) listed. Based on samples collected from Kodiak area soil, chromium III is the predominant species.

[c] ADEC 2003. 18 AAC 75 Table C, Groundwater Cleanup Levels.

[d] Groundwater sample collected from a seep that entered the excavation.

[e] USAED, 2004b, *Burma Road Background Sampling Report, Kodiak Island, Alaska.*

[f] Concentration of arsenic in the soil is below the Kodiak background level; therefore, arsenic is not considered a site-related contaminant.

For definitions, see the Acronyms and Abbreviations section.

underlying bedrock or in the very shallow soils. Based on observed site hydrogeology, groundwater is generally shallow in the lowland areas of the site.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND WATER USES

2.6.1 Land Uses

Bells Flats is currently divided into private and government-owned and -controlled properties. Residential units in the area include several private homes. Future use of the area is expected to be similar to the current use: residential units and government properties. The Bells Flats site is accessed from the city of Kodiak by the Kodiak Highway through paved roads, and the Sargent

Creek Asphalt site is accessed by dirt roads off of the Kodiak Highway. The surrounding land is undeveloped and merges into steep hillsides.

2.6.2 Ground and Surface Water Use

Groundwater at the site is used for drinking water through various private wells. Surface water at the site is immediately accessible through several creeks that run through the site, including Sargent Creek along the Asphalt site and Russian Creek along the residential area. The creeks are accessible to recreational users and fisherman although they generally see little activity. Future use of the groundwater at the site is expected to be consistent with the current use.

2.7 SUMMARY OF SITE RISKS

A human health risk evaluation was conducted for the Bells Flats site to evaluate the potential for current and future impacts of site-related contaminants on receptors working, inhabiting, or visiting these areas. This risk evaluation was completed using data collected during the Removal Actions (Table 2-7). In accordance with the ADEC risk assessment procedures, the risks due to petroleum (DRO and RRO) are not included in the risk calculations. However, the risks from the individual constituents (volatile and semivolatile organic carbon compounds) are used to determine the risks from petroleum contaminants.

2.7.1 Summary of Human Health Risk Evaluation

The baseline risk evaluation estimates what risks the site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This DD section summarizes the results of the baseline risk evaluation for this site.

Identification of Chemicals of Potential Concern

The COPC at the Bells Flats site is DRO; all contaminants are in the soil. The DRO concentrations ranged from 18 to 220 mg/kg, with detections in 24 of the 30 samples analyzed.

Table 2-7
Summary of Chemicals of Potential Concern and Exposure Point Concentrations

Scenario Timeframe:	Current							
Medium:	Soil and Groundwater							
Exposure Area	**COPC**	**Concentrations**		**Units**	**Frequency of Detection**	**Exposure Point Concentration**	**Exposure Point Concentration Units**	**Statistical Measure**
		Min	**Max**					
10986 Alitak Drive AST	DRO	29	38	mg/kg	2/2	38	mg/kg	MAX
	DRO	ND [0.097]	0.079	mg/L	1/2	0.079	mg/L	MAX
11102 Alitak Drive UST	DRO	17	91	mg/kg	5/5	91	mg/kg	MAX
11629 Kalsin Drive UST	DRO	NA[a]	18	mg/kg	2/2	18	mg/kg	MAX
12523 Noch Drive (Lot 15) UST and AST	DRO	2.3	220	mg/kg	7/7	220	mg/kg	MAX
756 Preston Lane UST	DRO	ND [1.1]	28	mg/kg	5/10	28	mg/kg	MAX
	DRO	ND [0.050]	0.113	mg/L	2/4	0.113	mg/L	MAX
Sargent Creek Asphalt Deposit	Arsenic	NA[b]	28.2[c]	mg/kg	1/1	28.2	mg/kg	MAX
		NA[b]	0.012	mg/L	1/1	0.012	mg/L	MAX
	Barium	NA[b]	18.2	mg/kg	1/1	18.2	mg/kg	MAX
		NA[b]	0.047	mg/L	1/1	0.047	mg/L	MAX
	Chromium	NA[b]	26.8	mg/kg	1/1	26.8	mg/kg	MAX
		NA[b]	0.011	mg/L	1/1	0.011	mg/L	MAX
	Lead	NA[b]	5.7	mg/kg	1/1	5.7	mg/kg	MAX
		NA[b]	0.012	mg/L	1/1	0.012	mg/L	MAX
	Mercury	NA[b]	0.05	mg/kg	1/1	0.05	mg/kg	MAX
		NA[b]	0.00011	mg/L	1/1	0.001	mg/L	MAX
	DRO	ND [4.5]	49	mg/kg	3/4	49	mg/kg	MAX
		NA[b]	0.65	mg/L	1/1	0.65	mg/L	MAX
	RRO	ND [11]	200	mg/kg	3/4	200	mg/kg	MAX
		NA[b]	1.1	mg/L	1/1	1.1	mg/L	MAX

Notes:

[a] One sample was collected from beneath the center of the former tank and had a DRO level of 1,500 mg/kg, which exceeded ADEC Method Two cleanup criteria. Because the UST excavation had already reached bedrock, the remaining contaminated soil was considered *de minimus*.

[b] During confirmation soil sampling activities, a dark oily substance was observed floating in a shallow pool of groundwater on the downstream edge of the asphalt excavation. To characterize the unknown substance, one soil and one water sample were collected from below the water table and analyzed for GRO, VOCs, and total metals in addition to DRO, RRO, and PAH analysis.

[c] The concentration of arsenic in the soil exceeded ADEC Method Two cleanup criteria; however, the concentration was below the Kodiak background level of 32.4 mg/kg. Therefore, arsenic is not considered a site-related contaminant.

For definitions, see the Acronyms and Abbreviations section.

The quality assurance and quality control program utilized throughout the USAED IRAs was sufficiently rigorous, and compliance was achieved for work conducted at the site. All data quality objectives were achieved, and the quality of the chemical data supports the decisions that were made at the site.

Exposure Assessment

The objective of the exposure assessment was to identify potential exposure scenarios by which COPCs in site media could contact humans, and to quantify the intensity and extent of that exposure. The assessment presents the current and potential future uses of the site, characterizes the potentially exposed populations, identifies the important exposure pathways, and quantifies the intake of each COPC from each medium for each population at risk. The CSM depicting potential receptors and exposure pathways is presented on Figure 2-2. The following exposure pathways were quantitatively evaluated in the human health risk evaluation:

- Current and future adult workers in onsite areas for potential exposures to COPCs via incidental ingestion, dermal contact, inhalation of particulates, and inhalation of vapors. This scenario includes campers and occasional trespassers.
- Current and future onsite residents (adults and children) for potential exposures to COPCs via incidental ingestion, dermal contact, inhalation of particulates, and inhalation of vapors.

The contaminant pathways in the soil migrating to surface water and groundwater were considered complete; however, as there is no contamination remaining above cleanup levels for all COPCs or COCs, the pathway is not considered significant.

The parameters and equations used to calculate exposure were obtained from state guidance (ADEC 2002). These ADEC parameters and equations are similar to those used by the U.S. Environmental Protection Agency (EPA) (EPA 1996). The exposure frequency for the residential exposure was adjusted according to the ADEC guidance document to account for local climatic conditions, which reduced residential exposure frequency from the default value of 350 days per year to 330 days per year, consistent with rainfall, snowfall, temperature, and daylight extremes. The exposure frequency for the current worker, camper, and trespasser scenario was 20 days per year.

Toxicity Assessment

The human health toxicity assessment quantified the relationship between estimated exposure (dose) to a COC and the increased likelihood of adverse effects. Risks of developing cancer due to site exposure are evaluated based on toxicity factors (cancer slope factors [CSF]) published by EPA in the Integrated Risk Information System. Quantification of non-cancer injuries relies on EPA-published reference doses (RfD) (EPA 1996).

CSFs are used to estimate the probability that a person *may* develop cancer given exposure to site-specific contaminants. This site-specific risk is in addition to the risk of developing cancer due to other causes over a lifetime. Consequently, the risk estimates generated in risk assessments are frequently referred to as "incremental" or "excess lifetime" cancer risks.

RfDs represent a daily contaminant intake below which no adverse human health effects are expected to occur to the most sensitive subpopulations (children, the elderly, pregnant women). To evaluate non-carcinogenic health effects, the human health impact of contaminants is approximated using a hazard quotient (HQ), which is calculated by comparing the estimates of site-specific human exposure doses with RfDs. Values of less than 1 indicate that non-cancer effects are unlikely to result from exposure to a site contaminant.

Of the site-related COPCs in soil that potentially impact human health, PAHs are considered to be potentially carcinogenic. No RfDs were available for PAHs.

Risk Characterization

In a human health risk evaluation, ADEC and EPA estimate *cancer risk* for carcinogens and *non-cancer health effects* for non-carcinogens.

For cancer-causing chemicals, risks are generally expressed as *excess cancer risk*. *Excess cancer risk* is defined as the risk of cancer over a lifetime that is in excess of the risk from all other sources besides contact with contaminated soils from the Bells Flats site. An excess cancer risk of $1x10^{-4}$ indicates that an individual experiencing the *reasonable maximum exposure* has an

estimated 1 in 10,000 chance of developing cancer as a result of site-related exposure. In other words, for every 10,000 people that could be exposed, one extra cancer *may* occur as a result of exposure to site contaminants. This is referred to as an *excess lifetime cancer risk* because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to solar radiation. The chance of an individual's developing cancer from all other causes has been estimated to be as high as 1 in 3. As defined in the NCP, EPA's generally acceptable risk range for site-related exposure is 1 in 10,000 to 1 in 1,000,000 (i.e., 10^{-4} to 10^{-6}), which represents EPA's opinion on what are generally acceptable levels. For sites where the cumulative risk to an individual based on the reasonable maximum exposure for both current and future land use is less than 10^{-4}, action is generally is not warranted unless there are unacceptable non-cancer health effects or adverse ecological impacts. Instead of the range of acceptable risk levels that EPA uses, ADEC regulations state that the risk management value is 1 in 100,000 (10^{-5}).

For non-cancer health effects, the potential for non-cancer toxicity to occur to an individual is evaluated by using a ratio of "exposure" to "toxicity"; it is not expressed as the probability of an individual suffering an adverse effect. The ratio of exposure to toxicity is called an HQ, and the sum, as appropriate, of all HQs is called a hazard index (HI). An HQ less than 1 indicates that toxic non-cancer effects are unlikely to result from exposure to that chemical at the site. Similarly, an HI less than 1 indicates that, based on the sum of all HQs from different contaminants and exposure routes, toxic non-cancer effects are unlikely to result from exposure to all chemicals at the site. As defined in the NCP, acceptable exposure levels for non-carcinogens should represent levels to which the human population, including sensitive subpopulations, may be exposed without adverse effect during a lifetime. In contrast to the numerical target risk range described for carcinogens, a numerical target value is not described in the NCP. ADEC regulations state that the HI for a site is to be no higher than 1. (Note that an HQ is not a statistical probability. An HQ of 0.001 does not mean that there is a one in one thousand chance of the effect occurring. The level of concern does not increase linearly as the HQ approaches and exceeds 1, because HQs [and RfDs] do not have equal accuracy or precision and are not based on the same severity of toxic effects.)

Cancer Risks. The human health risk characterization indicates that cancer risks to the onsite resident via the primary route of groundwater ingestion is the primary concern at the Bells Flats site. No other contaminants exceeded ADEC Method Two cleanup levels with the exception of DRO, which is excluded from the risk calculation. Cancer risks represent an individual's chance of developing cancer due to incidental ingestion, dermal contact, inhalation of vapors, and inhalation of particulates from Bells Flats site soil over and above those exposures associated with general activities in a lifetime. Under this scenario, total cancer risks for the reasonable-maximum-exposure individual (onsite resident) would be 6.9 additional cancers in 1,000,000 (6.9×10^{-6}) (Table 2-8). Given the uncertainties associated with estimating risks, this probability is considered accurate within an order of magnitude.

Table 2-8
Cancer Risk Characterization Summary

Scenario Timeframe: Current Receptor Population: Resident Receptor Age: Child				
Medium[a]	Exposure Medium	Exposure Point	COPC	Carcinogenic Risk
Groundwater	Groundwater	Aquifer Tap Water	Benzo(a)pyrene	0.0000069
			Groundwater risk total =	0.0000069

Notes:

[a] Cumulative risk for soil is zero because none of the contaminants exceeded 1/10th of the ADEC Method Two Table B1 values (excluding DRO and RRO).

For definitions, see the Acronyms and Abbreviations section.

Non-Cancer Risks. The cumulative non-carcinogenic risk for Bells Flats was calculated using the maximum concentrations of the COPCs remaining onsite. Metals were compared to background concentrations and were eliminated as COPCs if their respective background concentrations exceeded the onsite sample concentrations. For the onsite resident, groundwater ingestion resulted in a non-cancer HI (risk) of 0.13. The primary risk driver is total chromium, which for Kodiak has been shown to be trivalent chromium rather than the more hazardous hexavalent chromium. Eliminating chromium from the calculation resulted in an HI of 0.02 (Table 2-9).

Table 2-9
Non-Carcinogens Risk Characterization Summary

Scenario Timeframe: Current Receptor Population: Resident Receptor Age: Child				
Medium[a]	Exposure Medium	Exposure Point	COPC	Exposure Routes Total
Groundwater	Groundwater	Aquifer – Tap Water	Barium	0.018
Groundwater	Groundwater	Aquifer – Tap Water	Chromium	0.110
			Groundwater Hazard Index Total =	0.13

Notes:

[a] Cumulative risk for soil is zero because none of the contaminants exceeded 1/10th of the ADEC Method Two Table B1 values (excluding DRO and RRO).

For definitions, see the Acronyms and Abbreviations section.

Uncertainties

Risks to human health may be over- or underestimated based on the appropriateness of the assumptions regarding exposure, the availability and assumptions associated with the derivation of toxicity factors, and the use of conservative estimates (i.e., the 95 percent upper confidence limit or the maximum concentration) of exposure point concentrations. These inherent uncertaintis are accounted for by making assumptions that tended to conservatively estimate risk. For example, the risk evaluation assumes that workers and site residents will spend all of their time in one small exposure area; it is more likely that they would be in both affected and unaffected areas. Also, the use of the 90th percentile duration for residency (i.e., 30 years) is likely to overestimate site exposures and risks for most individuals. However, the uncertainties in any risk assessment affect the estimations of risk such that EPA believes that the estimates are only accurate to within an order of magnitude.

2.7.2 Ecological Risks

Evaluation of ecological risks indicates small potential for significant ecological impacts to occur. Based upon the relatively small size and low contaminant concentrations in the affected areas in comparison to the home ranges of the target ecological receptor habitats, there is little potential for significant exposure of wildlife to the contaminants.

2.7.3 Basis for Response Action

The interim response actions completed at the site mitigated the imminent and substantial endangerment to public health or welfare or the environment posed by the contamination at the site. This DD memorializes the effectiveness of the interim response actions and, based upon the successful mitigation of the risks to human health and the environment posed by the contamination, selects the remedy of ADEC Site Closure under Method Two and NDAI status.

2.8 REMEDIAL ACTION OBJECTIVE

The remedial action objective (RAO) for the site was to reduce concentrations of DRO and RRO to below ADEC Method Two cleanup levels. This includes both contaminant concentrations and cumulative risks.

Following a series of IRAs at the site, the excess cancer risk and hazard level associated with exposure to soil and groundwater at the site is 0.69 (or less than 1) in 100,000 with an HI of 0.13. This was achieved by reducing the concentrations of the soil contaminants to below the following target levels:

DRO	230 parts per million (ppm)
RRO	9,700 ppm

These risks and hazards are within ADEC and EPA regulatory levels.

Because the RAOs at this site have been met, the objective of this DD is to document achievement of the RAOs through prior field work and to document the decision to seek ADEC site closure under Method Two and NDAI status.

2.9 DESCRIPTION OF ALTERNATIVES

2.9.1 Description of Remedy Components

Alternative 1 – No Action Alternative

Under the No Action alternative, no additional remedial measures would be taken at the site. The No Action alternative does not include any monitoring, institutional controls, or future use restrictions of any kind.

Development of the No Action alternative is required by the NCP to provide a basis of comparison with the remaining alternatives. Although the NCP alternative evaluation method was used, the Bells Flats site does not fall under the statutory and enforcement requirements of the NCP. This alternative serves as a baseline by reflecting current conditions without any additional effort or controls. The No Action alternative was evaluated in a manner consistent with the NCP requirements. No costs are associated with this alternative.

- Treatment Components: None
- Containment (or Storage) Components: None
- Institutional Control Components: None
- Operations and Maintenance (O&M) Activities: None
- Monitoring Requirements: None

Alternative 2 – ADEC Site Closure under Method Two and No Department of Defense Action Indicated Status

Under the alternative for site closure using ADEC Method Two cleanup criteria for soil and Table C criteria for groundwater, no additional remedial measures would be taken at the site. The site closure or NDAI alternative imposes no further investigation, monitoring, institutional controls, or future use restrictions of any kind.

- Treatment Components: No remedial actions would be required under this alternative; however, costs would be associated with completing the legal documentation for site closure or NDAI status.
- Containment (or Storage) Components: None

- Institutional Control Components: None
- O&M Activities: None.
- Monitoring Requirements: None

2.9.2 Common Elements and Distinguishing Features of Each Alternative

Key Applicable and Relevant or Appropriate Requirements

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at the site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that—while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at the site—address problems or situations sufficiently similar to those encountered at the site that their use is well-suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Under the DERP-FUDS program, compliance with CERCLA Section 120 (42 USC 9620) is required for all projects addressing hazardous substances, pollutants, and contaminants [10 USC 2701(a)(2)]. CERCLA Section 101(14) states that "petroleum, including crude oil or any fraction thereof," is excluded from the definition of a "hazardous substance" and therefore not regulated under this act. However, the cleanup action at Bells Flats will follow the administrative, but not the statutory or enforcement, requirements of this act.

Other applicable or relevant and appropriate requirements (ARAR) include the ADEC Oil and Other Hazardous Substances Pollution Control regulations (18 AAC 75), and *Underground Storage Tanks* for site characterization and assessment (18 AAC 78) as relevant and appropriate.

The former tank sites and the asphalt deposit at Sargent Creek were only associated with petroleum contamination.

Long-Term Reliability of Remedy

The long-term reliability of remedy for Alternative 2 (Site Closure under Method Two and NDAI Status) is permanent, as contaminated soil above cleanup levels has already been removed from the site. The No Action alternative would not have any long-term reliability.

Quantity of Untreated Waste and Treatment Residuals to be Disposed of Offsite or Managed Onsite

The No Action alternative would leave all contaminants onsite, untreated and unmanaged. Alternative 2 (Site Closure under Method Two and NDAI Status) would not remove any further contaminants from the site.

Estimated Time for Design and Construction

Implementation time frame for the No Action alternative would not apply, as there would be no design or construction.

The implementation time frame for Alternative 2 (Site Closure under Method Two and NDAI Status) is immediate, as no further design or construction work would be required.

Estimated Time to Reach Remediation Goals

Remediation goals would not be reached for the No Action alternative. Alternative 2 (Site Closure under Method Two and NDAI Status) would currently meet the remediation goals.

Estimated Costs

The No Action alternative would have no costs. Cost for Alternative 2 (Site Closure under Method Two and NDAI Status) would be approximately $14,000.

2.9.3 Expected Outcomes of Each Alternative

Completion of the No Action alternative or Alternative 2 (Site Closure under Method Two and NDAI Status) would leave the site unrestricted and thus available for residential use.

2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section evaluates the preferred remedial action for the Bells Flats site in accordance with the nine criteria presented in Table 2-10, which provides a summary of the comparison and the remaining sections provide a detailed analysis.

Table 2-10
Comparison of Alternatives

Evaluation Criteria	Alt 1	Alt 2
Overall Protection of Human Health and the Environment	○	●
Compliance with ARARs	○	●
Long-Term Effectiveness and Permanence	○	●
Reduction in Toxicity, Mobility, and Volume through Treatment	○	○
Short-Term Effectiveness	○	●
Implementability	●	●
Cost (in thousands)	$0	$14
State Acceptance	○	●
Community Acceptance	○	●
● = meets or exceeds criteria ◗ = partially meets criteria ○ = does not meet criteria		

Note: For definitions, see the Acronyms and Abbreviations section.

2.10.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment *addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.*

The No Action alternative is not protective of human health and the environment, as there is no treatment, engineering controls, and/or institutional controls. Alternative 2 (Site Closure under Method Two and NDAI Status) would not eliminate or further reduce risk; however, the remaining levels of contaminants are currently below acceptable risk levels for human health and the environment.

2.10.2 Compliance with Applicable or Relevant and Appropriate Requirements

The Bells Flats site is only contaminated with POL constituents; therefore, the CERCLA process is not applicable. However, the USAED followed the administrative requirements of CERCLA but not the statutory or enforcement requirements for this site.

Compliance with ARARs *addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.*

All selected remedial actions, with exception of the No Action alternative, comply with state and federal laws and regulations. Potential ARARs are State of Alaska Oil and Hazardous Substances Pollution Control Regulations (18 AAC 75) and *Underground Storage Tanks* for site characterization and assessment (18 AAC 78). During previous remedial actions at the Bells Flats site, wastes were assessed for potential Toxic Substances Control Act and Resource Conservation and Recovery Act-regulated contaminants; contaminants either were not detected or were below the regulatory thresholds.

2.10.3 Long-Term Effectiveness and Permanence

Long-Term Effectiveness and Permanence *evaluates the ability of an alternative to maintain protection of human health and the environment over time.*

Alternative 2 (Site Closure under Method Two and NDAI Status) will maintain protection of human health and the environment over time. The No Action alternative would not provide any degree of long-term protection.

2.10.4 Reduction in Toxicity, Mobility, and Volume through Treatment

Reduction in Toxicity, Mobility and Volume through Treatment *evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.*

None of the alternatives will provide reduction in toxicity, mobility, and volume through treatment.

2.10.5 Short-Term Effectiveness

Short-Term Effectiveness *evaluates the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.*

Alternative 2 (Site Closure under Method Two and NDAI Status) would be completed immediately, as no further construction activities are necessary. No exposure to hazardous substances would occur to workers, residents, and the environment as a result of implementing this alternative.

The No Action alternative would not be an effective alternative, as it does not meet the remediation goals.

2.10.6 Implementability

Implementability *evaluates the technical and administrative feasibility of implementing the alternative.*

Implementability includes the ease of construction, the availability and capacity of materials and/or facilities, and logistical and/or administrative practicability. All of the alternatives are readily implementable. Alternative 1 (No Action) and Alternative 2 (Site Closure under Method Two and NDAI Status) would be equally easy to implement as no further remedial actions would be required.

2.10.7 Cost

Cost *includes estimated capital and operation and maintenance costs as well as present-worth costs.*

Alternative 2 would have present-worth costs of approximately $14,000 associated with completing the legal documentation and coordination necessary for site closure under Method Two and NDAI status. No costs are associated with Alternative 1 (No Action).

2.10.8 State Acceptance

State acceptance *evaluates whether the State of Alaska agrees with the analyses and recommendations of the 2001 and 2003 Removal Actions and the Proposed Plan.*

ADEC has fully participated throughout the process at this site and concurs with the selected remedial actions.

2.10.9 Community Acceptance

Community Acceptance *evaluates whether the local community agrees with USACE's and ADEC's analyses and preferred alternative.*

No comments were received from members of the community, environmental groups, or local government representatives in response to the proposed plan during the public comment period.

2.11 PRINCIPAL THREAT WASTE

The NCP establishes an expectation that treatment will be used to address the principal threats posed by a site wherever practicable (NCP § 40 Code of Federal Regulations [CFR] 300.430[a][1][iii][A]). Identifying principal threat wastes combines concepts of both hazard and risk. In general, principal threat wastes are those considered to be highly toxic or highly mobile and which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. Conversely, non-principal threat

wastes are those source materials that generally can be reliably contained and that would only present a low risk in the event of exposure.

Wastes that generally will be considered to constitute principal threats include but are not limited to the following:

- Liquid source material – waste contained in drums, lagoons, or tanks; free product in the subsurface (i.e., nonaqueous phase liquids) containing COCs (generally excluding groundwater)
- Mobile source material – surface soil or subsurface soil containing high concentrations of COCs that are (or potentially are) mobile due to wind entrainment, volatilization (e.g., VOCs), surface runoff, or subsurface transport
- Highly toxic source material – buried, drummed non-liquid wastes; buried tanks containing non-liquid wastes; or soils containing significant concentrations of highly toxic materials

Wastes that generally will not constitute principal threats include but are not limited to the following:

- Non-mobile contaminated source material of low to moderate toxicity – surface soil containing COCs that generally are relatively immobile in air or ground water (i.e., non-liquid, low-volatility, low-leachability contaminants such as high-molecular-weight compounds) in the specific environmental setting
- Low-toxicity source material – soil and subsurface soil concentrations not greatly above reference dose levels or that present an excess cancer risk near the acceptable risk range, were exposure to occur

The contamination at the Bells Flats site is not classified as source material constituting principal threats. The contamination is non-mobile and has low toxicity. Principal threat wastes exclude petroleum and any fraction thereof; therefore, by definition, no principal threat waste is associated with the Bells Flats site since the primary constituent of concern includes fuel-contaminated material. The ability of each alternative to address the primary constituent of concern is summarized in Table 2-11. Current risks are 6.9×10^{-6} for carcinogens and an HI of 0.13 for non-carcinogens.

Table 2-11
Primary Constituents of Concern

Alternative	Primary Constituents of Concern Addressed	How Addressed
1 – No Action	None	Not addressed
2 – Site Closure under ADEC Method Two and NDAI Status	Contaminated Soils	Application of cleanup levels to verify no effects from remaining contamination

Note: For definitions, see the Acronyms and Abbreviations section.

2.12 SELECTED REMEDY

The Selected Remedy is Alternative 2, site closure under ADEC Method Two and NDAI status. This section expands on the Selected Remedy details provided in Description of Alternatives, Section 2.9 of this DD. The objective of this additional detail is to minimize the likelihood of unanticipated changes to the scope and intent of the selected remedy while the design engineer initiates the design phase.

2.12.1 Summary of the Rationale for the Selected Remedy

The selected remedy satisfies eight of the nine selection criteria set forth in the NCP, 40 CFR 300.430(e)(9)(iii), as discussed in Section 2.10 of this DD. Based on the information generated during previous investigations, the comparative analysis of alternatives, and the IRAs performed, USAED has selected Alternative 2 for the Bells Flats site.

This alternative meets the threshold criteria of overall protection of human health and environment and compliance with ARARs. This alternative is also the most cost-effective remedy, considering both long-term impact and total cost.

2.12.2 Description of the Selected Remedy

This section expands on the description of the selected remedy from that provided in Section 2.9, Description of Alternatives.

- Treatment Components: No further remedial action would be required under this alternative; however, costs would be incurred while completing the legal documentation for site closure or NDAI status.

  All POL-contamination sources such as USTs, ASTs, piping, and drums have been removed and disposed of. A total of approximately 928 tons of POL-contaminated soil above the Method Two cleanup levels was excavated and transported to a soil treatment unit. Approximately 673 tons of hardened asphalt and asphalt-contaminated soil was removed and disposed of. All excavations were backfilled using clean, imported material and graded to original contours. All affected areas, including access roads, were reseeded.
- Containment (or Storage) Components: None.
- Institutional Control Components: None
- O&M Activities: None.
- Monitoring Requirements: None

2.12.3 Summary of the Estimated Remedy Costs

The estimated remedial cost for Alternative 2 is approximately $14,000. All costs are professional service fees associated with the preparation of closure documents, as no further action will be taken at the site. The costs are current year; no future actions will be required. Costs are summarized in Table 2-12.

Table 2-12
Alternative 2 Cost Estimate

Alternative 2 – Site Closure under ADEC Method Two and NDAI Status	
Professional Services	
Engineering	$9,000
Administrative Staff	$2,200
Subtotal	$11,200
Contingency Allowance (15%)	$1,680
Project Management and Support (10%)	$1,120
Total Capital Cost	$14,000

Note: For definitions, see the Acronyms and Abbreviations section.

2.12.4 Expected Outcomes of the Selected Remedy

Upon completion of ADEC site closure and NDAI, the Bells Flats site would be released for unrestricted use. The site would be available for a wide range of uses, including commercial,

industrial, and residential. The site has been remediated to ADEC Method Two cleanup levels, which are protective of residential use. The alternative would be immediately implemented.

The completion of Alternative 2 at Bells Flats could have some positive socioeconomic and community impacts. Further development of the residential property could increase jobs and tax revenue, enhance human use of the resources, and provide other benefits to the community. The completion of the selected remedy could also provide environmental and ecological benefits.

2.13 STATUTORY DETERMINATIONS

The lead agency must select remedies that are:

- Protective of human health and the environment
- In compliance with ARARs (unless a statutory waiver is justified)
- Cost effective
- Permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable

In addition, preference is given for remedies that employ treatments that permanently and significantly reduce the volume, toxicity, or mobility of contaminants as a principal element. There is a bias against remedies that include offsite disposal of untreated wastes. The following subsections discuss how the selected remedy meets these statutory requirements and describes the five-year review requirements.

2.13.1 Protection of Human Health and the Environment

The selected remedies incorporate risk-based cleanup goals. The soil and groundwater cleanup goals used during the IRAs were established under 18 AAC 75 and are designed to reduce cancer risks to below 1 x 10^{-5} and non-cancer risks to below an HI of 1.0. Cumulative risks (i.e., risks associated with exposure through more than one exposure medium) were also considered in the development of cleanup goals.

The selected remedy, Alternative 2, will be protective of human health and the environment. All contaminated soil above ADEC Method Two cleanup levels has been removed, which is protective to residential use levels. The current cancer risk associated with this site is 6.9×10^{-6} under a residential scenario, which is less than the ADEC's target risk level and falls within the EPA's target risk range of 10^{-4} to 10^{-6}. The HI for the site is 0.13, which is below the target HI of 1.0.

2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements

The selected remedy complies with all ARARs. The selected remedy does not require waivers for any ARARs.

2.13.3 Cost-Effectiveness

The USAED judged the selected remedy as cost-effective and a reasonable value for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost effective if its costs are proportional to its overall effectiveness" [40 CFR 300.430(f)(1)(ii)(D)]. USAED evaluated the overall effectiveness by assessing the following three balancing criteria: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. The relationship of the overall effectiveness of the selected remedy was determined proportional to its costs and, therefore, represents a reasonable value for the money to be spent.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

USAED determined that the selected remedy represents the maximum extent to which treatment technologies can be used in a practicable manner to address contamination at Bells Flats. The selected remedy does not include any treatment components. However, treatment was not a practicable response since the level of contamination remaining in the site is below ADEC Method Two cleanup levels.

2.13.5 Preference for Treatment as a Principal Element

The selected remedy addresses principal threats and primary constituents of concern at the facility without using treatment technologies, as treatment was not a practicable response to the level of contamination present at the site.

2.13.6 Five-Year Review Requirements

Since this remedy will result in no hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES

The *Proposed Plan for Site Closure Alternative, Bells Flats, Kodiak Island, Alaska* (USAED 2004) was released for public comment on 26 May 2004 and identified Alternative 2 (ADEC Site Closure under Method Two and NDAI Status). In addition to being made available to the public, it was mailed to the 103 names on the Community Relations Plan mailing list. An Open House to address any questions from the public on the Proposed Plan was held in Kodiak on 4 June 2004. The public was given 30 days to provide comments pertaining to the selected remedial alternative. No public comments were submitted during the public comment period. It was determined that no significant changes to the selected remedy, as originally identified in the proposed plan, were necessary or appropriate.

PART 3: RESPONSIVENESS SUMMARY

3.1 STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

No comments on the Proposed Plan were received during the public comment period.

3.2 TECHNICAL AND LEGAL ISSUES

No comments on the Proposed Plan were received during the public comment period.

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PART 4: REFERENCES

ADEC (Alaska Department of Environmental Conservation). 2004. *Oil and Hazardous Substances Pollution Control Regulations, Discharge Reporting, Clean-up, and Disposal of Oil and Other Hazardous Substances*. 18 AAC 75, Article 3.

ADEC. 2003. *Underground Storage Tanks*. 18 AAC 78.

ADEC. 2002 (7 November). *Guidance on Cleanup Equations and Input Parameters*.

EPA (U.S. Environmental Protection Agency). 2004 (1 July). *National Oil and Hazardous Substances Pollution Contingency Plan*. Code of Federal Regulations, Title 40, Part 300.

EPA. 1996 (May). *Soil Screening Guidance: Technical Background Document*. EPA/540/R-95/128.

Science Applications International Corporation. 1995 (February). *Final RCRA Facility Investigation/Corrective Measures Study Report, Volume I, Introduction and Facility-Wide Information, U.S. Coast Guard Support Center Kodiak, Alaska.*

USAED (U.S. Army Engineer District, Alaska). 2004a. *Proposed Plan for Site Closure Alternative, Bells Flats, Kodiak Island, Alaska.*

USAED. 2004b. *Burma Road Background Sampling Report, Kodiak Island, Alaska.*

USAED. 2002. *2000 Bells Flats Interim Removal Action Report Kodiak, Island, Alaska.*

USAED. 2000. *Interim Removal Action Work Plan Bells Flats Kodiak, Island, Alaska.*

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APPENDIX A

Responses and Comments

REVIE COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Anne Roth PHONE: (907) 786-2537	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
1.	p. 12/62, Statement of Basis and Purpose, 2nd para.	Change paragraph to read: "This decision document presents the U.S. Army Engineer District, Alaska (USAED) selected remedy for Bells Flats, chosen in accordance with the Administrative Record for this site. The sites within this decision document fall under the Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) petroleum exclusion and are thus being addressed under the authority of the DERP statute. The proposed response action meets ADEC requirements for cleanup of petroleum contaminated sites, and is consistent with the response process set forth in the National Contingency Plan (NCP)."		Text will be changed to the following: "This decision document presents the U.S. Army Engineer District, Alaska (USAED) selected remedy for Bells Flats, chosen in accordance with the Administrative Record for this site and was based on the successful results of several interim removal actions. The sites within this decision document fall under the Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) petroleum exclusion and are thus being addressed under the authority of the DERP statute. The proposed response action meets ADEC requirements for cleanup of petroleum contaminated sites, and is consistent with the response process set forth in the National Contingency Plan (NCP)."	
2.	p. 19/62, Sect. 4.0, Scope and Role of Response Action	Instead of stating that this section doesn't apply, recommend changing the text to state that the remedy selection for the entire Bells Flats site is being addressed in this document, and leave out the statement that "this section does not apply."		The text will be changed to the following: "The remedy selection for the entire Bells Flats site is addressed in this document."	
3.	p. 46/62, Sect. 7.3, Basis for Response Action	Because this DD is really a paperwork exercise to meet program requirements and document a cleanup that is essentially completed, recommend changing the text in this section to state that "The interim response actions completed at the site mitigated the imminent and substantial endangerment to public health or welfare or the environment posed by the contamination at the site. This Decision Document memorializes the effectiveness of the interim response actions, and based upon the successful mitigation of the risks to human health and the environment posed by the contamination, selects the remedy of ADEC		The text will be changed as requested.	

REVIEW COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Anne Roth PHONE: (907) 786-2537	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
		Site Closure under Method 2 and No DOD Action Indicated status."			
4.	p.46/62, Sect. 8.0, Remedial Action Objective	Recommend adding short paragraph to end of section stating "Because the Remedial Action Objectives at this site have been met, the objective of this Decision Document is to document achievement of the RAOs through prior field work and document the decision to seek ADEC site closure under method 2 and no DoD Action Indicated status."		The recommended text will be added.	

REVII COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Jeff Brownlee PHONE: (907) 269-3053	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
1	Declaration, Site Name and Location, Section 1.0, Site Name, Location, and Brief Description	Please specify if Bells Flats is a project or a FUDS property. Explain how this property/project fits into the overall Kodiak FUDS properties (is it part of the Kodiak Army/Navy INPR?).		The following text will be inserted. "The Bells Flats site is a project under the Kodiak Nave/Army property." Property and project numbers will be inserted on cover page.	
2	Declaration, Site Name and Location	The number of USTs and ASTs listed in the "exposure area" don't match the text in the following paragraph.		The number of USTs and ASTs will be corrected. The text will be changed to the following to provide clarification: "In addition, during the 2000 and 2003 interim removal actions (IRA) conducted at Bells Flats, four ASTs and two USTs were removed, which were not specifically associated with any of the exposure areas listed above, and no fuel-contaminated soil was observed or encountered."	
3	Declaration, Site Name and Location, Section 1.0, Site Name, Location, and Brief Description	Include a figure or description of the geographic area being addressed that has a higher resolution than Figure 1-1.		Figure will be changed as requested.	

REVIEW COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Jeff Brownlee PHONE: (907) 269-3053	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
4	Declaration, Statement of Basis and Purpose, second paragraph	Please change the first sentence to read, "this DD...., which was chosen based on the successful results of several interim removal actions."		Text will be changed to the following: "This decision document presents the U.S. Army Engineer District, Alaska (USAED) selected remedy for Bells Flats, chosen in accordance with the Administrative Record for this site and was based on the successful results of several interim removal actions. The sites within this decision document fall under the Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) petroleum exclusion and are thus being addressed under the authority of the DERP statute. The proposed response action meets ADEC requirements for cleanup of petroleum contaminated sites, and is consistent with the response process set forth in the National Contingency Plan (NCP)."	
5.	Declaration, Assessment of Site	Please delete this paragraph (and throughout document). As the sites have been cleaned up to risk based levels, there should be no necessity to select an action that protects public health or the environment.		Assessment of site section will be deleted.	
6.	Declaration, Description of selected remedy	Please add "thermal" as in "state-approved thermal treatment unit."		The word thermal will be inserted: The petroleum, oil, and lubricant (POL)-contaminated soil removed from the six exposure areas (i.e., the former tank sites) at Bells Flats was treated at a state-approved thermal treatment unit.	
7.	Declaration, Data Certification Checklist	Please delete this section. It doesn't seem to have pertinence to the document and is cumbersome to read.		Section will be deleted.	

REVIE **PROJECT: Bells Flats, Kodiak**

COMMENTS **DOCUMENT: Decision Document, Draft, March 2005**

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Jeff Brownlee PHONE: (907) 269-3053	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
8.	Signature Page	Jennifer Roberts's title is now "Federal Facilities Environmental Restoration Program Manager".		Jennifer Robert's title will be changed to Federal Facilities Environmental Restoration Program Manager.	
9.	Section 2.0 Site History and Enforcement Activities:	After the first paragraph please insert the 2nd paragraph on page 3 of the proposed plan.		Paragraph will be inserted.	
10.	Section 2.0, fourth paragraph	In the last sentence, make sure the numbers of USTs/ASTs match the listing and text in the declaration.		Text will be changed to match number given in the declaration.	
11.	Section 2.0, fifth paragraph	Please explain why the one UST was removed (seven in this paragraph, eight in the fourth paragraph).		Number of USTs was incorrect, the fourth paragraph should discuss 5 of 6 total USTs. The fourth paragraph only discusses those which were removed in 2000 and 2001. The single UST removed in 2003 is discussed in the fifth paragraph accounting for the difference in numbers.	
12.	Section 2.0, fifth paragraph	Explain the origin of the asphalt deposit (batch plant from the Navy Seabee construction days).		Per USAED, the asphalt deposit is of non-specific military origin. The text will be changed to the following: "Site inspections were conducted in 1999 to verify the reported presence of USTs or ASTs and to document the extent of an asphalt deposit observed along a section of Sargent Creek. The asphalt deposit was accessed by a dirt road and was of non-specific military origin. During these site inspections, several former fuel storage tanks were identified, along with a number of empty drums, batteries, and physical safety hazards such as open utility vaults (USAED 2000)."	

REVIEW COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Jeff Brownlee PHONE: (907) 269-3053	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
13.	Figure 5-1	Please note what the shading means.		The following text will be added: "Exposure pathways that are complete and applicable to the Bells Flats site are shaded."	
14.	Section 5.1	Conceptual Site Model: Please delete the last sentence in the last paragraph about "attractive nuisance" (add throughout the document). It doesn't' flow with the text.		Sentence will be deleted.	
15.	Section 5.2, Overview	After the first sentence in the first paragraph, please add the sentence, "The removals occurred over several interim actions from 2002 – 2004."		The following sentence will be added: "The removals occurred over several interim actions from 2000 to 2004."	
16.	Section 7.0	Please delete the last paragraph (same as comment 5).		Last paragraph will be deleted.	
17.	Table 7.1	Note C has an arsenic background listed as 32.4 mg/kg. Table 5-6 says 16.5 mg/kg. Please correct		Arsenic background levels were from different sources: SAIC: 16.5 mg/kg, Burma Road Background Sampling Report: 32.4 mg/kg. The Burma Road Background Sampling Report will be used as the single source for background concentrations. Table 5-6 will be updated.	
18.	Section 7.2	Delete last sentence.		Sentence will be deleted.	
19.	Section 7.3	Delete paragraph.		Paragraph text will be changed to the following: "The interim response actions completed at the site mitigated the imminent and substantial endangerment to public health or welfare or the environment posed by the contamination at the site. This Decision Document memorializes the effectiveness of the interim response actions, and based upon the successful mitigation of the risks to human health and the environment posed by the contamination, selects the remedy of ADEC Site Closure under Method 2 and No DOD Action Indicated status."	

REVIE COMMENTS

PROJECT: Bells Flats, Kodiak

DOCUMENT: Decision Document, Draft, March 2005

U.S. ARMY CORPS OF ENGINEERS CEPOA-OC	DATE: 8/11/2005 REVIEWER: Jeff Brownlee PHONE: (907) 269-3053	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	USAED RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
20.	Section 9.0	Please modify the section to reflect the closure alternative recommended in the proposed plan.		Section will be modified to present only the no action and site closure alternatives. The long-term groundwater monitoring alternative will be deleted. The no action alternative will be retained as it is required by the NCP evaluation criteria.	
21.	Section 10.0	Please delete whole section or delete Table 10-1 and modify section to reflect one alternative.		Section will be modified to present only the no action and site closure alternatives.	
22.	Section 12.0	Same as above. Please modify section to reflect site closure. If section 12.4 is retained, please delete the last sentence. There should be no remaining contamination that would be harmful to humans or wildlife.		See response to comment #21. The last sentence of section 12.4 will be deleted.	