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CARSWELL AFB TEXAS

ADMINISTRATIVE RECORD COVER SHEET

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**FINAL
SECOND FIVE-YEAR REVIEW
FOR
FORMER CARSWELL AIR FORCE BASE
FORT WORTH, TEXAS**

Prepared for:

**Air Force Center for Engineering and the Environment
San Antonio, Texas**



**Contract No. FA8903-08-D-8772-0029
CDRL No. A001c
Project No. DDPF20107110**

May 2011

Approved By:


JEFFREY P. DOMM
Deputy Director, AFRPA

22 Dec 11
Date

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Prepared by:

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May 2011

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13. ABSTRACT <i>(Maximum 200 words)</i> This report represents the second five year review performed in substantial compliance with the U.S. Environmental Protection Agency (USEPA) guidance for conducting five-year reviews under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This five-year review covers five Base Realignment and Closure (BRAC) sites closed under Texas Risk Reduction Standard (RRS) 2 at the former Carswell Air Force Base (AFB) in Fort Worth, Texas. The purpose of the report is to determine whether the implemented corrective actions and remedies continue to provide adequate protection of human health and the environment. Additional objectives included identifying technical issues of concern and providing recommendations to address these issues.				
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Content Checklist For Five-Year Review Reports

The following Air Force Center for Engineering and the Environment (AFCEE) content checklist was used to verify that all of the appropriate information was included in this five-year report. Depending on site-specific circumstances, some items may not be applicable. If selected items are not applicable to this review, they were not included in this report and are not marked on the checklist provided below.

General Report Format

- Signed concurrence memorandum, as appropriate
- Title page with signature and date
- Completed five-year review summary
- List of documents reviewed
- Site maps, as appropriate
- List of tables and figures
- Interview report, as appropriate
- Site inspection checklist
- Photographs documenting site conditions, as appropriate

Introduction

- The purpose of the five-year review
- Authority for conducting the five-year review
- Lead agency conducting the five-year review and when
 - Organizations providing analyses in support of the review (e.g., the contractor supporting the lead agency)
 - Other review participants or support agencies
- Review number (e.g., first, second)
- Trigger action and date
- Number, description, and status of all operable units at the site
- If review covers only part of a site, explain approach
 - Define which areas are covered in the five-year review
 - Summarize the status of other areas of the site that are not covered in the present five-year

Site Chronology

- Brief list of important site events and relevant dates (e.g., date of initial discovery of problem, dates of pre-national priorities list (NPL) responses, date of NPL listing, etc.), only as necessary to support discussion in the five-year review.

Background

- Brief background discussion, only as necessary to support discussion in the five-year review.

Remedial Actions

- Regulatory actions (e.g., date and description of Records of Decision, Explanations of Significant Difference, Administrative Orders on Consent, Consent Decrees and Action Memorandum)
- Remedial action objectives

- Remedy description
- Remedy implementation (e.g., status, history, enforcement actions, performance)
- System operations/Operations and Maintenance (O&M)
 - System operations and O&M requirements
 - System operations and O&M operational summary (e.g., history, modifications, problems, and successes)
 - Summary of costs of system operations and O&M effectiveness (i.e., are requirements being met and are activities effective in maintaining the remedy?)

Progress Since Last Five-Year Review, if applicable

- Protectiveness statements from last review
- Status of recommendations and follow-up actions from last review
- Results of implemented actions, including whether they achieved the intended effect
- Status of any other prior issues

Five-Year Review Process

- Administrative Components
 - Notification of potentially interested parties of initiation of review process
 - Identification of five-year review team members, as appropriate
 - Outline of components and schedule of your five-year review
- Community Involvement
 - Community notification, pre- and post- review)
 - Other community involvement activities (e.g., notices, fact sheets, etc., as appropriate)
- Document review
- Data review
- Site inspection
 - Inspection date
 - Inspection participants
 - Site inspection scope and procedures
 - Site inspection results, conclusions
 - Inspection checklist
 - Interviews
 - Interview date(s) and location(s)
 - Interview participants (name, title, etc.)
 - Interview documentation
 - Interview summary

Technical Assessment

- Answer Question A: Is the remedy functioning as intended by the decision documents?
 - Remedial action performance (i.e., is the remedy operating as designed?)
 - System operations and O&M
 - Cost of system operations and O&M
 - Opportunities for optimization
 - Early indicators of potential issues
 - Implementation of institutional controls and other measures
- Answer Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?
 - Changes in standards, newly promulgated standards, TBCs

- Expected progress towards meeting RAOs
- Changes in exposure pathways
- Changes in land use
- New contaminants and/or contaminant sources
- Remedy byproducts
- Changes in toxicity and other contaminant characteristics
- Risk recalculation and assessment, as applicable
- Answer Question C: Has any other information come to light that could call into question the protectiveness of the remedy?
 - New or previously unidentified ecological risks
 - Natural disaster impacts
 - Any other information that could call into question the protectiveness of the remedy
- Technical Assessment Summary

Issues

- Issues identified during the technical assessment and other five-year review activities
- Determination of whether issues affect current or future protectiveness
- A discussion of unresolved issues raised by States, Tribes, other Federal agencies, local governments, citizens, primary responsible parties, other interested parties, if applicable

Recommendations and Follow-up Actions

- Required and suggested improvements to identified issues or to current site operations
- Note parties responsible for actions
- Note agency with oversight authority
- Schedule for completion of actions related to resolution of issues

Protectiveness Statement(s)

- Protective statement(s) for each operable units (If the remedy is not protective of human health and/or the environment, have you provided supporting discussion and information in the report to make this determination, such as current threats or level of risk?)
- Comprehensive protectiveness statement covering all of the remedies at the site, if applicable

Next Review

- Expected date of next review
- If five-year reviews will no longer be done, provide a summary of that portion of the technical analysis presented in the report that provides the rationale for discontinuation of five-year reviews.

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LIST OF ACRONYMS/ABBREVIATIONS

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Engineering and the Environment
AFP	Air Force Plant
AFRPA	Air Force Real Property Agency
AOC	area of concern
bgs	below ground surface
BHC	benzenehexachloride
BRAC	Base Realignment and Closure
BEHP	bis(2-ethylhexyl)phthalate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH2M Hill	CH2M Hill, Inc.
COC	contaminant of concern
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DPT	direct push technology
EBS	environmental baseline survey
FMC	Federal Medical Center
FPM	Fanning Phillips and Molner
FS	feasibility study
FCSCP	Final Cover System Closure Plan
HGL	HydroGeoLogic, Inc.
IC	institutional control
IRA	interim remedial action
IRP	Installation Restoration Program
IT	IT Corporation
Jacobs	Jacobs Engineering Group, Inc.
JRB	Joint Reserve Base
LAW	Law Environmental, Inc.
LTM	long-term monitoring
LUC	land use control
mg/kg	milligrams per kilogram
mg/L	milligrams per liter

LIST OF ACRONYMS/ABBREVIATIONS (Continued)

MDL	method detection limit
MOU	Memorandum of Understanding
MSC	medium-specific concentration
MSW	municipal solid waste
NAS	Naval Air Station
NEPA	National Environmental Policy Act
NPL	National Priorities List
OP	organophosphorus
OPS	operating properly and successfully
PCB	polychlorinated biphenyl
PRB	permeable reactive barrier
PVC	polyvinyl chloride
Radian	Radian Corporation
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RI	remedial investigation
ROD	record of decision
RRS	risk reduction standard
SAC	Strategic Air Command
SI	site investigation
SPLP	Synthetic Precipitation Leaching Procedure
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TNRCC	Texas Natural Resource Conservation Commission
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
VSI	visual site inspection
WP-07	Waste Burial Area No. 7
WRA	Westworth Redevelopment Authority
WSA	weapons storage area

EXECUTIVE SUMMARY

This report represents the second five-year review performed in substantial compliance with the U.S. Environmental Protection Agency (USEPA) guidance for conducting five-year reviews under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This five-year review covers five Base Realignment and Closures (BRAC) sites at the former Carswell Air Force Base (AFB) in Fort Worth, Texas. The purpose of this report is to determine whether the implemented corrective actions and remedies continue to provide adequate protection of human health and the environment. Additional objectives included identifying technical issues of concern and providing recommendations to address these issues.

The Air Force Real Property Agency performed the first five-year review in September 2005 and recognized eight BRAC sites that were closed under Risk Reduction Standard (RRS) 2, which allows for remediation and closure to health-based standards and criteria. One additional site, the soil area MH-4 associated with the sanitary sewer system, was undergoing RRS 2 closure activities at the time of the first five-year review and was subsequently released from post-closure care responsibilities on January 17, 2007. The remaining portion of the sanitary sewer system was closed under RRS 1 which allows for unlimited use and unrestricted exposure and, therefore, five-year reviews are not required. Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB) will perform the subsequent five-year reviews of the soil area MH-4 associated with the sanitary sewer system. In addition, three of the original eight BRAC sites, solid waste management units (SWMUs) 59, 60, and 65 are associated with the off-site weapons storage area. SWMUs 59, 60, and 65 were transferred to the Army in 2007 and therefore they are not addressed during this review.

This five-year review assessed whether the corrective remedies identified in Table ES.1 for each of the five BRAC sites continue to provide protection of human health and the environment. Overall, the five BRAC sites remain protective of human health and the environment; however, dumping of construction materials (e.g., pallets, brush, concrete, mulch, wire, tires, etc.) at SWMU 22 should be addressed to prevent future protectiveness issues.

Table ES.1
Former Carswell AFB 2010 Five-Year Review Summary
Fort Worth, Texas

Site Name	Remedy	LUC/IC Objective/Goal	Closure Criteria of Affected Media	Remedy Remains Protective?
Landfill 4 (LF004 – SWMU 22)	MSW final cover and LUC/ICs	non-residential	RRS 2 soil	Yes
Landfill 5 (LF005 – SWMU 23)	MSW final cover and LUC/ICs	non-residential	RRS 2 soil	Yes
Waste Pile Area 7 (WP007 – SWMU 24)	LUC/ICs	non-residential	RRS 2 soil	Yes
Landfill 8 (LF008 – SWMU 25)	LUC/ICs	non-residential	RRS 2 soil	Yes

Table ES.1 (Continued)
Former Carswell AFB 2010 Five-Year Review Summary
Fort Worth, Texas

Site Name	Remedy	LUC/IC Objective/Goal	Closure Criteria of Affected Media	Remedy Remains Protective?
Grounds Maintenance Yard (OT039 – AOC 5)	LUC/ICs	Restricted access/non-residential	RRS 2 soil	Yes

Notes:

MSW - municipal solid waste

LUC/IC – land use control and institutional control

RRS – Risk Reduction Standard

SWMU – Solid Waste Management Unit

AOC – Area of Concern

During the site inspection of the five BRAC sites, HydroGeoLogic, Inc. (HGL) and Air Force Center for Engineering and the Environment (AFCEE) checked the area of the permeable reactive barrier (PRB) and network of PRB wells that are associated with the BRAC property Parcel G. The BRAC property Parcel G was transferred to the Westworth Redevelopment Authority in 2007 and is addressed under a separate deed certification from SWMUs 22 through 25 and AOC 5. A review schedule for the BRAC property Parcel G has not been established to date and a portion of the Parcel G overlaps with the landfill area covered by the SWMU 22. The BRAC property Parcel G inspection was not part of the BRAC property five-year review process but several parties have raised a concern regarding construction materials (e.g., bricks, boulders, etc.) being placed on or in the area of the PRB. Overall, the PRB and network of PRB wells within the BRAC property Parcel G were in good condition. No settling or depressions were identified on top of the PRB from the storage of pallets of bricks and boulders. The BRAC property Parcel G should be included in future five-year reviews associated with SWMUs 22 through 25 and AOC 5 to ensure compliance with deed restrictions.

Based on the data reviewed, site inspections, interviews, and a technical assessment performed for this five-year review, the selected remedies are functioning as intended and are protective of human health and the environment. There have been no physical changes at the former Carswell AFB since the first five-year review. No information has become available indicating inadequate protection of human or ecological populations. Exposure pathways, land use, contaminants of concern (COC), toxicity data, and cleanup criteria remain unchanged or if changed, have not affected the remedy's protectiveness.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Former Carswell Air Force Base		
USEPA ID: TX0571924042-0		
Region: 6	State: TX	City/County: Fort Worth / Tarrant County
SITE STATUS		
NPL status: <input type="checkbox"/> Final <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> Other Cleanup Activity (specify): Federal Facility-Lead		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs?* <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Construction completion date: September 2001
Has Site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input type="checkbox"/> USEPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input checked="" type="checkbox"/> Other Federal Agency: AFCEE		
Author name: Jennifer Spies		
Author title: Project Manager	Author affiliation: HGL, AFCEE Contractor	
Review period: September 2005 to September 2010		
Date(s) of Site inspection: March 23, 2010		
Type of review: <input type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input checked="" type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <input type="checkbox"/> Actual RA On-site Construction at OU #____ <input type="checkbox"/> Actual RA Start at OU#____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five Year Review Report <input type="checkbox"/> Other (specify)		
Triggering action date: September 2005		
Due date (five years after triggering action date): September 2010		

* ("OU" refers to operable unit.)

Five Year Review Summary Form (Continued)**Issues:**

1. Dumping of construction materials (e.g., pallets, brush, concrete, mulch, wire, tires, etc.) on SWMU 22 landfill cover.
2. Poor drainage on SWMU 22 landfill cover.
3. Northern by-pass well WHGLTA069 is missing a bolt in the manhole cover.
4. A 4-inch polyvinyl chloride (PVC) pipe was observed within 10 feet of the PRB on the northeastern side. The pipe was approximately 3-feet tall and was installed approximately 2 feet bgs. There is a no digging restriction within a 25-foot radius around the PRB. The pipe is scheduled to be used for a lawn mower rinse pad.
5. Transect 2 well WHGLTA073 was partially covered with building materials (e.g., wood, rebar, etc.).
6. Transect 2 well WHGLTA074 was not located and is believed to be beneath a large pile of pea gravel.
7. PRB recirculation well 11, located in the center of White Settlement Road, was partially covered by dirt.
8. A pothole is located immediately south of PRB recirculation well 11, approximately 3-feet by 3-feet by 4-inches.
9. A small bush and construction debris (e.g., rocks) are located immediately west of PRB Transect 3 and recirculation well 16.
10. The portion of the PRB that is located on Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB) property contained standing water.

Recommendations and Follow-up Actions:

It is recommended that annual visual site inspections are performed at SWMUs 22 through 25, AOC 5, and the BRAC property Parcel G to ensure that they comply with the deed restrictions. In addition, the following recommendations are based on the specific observations/issues that were identified during the site inspection.

Recommendation pertaining to Issue #1:

Remove and properly dispose of all debris.

Recommendation pertaining to Issue #2:

Regrade the area to allow proper drainage off landfill cover.

Recommendation pertaining to Issue #3:

Replace the bolt that is missing from the manhole cover for well WHGLTA069.

Five Year Review Summary Form (Continued)**Issues (Continued):**Recommendation pertaining to Issue #4:

The Westworth Redevelopment Authority should coordinate with AFCEE to install the lawn mower rinse pad and remain in compliance with the deed certification.

Recommendation pertaining to Issue #5:

Uncover and mark well WHGLTA073.

Recommendation pertaining to Issue #6:

Locate, uncover, and mark well WHGLTA074.

Recommendation pertaining to Issue #7:

Uncover and mark recirculation well 11.

Recommendation pertaining to Issue #8:

The pothole should be filled.

Recommendation pertaining to Issue #9:

Remove and properly dispose of vegetation and rocks.

Recommendation pertaining to Issue #10:

Maintain a positive drainage away from PRB alignment and prevent ponding of the area.

Protectiveness Statement(s):

The remedies at the five BRAC sites at the former Carswell AFB are protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled through deed restrictions.

FINAL SECOND FIVE-YEAR REVIEW FOR FORMER CARSWELL AIR FORCE BASE, FORT WORTH, TEXAS

1.0 INTRODUCTION

HydroGeoLogic, Inc. (HGL) conducted this second five-year review for former Carswell Air Force Base (AFB) from March 2010 through June 2010. The primary objective of this five-year review is to determine whether the implemented corrective actions and remedies for five Base Realignment and Closure (BRAC) sites at the former Carswell AFB in Fort Worth, Texas, continue to provide adequate protection of human health and the environment. In addition, this report identifies issues found during the review and recommendations to address each issue.

The site-specific corrective actions and remedies for the five BRAC sites at the former Carswell AFB were completed under the Resource Conservation and Recovery Act (RCRA) program in accordance with the Texas Natural Resource Conservation Commission (TNRCC), currently known as the Texas Commission on Environmental Quality (TCEQ), Risk Reduction Standards (RRS) as described in 30 Texas Administrative Code (TAC) Chapter 335, Subchapter S. According to the United States Environmental Protection Agency (USEPA) guidance, a five-year review is not required at sites addressed under the RCRA authority (USEPA, 2001). The guidance states, "If a site is deferred to RCRA prior to being placed on the National Priorities List (NPL).....you do not need to conduct a five-year review." Nonetheless, the Air Force Center for Engineering and the Environment (AFCEE), for program and policy reasons, is conducting this five-year review consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan as described below.

CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such a review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The National Contingency Plan, in 40 Code of Federal Regulations §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

To date, 19 BRAC sites and 68 Environmental Restoration Account sites identified in the 1994 environmental baseline survey (EBS) have undergone or completed RCRA Facility Investigations (RFI), remedial actions, and closure with no further action at former Carswell AFB. Ten BRAC sites were closed under RRS 1, which allows for unlimited use and unrestricted exposure. Five-year reviews are not required at sites closed under RRS 1. This five-year review covers five of the nine BRAC sites closed under RRS 2, which allows for remediation and closure to health-based standards and criteria. Three of the BRAC sites closed under RRS 2 but not assessed in this report are associated with the weapons storage area (WSA) which is located 5 miles west of the former Carswell AFB. The WSA consists of SWMUs 59, 60, and 65. This property was transferred to the U.S. Army in 2007 to use as a joint-use resource training facility. For this reason, the property is no longer the responsibility of AFCEE and future reviews of the WSA will be conducted by the U.S. Army. The remaining BRAC site, the MH-4 soil area associated with the sanitary sewer system, SWMU 66, was undergoing closure activities during the initial five-year review and was ultimately closed under RRS 2. However, SWMU 66 MH-4 is not addressed in this five-year review because the site is primarily located on Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB) property. Future reviews of the SWMU 66 MH-4 soil area will be conducted by the U.S. Navy. The remaining portion of the sanitary sewer system (e.g., non-MH-4 soil area) was closed under RRS 1, which does not require a five-year review. Figures 1 and 2 present the location of former Carswell AFB and a site layout, respectively. Figure 3 presents the five BRAC sites assessed during this five-year review.

This is the second five-year review for former Carswell AFB. The triggering action for this review was the completion of the first five-year review in September 2005. This report is required because hazardous substances, pollutants, or contaminants remain in place above levels that allow for unlimited use and unrestricted exposure.

2.0 CHRONOLOGY OF SITE EVENTS

The following table summarizes the chronology of events each of the five sites addressed by this five-year review.

Table 2.1
Chronology of Events
Former Carswell AFB, Texas

Date	Event
1918	Site activated as a combat training school.
August 1942	Carswell AFB was opened as Tarrant Field Airdrome.
May 1943	Tarrant Field Airdrome was renamed Fort Worth Army Air Field.
1946	Strategic Air Command took over Fort Worth Army Air Field.
1948	Fort Worth Army Air Field renamed Carswell AFB.
1983	Installation Restoration Program (IRP) Program Records Search for Carswell Air Force Base, Texas (CH2M Hill, Inc. [CH2M Hill], 1984).
1985	Site Investigation (Phase II, Stage I), February/March 1985 (Radian Corporation [Radian], 1986).
February 1989	RCRA Facility Preliminary Review/Visual Site Investigation Report (A.T. Kearney, 1989).
1988	Phase I Remedial Investigation (RI) /Feasibility Study (FS) (Phase II, Stage II), February and April 1988 (Radian, 1989).
August 1990	Air Force Plant (AFP) 4 placed on USEPA NPL. IRP, Stage 2 Site Characterization Report, Flightline Area (Radian, 1990).
1990-1991	IRP, Stage 2, Final Report, RI Report, Flightline Area (Radian, 1991).
February 1991	Geophysical survey performed by Ecology & Environment at SWMU 24 revealed nine buried metal objects.
October 1991	Excavation of 34 55-gallon drums and 10 5-gallon buckets of trichloroethene (TCE) and TCE-contaminated liquid.
1992	Air Combat Command assumed control of Carswell AFB.
April 29, 1992	Carswell AFB Disposal and Reuse Final Environmental Impact Statement were filed with the USEPA.
1993	Interim Remedial Action (IRA) at former Landfills 4 and 5.
1993	Phase I and II Report, Field Sampling, Analysis, and Testing, Carswell AFB, Landfills 4 and 5 (IT Corporation [IT], 1993a).
March 31, 1993	National Environmental Policy Act (NEPA) Record of Decision (ROD) issued.
June 1993	Memorandum of Understanding (MOU) signed by the U.S. Navy, Air Force Real Property Agency (AFRPA), AFCEE, Air Force Mobility Command/Aeronautical Systems Center, Air Force Reserves, and Texas National Guard.
September 30, 1993	Carswell AFB closed.
1994	Phase III Report, Field Sampling, Analysis, and Testing, Carswell AFB, Landfills 4 and 5 (IT Corporation, 1994).
October 1994	U.S. Navy assumed responsibility for realignment of Carswell AFB as NAS Fort Worth JRB.
1995	Site Investigation and Site Characterization at area of concern (AOC) 5 (Law Environmental [LAW], 1996a).
	AFP 4, Installation Restoration Program (IRP), Basewide Groundwater Monitoring Quarterly Letter, NAS Fort Worth JRB, (Jacobs Engineering Group, Inc. [Jacobs], 1995).
	IRP, Basewide Quarterly Groundwater Monitoring, First Semi-Annual Report, NAS Fort Worth JRB, (LAW, 1996b).

HGL—Second Five-Year Review for Former Carswell AFB, Texas

**Table 2.1 (Continued)
Chronology of Events
Former Carswell AFB, Texas**

Date	Event
1995-1996	IRP, Basewide Quarterly Groundwater Monitoring, Second Semi-Annual Report, NAS Fort Worth JRB, (LAW, 1996c).
January 1997	Basewide background study at AOC 5 by Jacobs
May 1997	Confirmation sampling at AOC 5 by Jacobs
	Unified Services of Texas, Inc. demolished and removed structures at AOC 5.
August 20, 1997	AFCEE letter to TNRCC requesting closure of AOC 5.
2000	Remedial actions implemented at SWMUs 22, 23, 24, and 25
June 21, 2000	TNRCC approval of Final Cover System Closure Plan for SWMUs 22 and 23.
December 19, 2000	TNRCC letter to AFCEE approved conditional closure of AOC 5 with proof of deed certification.
March 5, 2001	TNRCC letter to AFCEE approved conditional closure of SWMUs 22, 23, 24, and 25 with proof of deed certification.
April 3, 2001	AFCEE submitted proof of deed certification for AOC 5.
May 8, 2001	TNRCC letter to AFCEE released AFRPA from post-closure care responsibilities at AOC 5.
May 30, 2001	AFCEE submitted proof of deed certification for SWMUs 22, 23, 24, and 25.
September 13, 2001	TNRCC letter to AFCEE released AFRPA from post-closure care responsibilities at SWMU 25.
September 14, 2001	TNRCC letter to AFCEE released AFRPA from post-closure care responsibilities at SWMUs 22, 23, and 24.
2002	Former Carswell AFB permeable reactive barrier (PRB) installed.
September 2005	Final First Five-Year Review Summary Report for Base Realignment and Closure Sites at the Former Carswell AFB, Texas.
February 2006	USEPA approved the Focused Feasibility Study for the Southern Lobe of the TCE Groundwater Plume.
2007	Selected remedy for the southern lobe of the TCE plume was demonstrated to be operating properly and successfully (OPS).
	Final Explanation of Significant Differences (ESD) for the Basewide TCE Groundwater Plume approved by TCEQ and USEPA. The former Carswell BRAC property was transferred to the Westworth Redevelopment Authority (WRA).
March 23, 2009	Second Five-Year Review Site Inspection

3.0 BACKGROUND

3.1 PHYSICAL CHARACTERISTICS

The former Carswell AFB, which is now known as NAS Fort Worth JRB, was transferred to the U.S. Navy and encompasses approximately 2,484 acres. NAS Fort Worth JRB is located in North Central Texas in Tarrant County, approximately 8 miles west of downtown Fort Worth (Figure 1). The former Carswell AFB is bordered by Lake Worth to the north; the West Fork Trinity River and the cities of Westworth Village, Westover Hills, and River Oaks to the east; the cities of Benbrook and Fort Worth to the south; the city of White Settlement to the west and southwest; and Lockheed Martin, which includes Air Force Plant (AFP) 4, to the northwest. Land use in the immediate vicinity of the former Carswell AFB is industrial, commercial, residential, and recreational.

3.1.1 Land and Resource Use

Prior to initial base construction in 1941, the area that is now occupied by the BRAC property, the NAS Fort Worth JRB (formerly Carswell AFB), and AFP 4 consisted of woods and pasture in an area called White Settlement. The former Carswell AFB started as a modest dirt runway constructed to service the aircraft manufacturing plant located where AFP 4 is situated.

In August 1942, the Tarrant Field Airdrome was opened for the purpose of training pilots to fly the B-24 under the jurisdiction of the Gulf Coast Army Air Field Training Command. In May 1943, the field was redesignated as Fort Worth Army Air Field with continued use as a training facility for pilots. The Strategic Air Command (SAC) took over the Fort Worth Army Air Field in 1946 and the base served as the headquarters for the 8th Air Force.

In 1948, the Fort Worth Army Air Field was renamed, and the 7th Bomber Wing became the base host unit. The Headquarters 19th Air Division was located at Carswell AFB in 1951, where it remained until September 1988 (A.T. Kearney, 1989). The Carswell AFB remained a SAC installation until 1992, when the Air Combat Command assumed control of Carswell AFB upon disestablishment of the SAC.

Carswell AFB was formally closed on September 30, 1993, pursuant to the Defense Base Closure and Realignment Act of 1990 and recommendations of the Defense Base Closure and Realignment Commission. As a result of the 1990 BRAC decision, the U.S. Navy assumed responsibility for 1,708.24 acres on October 1, 1994. The remainder of the former Carswell AFB was realigned as follows: 104 acres were transferred to the Federal Medical Center (FMC) Carswell, 303 acres were transferred to the Westworth Redevelopment Authority (WRA) for multi-use redevelopment, 247 acres of the off-base weapons storage area were transferred to the U.S. Army to use as a joint-use reserve training facility, and 121.55 acres were transferred to AFP 4. All property transfers were completed by summer 2007.

A Memorandum of Understanding (MOU) outlining environmental cleanup responsibilities, coordination, and action among the U.S. Navy, AFRPA, the Environmental Restoration Division of AFCEE, Air Force Mobility Command and Aeronautical Systems Center, Air Force Reserves, and Texas National Guard was signed in June 1993. Pursuant to the MOU, the

AFCEE/Environmental Restoration Division has primary responsibility for investigation and remediation of active sites on NAS Fort Worth JRB property. It was agreed that the AFRPA would continue to manage the cleanup of sites outside NAS Fort Worth JRB identified as BRAC sites. As a result of the decisions made between AFRPA, AFCEE, and the Environmental Restoration Division, 19 sites were identified as BRAC sites and 68 sites were identified as Environmental Restoration Account sites that fall under the U.S. Navy.

Since realignment, the principal activities at the former Carswell AFB have been training, mobilization, and deployment of military personnel. The projected future land use of SWMUs 23 through 25 and area of concern (AOC) 5 are expected to remain non-residential (i.e., commercial or industrial). Since realignment of the BRAC property surrounding SWMU 22, the area is used and will continue to be used as the Hawks Creek Golf Club.

Current land use north of Lake Worth and the former Carswell AFB mainly consists of parks, residential areas, and scattered commercial areas. The land use east of former Carswell AFB includes commercial areas near the former base entrance, and primarily residential with recreational areas (i.e., golf courses, parklands, etc.). The FMC Carswell is located immediately adjacent to the site, and Burton Hill Elementary School is also located east of the site. The land use south of the site is primarily residential and commercial development. Western Hills High School, M.L. Phillips Elementary School, and Monning Middle School are also located south of former Carswell AFB. The land use west of the site is primarily residential, industrial, and commercial. Brewer High School and the Cherry Lane Hospital are also located west of former Carswell AFB. The projected land use surrounding the former Carswell AFB is expected to remain the same.

Drinking water used at former Carswell AFB is obtained from the city of Fort Worth, which uses Lake Worth as its water source.

3.1.2 History of Contamination

Environmental studies at the former Carswell AFB began in the 1980's. The predominant sites where potential environmental impact was investigated included fire training areas, vehicle maintenance areas, hazardous waste drum storage areas, landfills, waste burial areas, the fuel hydrant system, contaminated ditches, oil-water separators, fuel storage areas, and underground storage tanks (UST). An EBS was completed in 1993 that identified 87 sites requiring investigation. The 87 sites were listed on the RCRA Hazardous Waste Permit number, HW-50289. Nineteen of the 87 sites were identified as BRAC sites and the remaining 68 sites were identified as Environmental Restoration Account sites. The primary contaminants identified by the EBS were petroleum hydrocarbons and volatile organic compounds (VOC). Although groundwater beneath the former Carswell AFB has been impacted by historical activities at AFP 4 (a NPL site), groundwater contamination is addressed under the AFP 4 Record of Decision (ROD) and is not covered under this BRAC five-year review.

As discussed in Section 1.0, this five-year review covers five of the nine BRAC sites closed under RRS 2, which provides for remediation and closure to health-based standards and criteria. These sites include SWMUs 22, 23, 24, 25, and AOC 5 (Figure 3). The four BRAC sites not assessed during this review include SWMUs 59, 60, and 65, as well as the MW-4 soil area of

SWMU 66. The following sections present a summary of the historical activities that caused identified contamination, how the contamination was discovered, and the issues resulting from the contamination at each of the five sites.

3.1.2.1 SWMU 22

SWMU 22, Landfill 4, is a former landfill located east of Taxiway 197 (Taxiway Foxtrot) and south of White Settlement Road (Figure 3). Landfill 4 operated from 1956 to 1975 and encompassed approximately 9 acres (A.T. Kearney, 1989). The landfill reportedly received municipal and industrial waste, including partially filled paint cans, cadmium batteries, drums of waste paints, thinners, oils, PD-680 (a degreasing solvent), medical waste, and construction debris in the form of concrete, asphalt, wood and trees. The landfill may have also received small amounts of undocumented hazardous materials. Base refuse was reportedly burned and buried within six large pits that were approximately 12 feet deep. After the period of operation, the site was converted into a radar facility composed of three buildings and an UST for storage of diesel fuel. The buildings and UST were removed from the site between 1992 and 2000.

Landfill 4 was designated as Installation Restoration Program (IRP) Site No. 4 in the *IRP Records Search Report*, and was recommended for Phase II investigation activities (CH2M Hill, Inc. [CH2M Hill], 1984). Landfill 4 was listed as SWMU 22 in the *RCRA Facility Assessment Preliminary Review/Visual Site Inspection Report* and was considered a potential RFI site (A.T. Kearney, 1989). The Texas Water Commission, currently known as the TCEQ, issued RCRA Hazardous Waste Permit number HW-50289 to Carswell AFB on February 13, 1991, which required further investigation activities at Landfill 4.

3.1.2.2 SWMU 23

SWMU 23, Landfill 5, is a former landfill located approximately 250 feet north of the northwest corner of SWMU 22 and adjacent to the western border of perimeter road (Figure 3). This area served as an active base landfill from 1963 through 1975 and was approximately 3.1 acres in size. Historic aerial photographs indicate that a clay berm was constructed adjacent to the unnamed tributary during operation of the landfill. The area behind the berm was subsequently filled to its existing level. The unit reportedly received wastes from the flightline area, which was regularly burned prior to covering. Wastes managed at SWMU 23 were similar to the wastes managed at SWMU 22 (A.T. Kearney, 1989). Buried medical waste was encountered during trenching activities at the landfill.

Landfill 5 was designated as IRP Site No. 5 in the *IRP Records Search Report*, and was recommended for Phase II investigation activities (CH2M Hill, 1984). Landfill 5 was listed as SWMU 23 in the *RCRA Facility Assessment Preliminary Review/Visual Site Inspection Report* and was considered a potential RFI site (A.T. Kearney, 1989). The Texas Water Commission issued RCRA Hazardous Waste Permit number HW-50289 to Carswell AFB on February 13, 1991, which required further investigation activities at Landfill 5.

3.1.2.3 SWMU 24

SWMU 24, Waste Burial Area No. 7 (WP-07), is a 0.64 acre triangular-shaped strip of land located between SWMUs 22 and 23 and adjacent to perimeter road and security fencing near the NAS Fort Worth JRB boundary (Figure 3). SWMU 24 served as an active landfill during the

1960s. The unit received drums of cleaning solvents, tetraethyl lead-contaminated sludge, small quantities of undetermined waste, and possibly live ordnance (A.T. Kearney, 1989).

WP-07 was designated as IRP Site No. 10 in the *Installation Restoration Program Records Search Report*, and was recommended for Phase II investigation activities (CH2M Hill, 1984). WP-07 was listed as SWMU 24 in the *RCRA Facility Assessment Preliminary Review/Visual Site Inspection Report* and was considered a potential RFI site (A.T. Kearney, 1989). The Texas Water Commission issued RCRA Hazardous Waste Permit number HW-50289 to Carswell AFB on February 13, 1991, which required further investigation activities at WP-07.

3.1.2.4 SWMU 25

SWMU 25, Landfill 8, is an approximately 10 acre parcel of land located east of Taxiway 197 (Taxiway Foxtrot), south of Taxiway Charlie, north of SWMU 17 (Landfill 7), and west of the base security fence (Figure 3). The unit overlies the underground aqueduct for Farmers Branch Creek. SWMU 25 was used as a fill area during the 1960s. It reportedly received asphalt, concrete rubble, construction debris, metal, trees and wood. No hazardous materials were reportedly buried at this site; however, some of the fill materials listed may contain hazardous constituents (A.T. Kearney, 1989).

Landfill 8 was designated as IRP Site No. 8 in the *Installation Restoration Program Records Search Report*, and was recommended for Phase II investigation activities (CH2M Hill, 1984). Landfill 8 was listed as SWMU 25 in the *RCRA Facility Assessment Preliminary Review/Visual Site Inspection Report* and was considered a potential RFI site (A.T. Kearney, 1989). The Texas Water Commission issued RCRA Hazardous Waste Permit number HW-50289 to Carswell AFB on February 13, 1991, which required further investigation activities at Landfill 8.

3.1.2.5 AOC 5

AOC 5, the Grounds Maintenance Yard or IRP Site No. OT-39, is a 2.27 acre asphalt lot located in the southeast corner of NAS Fort Worth JRB near the Main Entrance (Figure 3). The site slopes gently from northwest to southeast. Past operations at the site included the storage and maintenance of grounds keeping equipment and the storage of pesticides, solvents, and fuels (Law Environmental, Inc. [LAW], 1996a). Potential contaminants include lubricants, fuels, solvents, metals, pesticides and herbicides. Two small maintenance buildings, a pesticide storage shed, two 500-gallon aboveground storage tanks located on a concrete containment pad, and two office trailers existed at the site prior to demolition in 1997 and 1999. The initial site walk identified some soil staining and areas suspected to have formerly contained chemical storage sheds and/or petroleum storage tanks (LAW, 1996a).

The Grounds Maintenance Yard was not identified as a SWMU. The TNRCC listed the site as AOC 5 in March 1995, and required further investigation activities at this site (TNRCC, 1995).

3.1.3 Summary of Initial Response and Basis for Taking Action

This section provides a description of the investigations conducted prior to implementation of the remedy, and the basis for taking action at each site.

The data were evaluated in accordance with the RRSs and guidance provided in the TNRCC Consistency Memorandum. The analyte detections from each site were subsequently either (1) not confirmed; (2) statistically eliminated; (3) found to be anthropogenic or natural variations of background; (4) shown to be laboratory artifacts; (5) shown to be false positives due to matrix interference; (6) determined to be not significant based on low frequency of detection, confirmed as RRS 2 and delineated; (7) confirmed as RRS 3 (which mandates that the remedy be designed to eliminate, or reduce to the maximum extent practicable, substantial present or future risk associated with soil contact), delineated and passed the synthetic precipitation leaching procedure (SPLP) with a new site-specific medium-specific concentrations (MSCs); or (8) confirmed as RRS 3, delineated, failed SPLP, and excavated during Interim Remedial Action (IRA) activities.

3.1.3.1 SWMUs 22 and 23

Following the TNRCC's request for additional investigation to determine the nature and extent of contamination at SWMUs 22 and 23, RFI activities were conducted between 1997 and 2000 and included the excavation of 10 exploratory trenches, the installation and soil sampling of 12 direct push technology (DPT) soil borings, and collection of several rounds of groundwater samples from existing monitoring wells at each site (HGL, 2001). During the trench excavations, medical waste was encountered at depths ranging from 2 to 10 feet below ground surface (bgs) at SWMU 22, and 2 to 14 feet bgs at SWMU 23. Medical waste included syringes, surgical garments and gloves, IV bags and tubing, specimen bottles, test tubes, and sealed bags of medical waste. In addition to medical waste, industrial wastes and construction debris such as metal, wood, concrete rubble, asphalt, glass, and cans were found at each site.

Analytical test results for groundwater, surface water and sediment samples from the RFI are not discussed in this five-year review since they are associated with the basewide trichloroethene (TCE) plume. In accordance with the NAS Fort Worth JRB hazardous waste permit, soil samples were collected at 5-foot intervals from the ground surface to the water table and analyzed for the full suite of Appendix IX compounds, including 232 compounds and cis-1,2-dichloroethene. Analytical results for these soil samples indicated no detections of chlorinated herbicides, organophosphorus (OP) pesticides, dioxins, furans or cyanide at SWMUs 22 and 23. Metals including mercury, VOCs, semivolatiles organic compounds (SVOCs) and isolated organochlorine pesticides were detected in soils at both sites. These constituents were evaluated in accordance with the RRSs and guidance provided in the TNRCC Consistency Memorandum discussed in Section 3.1.3.

At SWMU 22, one bis(2-ethylhexyl)phthalate (BEHP) sample failed SPLP. An IRA was performed to remove elevated BEHP soils. The remaining soil concentrations passed SPLP for BEHP and BEHP was not consistently detected in groundwater therefore, the RFI concluded that SWMU 22 does not present a threat to human health or the environment via the soil-to-groundwater migration pathway.

At SWMU 23, cadmium, lead and BEHP were the only analytes with concentrations over the site-specific MSCs. An IRA was performed to remove soil containing elevated cadmium, lead and BEHP concentrations. The remaining soil samples passed SPLP for cadmium, lead and BEHP, and these constituents have not been detected in downgradient groundwater; therefore,

the RFI concluded that SWMU 23 does not present a threat to human health or the environment via the soil-to-groundwater migration pathway.

Following delineation of the landfills, the Air Force elected to close the site soils under RRS 2. Due to the identification of medical waste materials, the remedial actions included the construction of a municipal solid waste (MSW) landfill cover system to protect human health and the environment (HGL, 2001). The final remedy for SWMUs 22 and 23 include a MSW landfill cover and land use controls (LUCs)/institutional controls (ICs). Section 4.0 of this report provides additional information regarding the IRAs and selected remedy.

3.1.3.2 SWMU 24

In February 1991, a geophysical survey was conducted at SWMU 24 that identified nine distinct geophysical anomalies suggesting the presence of buried metal objects beneath the ground surface. Subsequently, an IRA was performed based on the results of the geophysical survey. Twenty-four 55-gallon drums and ten 5-gallon buckets which contained 131 gallons of TCE and 169 gallons of TCE-contaminated liquid were excavated (HGL, 2001). Contaminated soils and liquids around the drums and buckets were removed and properly disposed at off-site facilities (USACE, 1992). The volume of contaminated soil removed from the excavations and the depth of the excavations were not reported.

In 1993, a groundwater pump and treat system was installed adjacent to and south of SWMU 24. Twelve recovery wells were installed and connected to the pump and treat system in 1993 and 1994 (IT Corp. [IT], 1993b; IT, 1994). The pump and treat system was installed to provide hydraulic control and to remediate contaminated groundwater associated with the basewide TCE plume. Operation of the groundwater pump and treat system was discontinued in February 2002 in anticipation of the construction of a PRB (HGL, 2007).

RFI activities were conducted between 1997 and 2000 and included the collection of soil samples from 24 DPT soil borings, the collection of five surface soil samples, and two rounds of groundwater sampling from existing monitoring wells (HGL, 2001). In accordance with the NAS Fort Worth JRB hazardous waste permit, soil samples were collected in 5-foot intervals from the ground surface to the water table and analyzed for the full suite of Appendix IX compounds.

Groundwater results from the RFI are not discussed in this five-year review since they are associated with the basewide TCE plume. Soil sample analytical results indicated no detections of chlorinated herbicides, OP pesticides, dioxins, furans, or cyanide at SWMU 24. Metals including mercury, VOCs, SVOCs, and pesticides were detected in soils at or above RRS 2. These constituents were evaluated in accordance with the RRSs and guidance provided in the TNRCC Consistency Memorandum discussed in Section 3.1.3.

Antimony, cadmium, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene were identified during the RFI in surface soils above RRS 2 MSC values. An IRA was initiated to delineate, excavate, and dispose of contaminated surface soil at four boring locations and to investigate six areas identified during a geophysical survey in April 2000 (HGL, 2001; IT, 2001). Confirmation soil samples were

collected following excavation of the four boring locations and MSCs were achieved for all constituents except antimony from the floor and sidewalls of hot spot WBA-7A. Soil from sample WBA-7A was reanalyzed for antimony by SPLP and did not exhibit leachable concentrations above its MSC in groundwater (IT, 2001). Section 4.0 provides additional details regarding the IRA.

The six areas identified during the April 2000 geophysical survey were excavated and confirmation samples were collected from the floor of each excavation (IT, 2001). Confirmation samples were also collected from the sidewalls of excavations where visual staining was observed (IT, 2001). A post-removal geophysical survey was performed to verify that metallic source objects had been removed.

Following assessment of the waste burial area and the results of the RFI, SWMU 24 does not present a threat to human health or the environment via the soil-to-groundwater migration pathway. The Air Force elected to close the site soils under RRS 2. The final remedy for SWMU 24 is LUCs/ICs. Section 4.0 of this report provides additional information regarding the IRA and selected remedy.

3.1.3.3 SWMU 25

Following the TNRCC's request for additional investigation to determine the nature and extent of contamination at SWMU 25, RFI activities were conducted between 1997 and 2000 and included two geophysical surveys, the excavation of eight exploratory trenches, collection of soil samples from 39 DPT soil borings, the installation of four monitoring wells, and the collection of two rounds of groundwater samples from existing and new monitoring wells (HGL, 2001).

Test pit trenching activities at SWMU 25 uncovered miscellaneous commercial and industrial debris throughout the landfill. Observed debris consisted primarily of concrete and rubble, sheet metal, rebar, asphalt, tar, gravel, copper tubing, and metal possibly associated with an aircraft section.

In accordance with the NAS Fort Worth JRB hazardous waste permit, soil samples were collected in 5-foot intervals from the ground surface to the water table of each excavation and analyzed for the full suite of Appendix IX compounds. Analytical data results for the soil samples indicated no detections of chlorinated herbicides, OP pesticides, dioxins or furans at SWMU 25. Mercury, VOCs and SVOCs were detected above the reporting limit in soils. These constituents were evaluated in accordance with the RRSs and guidance provided in the TNRCC Consistency Memorandum discussed in Section 3.1.3.

Barium, beryllium, cadmium, lead, and BEHP were the only compounds at SWMU 25 with concentrations over the site-specific MSCs. An IRA was completed to remove contaminated soil from four locations. The remaining confirmation soil sample concentrations passed SPLP for barium, beryllium, cadmium, lead and BEHP, and these constituents have not been detected in downgradient groundwater; therefore, the RFI concluded that SWMU 25 does not present a threat to human health or the environment via the soil-to-groundwater migration pathway.

Following delineation of the landfill, the Air Force elected to close the site soils under RRS 2. The final remedy for SWMU 25 is LUCs/ICs. Section 4.0 of this report provides additional information regarding the IRA and selected remedy.

3.1.3.4 AOC 5

Following the TNRCC's request for additional investigation to determine the nature and extent of contamination at AOC 5, LAW and AFCEE personnel performed a site walk in October 1994 (Fanning Phillips and Molner [FPM], 1999). Some soil staining and areas suspected as having been used for chemical storage sheds and/or petroleum storage tanks were observed during the site walk (FPM, 1999).

LAW conducted soil sampling activities at AOC 5 from October 22 to 24, 1995, as part of site investigation (SI) and site characterization activities. Twenty-eight surface soil samples were collected from 0 to 2 feet bgs using a grid layout in 60-foot intervals (FPM, 1999). Some locations were offset to include stained areas near the two maintenance buildings and former pesticide storage building. Analytical results indicated detectable metals, VOCs, SVOCs and pesticides/polychlorinated biphenyls (PCBs) in the soil samples. Three chlorinated pesticides, including 4,4'-dichlorodiphenyltrichloroethane (DDT), 4,4'-dichlorodiphenyldichloroethylene (DDE), and dieldrin, one PCB identified as Aroclor 1254, and six metals including antimony, arsenic, barium, beryllium, chromium, lead, and nickel, were reported at concentrations above RRS 2 MSCs (LAW, 1996a; Air Force Base Conversion Agency [AFBCA], 1997).

LAW recommended a basewide background study to evaluate metal concentrations in soil samples from the SI and site characterization activities. An analyte required further evaluation if any results exceeded the background upper tolerance limit or the soil/air and ingestion standard for industrial use. Based on if the metal was an essential nutrient, if concentrations exceeded the USEPA Risk-Based Concentrations, and if the analyte was subject to non-parametric tests, all metals except arsenic were eliminated from further review at AOC 5 (AFBCA, 1997). LAW also recommended that Aroclor 1254, 4,4'-DDT, 4,4'-DDE and dieldrin be investigated further (AFBCA, 1997).

Jacobs Engineering Group, Inc. (Jacobs) performed confirmation sampling in May 1997 to verify analytical results from the 1995 SI and site characterization activities. Samples were analyzed using SPLP and below is a summary of the results reported in the closure report (AFBCA, 1997).

- Arsenic, chromium, and nickel concentrations were below RRS 2 criteria.
- The method detection limit (MDL) for antimony was above the MSC of 0.006 milligrams per liter (mg/L). The MDL was used to satisfy the requirements of the RRS 2 criteria because the MDL was the lowest laboratory achievable value as a result of analytical interference with sodium.
- Lead was detected in four SPLP samples at concentrations ranging from 0.0186 to 0.0719 mg/L. Three of the four detections were between the MDL and the reporting limit. The MDL of 0.016 mg/L only slightly exceeded the RRS 2 standard of 0.015 mg/L and was identified as within the allowable percent error of the analytical method.

- Beryllium was detected in every SPLP sample at concentrations between the MDL and the reporting limit. The maximum concentration detected in the soil was 0.0166 mg/L. Beryllium was also detected in all laboratory blank samples at concentrations ranging from 0.0005 to 0.0162 mg/L. Since the beryllium detections were less than five times the blank concentrations, the concentrations detected in the native samples were presumed to be due to laboratory contamination.
- Endrin was detected in SPLP samples but at a concentration less than the RRS 2 criteria. Aldrin and dieldrin were detected using MDLs above the RRS 2 criteria but these MDLs were the lowest achievable by the laboratory. No RRS 2 criteria existed for alpha-benzenehexachloride (BHC), beta-BHC, delta-BHC, and endrin aldehyde.
- No PCBs were detected during the confirmation sampling event.

In May 1997, Unified Services of Texas, Inc. demolished one structure and one concrete pad located at AOC 5 (AFBCA, 1997). Demolition activities included removing, transporting and disposing of the structure and concrete pad. Following the demolition and removal activities, the site was backfilled and compacted to 95 percent compaction criteria. Unified Services of Texas, Inc. disposed of 23 transformers of varying sizes located on a concrete pad to the northeast of the AOC 5 (Unified Services of Texas, Inc., 1997). The transformers were segregated into two categories based on the PCB concentration of the transformer oils. Each transformer was transported to a TNRCC approved disposal/recycling facility. All generated debris was removed, disposed of, and the site was restored to its original condition.

Following delineation of AOC 5 and removal of existing structures, the Air Force elected to close the site soils under RRS 2. The final remedy for AOC 5 is LUCs/ICs. Section 4.0 of this report provides additional information regarding the selected remedy.

4.0 REMEDIAL ACTIONS

4.1 REMEDIAL ACTION SELECTION

The following subsections provide a summary of the remedial action objective (RAO) and selected remedy for each site. Deed restrictions for the entire BRAC site or for individual sites are also considered part of the final remedy and are discussed below for each site. Copies of the final deeds, which specify deed restrictions, are included in Appendix A.

Deed restrictions for the entire BRAC site include:

- The property will not be used for residential purposes, except for the residential property shown in Exhibit D of the BRAC property Parcel G deed (Appendix A.5), hospitals for human care, public or private schools for persons under 18 years of age, or day care centers for children.
- No digging or excavation in shallow groundwater areas within the TCE concentration contours shown on the map in Exhibit E of the BRAC property Parcel G deed (Appendix A.5) where exposure by a construction worker in a trench may cause unacceptable risks.
- No extraction of any water from below the ground surface within the boundary of the property except for monitoring purposes.
- Construction activities that would interfere with, negatively impact, or restrict access for cleanup work and/or activities that impact and/or affect treatment systems operations, to include impacting the integrity of the PRB as shown in Exhibit E of the BRAC property Parcel G deed (Appendix A.5) and site monitoring wells as shown on the map in Attachment 6 of the SEBS are prohibited.

4.1.1 SMWU 22

The RAO for SWMUs 22 and 23, as stated in the *Final Completion Report – Remedial Actions at Landfills LF-04, LF-05, LF-08, and Waste Burial Area, WP-07*, dated February 2001, is to protect human health and the environment and to obtain site closure under RRS 2 (IT, 2001).

To achieve RRS 2 closure at SWMU 22, an IRA was initiated to remove the BEHP contaminated soils from one area of the site. Additionally, the former radar installation Building 4102 was demolished and disposed of, a transformer was removed and disposed of, and a MSW final landfill cover was installed (IT, 2001). The final remedy for SWMU 22 includes a MSW landfill cover with LUC/ICs requiring that future land use be for nonresidential (i.e., industrial and commercial) purposes (IT, 2001). The landfill cover was installed to prevent physical access to medical wastes identified in the landfill, and to provide adequate drainage and maintain a low erosion potential. Post-closure care is not required. A copy of the deed for the SWMU 22 is provided in Appendix A.1.

4.1.2 SWMU 23

The RAO for SWMUs 22 and 23, as stated in the *Final Completion Report – Remedial Actions at Landfills LF-04, LF-05, LF-08, and Waste Burial Area, WP-07*, dated February 2001, is to protect human health and the environment and to obtain site closure under RRS 2 (IT, 2001).

To achieve RRS 2 closure at SWMU 23, an IRA was initiated to remove the cadmium, lead and BEHP contaminated soils from two areas of the site and a MSW final landfill cover was installed (IT, 2001). The final remedy for SWMU 23 includes a MSW landfill cover with LUC/ICs requiring that future land use be for nonresidential (i.e., industrial and commercial) purposes (IT, 2001). The landfill cover was installed to prevent physical access to medical wastes identified in the landfill, and to provide adequate drainage and maintain a low erosion potential. Post-closure care is not required. A copy of the deed for the SWMU 23 is provided in Appendix A.2.

4.1.3 SWMU 24

The RAO for SWMU 24, as stated in the *Final Completion Report – Remedial Actions at Landfills LF-04, LF-05, LF-08, and Waste Burial Area, WP-07*, dated February 2001, is to protect human health and the environment and obtain site closure under RRS 2 (IT, 2001).

To achieve RRS 2 closure at SWMU 24, an IRA was conducted to investigate four hot spots identified during the RFI and to investigate six areas identified during a geophysical survey in April 2000 (IT, 2001). A post-removal geophysical survey was performed to verify that all metallic source objects had been removed.

The final remedy for SWMU 24 is LUC/ICs requiring that future land use be for nonresidential (i.e., industrial and commercial) purposes (IT, 2001). A copy of the deed for the SWMU 23 is provided in Appendix A.3.

4.1.4 SWMU 25

The RAO for SWMU 25, as stated in the *Final Completion Report – Remedial Actions at Landfills LF-04, LF-05, LF-08, and Waste Burial Area, WP-07*, dated February 2001, is to protect human health and the environment and obtain site closure under RRS 2 (IT, 2001).

To achieve RRS 2 closure at SWMU 25, an IRA was initiated to remove the barium, beryllium, cadmium, lead, and BEHP contaminated soils from four areas at the site (IT, 2001). The final remedy for SWMU 25 is LUC/ICs requiring that future land use be for nonresidential (i.e., industrial and commercial) purposes (IT, 2001). A copy of the deed for the SWMU 25 is provided in Appendix A.3.

4.1.5 AOC 5

The RAO for AOC 5 is to protect human health and the environment and obtain site closure under RRS 2 (IT, 2001). To achieve RRS 2 closure at AOC 5, confirmation surface soil samples were collected in May 1997 to verify results obtained during the 1995 SI and site characterization activities. Additionally, one structure and one concrete pad were demolished and disposed of and 23 transformers were transported to a TNRCC approved disposal/recycling facility (AFBCA, 1997)

The final remedy for AOC 5 is LUC/ICs requiring that future land use be for nonresidential (i.e., industrial and commercial) purposes (AFBCA, 1997). A copy of the deed for the AOC 5 is provided in Appendix A.4.

The Department of the Air Force received an Industrial Solid Waste Certification of Remediation for this site. Future use of this property is restricted to non-residential purposes.

4.2 REMEDY IMPLEMENTATION

4.2.1 SWMU 22

4.2.1.1 Hot Spot Removal

Delineation, excavation and disposal of soils impacted with BEHP were performed as part of an IRA in July 2000 to meet RRS 2 soil standards (HGL, 2001; IT, 2001). Confirmation soil samples were collected from the floor and walls of the excavation that measured 13 feet by 13 feet by 13 feet deep (IT, 2001). The IRA was verified as complete when analytical results for each confirmation sample were reported below the RRS 2 MSC of 1.3 milligrams per kilogram (mg/kg). Eighty-two cubic yards of soil were excavated and transported off-site for disposal at a licensed disposal facility.

4.2.1.2 Existing Structure Demolition and Removal

The former radar installation Building 4102 was abated for lead paint and asbestos-containing material, demolished, and transported for disposal as construction debris to Westside Landfill in Aledo, Texas between May and June 2000 (IT, 2001).

A PCB investigation was conducted prior to removal of the transformer located adjacent to Building 4102. The PCB investigation involved the verification of the transformer contents as listed on the transformer by consulting the manufacturer. The transformer and the contents were removed and disposed of according to the applicable standards of Title 40, Code of Federal Regulations Part 761.60. A licensed subcontractor performed the work, and the contents and decommissioned transformer were disposed of at Sunbelt Transformer Recycling Facility in Temple, Texas (IT, 2001).

4.2.1.3 Installation of Landfill Cover

The landfill boundary and limits of waste were established during the RFI sampling of SWMU 22, and by IT personnel during the waste removal action (IT, 2001). Based on observations by HGL and IT field personnel, the landfill boundary line was established approximately 15 feet east of the security fence to coincide with the reported western limits of waste. Figure 3 presents the complete landfill boundary.

The Final Cover System Closure Plan (FCSCP) for SWMU 22 was prepared to document the installation of the final cover system. The FCSCP was designed in accordance with §30 TAC 330.51 and consists of an infiltration layer and an erosion layer. The FCSCP was approved by the TNRCC on June 21, 2000. The infiltration layer is composed of at least 18 inches of earthen material (clay) classified as clayey sand or clay, according to the Unified Soil Classification System, that was placed and compacted in lifts not exceeding 6 inches in thickness. The erosion layer consists of at least 6 inches of topsoil capable of sustaining vegetative growth. Finally, a vegetative layer consisting of native grasses was established across 95 percent of the cover (EMCON, 2000a). Permeability testing of the infiltration layer was performed throughout the

construction of the cover system to ensure the system was being constructed according to the final approved design and TAC Section 330.51.

The site was approved for closure by the TNRCC on September 14, 2001, following submission of proof of deed certification. The deed certification certifies that contaminants remaining at the site have been remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S (TNRCC, 2001a).

4.2.2 SWMU 23

4.2.2.1 Hot Spot Removal

Delineation, excavation and disposal of soils impacted with cadmium, lead, and BEHP were performed as part of an IRA in July 2000 to meet RRS 2 soil standards (HGL, 2001; IT, 2001). Confirmation soil samples were collected from the floor and walls of the two excavation areas that measured 5-feet by 5-feet by 2-feet deep and 5-feet by 5-feet by 7-feet deep (IT, 2001). The IRA was verified as complete when analytical results for the confirmation samples reported concentrations below the site-specific MSCs. Seven cubic yards of soil were excavated for off-site disposal at a licensed disposal facility.

4.2.2.2 Installation of Landfill Cover

The FCSCP for SWMU 23 was prepared to document the installation of the final cover system. The FCSCP was designed in accordance with §30 TAC 330.51 and consists of an infiltration layer and an erosion layer. The FCSCP was approved by the TNRCC on June 21, 2000. The infiltration layer is composed of at least 18 inches of earthen material (clay) classified as clayey sand or clay, according to the Unified Soil Classification System, that was placed and compacted in lifts not exceeding 6 inches in thickness. The erosion layer consists of at least 6 inches of topsoil capable of sustaining vegetative growth. Finally, a vegetative layer consisting of native grasses was established across 95 percent of the cover (EMCON, 2000b). Permeability testing of the infiltration layer was performed throughout the construction of the cover system to ensure the system was being constructed according to the final approved design and TAC Section 330.51.

The site was approved for closure by the TNRCC on September 14, 2001, following submission of proof of deed certification certifying that contaminants remaining at the site had been remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S (TNRCC, 2001b).

4.2.3 SWMU 24

4.2.3.1 Hot Spot Removal

Delineation, excavation, and disposal of soil contaminated with antimony, cadmium, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene was performed as part of an IRA in July 2000 to meet RRS 2 soil standards (HGL, 2001; IT, 2001). Confirmation soil samples were collected from the floor and sidewalls of each of the four hot spot excavation areas to ensure cleanup goals had been achieved and the site could be closed under RRS 2 standards (IT, 2001). Confirmation soil samples collected from the floor and sidewalls of excavation area WBA-7A were reanalyzed by the SPLP

method after the initial analysis indicated elevated concentrations of antimony. Soil samples from excavation area WBA-7A did not exhibit leachable concentrations of antimony above the MSC (IT, 2001). The IRA was verified as complete when all confirmation samples were detected below the site-specific MSCs. Overexcavation activities were required at excavation area WBA-7B to meet cleanup goals. Eighty-one cubic yards of soil were excavated and transported offsite for disposal at a licensed landfill.

Following receipt of confirmation results indicating the cleanup goals had been achieved for each area, each hot spot was backfilled with certified clean clay material, covered with topsoil, and seeded.

4.2.3.2 Drum and Soil Removal

In April 2000, IT Corporation conducted a geophysical survey that identified 12 additional anomalies, advanced 14 DPT borings, and installed two monitoring wells within SWMU 24. In July 2000, 20 drums were uncovered during trenching activities, some of which contained small quantities of TCE (HGL, 2005). Following the excavation of each geophysical anomaly, confirmation samples were collected from the floor of each excavation and the sidewalls of excavations where visible staining was observed to ensure the remaining soils met RRS 2 standards (IT, 2001). Confirmation samples were analyzed for VOCs, SVOCs, pesticides, total metals, SPLP metals, and diesel range petroleum hydrocarbons (IT, 2001). A post-removal geophysical survey was performed to verify that all metallic source objects had been removed.

Approximately five 40 yard roll-off containers of excavated soils were profiled and transported off-site for disposal as hazardous waste at Chemical Waste Management in Sulphur, Louisiana. One 20 yard roll-off container with tetrachloroethene contaminated soils was incinerated at the Onyx facility in Port Arthur, Texas (IT, 2001). Additionally, three roll-off containers of nonhazardous waste were generated during drum removal activities and were transported for disposal as non-hazardous waste at a licensed facility. Following excavation activities, each excavation was backfilled with clean clay material, covered with topsoil, and seeded.

The site was approved for closure by the TNRCC on September 14, 2001, following submission of proof of deed certification, certifying that contaminants remaining at the site had been remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S (TNRCC, 2001b).

4.2.4 SWMU 25

The four hot spot areas of contamination were delineated during RFI activities (IT, 2001). Excavation and disposal of barium, beryllium, chromium, cadmium and lead contaminated soils that exceeded RRS 2 MSCs were performed as part of an IRA in July and August 2000 (IT, 2001). Confirmation soil samples were collected from the floor and walls of each excavation (IT, 2001). The IRA was verified as complete when analytical results for the confirmation samples reported concentrations below the RRS 2 MSCs. Excavation activities resulted in the disposal of approximately 506 cubic yards of non-hazardous soil at an off-site facility.

Following receipt of confirmation soil samples results indicating that cleanup goals had been achieved for each hot spot, each area was backfilled with certified clean material, covered with topsoil, and seeded.

The site was approved for closure by the TNRCC on September 13, 2001, following submission of proof of deed certification, certifying that contaminants remaining at the site have been remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S (TNRCC, 2001c).

4.2.5 AOC 5

Confirmation sampling activities were conducted by Jacobs in May 1997 to confirm analytical results and to further evaluate the pesticides and PCB exceedances identified during the October 1995 investigation (AFBCA, 1997). Confirmation sampling results verified that all contaminants had been remediated to RRS 2 MSCs.

In May 1997, Unified Services of Texas, Inc. demolished one structure and one concrete pad located at AOC 5 (AFBCA, 1997). Demolition activities included removing, transporting and disposing of the structure and concrete pad. Following the demolition and removal activities, the site was backfilled and compacted to 95 percent. Unified Services of Texas, Inc. disposed of 23 transformers of varying sizes located on a concrete pad to the northeast of the AOC 5. The transformers were segregated into two categories based on the PCB concentration of the transformer oils. Each transformer was transported to a TNRCC approved disposal/recycling facility. All generated debris was removed, disposed of, and the site was restored to its original condition.

The site was approved for closure by the TNRCC on May 8, 2001, following submission of proof of deed certification, certifying that contaminants remaining at the site had been remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S (TNRCC, 2001d).

4.3 SYSTEM OPERATIONS

The selected remedies for the five sites do not include operation and maintenance of treatment systems. The post-closure care requirements include site inspections to ensure compliance with LUCs/ICs.

Operation and maintenance costs are not incurred for sites closed with no post-closure maintenance requirements. Additionally, there are no system operations, operations plans, activities to date, implementation issues, costs or unusual costs associated with these sites. However, the sites closed with no post-closure maintenance requirements do incur a de minimis cost for administrative duties including maintaining deed requirements.

5.0 PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

The recommendations and follow-on actions identified in the previous Five-Year Review report are summarized in Table 5.1.

Table 5.1
Actions Taken Since the Last Five-Year Review
Former Carswell AFB, Texas

Issue from Previous Review	Recommendations/ Follow-up Actions	Responsible Party	Action Taken and Outcome
1	Conduct an annual visual site inspection (VSI) to ensure that the integrity of monitoring well protective casings and grout are not compromised.	AFCEE / Property Owner	Annual VSIs were conducted as part of the basewide long-term monitoring (LTM) sampling events. Minor well repairs (e.g., replacement of locks, cut casings down, uncover wells, etc.) occurred at the PRB. Some LTM wells have been filled with sediment or destroyed and have been subsequently replaced.
2	Conduct an annual VSI to ensure that no digging or trenching has occurred at AOC 16 (Family Camp) or the WSA sites (SWMUs 59, 60, and 65) until the WSA range is cleared.	AFCEE / Property Owner	Annual VSIs were not completed at AOC 16 (Family Camp) or the WSA sites (SWMUs 59, 60, and 65). The WSA was transferred to the U.S. Army in 2007 and AOC 16 has been transferred to the WRA and converted to luxury apartments.
3	Conduct an annual VSI to ensure that no groundwater extraction wells have been installed at any of the sites.	AFCEE / Property Owner	<p>Informal annual VSIs were conducted at SWMU 22 during the annual LTM sampling event; however, they were not conducted at SWMUs 23 through 25, and AOC 5.</p> <p>NAS Fort Worth JRB monitors activities that occur on-base to comply with the deed restrictions and NEPA, but does not conduct formal VSIs.</p> <p>Based on the 2009 site inspection, no groundwater extraction wells have been installed.</p>
4	Conduct an annual VSI to ensure that no buildings have been built directly above contaminated groundwater.	AFCEE / Property Owner	<p>Informal annual VSIs were conducted at SWMU 22 during the annual LTM sampling event; however, they were not conducted at SWMUs 23 through 25, and AOC 5.</p> <p>NAS Fort Worth JRB monitors activities that occur on-base to comply with the deed restrictions and NEPA, but does not conduct formal VSIs.</p> <p>Based on the 2009 site inspection, no buildings have been installed at SWMUs 22 through 25 and AOC 5.</p>

6.0 FIVE-YEAR REVIEW PROCESS

6.1 ADMINISTRATIVE COMPONENTS

Representatives from the TCEQ, NAS Fort Worth JRB, and the WRA were notified of the initiation of the five-year review through correspondence with the AFCEE and HGL. The Second Five-Year Review for the former Carswell AFB was performed by HGL, on behalf of AFCEE, between March 2010 and May 2010. The review included members from HGL's project management team and technical staff with expertise in engineering, hydrology, and environmental science. Since there are no on-going remedial actions other than maintenance of LUC/ICs at the five BRAC sites, no interviews were necessary for this five-year review. However, HGL did interview Mr. Leland Clemons of the WRA on May 28, 2010. Components of the Second Five-Year Review are discussed below.

6.2 COMMUNITY NOTIFICATION AND INVOLVEMENT

A public notice of the intent to conduct the Second Five-Year Review for the former Carswell AFB was published in the Fort Worth *Star-Telegram* newspaper on March 16 and 17, 2010. The notice invited recipients to provide comments to Mr. Steven Dea, the AFCEE Project Manager, by telephone. Another notice will be provided with the findings and recommendations of this final report. The published notice of intent for the Second Five-Year Review is provided in Appendix B. In addition, a copy of the Final Second Five-Year Review Report will be available online at <https://afarpaar.lackland.af.mil/ar/docsearch.aspx>.

6.3 DOCUMENT REVIEW

The Second Five-Year Review consisted of reviewing the investigation and site closure reports for the five sites. A list of documents that were reviewed is presented in Appendix C.

6.4 DATA REVIEW

No additional SIs or soil sampling have been performed at SWMUs 22 through 25 and AOC 5. Site soils were conditionally closed under RRS 2 between December 2000 and March 2001 until AFCEE submitted proof of deed certification. The attached deed certifications, provided in Appendix A, indicate that the five sites were remediated to meet non-residential soil criteria under RRS 2 pursuant to TAC Chapter 335 Subchapters A and S. The deed certifications were filed with the Tarrant County Real Property Records between May 2001 and September 2001, thereby releasing AFCEE from post-closure care responsibilities.

Because groundwater beneath the former Carswell AFB has been impacted by historical activities at AFP 4, a NPL site, groundwater contamination is addressed under the AFP 4 ROD and is not covered in this BRAC five-year review. Soil and groundwater data collected during the site investigations indicated that soil contaminants at the five BRAC sites did not pose a threat to quality of the underlying groundwater. Additional details associated with the basewide groundwater plume can be found in the *Final Five-Year Review Report at Air Force Plant 4*, dated September 2008 (Earth Tech AECOM, 2008).

6.5 SITE INSPECTIONS

The site inspection was conducted by HGL and Mr. Steven Dea of AFCEE on March 23, 2010. The purpose of the inspection was to assess the current site conditions, evaluate the integrity of the ICs, evaluate the protectiveness of the remedy, evaluate current access controls and use restrictions, and evaluate the remedial actions at each site. Completed site-specific inspection checklists are included in Appendices D. Photographs taken during the site inspection for SWMU's 22 through 25 and AOC 5 are presented in Appendices E.1 through E.5, respectively.

Institutional controls and access restrictions were evaluated by inspecting site access restrictions and monitoring wells, where present. The results of the site inspection and observed conditions are discussed below.

6.5.1 SWMU 22

SWMU 22 is located south of White Settlement Road on the southern side of former Carswell AFB (Figure 3). This portion of former Carswell AFB was transferred to the WRA in 2007. The WRA utilizes the majority of the BRAC property surrounding SWMU 22 as the Hawks Creek Golf Club and SWMU 22 has been used to store brush and mulch in the past. Since closure of SWMU 22, the golf course maintenance crew has added approximately 1.5 feet of fill to the landfill cover which places the infiltration layer approximately 2 feet bgs.

During the site inspection at SWMU 22, it was observed that the area is now being used to store construction debris in the form of pallets, brush, rock, mulch, wire, and tires. Areas of SWMU 22 that were not covered by the debris pile contained natural vegetation. The current SWMU 22 surface is uneven with depressions and ruts. The presence and size of ruts at SWMU 22 indicate that heavy equipment vehicles have been used at the site. The largest rut was observed in the southwest corner of SWMU 22 and measured approximately 6 feet long, 3 feet wide, and 1.5 feet deep (Appendix E.1). Recent precipitation had collected in the largest rut and in other areas of SWMU 22, which is evidence of drainage issues. An oil sheen was not observed in areas where there was standing water.

The debris that is currently stored on SWMU 22 should be removed and properly disposed of. The landfill should be regraded to allow for proper runoff and areas without vegetation should be reseeded. Although the landfill cover contained construction debris and has drainage issues, post-closure care is not required and the deed restriction to maintain the site for non-residential (i.e., commercial or industrial) purposes is enforced.

6.5.2 SWMUs 23 through 25

SWMUs 23 through 25 are located within the secured NAS Fort Worth JRB off perimeter road. An escort was required to inspect the sites.

The landfill cover of SWMU 23 is in good condition and the vegetative cover is well established. The area continues to be used as an open field that is maintained by NAS Fort Worth JRB (Appendix E.2). NAS Fort Worth JRB installed a security fence along the western edge of the site that generally follows the unnamed creek north through the eastern edge of SWMU 25.

SWMUs 24 and 25 were in good condition. Both areas continue to be used as an open field. The vegetative covers are well established and are maintained by NAS Fort Worth JRB. Appendices E.3 and E.4 provides photographs of SWMUs 24 and 25, respectively.

6.5.3 AOC 5

AOC 5 is located within the secured NAS Fort Worth JRB off Pumphrey Drive and is good condition. The former grounds maintenance yard has restricted access and has been paved with asphalt. The area is currently utilized by the Military Police to store road barricades. Photographs are provided in Appendix E.5.

6.5.4 BRAC Property Parcel G

During the inspection of the five BRAC sites, HGL and AFCEE visually inspected the area of the PRB and network of PRB wells. This inspection was not part of the BRAC property five-year review process, but several parties had raised concern regarding construction materials (e.g., bricks, boulders, etc.) being placed on or near Transect 2 of the PRB. Figure 3 presents the location of the PRB in relation to the five-year review sites.

Construction and subsequent monitoring of the PRB was initiated by the U.S. Air Force in 2002 on a voluntary basis as part of a technology demonstration study. Although originally intended as a technology demonstration, the PRB is a remedial component addressing off-site contamination resulting from the East Parking Lot Groundwater Plume and Terrace Alluvial Flow System at AFP 4, a NPL site that receives separate five-year reviews from BRAC sites. The BRAC property Parcel G was transferred to the WRA in 2007 and is addressed under a separate deed certification from SWMUs 22 through 25 and AOC 5. The Parcel G deed certification property description overlaps with the landfill area covered by the SWMU 22. Appendix A.5 presents the deed for this property. A summary of the deed restrictions that are applied to the 187.29 acre BRAC property include:

- The parcel is restricted to non-residential use except as shown in Figure 4;
- Digging/excavation is restricted at the PRB location and in the surrounding 25-foot buffer zone to protect its integrity;
- Digging/excavation is restricted within the area of the TCE plume;
- The integrity of the PRB and site monitoring wells must be protected and maintained;
- Groundwater cannot be removed or used except for monitoring purposes;
- Groundwater cannot be used as a source of potable water; and
- The installation of drinking water wells is prohibited.

Overall, the PRB and network of PRB wells were in good condition within the BRAC Parcel G. No settling or depressions were identified on top of the PRB from the storage of pallets of landscaping materials (e.g., bricks, boulders, etc.) placed in the area of Transect 2. The additional items listed below that were noted during the inspection of the PRB area. Figure 5 presents the location of these observations and/or deficiencies identified during the site inspection, and Appendix E.6 presents photographs of these areas.

- 1) Northern by-pass well WHGLTA069 is missing a bolt in the manhole cover. The bolt should be replaced in the manhole cover.
- 2) A gravel golf cart maintenance road runs over top of the PRB between Transect 1 and Transect 2. No settling or depressions were noted in the area of the PRB.
- 3) A 4-inch polyvinyl chloride (PVC) pipe was observed within the 25-foot PRB buffer zone. The pipe was approximately 3-feet tall and was installed approximately 2 feet bgs. The golf course maintenance shop plans to install a smaller golf vehicle rinse pad west of the maintenance building that connects to the larger golf vehicle rinse pad located on the east side of the maintenance building. The rinse pad is used to collect grass as it is rinsed off mowing equipment. The WRA should coordinate future installation and plans for the rinse pad with AFCEE prior to initiating further construction activities.
- 4) Transect 2 well WHGLTA073 was partially covered with building materials (wood, rebar, etc.) and should be uncovered.
- 5) Transect 2 well WHGLTA074 was completely covered with pea gravel and should be uncovered and staked to prevent it from being covered in the future.
- 6) Recirculation well 11 is located in the center of White Settlement Road and was partially covered by dirt. This area is a high traffic area for vehicles. A pothole was observed immediately south of recirculation well 11, approximately 3-feet by 3-feet by 4-inches. The pothole should be filled in and the recirculation well should be uncovered and marked.
- 7) A small bush and construction debris (e.g., rocks) are located immediately west of Transect 3 and recirculation well 16. There does not appear to be any surface depressions and the vegetation does not appear to have caused any problems. The bush and debris should be removed and properly disposed.
- 8) The portion of the PRB that is located on NAS Fort Worth JRB property contained standing water. It was unclear if the ground has settled or if it was initially constructed as a lower elevation area that has always retained water following rain events. Drainage should be away from the PRB alignment and ponding should be prevented in the area of the PRB.

The BRAC property should be included in future five-year reviews associated with SWMUs 22 through 25 and AOC 5 to ensure compliance with deed restrictions.

6.6 INTERVIEW – WESTWORTH REDEVELOPMENT AUTHORITY

A telephone interview was conducted on May 28, 2010, with Mr. Leland Clemons, the Director of the WRA. The discussion involved comments or concerns about project activities that have occurred since transfer of the property and the BRAC property Parcel G inspection findings associated with the PRB and SWMU 22.

Mr. Clemons had no significant concerns related to the site and thinks that he is well informed about the site activities and progress. He is aware of the deed restrictions and limitations that govern the BRAC property and SWMU 22. The following sections were topics that were discussed during the interview.

6.6.1 SWMU 22 Debris

Mr. Clemons indicated that dumping has been an issue at SWMU 22 despite posting “No Dumping” signs in the past. He said that the golf course maintenance crew has only placed brush on the landfill cover aside from the additional 1.5 feet of soil that’s been added over several years. Additionally, Mr. Clemons indicated that the brush has been chipped into mulch on the landfill cover. Mr. Clemons added that the presence of other construction materials (e.g., pallets, rock, wire, and tires) at SWMU 22 is not from the golf course maintenance crew or other WRA personnel.

Mr. Clemons indicated that he has cleared similar construction debris from SWMU 22 in the past and has observed that the cover has poor drainage after precipitation events. He indicated that a natural gas pipeline was installed on the east side of the BRAC property. The pipeline is located east of Roaring Springs Road and approximately 100 yards north of the former Family Camp (AOC 16). In June 2010, Mr. Clemons mixed spoils from the natural gas line with compost, and applied them to SWMU 22. The area was regraded to allow for proper drainage; natural vegetation is currently growing. The landfill area was seeded with bermuda grass in May 2011.

Mr. George Walters of the Aeronautical Systems Center notified HGL that on November 19, 2009, he observed a golf course maintenance employee dumping the contents of a large white tank approximately 30 feet within SWMU 22. Mr. Clemons inquired further on this subject and confirmed that it was a City of Westworth Village employee emptying water from the tank onto the landfill. Mr. Clemons added that this container is shared between the City of Westworth and the golf course maintenance crew, and very rarely is used for fertilizer. Minimal pesticides are used at the site, and when used, are applied with a hand held pump. Herbicides are not used at the site.

6.6.2 Landscaping Materials Stored on the PRB

Mr. Clemons was not aware that the pallets of landscaping materials (e.g., bricks, boulders, etc.) have been placed on or near Transect 2 of the PRB. He indicated that he will have this material moved despite no impacts on the integrity of the PRB. Mr. Clemons added that he will inform the golf course maintenance staff to store these materials in another location away from the PRB.

6.6.3 Installation of New Rinse Pad

Mr. Clemons indicated that he was not sure when the 4-inch pipe for the small rinse pad was installed on the west side of the golf course maintenance building but added that the WRA will coordinate with AFCEE and USEPA/TCEQ prior to installation.

6.6.4 Change in Ownership of a Portion of Parcel G

Mr. Clemons indicated that the building and surrounding property at 6550 White Settlement Road changed ownership. The WRA provided a copy of the deed restrictions to the new property owner and they are aware of the history of the TCE plume that is west of their property. Mr. Clemons added that the new property owner has performed soil and groundwater investigations in the area to determine the nature and extent of contamination. Building design plans are in progress and will be provided to AFCEE, USEPA, and TCEQ for approval prior to

initiating construction activities. A copy of the interview questions and response from Mr. Clemons are included in Appendix F.

7.0 TECHNICAL ASSESSMENT

This section presents the technical assessment of the final and/or interim remedies selected for the five BRAC sites since the effective date of September 2005, for the First Five-Year Review document, which acts as the trigger for this five-year review in accordance with the *Comprehensive Five-Year Review Guidance* (USEPA, 2001). The sites were reviewed to ensure the following:

- The remedy or interim remedies continue to function as intended by the decision documents.
- Exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of remedy selection remain valid.
- No additional information has come to light that would call into question the protectiveness of the remedy.

Each of these issues is addressed separately below.

7.1 QUESTION A: IS THE REMEDY FUNCTIONING AS INTENDED BY THE DECISION DOCUMENTS?

7.1.1 Remedial Action Performance

There are no on-going remedial actions other than LUC/ICs at each of the five BRAC sites. The LUCs and ICs at each of the five sites prohibit the use of each property for residential purposes. In addition to LUC/ICs, SWMUs 22 and 23 are covered by MSW engineered landfill cover that are effective in protecting human health and the environment by eliminating direct contact with buried medical waste.

The LUC/ICs at SWMUs 23 through 25 and AOC 5 appear to be protective and functioning as intended. Although dumping of construction materials (e.g., pallets, rock, wire, and tires) and drainage issues have been observed at the SWMU 22 landfill, post-closure care is not required and the deed restriction to maintain the site for non-residential (i.e., commercial or industrial) purposes is enforced.

7.1.2 System Operations and Operations and Maintenance

Systems operations and operation and maintenance are not performed at the five BRAC sites.

7.1.3 Opportunities for Optimization

There are no opportunities for optimization because there are no on-going remedial actions other than LUC/ICs at each of the five BRAC sites.

7.1.4 Early Indicators of Potential Remedy Failure

There are no early indicators of potential failure of the soil remedies or interim remedies at SWMUs 23 through 25 and AOC 5.

7.1.5 Implementation of Institutional Controls and Other Measures

The LUCs and ICs at each of the five sites prohibit the use of each property for residential purposes. In addition to LUC/ICs, SWMUs 22 and 23 are covered by MSW engineered landfill cover that are effective in protecting human health and the environment by eliminating direct contact with buried medical waste. Site access is restricted at SWMUs 23 through 25 and AOC 5 because they are located on NAS Fort Worth JRB and are in areas where escorts are required.

7.2 QUESTION B: ARE THE EXPOSURE ASSUMPTIONS, TOXICITY DATA, CLEANUP LEVELS AND REMEDIAL ACTION OBJECTIVES (RAOS) USED AT THE TIME OF THE REMEDY SELECTION STILL VALID?

The former Carswell AFB was grandfathered under the Risk Reduction Rule, Title 30, TAC Chapter 335, Subchapter S, when the Texas Risk Reduction Program was enacted in 2007. The five closed sites assessed during this Five-Year Review were closed under RRS 2 for soils, closure and remediation to health-based standards and criteria. Several of the RRS 2 standards at the time of closure were revised and or created, but the highest contaminant concentrations remain below the current RRS 2 value.

No changes in exposure pathways have occurred at the five sites assessed in this five-year review that would adversely affect the protectiveness of the remedies. No new contaminants, sources, or routes of exposure were identified as part of this Five-Year Review. In addition, there are no current or planned changes in land use for the five sites assessed during this review. The sites continue to be used for non-residential purposes and the future use must remain non-residential in accordance with the deed.

The RAOs discussed in Section 4.0 for each site remain protective of human health and the environment.

7.3 QUESTION C: HAS ANY OTHER INFORMATION COME TO LIGHT THAT COULD CALL INTO QUESTION THE PROTECTIVENESS OF THE REMEDY?

No additional information has been identified that would call into question the protectiveness of the remedies at the five BRAC sites assessed in this five-year review.

8.0 ISSUES

The following table identifies the issues identified during the site inspection. Figure 5 identifies the observations and/or deficiencies identified during the site inspection.

Table 8.1
Summary of Issues Identified from Site Inspection
Former Carswell AFB, Texas

Site	Issue	Currently Affects Protectiveness? (Yes/No)	May Affect Future Protectiveness? (Yes/No)
All Sites	Annual VSIs at SWMUs 22 through 25, AOC 5, and the BRAC property Parcel G.	No	Yes
SWMU 22	Dumping of construction materials (e.g., pallets, brush, concrete, mulch, wire, tires, etc.)	No	No
	Poor drainage off landfill cover.	No	No
BRAC Property Parcel G	PRB northern by-pass well WHGLTA069 is missing a bolt in the manhole cover.	No	No
	A 4-inch PVC pipe was observed within the 25-foot PRB buffer zone. The pipe was approximately 3-feet tall and was installed approximately 2 feet bgs.	No	No
	PRB Transect 2 well WHGLTA073 was partially covered with building materials (wood, rebar, etc.).	No	No
	PRB Transect 2 well WHGLTA074 was completely covered with pea gravel.	No	No
	PRB Recirculation well 11 is located in the center of White Settlement Road and it was partially covered by dirt.	No	No
	A pothole is located immediately south of PRB recirculation well 11, approximately 3-feet by 3-feet by 4-inches.	No	No
	A small bush and construction debris (e.g., rocks) are located immediately west of PRB Transect 3 and recirculation well 16.	No	No
	The portion of the PRB that is located on NAS Fort Worth JRB property contained standing water.	No	No

9.0 RECOMMENDATIONS AND FOLLOW-ON ACTIONS

The following table identifies the recommendations and follow-on actions based on the issues identified in Section 8.0. These recommendations and follow-on actions should be achieved within one year of approval of this five-year review.

**Table 9.1
Recommendations and Follow-on Actions
Former Carswell AFB, Texas**

Site	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	May Affect Protectiveness? (Yes/No)	
					Current	Future
All Sites	Annual VSIs at SWMUs 22 through 25, AOC 5, and the BRAC property Parcel G.	VSIs to ensure deed restrictions are being followed at each site.	AFCEE	TCEQ/USEPA	No	Yes
SWMU 22	Dumping of construction materials (e.g., pallets, brush, concrete, mulch, wire, tires, etc.)	Remove and properly dispose of all debris.	AFCEE / Property Owner	TCEQ/USEPA	No	No
	Poor drainage off landfill cover.	Regrade the area to allow for proper drainage.	AFCEE / Property Owner	TCEQ/USEPA	No	No
PRB – BRAC Property Parcel G	PRB northern by-pass well WHGLTA069 is missing a bolt in the manhole cover.	Replace bolt in manhole cover.	AFCEE	TCEQ/USEPA	No	No
	A 4-inch PVC pipe was observed within the 25-foot PRB buffer zone. The pipe was approximately 3-feet tall and was installed approximately 2 feet bgs.	Ensure WRA coordinates the installation of the rinse pad with AFCEE.	Property Owner	TCEQ/USEPA	No	No
	PRB Transect 2 well WHGLTA073 was partially covered with building materials (wood, rebar, etc.).	Uncover well WHGLTA073 and mark well to prevent being covered in the future.	Property Owner	TCEQ/USEPA	No	No
	PRB Transect 2 well WHGLTA074 was completely covered with pea gravel.	Uncover well WHGLTA074 and mark well to prevent being covered in the future.	Property Owner	TCEQ/USEPA	No	No
	PRB recirculation well 11 is located in the center of White Settlement Road and it was partially covered by dirt.	Uncover and mark recirculation well 11 to prevent being covered in the future.	Property Owner	TCEQ/USEPA	No	No
	A pothole is located immediately south of PRB recirculation well 11, approximately 3-feet by 3-feet by 4-inches.	The pothole should be filled.	Property Owner	TCEQ/USEPA	No	No

Table 9.1 (Continued)
Recommendations and Follow-on Actions
Former Carswell AFB, Texas

Site	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	May Affect Protectiveness? (Yes/No)	
					Current	Future
PRB – BRAC Property Parcel G (Continued)	A small bush and construction debris (e.g., rocks) are located immediately west of PRB Transect 3 and recirculation well 16.	Remove and properly dispose of vegetation and rocks.	Property Owner	TCEQ/USEPA	No	No
	The portion of the PRB that is located on NAS Fort Worth JRB property contained standing water.	Maintain a positive drainage away from PRB alignment and prevent ponding of the area.	AFCEE	TCEQ/USEPA	No	No

10.0 PROTECTIVENESS STATEMENTS

The MSW covers at SWMUs 22 and 23, and the LUC/ICs associated with SWMUs 22 through 25 and AOC 5 are protective of human health and the environment. The remedies are functioning as intended. No information has become available indicating inadequate protection of human or ecological populations. Exposure pathways, land use, COCs, toxicity data, and cleanup criteria (e.g., TNRCC RRSs, alternate concentrations limits) remain unchanged or if changed, have not affected the protectiveness of the remedy. Recommendations and follow-on actions are designed to ensure protectiveness until the time that unlimited land use and unrestricted exposure scenarios are achieved.

11.0 NEXT REVIEW DATE

The next Five-Year Review will be conducted within five years of the signature date on the cover of this five-year review report. The five-year review will, at a minimum, assess the five BRAC sites assessed during this review.

12.0 REFERENCES

- Air Force Base Conversion Agency, 1997. Closure Document for Grounds Maintenance Yard (AOC 05) Site ID OT-39, NAS JRB Fort Worth, TX. August 20, 1997.
- A.T. Kearney, Inc., 1989. RCRA Facility Assessment PR/VSI Report, Carswell AFB, Texas. March 1989.
- CH2M HILL, Inc., 1984. Installation Records Program for Carswell Air Force Base, Texas. February 1984.
- Earth Tech AECOM, 2008. Final Five-Year Review Report at Air Force Plant 4. September 2008.
- EMCON, 2000a. Final Cover System Evaluation Report, Naval Air Station Fort Worth Joint Reserve Base, Landfill No. 4. September 2000.
- EMCON, 2000b. Final Cover System Evaluation Report, Naval Air Station Fort Worth Joint Reserve Base, Landfill No. 5. September 2000.
- Fanning Phillips and Molner, 1999. Revised Final Work Plan Addendum, Risk-Based Assessment, Management, and Closure of Grounds Maintenance Yard (AOC 5), Carswell AFB, TX. March 1999.
- HydroGeoLogic, Inc. (HGL), 2001. Final RCRA Facility Investigation Solid Waste Management Units 22, 23, 24, and 25, NAS Fort Worth JRB, Texas. May 2001.
- HGL, 2005. Final Focused Feasibility Study Southern Lobe TCE Groundwater Plume, Former Carswell AFB, Texas. June 2005.
- HGL, 2007. Final Operating Properly and Successfully Demonstration Report of the TCE Plume Impacting the BRAC Property at the Former Carswell AFB, Texas. January 2007.
- IT Corporation (IT), 1993a. Phase I and II Report, Field Sampling, Analysis and Testing, Carswell Air Force Base, Landfills 4 and 5, Fort Worth, Texas. March 1993.
- IT, 1993b. Field Sampling, Analysis, and Testing Plan, Groundwater Remediation Investigation, Carswell AFB Landfill 4 and 5, Fort Worth, Texas.
- IT, 1994. Draft Phase III Report Field Sampling, Analysis, and Testing Carswell Air Force Base, Landfills 4 and 5, Fort Worth, Texas. September 1994.
- IT, 2001. Final Completion Report, Remedial Action at Landfills LF-04, LF-05, LF-08, Waste Burial Area WP-07, NAS Fort Worth (Former Carswell AFB), Fort Worth, Texas. February 2001.

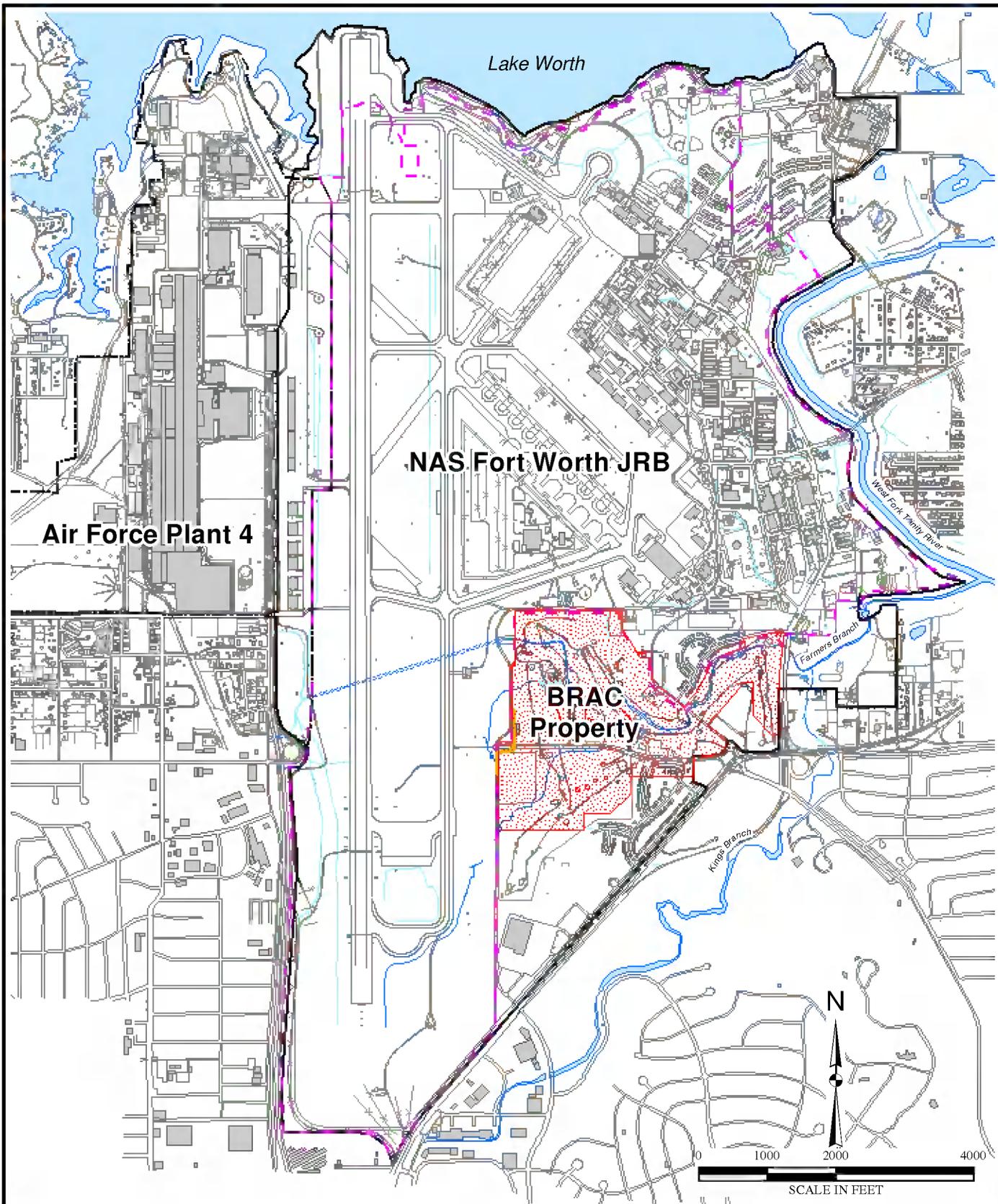
- Jacobs Engineering Group, Inc. (Jacobs), 1995. Installation Restoration Program Basewide Groundwater Monitoring Quarterly Letter, NAS Fort Worth JRB. 1995.
- Law Environmental Inc. (LAW), 1996a. Final IRP SI/Site Characterization Technical Report for Aerospace Museum Site and Grounds Maintenance Yard, NAS Fort Worth JRB, Texas. July 1996.
- LAW, 1996b. IRP Quarterly Groundwater Monitoring, First Semiannual Report, Volume 1. March 1996.
- LAW, 1996c. IRP Quarterly Groundwater Monitoring, Second Semiannual Report, Volume 1, NAS Fort Worth JRB, Texas. June 1996.
- Radian Corporation (Radian), 1986. IRP Phase II – Confirmation/Quantification, Stage 1, Final Report. October 1986.
- Radian, 1989. IRP RI/FS, Stage 2 Draft Final Technical Report, Carswell AFB. April 1989.
- Radian, 1990. IRP Stage II - Site Characterization Report, Flightline Area. November 1990.
- Radian, 1991. IRP RI, Stage 2 Final Report, Carswell AFB. October 1991.
- Texas Natural Resource Conservation Commission (TNRCC), 1995. Letter to Air Force Base Disposal Agency regarding Carswell AFB Designation of SWMUs and AOCs for Investigation and/or Corrective Measures. March 2, 1995.
- TNRCC, 2001a. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 22 – Landfill Area 4, Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 14, 2001.
- TNRCC, 2001b. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 23 (Landfill Area 5) and SWMU 24 (Waste Burial Area 7), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 14, 2001.
- TNRCC, 2001c. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 25 (Landfill Area 8), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 13, 2001.
- TNRCC, 2001d. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at Ground Maintenance Yard (AOC 05), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell AFB, Texas. May 8, 2001.

Unified Services of Texas, Inc., 1997. Final Report Demolition and Removal of Structures/Disposal of Transformers with PCB Oil at NAS Fort Worth JRB, Texas. June 19, 1997.

U.S. Army Corps of Engineers, Fort Worth District, 1992, RCRA Facility Investigation/Remediation Report, Removal of Buried Drums and an UST, SWMU Number 24 – Waste Burial Area.

USEPA, 2001. Comprehensive Five-Year Review Guidance. June 2001.

FIGURES



Y:/Carswell_AFB/AF5/TO_29/
 2010-05_Second_Five-Year_Review/
 RA_FFS_Area.mxd
 05/24/10 PD
 Map Source:HGL GIS Database



Legend

- - - NAS Fort Worth JRB Boundary
- Former Carswell AFB Boundary
- Air Force Plant 4 Boundary
- BRAC Property
- Permeable Reactive Barrier

Figure 2
Site Layout

HGL—Second Five-Year Review for Carswell AFB, Texas

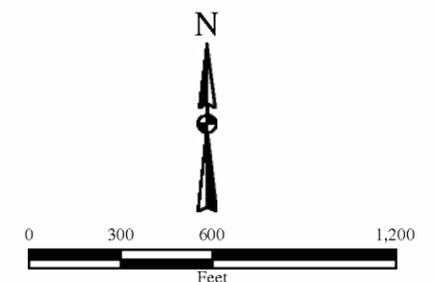
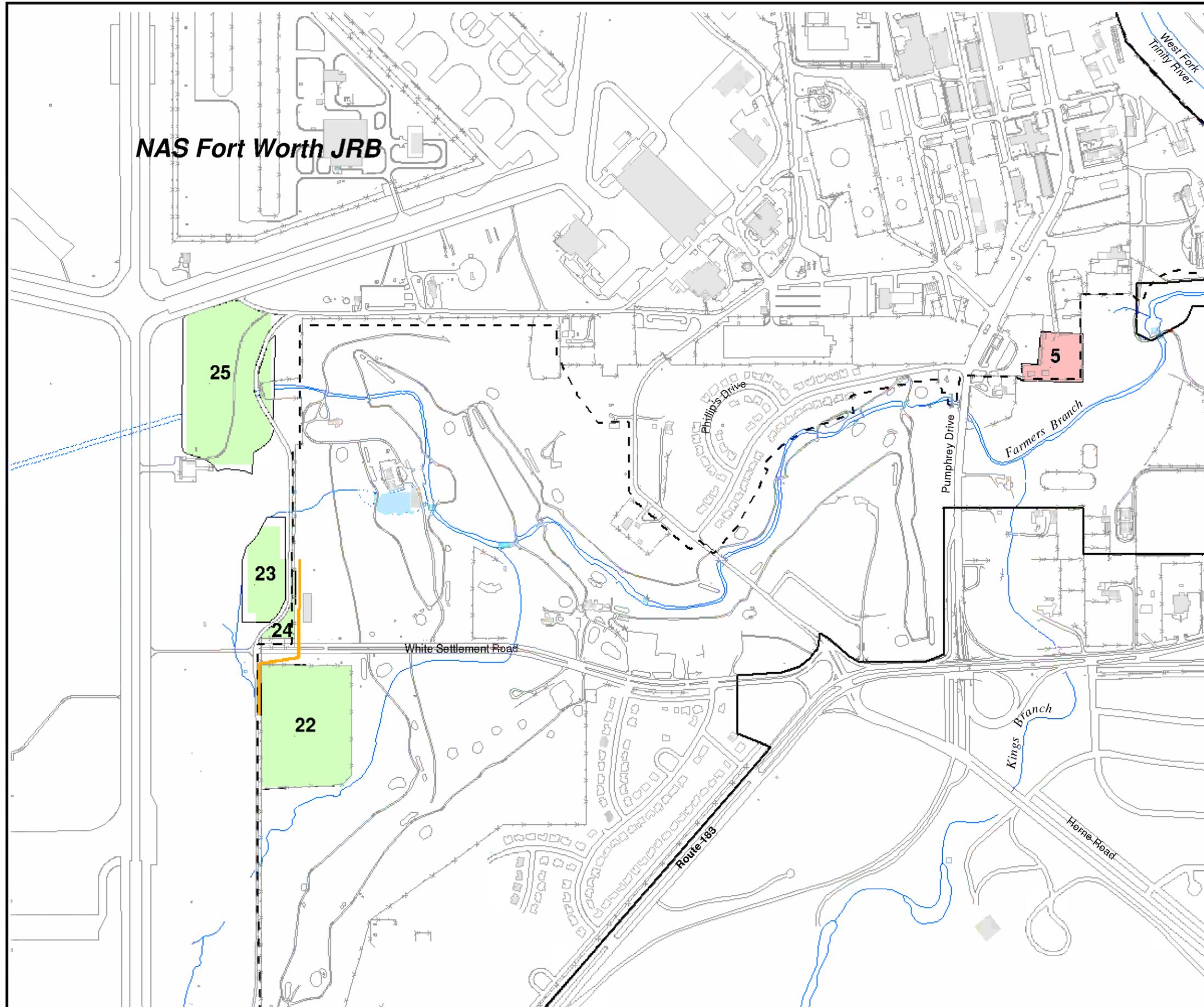
Figure 3
2010 Five-Year Review Sites

Air Force Center for
Engineering and the Environment



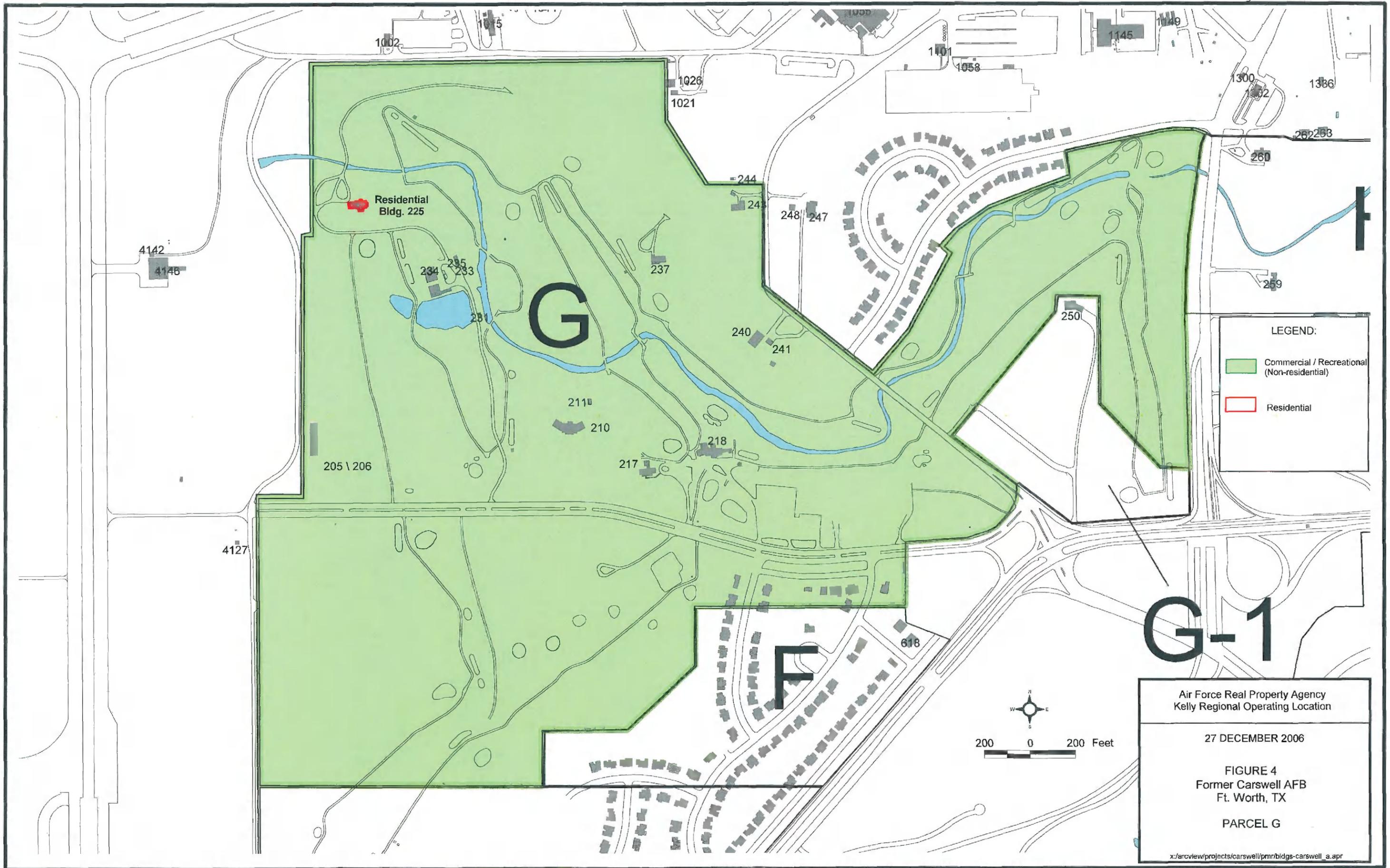
Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Permeable Reactive Barrier
- BRAC Solid Waste Management Unit
 - 22 Landfill 4
 - 23 Landfill 5
 - 24 Waste Burial Area 7
 - 25 Landfill 8
- BRAC Area of Concern
 - 5 Grounds Maintenance Yard
- Building/Structure



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5_SWMU_AOC_Locations.mxd
05/21/10 PD
Source: HGL GIS Database





LEGEND:

- Commercial / Recreational (Non-residential)
- Residential

G-1

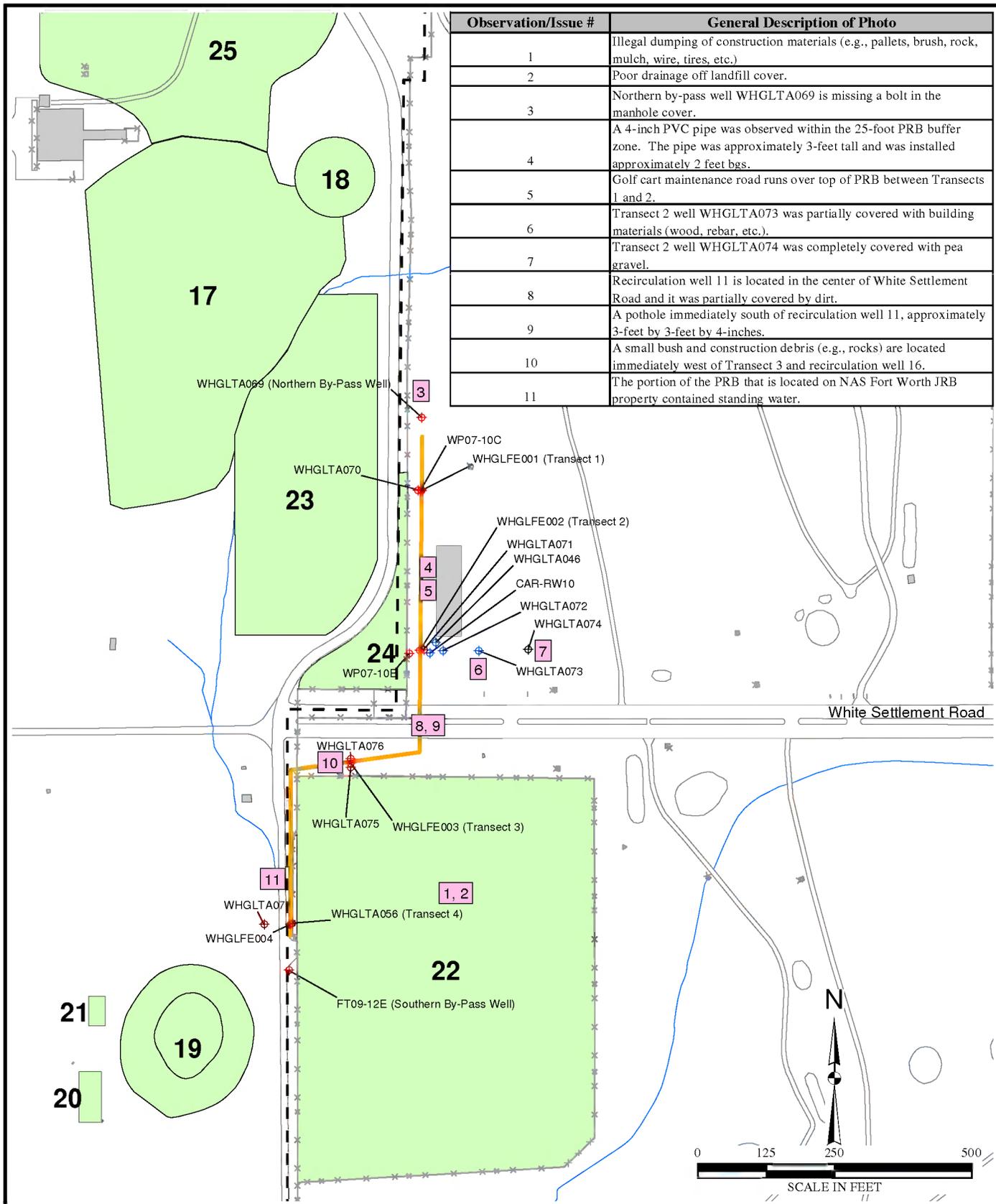
Air Force Real Property Agency
Kelly Regional Operating Location

27 DECEMBER 2006

FIGURE 4
Former Carswell AFB
Ft. Worth, TX

PARCEL G

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 2010-05_Second_Five-Year_Review/
 PRB_Transsects.mxd
 Revised: 06/14/10 PD
 Map Source: HydroGeoLogic, Inc. GIS Database



Legend

- - - NAS Fort Worth JRB (Carswell Field)
- Permeable Reactive Barrier
- Solid Waste Management Unit
- ⊕ Monitoring Well
- ⊕ PRB Sampling Locations
- 1, 2 Observation/Issue Location

Figure 5
Site Inspection
Observations
and Issues

APPENDIX A
PARCEL DEEDS

APPENDIX A.1

SWMU 22 – LANDFILL 4

29
STATE OF TEXAS
TARRANT COUNTY

INDUSTRIAL SOLID WASTE
CERTIFICATION OF REMEDIATION
SWMU 22 / LANDFILL AREA 4

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Natural Resource Conservation Commission (TNRCC) pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Tarrant County, Texas in compliance with the recordation requirements of said rules:

I

The Department of the Air Force has performed a remediation of the land described herein. A copy of the Notice of Registration No. 65004, including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations in soil, which have been left in place is attached hereto and is made part of this filing. Further information concerning this matter may be found by an examination of company records or in the Notice of Registration No. 65004 files, which are available for inspection upon request at the central office of the TNRCC in Austin, Texas.

The TNRCC derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, § 361.002, Texas Health and Safety Code, Chapter 361, which enables the TNRCC to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, § 5.012 and § 5.013, Texas Water Code, Annotated, Chapter 5, the TNRCC is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the TNRCC requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the TNRCC of the suitability of this land for any purpose, nor does it constitute any guarantee by the TNRCC that the remediation standards specified in this certification have been met by the Department of the Air Force.

II

Being a tract of land located in the J. M. Shreeve Survey, A-1456, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

Beginning at a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-07" (Y=6961052.46, X=2296379.04, NAD83 datum SPC Texas North Central Zone 4202) from which a Corp of Engineer Brass Monument Number 100 bears South 81 degrees 19 minutes 23 seconds East, a distance of 2337.25 feet, said brass monument as shown on the above mentioned surveys; thence South 00 degrees 01 minutes 04 seconds East, a distance of 490.19 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 70 degrees 10 minutes 12 seconds East, a distance of 70.05 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 25 degrees 52 minutes 47 seconds East, a distance of 149.33 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 50 degrees 58 minutes 58 minutes West, a distance of 225.51 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 08 degrees 41 minutes 58 seconds West, a distance of 82.52 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-05"; thence South 86 degrees 33 minutes 51 seconds West, a distance of 486.01 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-04"; thence North 00 degrees 02 minutes 17 seconds West, a distance of 740.72 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-08"; thence South 89 degrees 41 minutes 41 seconds East, a distance of 542.10 feet to the point of beginning and containing 416,232 square feet or 9.555 acres of land. Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.

Semi-Volatile Organic Compound (SVOC)-contaminated soil has been remediated to meet non-residential (i.e., industrial/commercial soil criteria), in accordance with a plan designed to meet the TNRCC's requirements in 31 Texas Administrative Code, §335.555, which mandates that the remedy be designed to eliminate substantial present and future risk such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for non-residential (i.e., industrial/commercial) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

In accordance with the requirements for Standard 2 cleanups where the remedy is based upon non-residential soil criteria, the current owner has undertaken actions as necessary to protect human health or the environment in accordance with the rules of the TNRCC.

Table 1.1
 Maximum Concentrations of Contaminants Left in Place
 SWMU 22 / Landfill 4
 NAS Fort Worth, JRB

Method	Analyte	Result	Method	Analyte	Result
SW6010	Aluminum	12700 J	SW8260	2-Hexanone	0.007
SW6010	Antimony	0.36 F	SW8260	Acetone	0.16
SW6010	Antimony	0.99 J	SW8260	Ethylbenzene	0.058
SW6010	Arsenic	16.1 F	SW8260	Isopropylbenzene	0.13
SW6010	Barium	107	SW8260	m- & p-Xylene (sum of)	0.29
SW6010	Beryllium	1	SW8260	Methyl ethyl ketone	0.043
SW6010	Cadmium	0.73 F	SW8260	Methylene chloride	0.002
SW6010	Calcium	320000	SW8260	o-Xylene	0.24
SW6010	Chromium (total)	22.7 J	SW8260	Tetrachloroethene	0.012
SW6010	Cobalt	8.2 F	SW8260	Toluene	0.022
SW6010	Copper	17.4	SW8270	2-Methylnaphthalene	1.4
SW6010	Iron	17000 J	SW8270	4-Nitrophenol	0.16 F
SW7421	Lead	81.5 F	SW8270	Acenaphthene	2.4
SW6010	Magnesium	2740 J	SW8270	Anthracene	5.3
SW6010	Manganese	508 J	SW8270	Benzo(a)anthracene	34
SW6010	Molybdenum	1.9 F	SW8270	Benzo(a)pyrene	37
SW6010	Nickel	16.1 F	SW8270	Benzo(b)fluoranthene	39
SW6010	Potassium	1940 J	SW8270	Benzo(g,h,i)perylene	13 J
SW6010	Selenium	16.6 F	SW8270	Benzo(k)fluoranthene	22
SW6010	Silver	0.6 F	SW8270	bis(2-Ethylhexyl)phthalate	1.3
SW6010	Sodium	436	SW8270	Chrysene	38
SW6010	Thallium	29.2 F	SW8270	Dibenzo(a,h)anthracene	4.9
SW6010	Vanadium	44	SW8270	Dibenzofuran	1.3
SW6010	Zinc	63.3	SW8270	Fluoranthene	60 J
SW7471	Mercury	0.14	SW8270	Fluorene	2.2
SW8081	PCB-1260	0.13 F	SW8270	Indeno(1,2,3-c,d)pyrene	25
SW8260	1,2,4-Trichlorobenzene	5.8 J	SW8270	Naphthalene	19
SW8260	1,2-Dichlorobenzene	1.8	SW8270	Phenanthrene	35 J
SW8260	1,3,5-Trimethylbenzene	1.5 F	SW8270	Pyrene	45 J
SW8260	1,3-Dichlorobenzene	0.76 F	SW9030	Sulfide	30.5 S
SW8260	1,4-Dichlorobenzene	0.76 F			

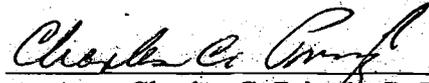
III

STATE OF TEXAS
TARRANT COUNTY

The owner of the site is Department of the Air Force, and its address is Air Force Base Conversion Agency (AFBCA), Headquarters Air Force Center of Environmental Excellence (AFCEE)/Environmental Restoration Branch (ERB), 3207 North Road, Brooks Air Force Base, Texas 78235-5363, where more specific information may be obtained from the Base Environmental Coordinator.

EXECUTED this the 19 day of April, 2001.

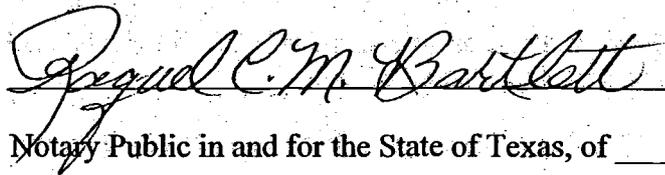
Department of the Air Force



Charles C. Pringle, P. E.
Base Environmental Coordinator

BEFORE ME, on this the 19 day of April 2001, personally appeared Charles C. Pringle, Base Environmental Coordinator, Air Force Base Conversion Agency, United States Air Force, known to me to be the person and agent of said government agency whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

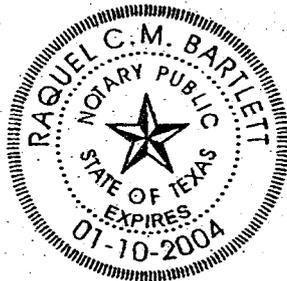
GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19 day of April, 2001.



Notary Public in and for the State of Texas, of Bexar County

My Commission Expires

January 10, 2004



FOUND 5/8 INCH IRON ROD W/1-1/2" ALUM. CAP STAMPED "N-08"

POINT OF BEGINNING

FOUND 5/8 INCH IRON ROD W/1-1/2" ALUM. CAP STAMPED "N-07"
Y=6961052.48
X=2298379.04
NAD83 Datum SPC Texas North Central Zone 4202

C.O.E. MON. NO. 94 FND.

WHITE SETTLEMENT RD.

S89°41'41"E
542.10'

S81°19'23"E 2337.25' TO C.O.E. MON. NO. 100

298.00'

J.M. LEONARD VOL. 4211, PG. 402 D.R.T.C.T.

490.19'
S00°01'04"E

S70°10'12"E 70.05'
S25°52'47"E 149.33'

C.O.E. MON. NO. 100 FND.

C.O.E. MON. FND. (DAMAGED)

FOUND 5/8 INCH IRON ROD W/1-1/2" ALUM. CAP STAMPED "N-05"

486.01'
S86°33'51"W

S50°58'58"W 225.51'

N08°41'58"W 82.52'

FOUND 5/8 INCH IRON ROD W/1-1/2" ALUM. CAP STAMPED "N-04"

NOTE: All property corners are 5/8 inch capped iron rods (BHB INC) unless otherwise noted.

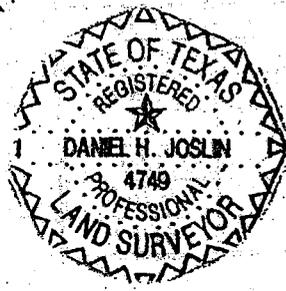
J.M. SHREEVE SURVEY A-1456

JOHN MCHORSE SURVEY A-1088

WHERRY HOUSING AREA

JOHN COLLETT SURVEY A-262

STATE HIGHWAY 183



SCALE 1" = 500'

I, Daniel H. Joslin, a Registered Professional Land Surveyor, of the State of Texas, do hereby state to the best of my knowledge and belief that the above survey is an accurate delineation of field survey and office computations performed by me or under my supervision, and that all property corners shall be marked on the ground as indicated. Reference bearing basis per USCGS monuments ELEC and RUN using NAD83 datum.

[Signature]

Daniel H. Joslin
R.P.L.S. No. 4749
Date: July 19, 2000

B Baird, Hampton & Brown, Inc.
Engineering & Surveying
W. 7th St., Sta. 500 Ft. Worth, TX 76102 Tel:(817)338-1277 Fax:(817)338-9245 E-Mail:mail@bhinc.com

DRAWN BY:	DHJ
CHECKED BY:	BHB
BHB PROJECT:	2000.006.031
DATE:	JULY 19, 2000

**PROPERTY DESCRIPTION
LANDFILL AREA 4**

Being a tract of land located in the J. M. Shreeve Survey, A-1456, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

BEGINNING at a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-07" (Y=6961052.46, X=2296379.04, NAD83 datum SPC Texas North Central Zone 4202) from which a Corp of Engineer Brass Monument Number 100 bears South 81 degrees 19 minutes 23 seconds East, a distance of 2337.25 feet, said brass monument as shown on the above mentioned surveys;

THENCE South 00 degrees 01 minutes 04 seconds East, a distance of 490.19 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 70 degrees 10 minutes 12 seconds East, a distance of 70.05 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 25 degrees 52 minutes 47 seconds East, a distance of 149.33 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 50 degrees 58 minutes 58 minutes West, a distance of 225.51 feet to a set 5/8 inch capped iron rod (BHB INC);

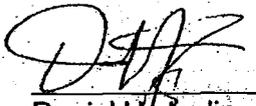
THENCE North 08 degrees 41 minutes 58 seconds West, a distance of 82.52 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-05";

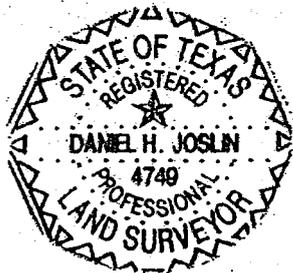
THENCE South 86 degrees 33 minutes 51 seconds West, a distance of 486.01 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-04";

THENCE North 00 degrees 02 minutes 17 seconds West, a distance of 740.72 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-08";

THENCE South 89 degrees 41 minutes 41 seconds East, a distance of 542.10 feet to the POINT OF BEGINNING and containing 416,232 square feet or 9.555 acres of land.

Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.


Daniel H. Joslin
R.P.L.S. No. 4749
Dated: July 19, 2000



APPENDIX A.2

SWMU 23 – LANDFILL 5 AND SWMU 24 – WASTE BURIAL AREA 7

STATE OF TEXAS
TARRANT COUNTY

INDUSTRIAL SOLID WASTE
CERTIFICATION OF REMEDIATION
SWMU 23 / LANDFILL AREA 5 AND SWMU 24 / WASTE BURIAL AREA 7

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Natural Resource Conservation Commission (TNRCC) pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Tarrant County, Texas in compliance with the recordation requirements of said rules:

I

The Department of the Air Force has performed a remediation of the land described herein. A copy of the Notice of Registration No. 65004, including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations in soil, which have been left in place is attached hereto and is made part of this filing. Further information concerning this matter may be found by an examination of company records or in the Notice of Registration No. 65004 files, which are available for inspection upon request at the central office of the TNRCC in Austin, Texas.

The TNRCC derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, § 361.002, Texas Health and Safety Code, Chapter 361, which enables the TNRCC to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, § 5.012 and § 5.013, Texas Water Code, Annotated, Chapter 5, the TNRCC is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the TNRCC requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the TNRCC of the suitability of this land for any purpose, nor does it constitute any guarantee by the TNRCC that the remediation standards specified in this certification have been met by the Department of the Air Force.

II

Being a tract of land located in the J. M. Shreeve Survey, A-1456, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

Beginning at a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-08" (Y=6961055.35, X=2295837.08, NAD83 datum SPC Texas North Central Zone 4202); thence North 54 degrees 54 minutes 05 seconds West, a distance of 92.02 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 12 degrees 08 minutes 34 seconds East, a distance of 142.49 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 47 degrees 45 minutes 14 seconds West, a distance of 92.84 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 21 degrees 38 minutes 33 minutes West, a distance of 138.90 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 16 degrees 02 minutes 27 seconds East, a distance of 251.47 feet to an "+" mark on top of a 3" x 3" monitoring well tubing; thence North 14 degrees 47 minutes 00 seconds East, a distance of 61.68 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 34 degrees 48 minutes 51 seconds East, a distance of 219.03 feet to an "+" mark on top of a 3" x 3" monitoring well tubing; thence North 83 degrees 14 minutes 46 seconds East, a distance of 100.66 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 09 degrees 45 minutes 51 seconds East, a distance of 271.12 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 40 degrees 29 minutes 13 minutes East, a distance of 115.33 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 06 degrees 47 minutes 30 seconds East, a distance of 204.81 feet to set 5/8 inch capped iron rod (BHB INC); thence South 20 degrees 36 minutes 09 seconds East, a distance of 139.78 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 00 degrees 00 minutes 08 seconds East, a distance of 132.39 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 25 degrees 18 minutes 16 minutes East, a distance of 63.22 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 89 degrees 41 minutes 44 seconds West, a distance of 366.27 feet to the point of beginning and containing 299,528 square feet or 6.876 acres of land. Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.

Lead-contaminated soil and cadmium-contaminated soil has been remediated to meet non-residential (i.e., industrial/commercial soil criteria), in accordance with a plan designed to meet the TNRCC 's requirements in 31 Texas Administrative Code, §335.555, which mandates that the remedy be designed to eliminate substantial present and future risk such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for non-residential (i.e., industrial/commercial) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

Table 1.1
Maximum Concentrations of Contaminants Left in Place
SWMU 23 / Landfill 5
NAS Fort Worth, JRB

Method	Analyte	Result
SW6010	Arsenic	25.5 F
SW6010	Barium	155
SW6010	Chromium (total)	37.5
SW6010	Cobalt	9.7 F
SW6010	Copper	83.9
SW6010	Iron	118000
SW6010	Molybdenum	16 F
SW6010	Nickel	44.2 F
SW6010	Selenium	6.1 F
SW6010	Silver	0.5 F
SW6010	Thallium	23.2 F
SW6010	Vanadium	57.4
SW6010	Zinc	59.4 J
SW7471	Mercury	0.2 J
SW8260	1,2,4-Trimethylbenzene	0.038
SW8260	1,2-Dichlorobenzene	0.0078
SW8260	1,2-Dichloroethene, cis-	0.018
SW8260	1,3,5-Trimethylbenzene	0.01
SW8260	1,4-Dichlorobenzene	0.12
SW8260	2-Hexanone	0.04
SW8260	Acetone	0.5
SW8260	Chlorobenzene	0.013
SW8260	Ethylbenzene	0.025
SW8260	m- & p-Xylene (sum of	0.057
SW8260	Methyl ethyl ketone	0.14
SW8260	Methyl isobutyl ketone	0.014
SW8260	Methylene chloride	0.005 J
SW8260	Naphthalene	0.014
SW8260	n-Propylbenzene	0.005
SW8260	o-Xylene	0.013
SW8260	Toluene	0.021
SW8270	Benzo(a)anthracene	0.42 F
SW8270	Benzo(a)pyrene	0.95
SW8270	Benzo(b)fluoranthene	1.1
SW8270	Benzo(g,h,i)perylene	0.44 F
SW8270	Benzo(k)fluoranthene	0.8
SW8270	Benzyl butyl phthalate	3.3
SW8270	bis(2-Ethylhexyl)phthalate	0.37
SW8270	Chrysene	1.3
SW8270	Fluoranthene	1.3
SW8270	Indeno(1,2,3-c,d)pyrene	0.78
SW8270	Phenanthrene	0.64 F
SW8270	Pyrene	1.1

Table 1.2
Maximum Concentrations of Contaminants Left in Place
SWMU 24 / Waste Pile 7
NAS Fort Worth, JRB

Method	Analyte	Result
SW6010	Arsenic	17.4 F
SW6010	Chromium (total)	18.5 F
SW7421	Lead	59.3
SW6010	Selenium	17.3 F
SW6010	Thallium	27.3 F
SW6010	Zinc	84.3 J
SW7471	Mercury	0.15
SW8260	2-Hexanone	0.009
SW8260	Acetone	0.008
SW8260	Dichlorodifluoromethane	0.007
SW8260	Tetrachloroethene	0.11
SW8260	Trichloroethene	0.22
SW8270	Acenaphthene	0.68
SW8270	Anthracene	1.6
SW8270	Benzo(a)anthracene	0.97
SW8270	Benzo(a)pyrene	1.3
SW8270	Benzo(b)fluoranthene	1.8
SW8270	Benzo(g,h,i)perylene	10 J
SW8270	bis(2-Ethylhexyl)phthalate	0.59
SW8270	Chrysene	1.3
SW8270	Fluoranthene	25 J
SW8270	Fluorene	0.39
SW8270	Indeno(1,2,3-c,d)pyrene	1.1 J
SW8270	Phenanthrene	10 J
SW8270	Pyrene	23 J

In accordance with the requirements for Standard 2 cleanups where the remedy is based upon non-residential soil criteria, the current owner has undertaken actions as necessary to protect human health or the environment in accordance with the rules of the TNRCC.

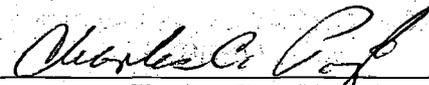
III

STATE OF TEXAS
TARRANT COUNTY

The owner of the site is Department of the Air Force, and its address is Air Force Base Conversion Agency (AFBCA), Headquarters Air Force Center of Environmental Excellence (AFCEE)/Environmental Restoration Branch (ERB), 3207 North Road, Brooks Air Force Base, Texas 78235-5363, where more specific information may be obtained from the Installation Management Officer.

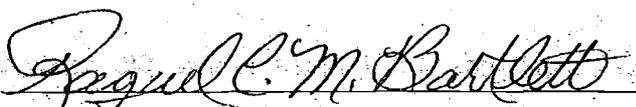
EXECUTED this the 19 day of April, 2001.

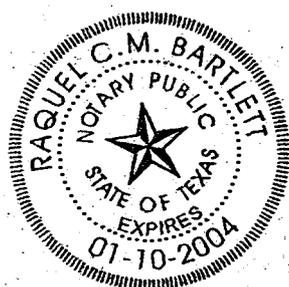
Department of the Air Force


Charles C. Pringle, P. E.
Base Environmental Coordinator

BEFORE ME, on this the 19 day of April 2001, personally appeared Charles C. Pringle, Base Environmental Coordinator, Air Force Base Conversion Agency, United States Air Force, known to me to be the person and agent of said government agency whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19 day of April, 2001.


Notary Public in and for the State of Texas, of Bexar County



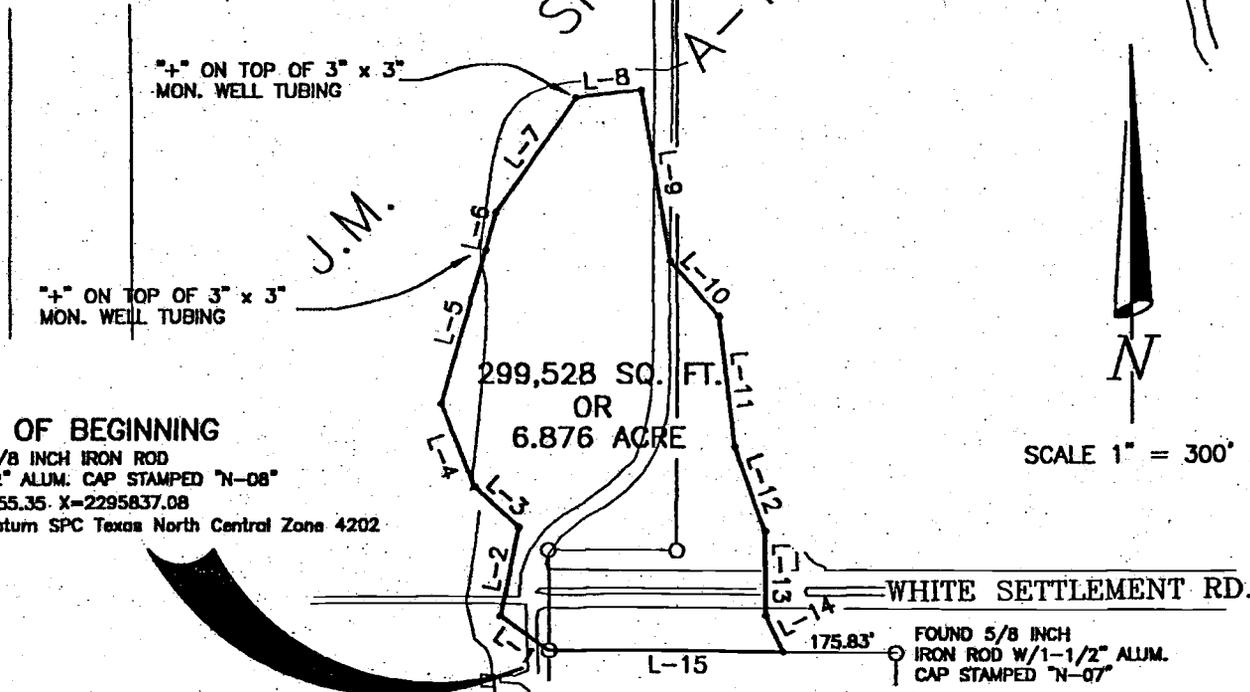
My Commission Expires
January 10, 2004

DANIEL McVEAN SURVEY, A-1004

NOTE:

All property corners are 5/8 inch capped iron rods (BHB INC) unless otherwise noted.

NUMBER	DIRECTION	DISTANCE
L-1	N54°54'05"W	92.02'
L-2	N12°08'34"E	142.49'
L-3	N47°45'14"W	92.84'
L-4	N21°38'33"W	138.90'
L-5	N16°02'27"E	251.47'
L-6	N14°47'00"E	61.68'
L-7	N34°48'51"E	219.03'
L-8	N83°14'46"E	100.66'
L-9	S09°45'51"E	271.12'
L-10	S40°29'13"E	115.33'
L-11	S06°47'30"E	204.81'
L-12	S20°36'09"E	139.78'
L-13	S00°00'08"E	132.39'
L-14	S25°18'16"E	63.22'
L-15	N89°41'44"W	366.27'

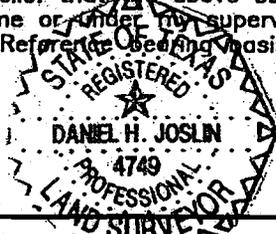


POINT OF BEGINNING

FOUND 5/8 INCH IRON ROD
 W/1-1/2" ALUM. CAP STAMPED "N-08"
 Y=6961055.35 X=2295837.08
 NAD83 Datum SPC Texas North Central Zone 4202

I, Daniel H. Joslin, a Registered Professional Land Surveyor, of the State of Texas, do hereby state to the best of my knowledge and belief that the above survey is an accurate delineation of field survey and office computations performed by me or under my supervision, and that all property corners shall be marked on the ground as indicated. Reference bearing basis per USCGS monuments ELEC and RUN using NAD83 data.

Daniel H. Joslin
 R.P.L.S. No. 4749
 Dated: August 17, 2000



BHB Baird, Hampton & Brown, Inc.
 Engineering & Surveying

309 W. 7th St., Ste. 500 Ft. Worth, TX 76102 Tel:(817)338-1277 Fax:(817)338-9245 E-Mail:mail@bhbinc.com

DRAWN BY:	DHJ
CHECKED BY:	BHB
BHB PROJECT:	2000.006.031
DATE:	AUGUST 17, 2000

**PROPERTY DESCRIPTION
LANDFILL AREA 5 & WP 7**

Being a tract of land located in the J. M. Shreeve Survey, A-1456, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

BEGINNING at a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-08" (Y=6961055.35, X=2295837.08, NAD83 datum SPC Texas North Central Zone 4202);

THENCE North 54 degrees 54 minutes 05 seconds West, a distance of 92.02 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 12 degrees 08 minutes 34 seconds East, a distance of 142.49 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 47 degrees 45 minutes 14 seconds West, a distance of 92.84 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 21 degrees 38 minutes 33 minutes West, a distance of 138.90 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 16 degrees 02 minutes 27 seconds East, a distance of 251.47 feet to an "+" mark on top of a 3" x 3" monitoring well tubing;

THENCE North 14 degrees 47 minutes 00 seconds East, a distance of 61.68 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 34 degrees 48 minutes 51 seconds East, a distance of 219.03 feet to an "+" mark on top of a 3" x 3" monitoring well tubing;

THENCE North 83 degrees 14 minutes 46 seconds East, a distance of 100.66 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 09 degrees 45 minutes 51 seconds East, a distance of 271.12 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 40 degrees 29 minutes 13 minutes East, a distance of 115.33 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 06 degrees 47 minutes 30 seconds East, a distance of 204.81 feet to set 5/8 inch capped iron rod (BHB INC);

THENCE South 20 degrees 36 minutes 09 seconds East, a distance of 139.78 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 00 degrees 00 minutes 08 seconds East, a distance of 132.39 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 25 degrees 18 minutes 16 minutes East, a distance of 63.22 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 89 degrees 41 minutes 44 seconds West, a distance of 366.27 feet to the POINT OF BEGINNING and containing 299,528 square feet or 6.876 acres of land.

Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.


Daniel H. Joslin
R.P.L.S. No. 4749
Dated: August 17, 2000



APPENDIX A.3

SWMU 25 – LANDFILL 8

31
STATE OF TEXAS
TARRANT COUNTY

INDUSTRIAL SOLID WASTE
CERTIFICATION OF REMEDIATION
SWMU 25 / LANDFILL AREA 8

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Natural Resource Conservation Commission (TNRCC) pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Tarrant County, Texas in compliance with the recordation requirements of said rules:

i

The Department of the Air Force has performed a remediation of the land described herein. A copy of the Notice of Registration No. 65004, including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations in soil, which have been left in place is attached hereto and is made part of this filing. Further information concerning this matter may be found by an examination of company records or in the Notice of Registration No. 65004 files, which are available for inspection upon request at the central office of the TNRCC in Austin, Texas.

The TNRCC derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, § 361.002, Texas Health and Safety Code, Chapter 361, which enables the TNRCC to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, § 5.012 and § 5.013, Texas Water Code, Annotated, Chapter 5, the TNRCC is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the TNRCC requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the TNRCC of the suitability of this land for any purpose, nor does it constitute any guarantee by the TNRCC that the remediation standards specified in this certification have been met by the Department of the Air Force.

II

Being a tract of land located in the J. M. Shreeve Survey, A-1456 and the Daniel McVean Survey, A-1004, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

Beginning at a set PK nail on the edge of an asphalt road (Y=6963139.93, X=2295990.43, NAD83 datum SPC Texas North Central Zone 4202), from said set PK nail a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-13" bears South 74 degrees 32 minutes 24 seconds East, a distance of 95.75 feet; thence South 14 degrees 30 minutes 08 seconds West, a distance of 81.02 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 43 degrees 56 minutes 02 seconds West, a distance of 65.90 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 01 degrees 30 minutes 23 seconds West, a distance of 274.26 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 23 degrees 20 minutes 04 minutes East, a distance of 228.10 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 35 degrees 13 minutes 15 seconds East, a distance of 76.43 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 41 degrees 38 minutes 11 seconds West, a distance of 66.34 feet to a set 5/8 inch capped iron rod (BHB INC), from said set 5/8 inch capped iron rod (BHB INC) a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-12" bears South 52 degrees 57 minutes 10 seconds East, a distance of 91.38 feet; thence South 65 degrees 58 minutes 13 seconds West, a distance of 239.12 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 03 degrees 07 minutes 52 seconds West, a distance of 98.99 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 89 degrees 14 minutes 21 seconds West, a distance of 217.55 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 66 degrees 14 minutes 20 minutes West, a distance of 266.19 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 53 degrees 37 minutes 02 seconds West, a distance of 130.02 feet to set 5/8 inch capped iron rod (BHB INC); thence North 13 degrees 40 minutes 53 seconds East, a distance of 438.43 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 05 degrees 13 minutes 20 seconds East, a distance of 232.41 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 04 degrees 29 minutes 51 minutes East, a distance of 61.32 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 71 degrees 30 minutes 32 seconds East, a distance of 356.04 feet to a set PK Nail; thence South 60 degrees 21 minutes 13 seconds East, a distance of 107.92 feet to a set 5/8 inch capped iron rod (BHB INC); thence South 71 degrees 54 minutes 06 minutes East, a distance of 97.54 feet to a set 60D Nail; thence South 80 degrees 32 minutes 18 seconds East, a distance of 59.24 feet to a set 60D Nail; thence South 88 degrees 17 minutes 27 minutes East, a distance of 60.28 feet to the point of beginning and containing 593,244 square feet or 13.619 acres of land. Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.

Barium-, cadmium-, and lead-contaminated soil has been remediated to meet non-residential (i.e., industrial/commercial soil criteria), in accordance with a plan designed to meet the TNRCC's requirements in 31 Texas Administrative Code, §335.555, which mandates that the remedy be designed to eliminate substantial present and future risk such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for non-residential (i.e., industrial/commercial) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

In accordance with the requirements for Standard 2 cleanups where the remedy is based upon non-residential soil criteria, the current owner has undertaken actions as necessary to protect human health or the environment in accordance with the rules of the TNRCC.

Table 1.1
 Maximum Concentrations of Contaminants Left in Place
 SWMU 25 / Landfill 8
 NAS Fort Worth, JRB

Method	Analyte	Result
SW6010	Arsenic	23.6 F
SW6010	Barium	669
SW6010	Beryllium	1.3
SW6010	Cadmium	0.57
SW6010	Calcium	323000
SW6010	Chromium (total)	27.2
SW6010	Cobalt	6.8 F
SW7421	Lead	69.2 J
SW6010	Manganese	519 J
SW6010	Potassium	1950 J
SW6010	Potassium	1820 J
SW6010	Selenium	19.4 F
SW6010	Thallium	36.3 F
SW6010	Vanadium	45.3 J
SW6010	Zinc	43.7 J
SW7471	Mercury	0.12
SW7761	Silver	0.27
SW8260	1,2-Dichloroethene, cis-	0.008
SW8260	2-Hexanone	0.006 J
SW8260	Acetone	0.19
SW8260	Methyl ethyl ketone	0.045
SW8260	Methylene chloride	0.007
SW8260	Tetrachloroethene	0.007
SW8260	Toluene	0.027
SW8260	Trichloroethene	0.052
SW8270	Acenaphthene	2.5
SW8270	Anthracene	5.4
SW8270	Benzo(a)anthracene	40 J
SW8270	Benzo(b)fluoranthene	51 J
SW8270	Benzo(g,h,i)perylene	37 J
SW8270	Benzo(k)fluoranthene	31 J
SW8270	bis(2-Ethylhexyl)phthalate	3.3
SW8270	Chrysene	46 J
SW8270	Dibenzo(a,h)anthracene	4.6 J
SW8270	Fluoranthene	81 J
SW8270	Fluorene	1.5
SW8270	Indeno(1,2,3-c,d)pyrene	45 J
SW8270	Phenanthrene	43 J
SW8270	Pyrene	110 J
SW9030	Sulfide	73.9

III

STATE OF TEXAS
TARRANT COUNTY

The owner of the site is Department of the Air Force, and its address is Air Force Base Conversion Agency (AFBCA), Headquarters Air Force Center of Environmental Excellence (AFCEE)/Environmental Restoration Branch (ERB), 3207 North Road, Brooks Air Force Base, Texas 78235-5363, where more specific information may be obtained from the Regional Site Manager

EXECUTED this the 19 day of April, 2001.

Department of the Air Force

Charles C. Pringle
Charles C. Pringle, P. E.
Base Environmental Coordinator

BEFORE ME, on this the 19 day of April 2001, personally appeared Charles C. Pringle, Base Environmental Coordinator, Air Force Base Conversion Agency, United States Air Force, known to me to be the person and agent of said government agency whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19 day of April, 2001.

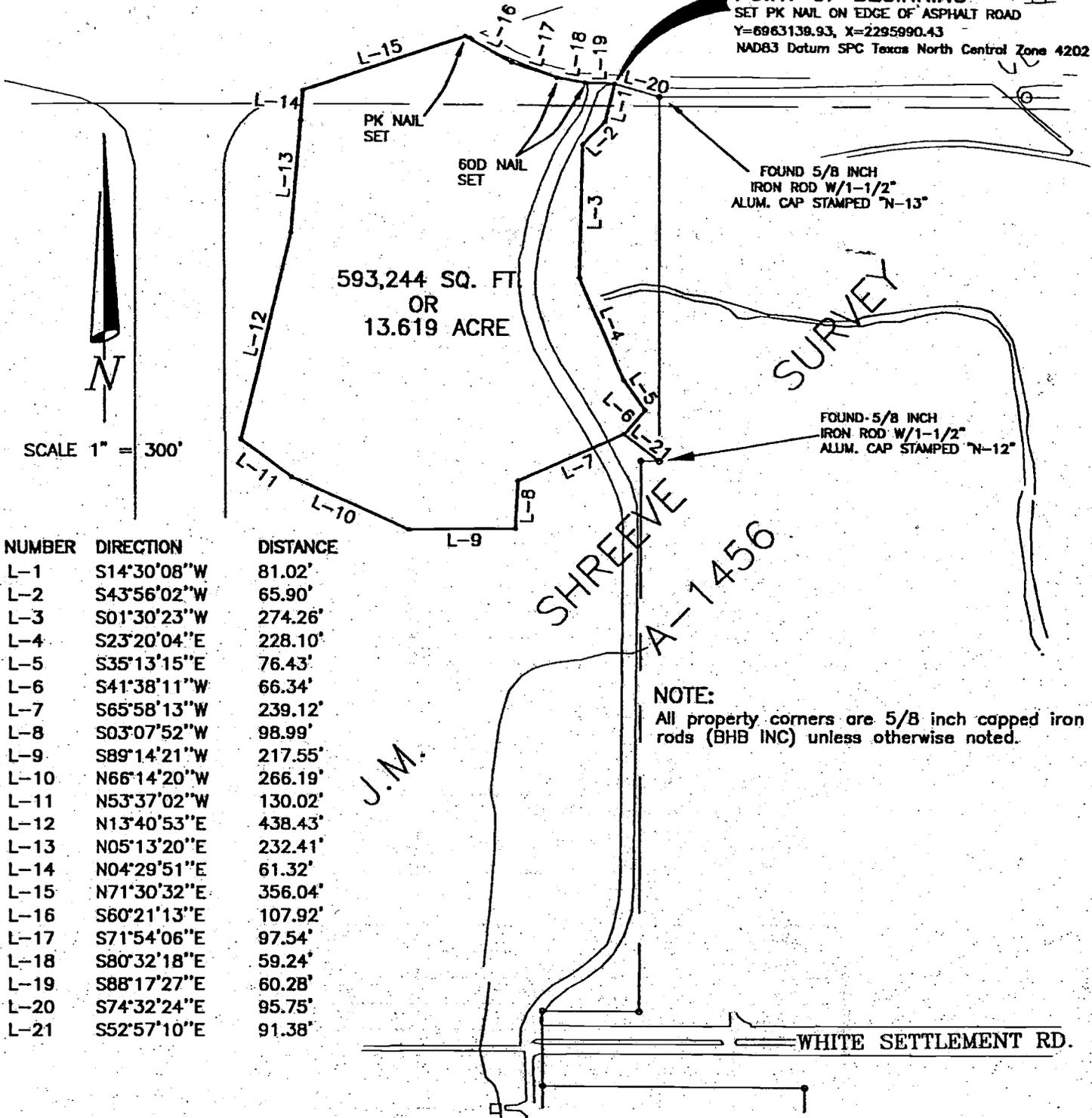
Raquel C. M. Bartlett

Notary Public in and for the State of Texas, of Bexar County

My Commission Expires

January 10, 2004



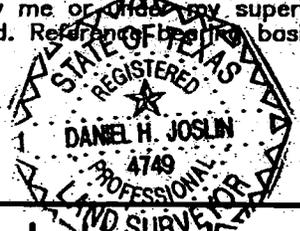


NUMBER	DIRECTION	DISTANCE
L-1	S14°30'08"W	81.02'
L-2	S43°56'02"W	65.90'
L-3	S01°30'23"W	274.26'
L-4	S23°20'04"E	228.10'
L-5	S35°13'15"E	76.43'
L-6	S41°38'11"W	66.34'
L-7	S65°58'13"W	239.12'
L-8	S03°07'52"W	98.99'
L-9	S89°14'21"W	217.55'
L-10	N66°14'20"W	266.19'
L-11	N53°37'02"W	130.02'
L-12	N13°40'53"E	438.43'
L-13	N05°13'20"E	232.41'
L-14	N04°29'51"E	61.32'
L-15	N71°30'32"E	356.04'
L-16	S60°21'13"E	107.92'
L-17	S71°54'06"E	97.54'
L-18	S80°32'18"E	59.24'
L-19	S88°17'27"E	60.28'
L-20	S74°32'24"E	95.75'
L-21	S52°57'10"E	91.38'

NOTE:
 All property corners are 5/8 inch capped iron rods (BHB INC) unless otherwise noted.

I, Daniel H. Joslin, a Registered Professional Land Surveyor, of the State of Texas, do hereby state to the best of my knowledge and belief that the above survey is an accurate delineation of field survey and office computation performed by me or under my supervision, and that all property corners shall be marked on the ground as indicated. Reference being had on basis per USCGS monuments ELEC and RUN using NAD83 data.

[Signature]
 Daniel H. Joslin
 R.P.L.S. No. 4749
 Dated: August 17, 2000



BHB Baird, Hampton & Brown, Inc.
 Engineering & Surveying
 309 W. 7th St., Ste. 500 Ft. Worth, TX 76102 Tel:(817)338-1277 Fax:(817)338-9245 E-Mail:mail@bhinc.com

DRAWN BY:	DHJ
CHECKED BY:	BHB
BHB PROJECT:	2000.006.031
DATE:	AUGUST 17, 2000

**PROPERTY DESCRIPTION
LANDFILL AREA 8**

Being a tract of land located in the J. M. Shreeve Survey, A-1456 and the Daniel McVean Survey, A-1004, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

BEGINNING at a set PK nail on the edge of an asphalt road (Y=6963139.93, X=2295990.43, NAD83 datum SPC Texas North Central Zone 4202), from said set PK nail a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-13" bears South 74 degrees 32 minutes 24 seconds East, a distance of 95.75 feet;

THENCE South 14 degrees 30 minutes 08 seconds West, a distance of 81.02 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 43 degrees 56 minutes 02 seconds West, a distance of 65.90 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 01 degrees 30 minutes 23 seconds West, a distance of 274.26 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 23 degrees 20 minutes 04 minutes East, a distance of 228.10 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 35 degrees 13 minutes 15 seconds East, a distance of 76.43 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 41 degrees 38 minutes 11 seconds West, a distance of 66.34 feet to a set 5/8 inch capped iron rod (BHB INC), from said set 5/8 inch capped iron rod (BHB INC) a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-12" bears South 52 degrees 57 minutes 10 seconds East, a distance of 91.38 feet;

THENCE South 65 degrees 58 minutes 13 seconds West, a distance of 239.12 feet to a set 5/8 inch capped iron rod (BHB INC);

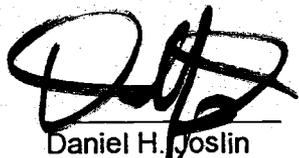
THENCE South 03 degrees 07 minutes 52 seconds West, a distance of 98.99 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE South 89 degrees 14 minutes 21 seconds West, a distance of 217.55 feet to a set 5/8 inch capped iron rod (BHB INC);

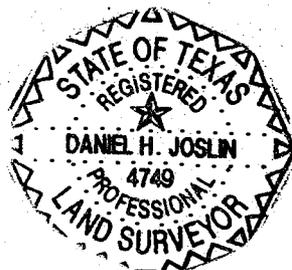
THENCE North 66 degrees 14 minutes 20 minutes West, a distance of 266.19 feet to a set 5/8 inch capped iron rod (BHB INC);

- THENCE North 53 degrees 37 minutes 02 seconds West, a distance of 130.02 feet to set 5/8 inch capped iron rod (BHB INC);
- THENCE North 13 degrees 40 minutes 53 seconds East, a distance of 438.43 feet to a set 5/8 inch capped iron rod (BHB INC);
- THENCE North 05 degrees 13 minutes 20 seconds East, a distance of 232.41 feet to a set 5/8 inch capped iron rod (BHB INC);
- THENCE North 04 degrees 29 minutes 51 minutes East, a distance of 61.32 feet to a set 5/8 inch capped iron rod (BHB INC);
- THENCE North 71 degrees 30 minutes 32 seconds East, a distance of 356.04 feet to a set PK Nail;
- THENCE South 60 degrees 21 minutes 13 seconds East, a distance of 107.92 feet to a set 5/8 inch capped iron rod (BHB INC);
- THENCE South 71 degrees 54 minutes 06 minutes East, a distance of 97.54 feet to a set 60D Nail;
- THENCE South 80 degrees 32 minutes 18 seconds East, a distance of 59.24 feet to a set 60D Nail;
- THENCE South 88 degrees 17 minutes 27 minutes East, a distance of 60.28 feet to the POINT OF BEGINNING and containing 593,244 square feet or 13.619 acres of land.

Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.



Daniel H. Joslin
R.P.L.S. No. 4749
Dated: August 17, 2000



APPENDIX A.4

AOC 5 – GROUND MAINTENANCE YARD

STATE OF TEXAS
TARRANT COUNTY



TRUE AND CORRECT COPY OF
ORIGINAL RECORD FILED IN
TARRANT COUNTY, TEXAS:
SUZANNE HENDERSON, COUNTY CLERK
BY TINA PROENZA Deputy

INDUSTRIAL SOLID WASTE
CERTIFICATION OF REMEDIATION

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Natural Resource Conservation Commission (TNRCC) pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Tarrant County, Texas in compliance with the recordation requirements of said rules:

I

Department of the Air Force has performed a remediation of the land described herein. A copy of the Notice of Registration (No. 65004), including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations (i.e., soil and ground water, if applicable), which have been left in place is attached hereto and is made part of this filing. Further information concerning this matter may be found by an examination of company records or in the Notice of Registration (No. 65004) files, which are available for inspection upon request at the central office of the TNRCC in Austin, Texas.

The TNRCC derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, §361.002, Texas Health and Safety Code, Chapter 361, which enables the TNRCC to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §5.012 and §5.013, Texas Water Code, Annotated, Chapter 5, the TNRCC is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the TNRCC requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the TNRCC of the suitability of this land for any purpose, nor does it constitute any guarantee by the TNRCC that the remediation standards specified in this certification have been met by Department of the Air Force.

II

Being a 2.957 acre (128,804 square feet) parcel of land located in the Cornelius Connelly Survey, Abstract No. A-319, Tarrant County, Texas, and being out of a 10.4 acre parcel known as Tract No. 3C described in a deed to the United States of America recorded in Volume 2740, page 451, Deed Records of Tarrant County, Texas; said 2.957 acre parcel being more particularly described as follows:

Being a tract of land located in the Cornelius Connelly Survey, A-319, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineering, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 and filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

Beginning at a found 5/8 inch iron rod from which a Corp of Engineer Brass Monument Number 1 bears North 44 degrees 29 minutes 54 seconds West, a distance of 8657.21 feet, also from said beginning point a Corp of Engineer Brass Monument Number 56 bears North 14 degrees 24 minutes 40 seconds West, a distance of 3580.29 feet, said brass monuments as show on the above mentioned surveys; thence South 00 degrees 34 minutes 13 seconds East, a distance of 502.79 feet to a found 5/8 inch iron rod; thence South 89 degrees 40 minutes 34 seconds West, a distance of 351.56 feet to a found 5/8 inch iron rod; thence North 16 degrees 21 minutes 48 seconds East, a distance of 174.28 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 00 degrees 11 minutes 30 seconds East, a distance of 136.13 feet to set 5/8 inch capped iron rod (BHB INC); thence North 42 degrees 58 minutes 15 seconds East, a distance of 91.73 feet to a set 5/8 inch capped iron rod (BHB INC); thence North 60 degrees 12 minutes 02 seconds East, a distance of 270.20 feet to the Point Of Beginning and containing 128,804 square feet or 2.957 acre of land. Reference bearing basis per USCGS Monument ELEC and USCGS Monument Run using NAD 83 datum.

Solvent-contaminated soil has been remediated to meet non-residential (i.e., industrial/commercial soil criteria), in accordance with a plan designed to meet the TNRCC's requirements in 31 Texas Administrative Code §335.555), which mandates that the remedy be designed to eliminate substantial present and future risk such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for non-residential (i.e., industrial/commercial) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

In accordance with the requirements for Standard 2 cleanups where the remedy is based upon non-residential soil criteria, the current owner has undertaken actions as necessary to protect human health or the environment in accordance with the rules of the TNRCC.



TRUE AND CORRECT COPY OF
ORIGINAL RECORD FILED IN
TARRANT COUNTY, TEXAS:
SUZANNE HENDERSON, COUNTY CLERK

BY JP Deputy

D201066084
UNIVERSE TECHNOLOGIES INC
ATTN CHRISTIANA HEWITT
2100 BYPASS RD #580
BROOKS AFB TX 78235

-W A R N I N G--THIS IS PART OF THE OFFICIAL RECORD--D O N O T D E S T R O Y

I N D E X E D -- T A R R A N T C O U N T Y T E X A S
S U Z A N N E H E N D E R S O N -- C O U N T Y C L E R K
O F F I C I A L R E C E I P T

T O : A N D R E A L W E S T

RECEIPT NO 201173207 REGISTER DR91 RECD-BY CAP PRINTED DATE 03/29/2001 TIME 11:05

	INSTRUMENT	FEECD	INDEXED	TIME	
1	D201066084	WD	20010329	11:05	CK 1540
2	01 COPIES	CC			C O P I E S

T O T A L : D O C U M E N T S : 0 1 F E E S : 2 7 . 0 0

I, SUZANNE HENDERSON, County Clerk in and for said County and State of Texas, do hereby certify that the above and foregoing is a true and correct copy of the instrument filed for record on the _____ day of _____, 2001, in instrument number _____ of the _____ Page _____ of the _____ Records of Tarrant County, Texas.

WITNESS my hand and seal of office in said County, Texas this _____ day of _____, 2001.

SUZANNE HENDERSON, COUNTY CLERK
 TARRANT COUNTY, TEXAS

ANY PROVISION WHICH RESTRICTS THE SALE RENTAL OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.


 TRUE AND CORRECT COPY OF ORIGINAL RECORD FILED IN TARRANT COUNTY, TEXAS; SUZANNE HENDERSON, COUNTY CLERK
 BY _____ Deputy

III

The owner of the site is Department of the Air Force, and its address is Air Force Base Conversion Agency (AFBCA), Regional Operating Location Bergstrom AFB, 3711 Fighter Drive, Austin, Texas 78719-2557, where more specific information may be obtained from the Base Realignment and Closure (BRAC) Environmental Coordinator.

EXECUTED this the 28 day of March, 2001.

Department of the Air Force

Charles C. Pringle
Charles C. Pringle

BRAC Environmental Coordinator

STATE OF TEXAS
TARRANT COUNTY

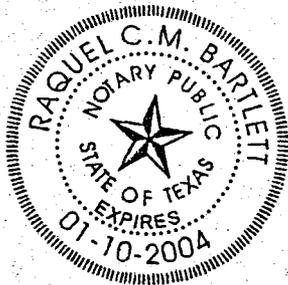
BEFORE ME, on this the 28 day of March 2001 personally appeared Charles C. Pringle, BRAC Environmental Coordinator of Former Carswell Air Force Base, Air Force Base Conversion Agency, Department of the Air Force, known to me to be the person and agent of said government agency whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 28 of March, 2001.

Raquel C. M. Bartlett

Notary Public in and for the State of Texas, of Brewer County

January 10, 2004
My Commission Expires



TRUE AND CORRECT COPY OF ORIGINAL RECORD FILED IN TARRANT COUNTY, TEXAS: SUZANNE HENDERSON, COUNTY CLERK

BY [Signature] Deputy

PROPERTY DESCRIPTION

GROUND MAINTENANCE YARD

Being a tract of land located in the Cornelius Connelly Survey, A-319, Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the NAS Fort Worth JRB Overall Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 and filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority, said tract being more particularly described by metes and bounds as follows:

BEGINNING at a found 5/8 inch iron rod from which a Corp of Engineer Brass Monument Number 1 bears North 44 degrees 29 minutes 54 seconds West, a distance of 8657.21 feet, also from said beginning point a Corp of Engineer Brass Monument Number 56 bears North 14 degrees 24 minutes 40 seconds West, a distance of 3580.29 feet, said brass monuments as show on the above mentioned surveys;

THENCE South 00 degrees 34 minutes 13 seconds East, a distance of 502.79 feet to a found 5/8 inch iron rod;

THENCE South 89 degrees 40 minutes 34 seconds West, a distance of 351.56 feet to a found 5/8 inch iron rod;

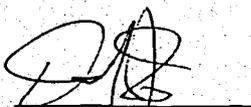
THENCE North 16 degrees 21 minutes 48 seconds East, a distance of 174.28 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 00 degrees 11 minutes 30 seconds East, a distance of 136.13 feet to set 5/8 inch capped iron rod (BHB INC);

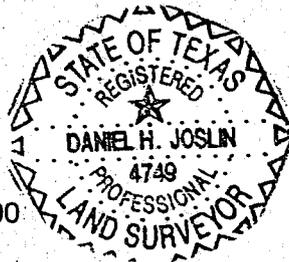
THENCE North 42 degrees 58 minutes 15 seconds East, a distance of 91.73 feet to a set 5/8 inch capped iron rod (BHB INC);

THENCE North 60 degrees 12 minutes 02 seconds East, a distance of 270.20 feet to the POINT OF BEGINNING and containing 128,804 square feet or 2.957 acre of land.

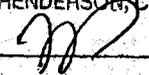
Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.



Daniel H. Joslin
R.P.L.S. No. 4749
Dated: August 16, 2000

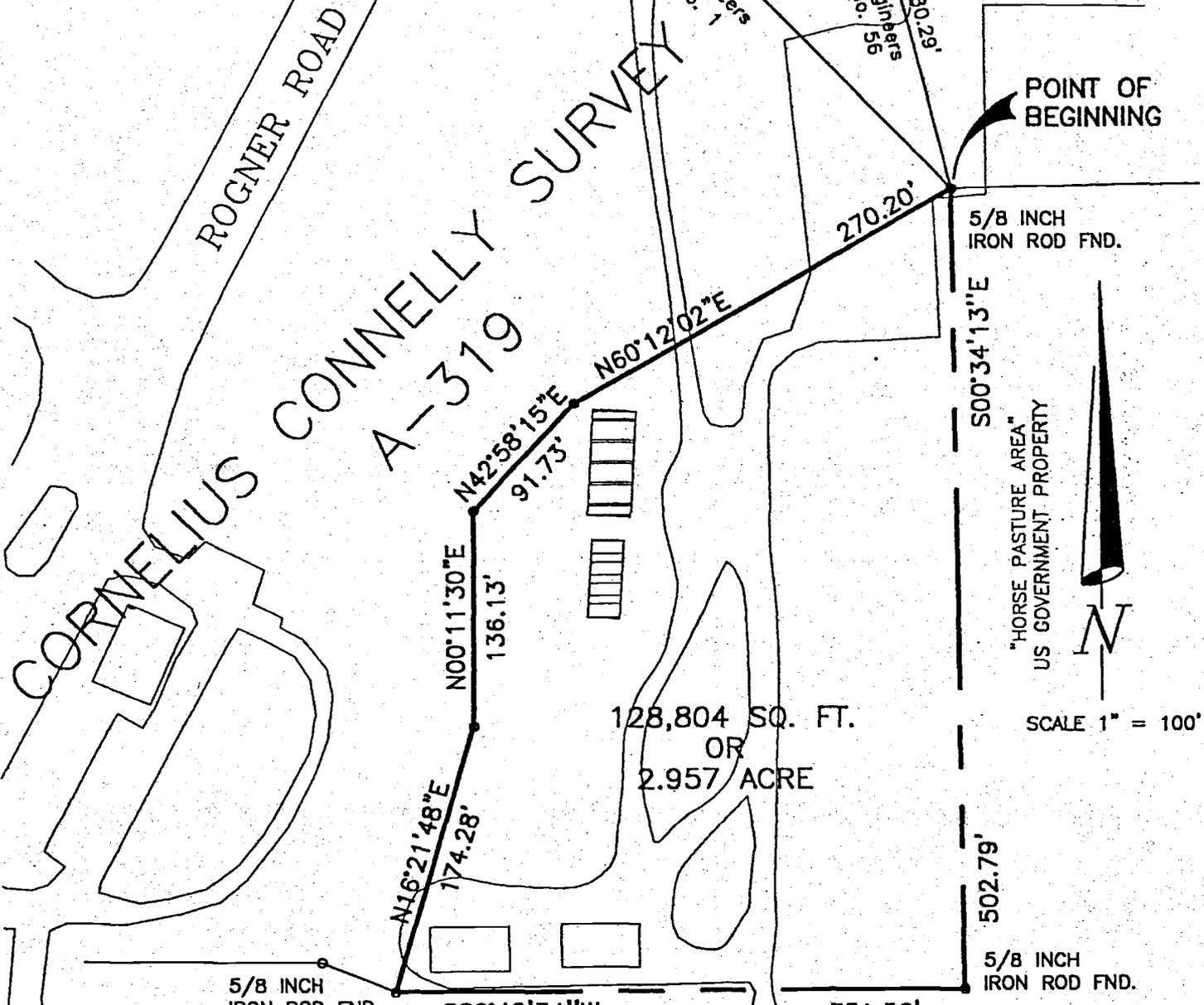


TRUE AND CORRECT COPY OF
ORIGINAL RECORD FILED IN
TARRANT COUNTY, TEXAS:
SUZANNE HENDERSON, COUNTY CLERK

BY  Deputy

NOTE:

All property corner are 5/8 inch capped iron rods (BHB INC) unless otherwise noted.



128,804 SQ. FT.
OR
2.957 ACRE

POINT OF BEGINNING

5/8 INCH IRON ROD FND.

S00°34'13"E

"HORSE PASTURE AREA"
US GOVERNMENT PROPERTY

SCALE 1" = 100'

502.79'

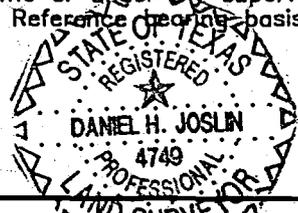
5/8 INCH IRON ROD FND.

S89°40'34"W

351.56'

I, Daniel H. Joslin, a Registered Professional Land Surveyor, of the State of Texas, do hereby state to the best of my knowledge and belief that the above survey is an accurate delineation of field survey and office computations performed by me or under my supervision, and that all property corners shall be marked on the ground as indicated. Reference to bearings basis per USCGS monuments ELEG and RUM using COADS data.

[Signature]
Daniel H. Joslin
R.P.L.S. No. 4749
Dated: August 16, 2000.



ORIGINAL RECORD FILED IN
TARRANT COUNTY, TEXAS:
SUZANNE HENDERSON, COUNTY CLERK
BY *[Signature]* Deputy

BHB Baird, Hampton & Brown, Inc.
Engineering & Surveying

309 W. 7th St., Ste. 500 Ft. Worth, TX 76102 Tel:(817)338-1277 Fax:(817)338-9245 E-Mail:mail@bhinc.com

DRAWN BY:	dhj
CHECKED BY:	bhb
BHB PROJECT:	2000.006.023
DATE:	August 16, 2000

APPENDIX A.5
BRAC PROPERTY



CANTEY & HANGER LLP
801 CHERRY ST UNIT #2
ATTN POLLARD ROGERS
FT WORTH TX 76102

Submitter: CANTEY & HANGER LLP

SUZANNE HENDERSON
TARRANT COUNTY CLERK
TARRANT COUNTY COURTHOUSE
100 WEST WEATHERFORD
FORT WORTH, TX 76196-0401

DO NOT DESTROY
WARNING - THIS IS PART OF THE OFFICIAL RECORD.

Filed For Registration: 05/03/2007 10:56 AM
Instrument #: D207152455
WD 40 PGS \$168.00

By: _____



D207152455

ANY PROVISION WHICH RESTRICTS THE SALE, RENTAL OR USE
OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR
RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.

Carswell AFB-187.29 Acres

appertaining (which, together with the real property above described, is called the "Property" in this Deed).

B. TO HAVE AND TO HOLD the Property unto the Grantee, forever.

IV. EXCEPTIONS

None.

V. RESERVATIONS

THERE IS HEREBY RESERVED UNTO THE GRANTOR, including the United States Environmental Protection Agency ("EPA") and the State of Texas (the "State"), and its and their respective officials, agents, employees, contractors, and subcontractors, the right of access to the Property (including the right of access to, and use of, utilities at reasonable cost to the Grantor), for the following purposes and for such other purposes as are necessary to ensure that a response or corrective action found to be necessary, either on the Property or on adjoining lands, after the date of transfer by this Deed will be conducted:

A. To conduct investigations and surveys, including, where necessary, drilling, soil and water sampling, testpitting, testing soil borings, and other activities relating to any such response or corrective action.

B. To inspect field activities of the Grantor and its contractors and subcontractors in implementing any such response or corrective action.

C. To conduct any test or survey required by the EPA or the State relating to any such response or corrective action, or to verify any data submitted to the EPA or the State by the Grantor relating to any such actions.

D. To conduct, operate, maintain, or undertake any other response, corrective, or remedial action as required or necessary under the applicable law or regulation, or the covenant of the Grantor in Section VII of this Deed including, but not limited to, the installation, closing, or removal of monitoring wells, pumping wells, and treatment facilities that will be owned or operated by the Grantor and its officials, agents, employees, contractors, and subcontractors.

E. To monitor any environmental restrictive use covenants in this Deed and the effectiveness of any other land use or institutional control established by the Air Force on the Premises, either by itself, by its contractor, by any public entity, including the State, or by a private entity registered in the State to monitor environmental covenants.

VI. CONDITIONS

A. The Grantee agrees to accept conveyance of the Property subject to all covenants, conditions, restrictions, easements, rights-of-way, reservations, rights, agreements, and encumbrances, whether or not of record in the office of the County Clerk of Tarrant County, Texas, and affecting the Property.

Carswell AFB-187.29 Acres

B. The Grantee acknowledges that it has inspected, is aware of, and accepts the condition and state of repair of the Property, and that the Property is conveyed, "as is," "where is," without any representation, promise, agreement, or warranty on the part of the Grantor regarding such condition and state of repair, or regarding the making of any alterations, improvements, repairs, or additions. The Grantee further acknowledges that the Grantor shall not be liable for any latent or patent defects in the Property, except to the extent required by applicable law.

VII. NOTICES AND COVENANTS RELATED TO SECTION 120(h)(3) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA), AS AMENDED, (42 U.S.C. §9620(h)(3)).

A. Pursuant to section 120(h)(3)(A)(i) of CERCLA, the following is notice of hazardous substances on the Property, and a description of remedial action concerning the Property.

1. The Grantor has made a complete search of its files and records. **Exhibit C** contains a table with the name of hazardous substances stored for one year or more, or known to have been released or disposed of, on the Property; the quantity in kilograms and pounds of the hazardous substance stored for one year or more, or known to have been released, on the property; and the date(s) that such storage, release, or disposal took place.

2. A description of the remedial action(s) taken by the Grantor on the Property regarding hazardous substances is contained in **Exhibit C** of this Deed.

3. Pursuant to section 120(h)(3)(A)(ii) of CERCLA, the United States covenants and warrants:

a. that all remedial action necessary to protect human health and the environment with respect to hazardous substances remaining on the Property has been taken before the date of this Deed;

b. and any additional remedial action found to be necessary after the date of this Deed for contamination on the Property existing prior to the date of this Deed will be conducted by the United States.

The obligation of the United States under this warranty does not include response actions required by an act or omission of the Grantee that either (a) introduces new or additional contamination, or (b) increases the cost of the required response action by improperly managing any CERCLA contamination present on the Property on the date of this Deed from the United States. For the purposes of this warranty, the phrase "remedial action found to be necessary" does not include any performance by the United States, or payment to the Grantee from the United States, for (a) additional remedial action that is required to facilitate use of the Property by the Grantee in a manner that is inconsistent with restrictions set forth in section VIIC. of this Deed, as may be modified or released pursuant to section VII.D., or (b) disposal of soils that do not require response actions if left in place, but must be disposed of when disturbed.

Carswell AFB-187.29 Acres

B. The United States has reserved access to the Property in the Reservations section of this deed in order to perform any remedial or corrective action as required by CERCLA section 120(h)(3)(A)(ii).

NOTICE

BREACH OF ANY ENVIRONMENTAL RESTRICTIVE COVENANT CONTAINED IN THIS SECTION VII.C. BELOW, MAY AFFECT THE FOREGOING WARRANTY.

C. Environmental Restrictive Covenants

1. For purposes of the environmental restrictive use covenants in this section, the term "Property" includes any part of the Property specifically described on **Exhibit A** to this Deed to which one or more of these environmental restrictive covenants may apply.

2. The following environmental restrictive use covenants in this section are being prescribed to protect human health and the environment against residual contaminants as a component of the remedial action taken in A.2. above:

- Grantee covenants and agrees that it will not use the Property for residential purposes, except for the residential property as shown in **Exhibit D**, hospitals for human care, public or private schools for persons under 18 years of age, or day care centers for children.
- The Grantee covenants and agrees not to dig or excavate in shallow groundwater areas within the TCE concentration contours shown on the map in **Exhibit E** where exposure by a construction worker in a trench may cause unacceptable risks.
- The Grantee covenants and agrees not to extract or permit to be extracted any water from below the surface of the ground within the boundary of the Property except for monitoring purposes.
- The Grantee covenants and agrees construction activities that would interfere with, negatively impact, or restrict access for cleanup work and/or activities that impact and/or affect treatments systems operations, to include impacting the integrity of the PRB as shown in **Exhibit E** and site monitoring wells as shown on the map in Attachment 6 of the SEBS are prohibited.
 - The Air Force will be responsible for implementing, maintaining, monitoring, enforcing, and reporting on restrictive use covenants also known as institutional controls (ICs). The Air Force will notify the EPA as soon as practicable but not longer than 10 days after discovery of any activity that violates or is inconsistent with the IC objectives or restrictions, or any other action that may interfere with the effectiveness of the ICs.

Carswell AFB-187.29 Acres

- o The Air Force will not modify or terminate ICs or modify land uses which may impact the effectiveness of the ICs or alter or negate the need for ICs without prior notice to the EPA.

3. It is the intent of the Grantor and the Grantee that the environmental restrictive covenants in this section bind the Grantee and shall run with the land. It is also the intent of the Grantor and the Grantee that the Grantor will retain the right to enforce any restrictive use covenant in this section through the chain of title, in addition to any state law that requires or allows the State to enforce any restrictive covenant in this section. The Grantee covenants to insert all of this section in any deed to the Property that it delivers to a successor in interest.

D. Release of Environmental Restrictive Covenant(s)

The Grantee may request from the United States a modification or release of one or more of the environmental restrictive covenant(s) in whole or in part in this section, subject to the notification and concurrence or approval of the TCEQ and EPA Region VI. In the event the request of the Grantee for modification or release is approved by the United States, TCEQ, and EPA Region VI, the United States agrees to modify or release the covenant (the "Covenant Release") giving rise to such environmental use restriction in whole or in part. The Grantee understands and agrees that all costs associated with the Covenant Release shall be the sole responsibility of the Grantee, without any cost whatsoever to the United States. The United States shall deliver to the Grantee in recordable form the Covenant Release. The execution of the Covenant Release by the United States shall modify or release the environmental use restrictive covenant with respect to the Property in the Covenant Release.

VIII. OTHER COVENANTS AND NOTICES

A. Lead-Based Paint ("LBP") - Housing

1. The Property may include improvements that are presumed to contain LBP because the following housing facilities were constructed prior to 1978. The Grantee hereby acknowledges the required disclosure in accordance with the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. Section 4852d (Title X), of the presence of any known LBP and/or LBP hazards in target housing constructed prior to 1978. This disclosure includes the receipt of available records and reports pertaining to LBP and/or LBP hazards; receipt of the lead hazard information pamphlet; and inclusion of the 24 C.F.R. 35, Subpart H and 40 C.F.R. 745, Subpart F disclosure and lead warning language in the Title X Lead-Based Paint Disclosure Statement in the contract of sale.

2. The Grantee covenants and agrees that, in any improvements on the Property defined as target housing by Title X and constructed prior to 1978, LBP hazards will be disclosed to potential occupants in accordance with Title X before use of such improvements as a residential dwelling (as defined in Title X). Further, the Grantee covenants and agrees that LBP hazards in target housing constructed prior to 1960 will be abated in accordance with Title X before use and occupancy as a residential dwelling. "Target housing" means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than

Carswell AFB-187.29 Acres

six [6] years of age resides, or is expected to reside, in such housing) or any zero-bedroom dwelling.

3. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with Title X and all applicable Federal, State, and local laws relating to LBP. The Grantee acknowledges that the Grantor assumes no liability for damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with LBP on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

B. Lead-Based Paint – Improvements other than Housing

1. The Grantee is hereby informed and does acknowledge that the Property includes non-residential improvements that were built prior to 1978; however, the facilities were not tested for LBP. The Grantee is responsible for managing all LBP and potential LBP on the Property in compliance with all applicable laws and regulations.

2. The Grantee acknowledges that the Grantor assumes no liability for damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with LBP on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured.

C. General Lead-Based Paint and Lead-Based Paint-Containing Materials and Debris (collectively “LBP”)

1. Lead-based paint was commonly used prior to 1978 and may be located on the Property. The Grantee is advised to exercise caution during any use of the Property that may result in exposure to LBP.

2. The Grantee covenants and agrees that in its use and occupancy of the Property, the Grantee is solely responsible for managing LBP, including LBP in soils, in accordance with all applicable Federal, State, and local laws and regulations. The Grantee acknowledges that the Grantor assumes no liability for property damages or damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, contact, disposition, or other activity involving LBP on the Property, whether the Grantee has properly warned, or failed to properly warn, the persons injured. The Grantee further agrees to notify the Grantor promptly of any discovery of LBP in soils that appears to be the result of Grantor activities and that is found at concentrations that may require remediation. The Grantor hereby reserves the right, in its sole discretion, to undertake an investigation and conduct any remedial action that it determines is necessary.

Carswell AFB-187.29 Acres

D. Radon. The Grantee is hereby informed and does acknowledge that currently the Property contains a natural occurrence of radon at levels that require no action.

E. Asbestos-Containing Materials ("ACM"). The Grantee is warned that the Property may contain current and former improvements, such as buildings, facilities, equipment, and pipelines, above and below the ground, which may contain ACM. The Grantee covenants and agrees that in its use and occupancy of the Property, it will comply with all applicable Federal, State, and local laws relating to asbestos. The Grantee is cautioned to use due care during property development activities that may uncover pipelines or other buried ACM. The Grantee covenants and agrees that it will notify the Grantor promptly of any potentially friable ACM that constitutes a release under the federal Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. §§ 9601 *et seq.*). The Grantor's responsibility under this Deed for friable ACM is limited to friable ACM in demolition debris associated with past Air Force activities and is limited to the actions, if any, to be taken in accordance with the covenant contained in Section VII. herein. The Grantee is warned that the Grantor will not be responsible for removing or responding to ACM in or on utility pipelines. The Grantee acknowledges that the Grantor assumes no liability for property damages or damages for personal injury, illness, disability, or death to the Grantee, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Property, whether the Grantee has properly warned, or failed to properly warn, the person injured.

F. Floodplains. A portion of the Property is located in a 100-Year Floodplain as described in **Exhibit F** hereto. Grantee agrees and covenants for itself, its successors and assigns, that any development of the above described Property will be subject to floodplain regulations and other applicable federal, state, and local statutes, and ordinances relating to flood hazards.

G. Non-Discrimination. The Grantee covenants not to discriminate upon the basis of race, color, religion, national origin, sex, age, or handicap in the use, occupancy, sale, or lease of the Property, or in its employment practices conducted thereon. This covenant shall not apply, however, to the lease or rental of a room or rooms within a family dwelling unit, nor shall it apply with respect to religion if the Property is on premises used primarily for religious purposes. The United States of America shall be deemed a beneficiary of this covenant without regard to whether it remains the owner of any land or interest therein in the locality of the Property.

H. Hazards to Air Navigation. Prior to commencing any construction on, or alteration of, the Property, the Grantee covenants to comply with 14 C.F.R. Part 77 entitled "Objects Affecting Navigable Airspace," under the authority of the Federal Aviation act of 1958, as amended.

IX. MISCELLANEOUS

Each covenant of this Deed shall be deemed to touch and concern the land and shall run with the land.

Carswell AFB-187.29 Acres

X. LIST OF EXHIBITS

The following Exhibits are attached to and made a part of this Deed:

- Exhibit A – Legal Description of the Property
- Exhibit B – Survey Map of the Property
- Exhibit C – Notice of Hazardous Substances
- Exhibit D – Location of Residential and Mixed Use Property
- Exhibit E – PRB and TCE GW Plume Map
- Exhibit F – Floodplains Map

Carswell AFB-187.29 Acres

IN WITNESS WHEREOF, I have hereunto set my hand at the direction of the Secretary of the Air Force, the day and year first above written.

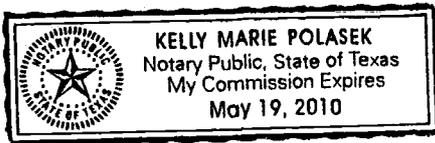
THE UNITED STATES OF AMERICA

By: Adam G. Antwine
ADAM G. ANTWINE
Senior Representative
Air Force Real Property Agency

STATE OF TEXAS

COUNTY OF BEXAR

This instrument was acknowledged before me on the 24th day of April, 2007, by ADAM G. ANTWINE, Senior Representative of the Air Force Real Property Agency.



Kelly Marie Polasek
Notary Public, State of Texas
My Commission Expire May 19, 2010

(seal)

ACCEPTANCE

The Grantee acknowledges delivery of this Deed and agrees to be bound by all the agreements, covenants, conditions, restrictions, and reservations contained in it.

DATE: 4-30, 2007

WESTWORTH REDEVELOPMENT AUTHORITY

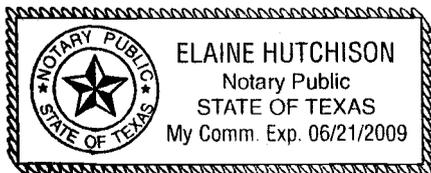
By: *Pollard Rogers*
Name: Pollard Rogers
Title: President

Attest:

Secretary

THE STATE OF TEXAS §
 §
COUNTY OF TARRANT §

This instrument was acknowledged before me on the 30th day of April, 2007, by Pollard Rogers, President of Westworth Redevelopment Authority



Elaine Hutchison
Notary Public in and for the State of Texas
My Commission expires: 6-21-09

(Notary's Stamp)

Exhibit A
Legal Description of the Property

PROPERTY DESCRIPTION**HAWKS CREEK GOLF COURSE AREA**

Being a tract of land located in the Cornelius Connelly Survey, A-319, L. Samuel Survey A-1467, J.M. Shreeve Survey A-1456, and the John McHorse Survey, A-1088 Tarrant County, Texas known as the Hawks Creek Golf Club Area within the NAS Fort Worth JRB. Said tract being a resurvey of a portion of a tract previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract being more particularly described by metes and bounds as follows:

BEGINNING at a found 5/8 inch capped iron rod (BHB INC) on the West line of Rogner Road also being the most easterly northeast corner of Lot 1, Block 1, The Village at Hawks Creek as recorded in Cabinet A, Slide 10469 of the Plat Records of Tarrant County, Texas;

THENCE South 88 degrees 57 minutes 00 seconds West, leaving said West line and along said Lot 1, Block 1, a distance of 205.50 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE North 48 degrees 18 minutes 46 seconds West, continuing along said Lot 1, Block 1, a distance of 321.91 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE North 01 degrees 45 minutes 19 seconds East, continuing along said Lot 1, Block 1, a distance of 481.24 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE North 89 degrees 36 minutes 49 seconds West, continuing along said Lot 1, Block 1, a distance of 196.88 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 03 degrees 15 minutes 56 seconds West, continuing along said Lot 1, Block 1, a distance of 63.21 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 38 degrees 24 minutes 46 seconds West, continuing along said Lot 1, Block 1, a distance of 185.10 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 50 degrees 43 minutes 22 seconds West, continuing along said Lot 1, Block 1, a distance of 203.96 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 39 degrees 24 minutes 46 seconds West, continuing along said Lot 1, Block 1, a distance of 340.00 feet to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 52 degrees 41 minutes 32 seconds East, continuing along said Lot 1, Block 1 and along the northerly R.O.W. line of Roaring Springs Road, a distance of 418.23 feet to a set 5/8 inch capped iron rod (BHB INC), from said set 5/8 inch capped iron rod (BHB INC) a found C.O.E. monument no. 94 bears North 38 degrees 52 minutes 01 second East, a distance of 22.00 feet;

THENCE South 38 degrees 52 minutes 01 seconds West, departing said Northerly R.O.W. line and crossing said Roaring Springs Road, a distance of 87.95 feet to a found C.O.E. monument (damaged) being at the intersection of the Southerly R.O.W. line of Roaring Springs Road with the Northerly R.O.W. line of White Settlement Road;

THENCE South 45 degrees 25 minutes 33 seconds West, along said Northerly R.O.W. line of White Settlement Road, a distance of 100.60 feet to a found C.O.E. monument (damaged) and also being the beginning of a curve to the right whose chord bears South 65 degrees 25 minutes 14 seconds West, a distance of 90.01 feet and having a radius of 131.62 feet;

THENCE Southwesterly, along said curve to the right along said Northerly R.O.W. line of White Settlement Road, through a central angle of 39 degrees 59 minutes 23 seconds, an arc length of 91.87 feet to a found C.O.E. monument (damaged) for the end of said curve;

THENCE South 85 degrees 24 minutes 56 seconds West, along the North R.O.W. line of White Settlement Road, a distance of 298.00 feet to a found C.O.E. monument no. 98;

THENCE South 00 degrees 43 minutes 46 seconds East, departing said North R.O.W. line of

White Settlement Road, passing at a distance of 62.00 feet a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA in the median of said road, continuing for a total distance of 119.26 feet to a found C.O.E. monument No. 99 being on the south R.O.W. line of White Settlement Road and being the Northwest corner of a tract (Third tract) deeded to a J. M. Leonard per document recorded in Volume 4211, Page 402 of said Deed Records;

- THENCE South 00 degrees 47 minutes 01 seconds East, a distance of 124.41 feet to a found 5/8 inch capped iron rod (BHB INC) being the most northerly northeast corner of a tract of land deeded to Westworth Redevelopment Authority (WRA) per instrument no. D205041734 as recorded in said Deed Records;
- THENCE South 89 degrees 56 minutes 56 seconds West, along the north line of said WRA tract, a distance of 897.46 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 00 degrees 03 minutes 04 seconds East, continuing along the westerly line of said WRA tract, a distance of 300.00 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 50 degrees 39 minutes 30 seconds West, continuing along the westerly line of said WRA tract, a distance of 613.45 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 89 degrees 56 minutes 56 seconds West, continuing along the westerly line of said WRA tract, a distance of 400.00 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 00 degrees 03 minutes 04 seconds East, continuing along the westerly line of said WRA tract, a distance of 240.00 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 89 degrees 56 minutes 56 seconds West, along the north line of a tract deeded to Westworth Redevelopment Authority (WRA) per document recorded in Volume 14192, Page 82 of said Deed Records, a distance of 1079.17 feet to a found 5/8 inch capped iron rod (BHB INC);
- THENCE North 00 degrees 03 minutes 04 seconds West, a distance of 465.79 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-04";
- THENCE North 00 degrees 02 minutes 17 seconds West, a distance of 740.72 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-08";
- THENCE North 00 degrees 09 minutes 40 seconds West, a distance of 157.83 to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-09";
- THENCE South 89 degrees 51 minutes 28 seconds East, a distance of 198.87 to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-10";
- THENCE North 00 degrees 19 minutes 02 seconds East, a distance of 1,151.22 to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-11";
- THENCE South 89 degrees 31 minutes 29 seconds East, a distance of 38.78 to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-12";
- THENCE North 00 degrees 10 minutes 09 seconds East, a distance of 751.07 to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped "N-13";
- THENCE North 89 degrees 41 minutes 28 seconds East, a distance of 759.17 to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped "WRA";
- THENCE North 89 degrees 26 minutes 28 seconds East, a distance of 778.59 to a found 5/8 inch iron capped iron rod (BHB INC);
- THENCE South 00 degrees 19 minutes 01 seconds East, a distance of 179.31 to a found 5/8 inch iron capped iron rod (BHB INC);
- THENCE South 26 degrees 32 minutes 21 seconds East, a distance of 208.83 to a found "+" cut in concrete;
- THENCE South 29 degrees 17 minutes 48 seconds East, a distance of 67.81 to a found 5/8 inch

iron capped iron rod (BHB INC);

THENCE South 38 degrees 08 minutes 42 seconds West, a distance of 197.97 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE North 89 degrees 33 minutes 10 seconds East, a distance of 181.63 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE South 01 degrees 07 minutes 13 seconds East, a distance of 325.22 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE South 00 degrees 35 minutes 46 seconds West, a distance of 96.77 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE South 24 degrees 39 minutes 57 seconds East, a distance of 44.73 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE South 50 degrees 23 minutes 10 seconds East, a distance of 461.65 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE North 40 degrees 03 minutes 08 seconds East, a distance of 69.13 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE South 50 degrees 32 minutes 26 seconds West, a distance of 120.53 to a found 5/8 inch iron capped iron rod (BHB INC);

THENCE North 39 degrees 31 minutes 52 seconds East, a distance of 215.38 feet to a found 5/8 inch iron rod with a 1-1/2 aluminum cap stamped N-16;

THENCE North 28 degrees 26 minutes 21 seconds East, a distance of 381.60 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped N-17;

THENCE North 52 degrees 45 minutes 45 seconds West, a distance of 45.61 feet to a found 5/8 inch iron rod with a 1-1/2 aluminum cap stamped N-18;

THENCE North 41 degrees 31 minutes 17 seconds East, a distance of 124.97 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped N-19;

THENCE North 55 degrees 59 minutes 04 seconds East, a distance of 153.92 feet to a found 5/8 inch iron rod with a 1-1/2 inch aluminum cap stamped N-20;

THENCE North 69 degrees 14 minutes 53 seconds East, a distance of 222.46 feet to a found 5/8 inch iron rod;

THENCE North 69 degrees 15 minutes 40 seconds East, a distance of 149.20 feet to a found 5/8 inch iron rod;

THENCE North 12 degrees 34 minutes 42 seconds West, a distance of 107.04 feet to a found 5/8 inch iron rod;

THENCE North 77 degrees 47 minutes 03 seconds East, a distance of 384.39 feet to a found 5/8 inch iron rod also being the beginning of a curve to the right whose chord bears North 84 degrees 00 minutes 03 seconds East, a distance of 146.91 feet and having a radius of 678.34 feet;

THENCE Northeasterly, along said curve to the right through a central angle of 12 degrees 26 minutes 02 seconds, an arc length of 147.20 feet to a 5/8 inch capped iron rod (BHB INC) for the end of said curve;

THENCE South 12 degrees 57 minutes 06 seconds East, a distance of 60.93 to a found 5/8 inch capped iron rod (BHB INC);

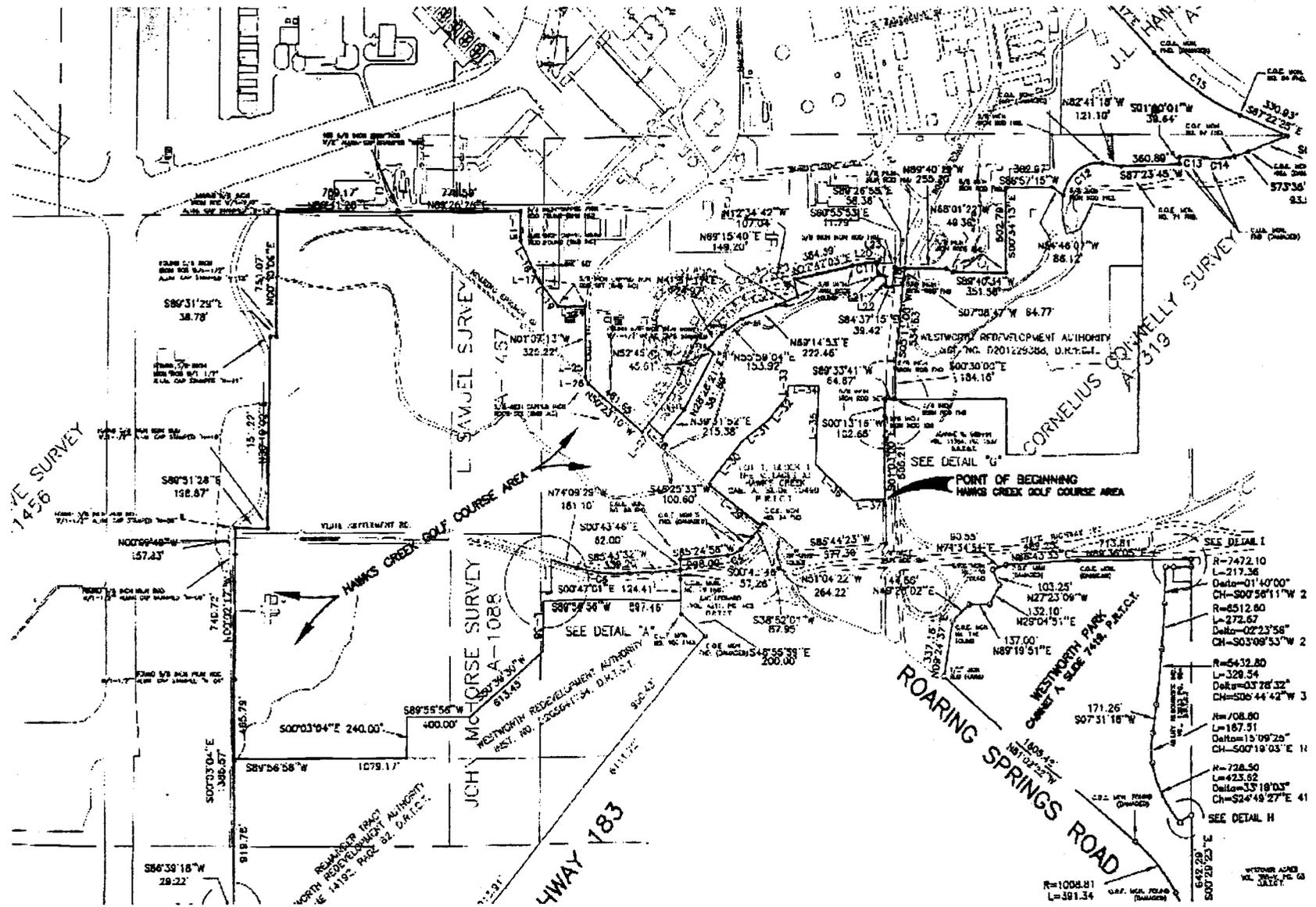
THENCE South 36 degrees 05 minutes 43 seconds East, a distance of 19.77 to a found 5/8 inch capped iron rod (BHB INC);

THENCE South 79 degrees 33 minutes 54 seconds East, a distance of 38.57 to a found 5/8 inch capped iron rod (BHB INC);

- THENCE South 01 degrees 37 minutes 27 seconds East, a distance of 59.66 to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 84 degrees 37 minutes 15 seconds East, a distance of 39.42 to a found 5/8 inch capped iron rod (BHB INC);
- THENCE North 05 degrees 22 minutes 45 seconds East, a distance of 116.28 to a found 5/8 inch capped iron rod (BHB INC);
- THENCE South 60 degrees 55 minutes 53 seconds East, a distance of 11.79 feet to a found 5/8 inch iron rod on the West line of Rogner Road;
- THENCE South 89 degrees 26 minutes 55 seconds East, crossing said Rogner Road, a distance of
of
58.36 feet to a found 5/8 inch iron rod on the established East Line of Rogner Road;
- THENCE the following along said established East line of Rogner Road and the west line of a tract deeded to Westworth Redevelopment Authority (WRA) per instrument no. D201229388 of said Deed Records:
- THENCE South 07 degrees 08 minutes 47 seconds West, a distance of 64.77 feet to a found 5/8 inch iron rod;
- THENCE South 05 degrees 11 minutes 00 seconds West, a distance of 534.63 feet to a found 5/8 inch iron rod;
- THENCE South 00 degrees 30 minutes 00 seconds East, a distance of 184.16 feet to a found 3/4 inch iron rod being the Northwest corner of a tract deeded to a Jeanne W. Griffin per document recorded in Volume 11384, Page 1537 of said Deed Records also being the southwest corner of said WRA tract;
- THENCE South 89 degrees 33 minutes 41 seconds West, departing said established East line and crossing said Rogner Road, passing a "Y" cut in concrete at 9.95 feet and continuing for a total distance of 64.67 feet to a set 5/8 inch iron rod on the West line of Rogner Road;
- THENCE South 00 degrees 13 minutes 16 seconds West, along said West line of Rogner Road, a distance of 102.65 feet to a set 5/8 inch iron rod;
- THENCE South 01 degrees 03 minutes 00 seconds East, continuing along said West line of Rogner Road, a distance of 505.21 feet to the POINT OF BEGINNING and containing a gross area of 8,166,418 square feet or 187.47 acres of land of which SAVE & EXCEPT an area known as the Thompson Family Cemetery Area being 7,767 square feet or 0.18 acre leaving Hawks Creek Golf Course Area with a net area of 8,158,651 square feet or 187.29 acres of land.

Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.

Exhibit B
Survey Map of the Property



VE SURVEY
1456

L SAMUEL SURVEY

JCHN MCILORSE SURVEY
A-1088

CORNELIUS CARSWELL SURVEY
A-319

ROARING SPRINGS TRACT
NORTH REDEVELOPMENT AUTHORITY
SE 14192 PAGE 32, DATED 11/1/81

ROARING SPRINGS ROAD

HWAY 183

POINT OF BEGINNING
HAWKS CREEK GOLF COURSE AREA

- SEE DETAIL I
- R=7472.10
 - L=217.36
 - Delta=01°40'00"
 - CH=509°56'11"W 2
 - R=8512.80
 - L=272.67
 - Delta=02°23'56"
 - CH=503°08'53"W 2
 - R=5432.80
 - L=328.54
 - Delta=03°28'32"
 - CH=506°44'42"W 3
 - R=108.80
 - L=187.51
 - Delta=15°09'29"
 - CH=500°19'03"E 11
 - R=728.50
 - L=423.62
 - Delta=35°18'03"
 - CH=524°48'27"E 41
- SEE DETAIL H
- WITHIN ACRES
W/ 1/4 SEC. 16, T. 13 N., R. 12 E., S. 12

R=1008.81
L=391.34

R=642.29
L=500.29

Exhibit C
Notice of Hazardous Substances

NOTICE OF HAZARDOUS SUBSTANCES STORED/DISPOSED

Notice is hereby given that the tables and information provided contain a notice of hazardous substances that have been stored on the Property and the dates that such storage took place. The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") 42 U.S.C. section 9620(h).

HAZARDOUS SUBSTANCES STORED/DISPOSED

IRP Site LF004/SWMU 22

Substance Stored	Regulatory Synonym(s)	CAS Registry Number	Quantity mg/kg	Dates Stored/Disposed	Hazardous Waste ID Number (if applicable)
Various municipal wastes including paint, thinners, strippers, cadmium batteries, waste solvents, and other burned wastes	NA	NL	Unknown	Landfill used between 1956-1973	NA

IRP Site LF006/SWMU 62

Substance Stored	Regulatory Synonym(s)	CAS Registry Number	Quantity mg/kg	Dates Stored	Hazardous Waste ID Number (if applicable)
Construction rubble and drums of hydraulic fluid	NA	NL	Unknown	Unknown. Landfill used between 1975-1978	NA

NA=Not applicable

NL=Not listed

NOTICE OF HAZARDOUS SUBSTANCES RELEASE

Notice is hereby given that the information set out below provides notice of hazardous substances that are known to have been disposed of or released on the Property. The information contained in this notice is required under the authority of regulations promulgated under Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 U.S.C. Section 9620(h).

<i>IRP Site LF004/SWMU 22</i>							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Naphthalene		91-20-3	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site soils = 19 mg/kg at 5 ft bgs (below ground surface)
2-Methylnaphthalene		91-57-6	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site soils = 1.4 mg/kg at 8 ft bgs
Acenaphthene		83-32-9	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 1.9 mg/kg
Anthracene		120-12-7	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 5.3 mg/kg
Benzo(a)anthracene	1,2-benzoanthracene	56-55-3	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 34 mg/kg
Benzo(a)pyrene	B(a)P	50-32-8	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 37 mg/kg
Benzo(b)fluoranthene		205-99-2	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 39 mg/kg
Benzo(k)fluoranthene		207-08-9	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 22 mg/kg
Bis(2-ethylhexyl)phthalate	Dioctylphthalate	117-81-7	Unknown	Unknown	N/A	IRA consisting of 13 cy centered on B406 was completed to remove the remaining RRS3 soil found in the 5' bgs interval. A total of 82 cubic yards was removed. Remaining soil	Maximum concentration remaining in place in site soils = 58 mg/kg

IRP Site LF004/SWMU 22							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
						contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	
Chrysene		218-01-9	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 38 mg/kg
Dibenzo (a, h) anthracene		53-70-3	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 4.9 mg/kg
Dibenzofuran		132-64-9	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site surface soils =.92 mg/kg
Fluoranthene		206-44-0	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 60 mg/kg
Fluorene		86-73-7	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils =1.8 mg/kg
Ideno(1,2,3-c,d)pyrene		193-39-5	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils =25 mg/kg
Phenanthrene		85-01-8	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 35mg/kg
Pyrene		129-00-0	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 45 mg/kg
1,2 Dichlorobenzene		95-50-1	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site soils = 1.8 mg/kg at 5 ft bgs
1,3 Dichlorobenzene		541-73-1	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site soils = 0.76 mg/kg at 5 ft bgs
1,4 Dichlorobenzene		106-46-7	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in site soils = 0.76mg/kg at 5 ft bgs

*Note : TCEQ Risk Reduction Standard (RRS) 2: Closure/Remediation to Health-Based Standards and Criteria, 30 Texas Administrative Code (TAC) Chapter 335.555. Under TCEQ RRS2 no post-closure care, engineering, or institutional control measures are required; however, public notice and certification of remediation of contaminants left in soil above residential levels is required to achieve final closure. Copies of Industrial Solid Waste Certification of Remediation documents were filed in the Real Property Records of Tarrant County, Texas .

<i>IRP Site PS019/AOC 9</i>							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Chlordane	Toxichlor	57-74-9	Unknown	Unknown	NA	Approximately 380 cy of soil were excavated. Soil contaminants left in place were either below background level or below human target levels.	Closed under TCEQ RRS 1 on August 31, 1999. Suitable for unrestricted use.

<i>IRP Site WP011/SWMU 58</i>							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity Kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Chlordane	Toxichlor	57-74-9	Unknown	Unknown	NA	Approximately 380 cy of soil were excavated. Soil contaminants left in place were either below background level or below human target levels.	Closed under TCEQ RRS 1 on August 31, 1999. Suitable for unrestricted use

<i>IRP Site LF006/SWMU 62</i>							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Antimony		7440-36-0	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 3.3 mg/kg

IRP Site LF006/SWMU 62							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Barium		7440-39-3	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils 3 ft bgs = 143 mg/kg
Beryllium		7440-41-7	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 1.1 mg/kg
Lead		7439-92-1	Unknown	Unknown	NA	A total of two excavations were performed as part of an IRA for SWMU 62. Approximately 120 cy of soil were removed centered on boring B640. An additional 20 cy of soils was removed centered on boring B646. IRA excavation confirmation showed all target CoC's were removed. Any remaining soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 38.9mg/kg Maximum concentration remaining in place in surface soils=116 mg/kg
Nickel		7440-02-0	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils=20.5 mg/kg
Selenium		7782-49-2	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 23 mg/kg
Thallium		7440-28-0	Unknown	Unknown	NA	Soil contaminants left in place were below background industrial levels for thallium and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 16.0 mg/kg
Vanadium		27774-13-6	Unknown	Unknown	NA	Soil contaminants left in place were below background levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 47.5 mg/kg Maximum concentration remaining in

IRP Site LF006/SWMU 62							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
							place in surface soils = 54.2 mg/kg
Zinc		7440-66-6	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 61.4 mg/kg
Chlordane		57-74-9	Unknown	Unknown	NA	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 1.1 mg/kg
p,p-DDT			Unknown	Unknown	NA	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 0.0051 mg/kg
Acetone		67-64-1	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 0.17 mg/kg
Methyl Ethyl Ketone	MEK	78-93-3	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 0.026 mg/kg
Acenaphthene		83-32-9	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 1.9 mg/kg
Anthracene		120-12-7	Unknown	Unknown	NA	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 1.6 mg/kg
Benzo(a)anthracene	1,2-benzoanthracene	56-55-3	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 12 mg/kg
Benzo(a)Pyrene		50-32-8	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 13 mg/kg
Benzo(b)fluoranthene		205-99-2	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 14 mg/kg

IRP Site LF006/SWMU 62							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Benzo(g,h,i)perlene		191-24-2	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 8.3 mg/kg
Benzo(k)fluoranthene		207-08-9	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 5.7mg/kg
Chrysene		218-01-9	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 11 mg/kg
Dibenzo (a,h)anthracene		53-70-3	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 3.2 mg/kg
Fluoranthene		86-73-7	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 19 mg/kg
Ideno(1,2,3-c,d)pyrene		193-39-5	Unknown	Unknown	N/A	Soil contaminants left in place were below site specific MSC levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in subsurface soils = 11 mg/kg
Phenanthrene		85-01-8	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface and subsurface soils = 5.7 mg/kg
Pyrene		129-00-0	Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface and subsurface soils = 22 mg/kg
Sulfide			Unknown	Unknown	N/A	Soil contaminants left in place were below industrial levels and received state closure under TCEQ RRS2*.	Maximum concentration remaining in place in surface soils = 92.1 mg/kg

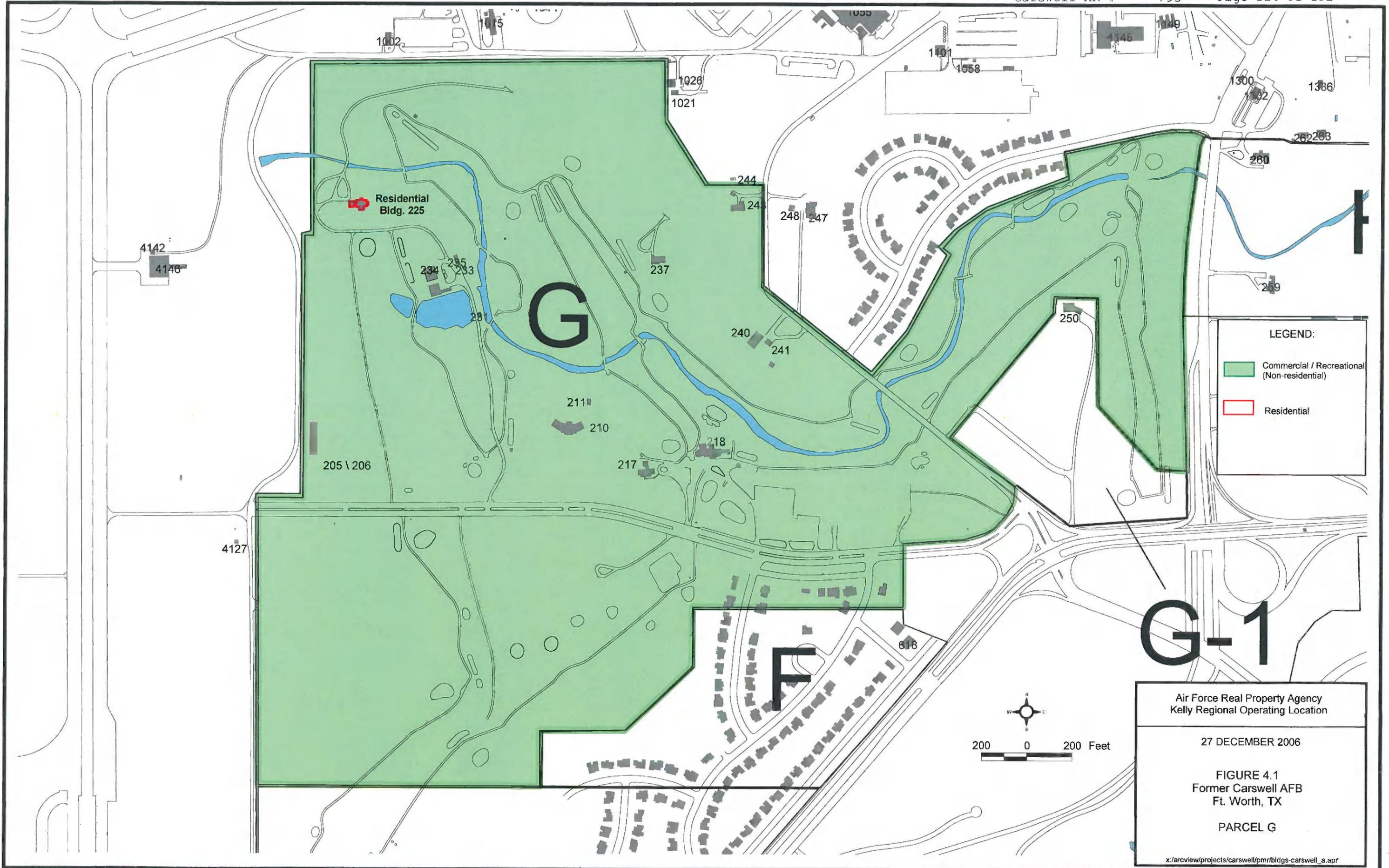
*Note : TCEQ Risk Reduction Standard (RRS) 2: Closure/Remediation to Health-Based Standards and Criteria, 30 Texas Administrative Code (TAC) Chapter 335.555: Under TCEQ RRS2 no post-closure care, engineering, or institutional control measures are required; however, public notice and certification of remediation of contaminants left in soil above residential levels is required to achieve final closure. For additional information, reference

Subsurface soil samples were collected from 5 – 15 ft below ground surface (bgs) intervals.

<i>Air Force Plant (AFP) 4 TCE Groundwater Plume</i>							
Substance	Regulatory Synonym(s)	CAS Registry Number	Quantity Kg/lb	Date	Hazardous Waste ID Number (if applicable)	Response	Remarks
Trichloroethene	TCE	79-01-6	Unknown	Unknown	NA	See Note Below*	OPS determination, as demonstrated in indicated that necessary remedies have been implemented and are operating as designed.

*Note : A TCE plume originating from the AFP4 has impacted groundwater underlying a portion of the Property. The site is currently being remediated under a federal facilities agreement (FFA) between EPA Region 6, TCEQ and Aeronautical Systems Center and the AFP 4 Record of Decision. Source area remediation activities include product removal, soil vapor extraction, electrical resistance heating of subsurface soils, and a groundwater pump and treat system immediately downgradient of the area.

Exhibit D
Location of Residential and Mixed Use Property



LEGEND:

- Commercial / Recreational (Non-residential)
- Residential

G-1

Air Force Real Property Agency
Kelly Regional Operating Location

27 DECEMBER 2006

FIGURE 4.1
Former Carswell AFB
Ft. Worth, TX

PARCEL G

x:\arcview\projects\carswell\pmr\bldgs-carswell_a.apr

Legal Description and Property Survey for the 3.5 Acre Parcel (Mixed Use)**Tract II:**

Being a tract of land located in the John McHorse Survey, A-1088, the Cornelius Connelly Survey, A-319 and the John Collett Survey, A-262 Tarrant County, Texas. Said tract being a portion of Carswell Air Force Base previously surveyed by T. D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with the Corp of Engineers, Fort Worth Division, said tract also being a portion of the Wherry Housing Area per plat of survey called boundary resurvey of a tract known as NAS Fort Worth JRB (AKA Carswell Air Force Base) Tarrant County, Texas prepared by Baird, Hampton & Brown, Inc., Fort Worth, Texas, dated January 14, 1998 filed with the Air Force Base Conversion Agency and Westworth Redevelopment Authority said tract also being a portion of a tract deeded to Westworth Redevelopment Authority per Deed Without Warranty as recorded in Volume 14192, Page 82 of the Deed Records of Tarrant County, Texas said tract being more particularly described by metes and bounds as follows:

BEGINNING at a found Corp of Engineers Monument (C.O.E.) (damaged) being located on the Northwesterly R.O.W. line of State Highway 183 also being the most Southerly point of a tract (Third tract) deeded to a J. M. Leonard per document recorded in Volume 4211, Page 402 of the Deed Records of Tarrant County, Texas:

THENCE South 40 degrees 58 minutes 50 seconds West, along said Northwesterly R.O.W. line of State Highway 183, a distance of 1,728.83 feet to a found 5/8 inch capped iron rod stamped "BHB INC";

THENCE North 48 degrees 26 minutes 31 seconds West, leaving said Northwesterly R.O.W. line of State Highway 183, a distance of 580.48 feet to a set 5/8 inch capped iron rod stamped "BHB INC";

THENCE North 00 degrees 06 minutes 30 seconds East, a distance of 375.54 feet to a set 5/8 inch capped iron rod stamped "BHB INC";

THENCE North 84 degrees 31 minutes 16 minutes East, a distance of 555.18 feet to a set 5/8 inch capped iron rod stamped "BHB INC";

THENCE North 02 degrees 25 minutes 24 seconds West, a distance of 753.25 feet to a set 5/8 inch capped iron rod stamped "BHB INC", said set 5/8 inch capped iron rod stamped "BHB INC" being on the south line of the Thompson Family Cemetery as recorded in Volume 310, Page 2 of said Deed Records, from said set 5/8 inch capped iron rod stamped "BHB INC" a found C.O.E. monument (damaged) being the Southwest corner said Thompson Family Cemetery bears South 89 degrees 52 minutes 36 seconds West, a distance of 21.50 feet;

THENCE North 89 degrees 52 minutes 36 seconds East, along the south line of said Thompson Family Cemetery, a distance of 16.00 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA;

THENCE South 00 degrees 07 minutes 24 seconds East, leaving said south line of said Thompson Family Cemetery and along the west line of the Eppie Latimar York Burial Plot, a distance of 7.00 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA;

THENCE North 89 degrees 52 minutes 36 seconds East, along the south line of said Eppie Latimar York Burial Plot, a distance of 16.00 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA;

THENCE North 00 degrees 07 minutes 24 seconds West, along the east line of said Eppie Latimar York Burial Plot, a distance of 7.00 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA. said found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA being on said south line of Thompson Family Cemetery;

THENCE North 89 degrees 52 minutes 36 seconds East, along said south line of Thompson Family Cemetery, a distance of 14.40 feet to a found C.O.E. monument no. C-4;

THENCE North 00 degrees 09 minutes 04 seconds West, passing a found C.O.E. monument (damaged) for the most easterly northeast corner of said Thompson Family Cemetery at a distance of 84.86 feet and continuing for a total distance of 189.86 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA within the median of the centerline of White Settlement Road;

THENCE South 74 degrees 09 minutes 29 seconds East, along the centerline of said White Settlement Road, a distance of 181.10 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA also being the beginning of a curve to the left whose chord bears South 84 degrees 12 minutes 59 seconds East, a distance of 335.65 feet and having a radius of 960.92 feet;

THENCE Southwesterly, along said curve to the left through a central angle of 20 degrees 06 minutes 59 seconds, an arc length of 337.38 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA for the end of said curve;

THENCE North 85 degrees 43 minutes 32 seconds East, a distance of 339.20 feet to a found 5/8 inch iron rod with a 2 inch aluminum cap stamped WRA;

THENCE South 00 degrees 43 minutes 46 seconds East, crossing said White Settlement Road, a distance of 57.26 feet to a found C.O.E. monument no. 99 being on the South R.O.W. line of White Settlement Road and being the Northwest corner of said tract (Third tract) decded to J.M. Leonard;

THENCE South 00 degrees 47 minutes 01 seconds East, a distance of 204.41 feet to a found C.O.E. monument no. 100;

THENCE South 48 degrees 55 minutes 59 seconds East, a distance of 200.00 feet to the POINT OF BEGINNING and containing 1,290,751 square feet or 29.63 acres of land.

Reference bearing basis per USCGS Monument ELEC and USCGS Monument RUN using NAD 83 datum.

Save and Except:

BEING a 26.146 acre tract of land situated in the Cornelius Connelly Survey, Abstract Number 319, in the John Collett Survey, Abstract Number 262, in the John McHorse Survey, Abstract Number 1088, in the J. M. Shreeve Survey, Abstract Number 1456, in the City of Westworth Village and being a portion of the tract of land described in the deed to Westworth Redevelopment Authority recorded in Volume 14192, Page 82, Deed Records of Tarrant County, Texas also being a portion of the tract of land described in the deed to Westworth Redevelopment Authority recorded in Document Number 205041734, Deed Records of Tarrant County, Texas, said 26.146 acre tract of land being more particularly described as follows:

BEGINNING at a 5/8" iron rod with cap stamped "BHB Inc." found in the northwesterly right-of-way line of State Highway 183 (210 foot wide right-of-way) for the easterly corner of the tract of land described in Memorandum of Ground Lease to Allegiance Commercial Development, LP, recorded in Volume 17309, Page 73, Deed Records of Tarrant County, Texas:

THENCE North 48°26'31" West a distance of 580.48 feet to a 5/8 inch iron rod with a cap stamped "BHB Inc." found for corner;

THENCE North 00°06'30" East a distance of 375.54 feet to a 5/8 inch iron rod with a cap stamped "BHB Inc." found for corner;

THENCE North 84°31'16" East a distance of 555.18 feet to a 5/8 inch iron rod with a cap stamped "BHB Inc." found for corner;

THENCE North 02°25'24" West a distance of 702.74 feet to a 5/8 inch iron rod with a cap stamped "BHB Inc." found for corner;

THENCE with the northerly line of aforementioned Westworth Redevelopment Authority tract (Document Number 205041734) North 89°56'56" East a distance of 892.61 feet to a 5/8 inch iron rod with a cap stamped "BHB Inc." found in the westerly line of the tract of land described in the deed to Margaux Westside Partners, Ltd, recorded in Document Number 204391476, Deed Records of Tarrant County, Texas;

THENCE departing the northerly line of said Westworth Redevelopment tract (Document Number 205041734) with a common line of said Margaux Partners tract and said Westworth Redevelopment tract South $00^{\circ}47'01''$ East a distance of 80.00 feet to a U.S. Army Corps of Engineers monument Disk No. 100 found for corner;

THENCE continuing with a common line of said Margaux Partners tract and said Westworth Redevelopment tract (Document Number 205041734) South $48^{\circ}55'59''$ East a distance of 200.00 feet to a damaged U.S. Army Corps of Engineers monument Disk found in the northwesterly right-of-way line of State Highway 183,

THENCE with the northwesterly right-of-way line of State Highway 183 South $40^{\circ}58'50''$ West a distance of 1,728.83 feet to the POINT OF BEGINNING;

CONTAINING a computed area of 26.146 acres (1,138,931 square feet) of land.

3.488 Acres
Cornelius Connelly Survey, A-319
Westworth Village, Tarrant County, Texas

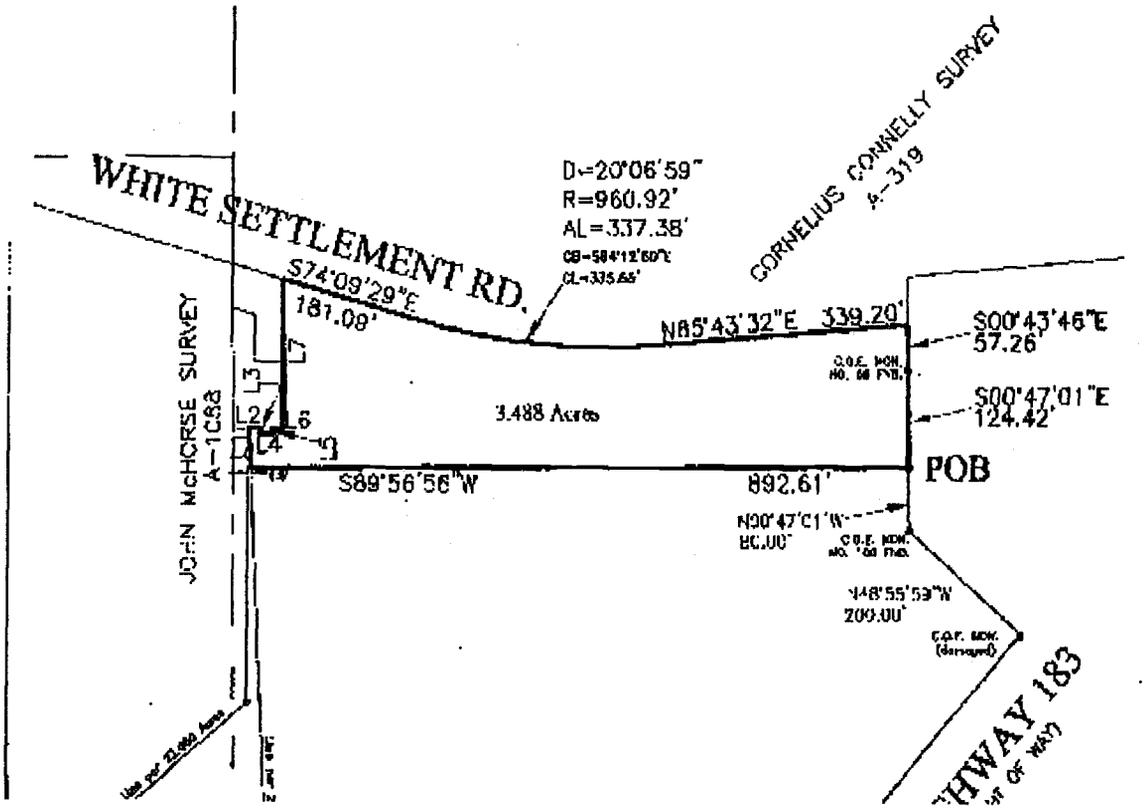
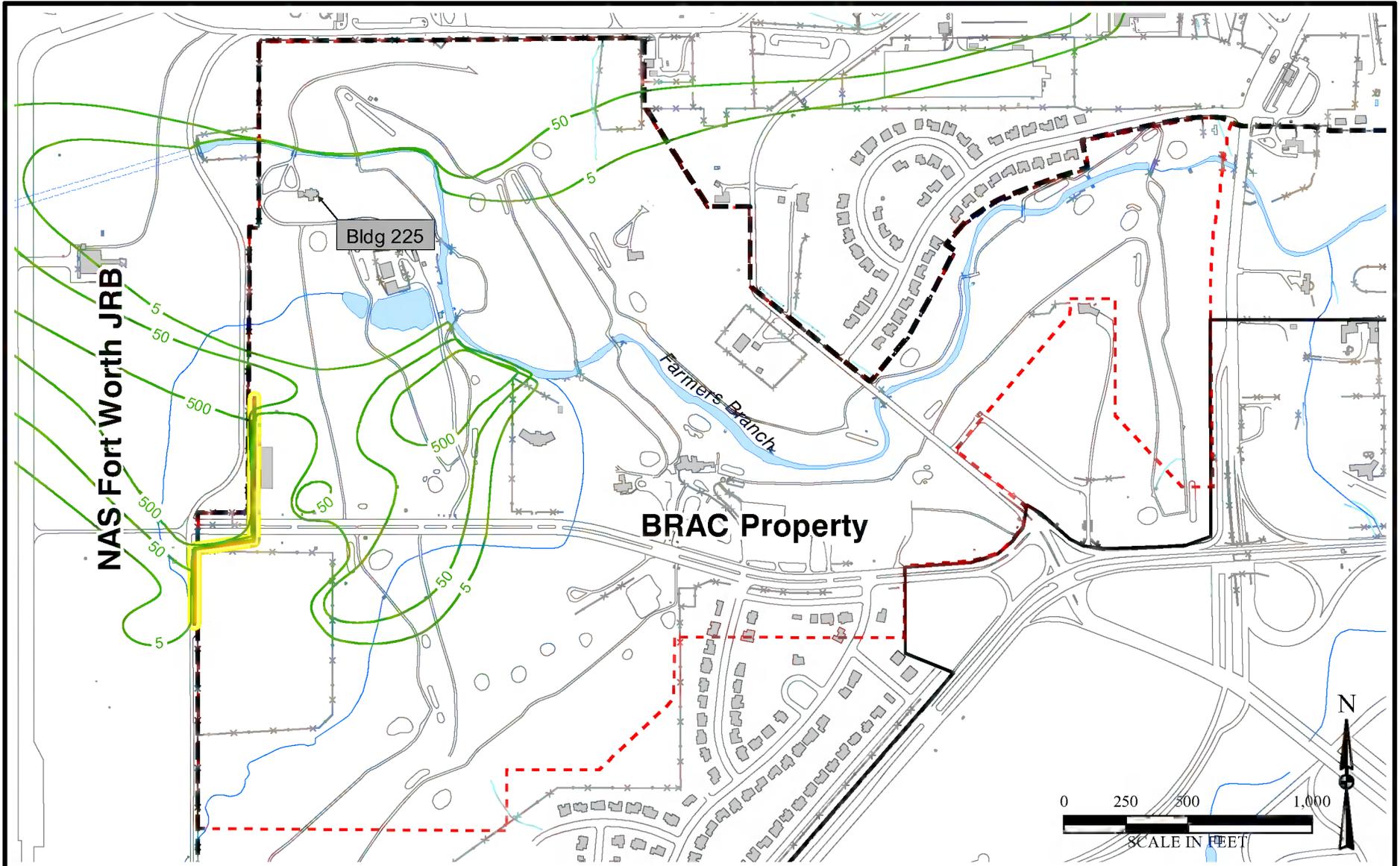


Exhibit E
PRB and TCE GW Plume Map



Filename: X:/AFC002/NASFW/TO11/MAPS/ESD_Report
 /TCE_contour.mxd
 Revised: 11/28/06 BF
 Project: AFC002-011-08
 Map Source: HydroGeoLogic, Inc. GIS Database



Legend

- Former Federal Property Boundary
- NAS Fort Worth JRB/New Federal Property Boundary
- BRAC Property
- TCE Concentration Contour (MCL 5 µg/L)
- Permeable Reactive Barrier
- Restricted Digging/Excavation Area (25-ft radius around PRB)

Note: TCE contours provided by Earth Tech.

Figure 1
May 2006 Groundwater Contamination Area

Exhibit "A"
 Metes and Bounds Description
 No Dig Area
 1.335 Acres
 Naval Air Station, Joint Reserve Base
 J.M. Shreeve Survey, Abstract 1456
 Fort Worth, Tarrant County, Texas

Being a 1.335 acre tract of land located in the J.M. Shreeve Survey, A-1456, Tarrant County, Texas, said tract being a portion of a tract of land known in the past as Carswell Golf Course Area, now known as Hawks Creek Golf Course Area, within the NAS Fort Worth JRB as shown on Boundary Resurvey of a tract of land known as NAS Fort Worth JRB (aka Carswell Air Force Base), Tarrant County, Texas, last dated February 9, 2001, prepared by Baird, Hampton, & Brown, Inc. for the Air Force Base Conversion Agency of which is on file with the Corp of Engineers, Fort Worth Division and Westworth Redevelopment Authority. Said tract being a resurvey of a portion of a tract previously surveyed by T.D. Disheroon in October of 1976 and revised in October of 1978 of which survey is filed with said Corp of Engineers, Fort Worth Division, said tract being more particularly described by metes and bounds as follows (bearings referenced to said Baird, Hampton and Brown survey):

COMMENCING at a found 5/8 inch iron rod with 1-1/2 inch aluminum cap stamped "N-04" in the west line of the said Hawks Creek Golf Course Area, from which the northwest corner of a tract of land described by deed to Westworth Redevelopment Authority bears S 00°03'04" E, a distance of 465.79 feet;

THENCE N 04°53'41" W for a distance of 427.73 feet to the POINT OF BEGINNING;

THENCE N 00°18'55" E for a distance of 348.35 feet to a point;

THENCE N 82°02'18" E for a distance of 237.21 feet to a point;

THENCE N 00°25'22" E for a distance of 578.05 feet to a point;

THENCE S 89°34'38" E for a distance of 50.00 feet to a point;

THENCE S 00°25'22" W for a distance of 621.22 feet to a point;

THENCE S 82°02'18" W for a distance of 237.13 feet to a point;

THENCE S 00°18'55" W for a distance of 305.10 feet to a point;

THENCE N 89°41'05" W for a distance of 50.00 feet to the POINT OF BEGINNING and containing 1.335 acres of land more or less.


 John G. Margotta
 R.P.L.S. No. 5956

3-1-07

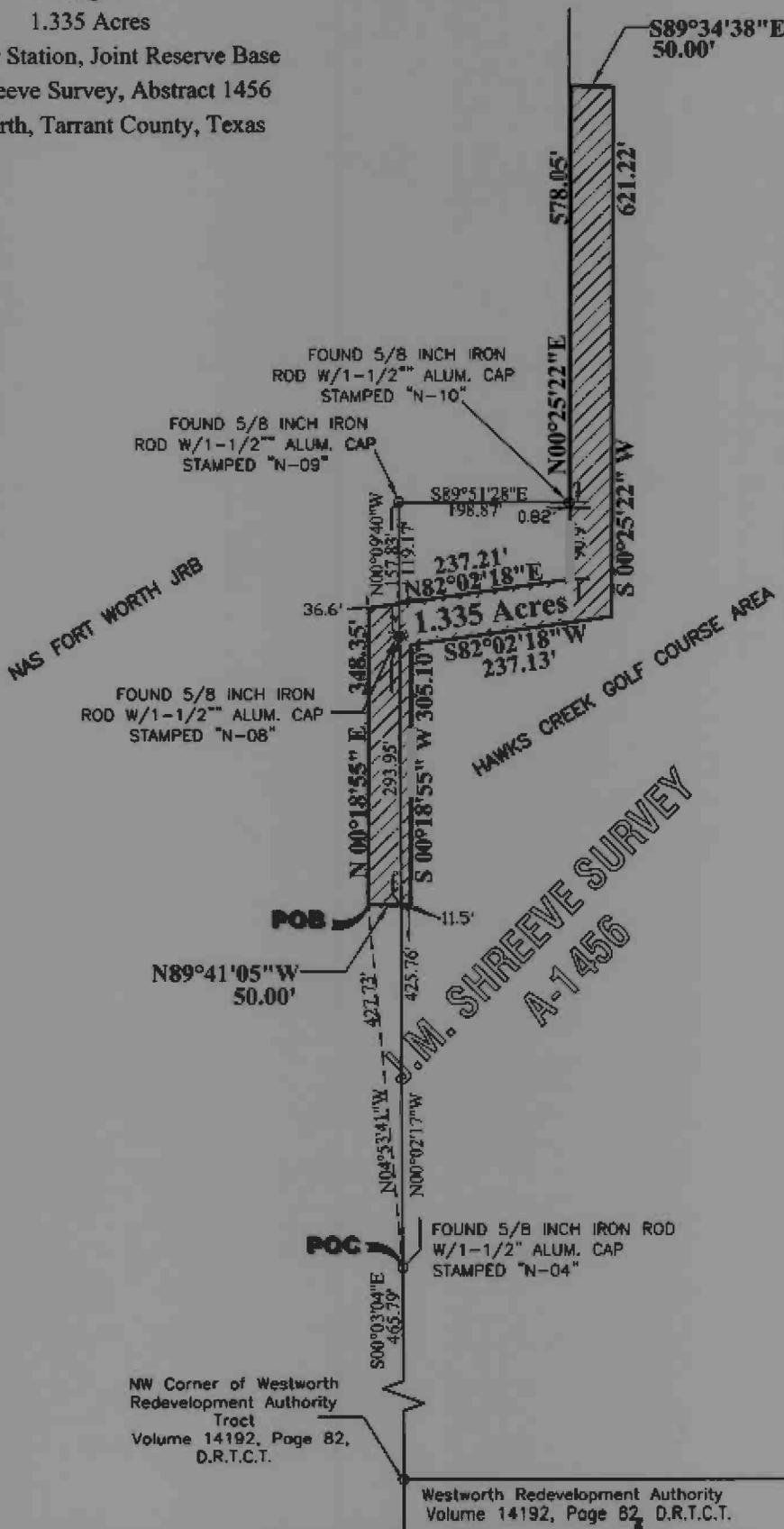
Date

Baird, Hampton and Brown Inc.



Exhibit "B"

No Dig Area
 1.335 Acres
 Naval Air Station, Joint Reserve Base
 J.M. Shreeve Survey, Abstract 1456
 Fort Worth, Tarrant County, Texas



[Signature] 3-1-07
 John Margotta, R.P.L.S. No. 5956

WESTWORTH REDEVELOPMENT AUTHORITY

Please find enclosed an executed
copy of the Golf Course deed,
plus the recording page.

Just let me know if there
is anything else we can
send you?



APPENDIX B

PUBLIC NOTICE OF INTENT

**STATE OF TEXAS
COUNTY OF TARRANT**

Before me, a Notary Public in and for said County and State, this day

personally appeared Christine Lopez, Advertising Representative for the Star-Telegram, published by the Star-Telegram, Inc. at Fort Worth, in Tarrant County, Texas and distributed in other surrounding Counties; and who, after being duly sworn, did dispose and say that the following clipping of an advertisement was published in the above named paper on the following dates:

the March 16, 2010
Wed March 17, 2010

Signed

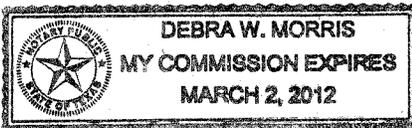
Lopez

Subscribed and sworn to before me, this the 29 day of March 2010

Notary Public

Debra W. Morris

Tarrant County, Texas



ATION

have the votes,' Pelosi says

"were born to do."

Her political future may be on the line. Failure is not an option for her or the White House, as Pelosi rolls the dice to bring the bruising, yearlong battle over the nearly \$1 trillion, 10-year healthcare measure to a con-



Pelosi

Meanwhile, Republicans have publicly begun to voice doubts that they can stop the bill. Sen. Jim DeMint, R-S.C., an ardent opponent, said he was now "less confident" that the measure can be stopped.

Democrats would "have to be remarkable people not to fall under the kind of pressure they'll be under," he said.

In full campaign mode,

should get off "their high horse."

He also expressed confidence that House passage is near. "I believe we're going to get the votes, we're going to make this happen," Obama said.

For months, polls have showed that the public is deeply divided over health-care legislation, with opponents holding the edge. But

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PUBLIC NOTICE

**THE U.S. AIR FORCE IS CONDUCTING A
CERCLA FIVE-YEAR REVIEW AT
FORMER CARSWELL AIR FORCE BASE, TX**

The United States Air Force is conducting the second five-year review of the selected remedies that have been implemented at former Carswell Air Force Base. Under "Superfund," or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Review of long-term remedial actions is required every five years to ensure continued protection of human health and the environment. The review assesses the effectiveness of protective measures at such sites.

If you have any questions or comments, please contact:
Mr. Steven Dea, AFCEE/EXC Program Manager
3300 Sidney Brooks
Brooks City-Base, Texas 78235-5112
Toll-free: 866-725-7617

MILITARY PLANNING



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U.S. withdrawal will proceed, though Iraq is in delicate state, Petraeus says

by MICHAEL MUSKAL
Los Angeles Times

WASHINGTON — Iraq remains fragile but is on course to allow the United States to decrease its presence as planned to 50,000 troops by September, the top U.S. general

in Iraq, Petraeus said he expects that the military will be able to meet its goal of decreasing its presence, now at about 97,000.

"We still believe we will be able to stay on track to reach 50,000," Petraeus said.

next prime minister, president and speaker of the council," he said.

In Iraq, meanwhile, a secular coalition challenging Prime Minister Nouri al-Maliki in the parliamentary elec-

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APPENDIX C

LIST OF DOCUMENTS REVIEWED

Appendix C
List of Documents Reviewed

- Air Force, 1993. Memorandum of Understanding Between the United States Air Force and the United States Navy on Transfer of Responsibility for Carswell Air Force Base, Texas.
- Air Force Base Conversion Agency, 1997. Closure Document for Grounds Maintenance Yard (AOC 05) Site ID OT-39, NAS JRB Fort Worth, TX. August 20, 1997.
- A.T. Kearney, Inc., 1989. RCRA Facility Assessment PR/VSI Report, Carswell AFB, Texas. March 1989.
- CH2M HILL, Inc., 1984. Installation Records Program for Carswell Air Force Base, Texas. February 1984.
- Earth Tech AECOM, 2008. Final Five-Year Review Report at Air Force Plant 4. September 2008.
- EMCON, 2000. Final Cover System Evaluation Report, Naval Air Station Fort Worth Joint Reserve Base, Landfill No. 4. September 2000.
- EMCON, 2000. Final Cover System Evaluation Report, Naval Air Station Fort Worth Joint Reserve Base, Landfill No. 5. September 2000.
- Fanning Phillips and Molner, 1999. Revised Final Work Plan Addendum, Risk-Based Assessment, Management, and Closure of Grounds Maintenance Yard (AOC 5), Carswell AFB, TX. March 1999.
- HydroGeoLogic, Inc. (HGL), 2001. Final RCRA Facility Investigation Solid Waste Management Units 22, 23, 24, and 25, NAS Fort Worth JRB, Texas. May 2001.
- HGL, 2005. Final Focused Feasibility Study Southern Lobe TCE Groundwater Plume, Former Carswell AFB, Texas. June 2005.
- HGL, 2005. Final Five-Year Review Summary Report for Base Realignment and Closure Sites at Former Carswell AFB, Texas. September 2005.
- HGL, 2007. Final Operating Properly and Successfully Demonstration Report of the TCE Plume Impacting the BRAC Property at the Former Carswell AFB, Texas. January 2007.

- IT Corporation (IT), 1993. Phase I and II Report, Field Sampling, Analysis and Testing, Carswell Air Force Base, Landfills 4 and 5, Fort Worth, Texas. March 1993.
- IT, 1993. Field Sampling, Analysis, and Testing Plan, Groundwater Remediation Investigation, Carswell AFB Landfill 4 and 5, Fort Worth, Texas.
- IT, 1994. Draft Phase III Report Field Sampling, Analysis, and Testing Carswell Air Force Base, Landfills 4 and 5, Fort Worth, Texas. September 1994.
- IT, 2001. Final Completion Report, Remedial Action at Landfills LF-04, LF-05, LF-08, Waste Burial Area WP-07, NAS Fort Worth (Former Carswell AFB), Fort Worth, Texas. February 2001.
- Jacobs Engineering Group, 1995. Installation Restoration Program Basewide Groundwater Monitoring Quarterly Letter, NAS Fort Worth JRB. 1995.
- Law Environmental Inc. (LAW), 1996a. Final IRP SI/Site Characterization Technical Report for Aerospace Museum Site and Grounds Maintenance Yard, NAS Fort Worth JRB, Texas. July 1996.
- LAW, 1996. IRP Quarterly Groundwater Monitoring, First Semiannual Report, Volume 1. March 1996.
- LAW, 1996. IRP Quarterly Groundwater Monitoring, Second Semiannual Report, Volume 1, NAS Fort Worth JRB, Texas. June 1996.
- Radian Corporation (Radian), 1986. IRP Phase II – Confirmation/Quantification, Stage 1, Final Report. October 1986.
- Radian, 1989. IRP RI/FS, Stage 2 Draft Final Technical Report, Carswell AFB. April 1989.
- Radian, 1990. IRP Stage II - Site Characterization Report, Flightline Area. November 1990.
- Radian, 1991. IRP RI, Stage 2 Final Report, Carswell AFB. October 1991.
- Texas Natural Resource Conservation Commission (TNRCC), 2001. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 22 – Landfill Area 4, Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 14, 2001.
- TNRCC, 2001. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 23 (Landfill Area 5) and SWMU 24 (Waste Burial Area 7), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 14, 2001.

TNRCC, 2001. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at SWMU 25 (Landfill Area 8), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell Air Force Base, Texas. September 13, 2001.

TNRCC, 2001. Letter to AFCEE/ERB regarding Closure/Remediation – Risk Reduction Standard No. 2 – Soil Only at Ground Maintenance Yard (AOC 05), Acceptance of Deed Certification and Release From Post-Closure Care Responsibilities, Carswell AFB, Texas. May 8, 2001.

U.S. Army Corps of Engineers, Fort Worth District, 1992, RCRA Facility Investigation/Remediation Report, Removal of Buried Drums and an UST, SWMU Number 24 – Waste Burial Area.

U.S. Environmental Protection Agency, 2001. Comprehensive Five-Year Review Guidance. June 2001.

APPENDIX D
SITE INSPECTION FORM

OSWER No. 9355.7-03B-P

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: <u>Former Carswell AFB, TX</u>	Date of inspection: <u>3/23/10</u>
Location and Region: <u>Fort Worth, TX / Region VI</u>	EPA ID: <u>TX 0571924042-0</u>
Agency, office, or company leading the five-year review: <u>AFCOE</u>	Weather/temperature: <u>Sunny / 80°F</u>
Remedy Includes: (Check all that apply) <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls Groundwater pump and treatment Surface water collection and treatment Other <u>Area # wells associated with the PRB.</u>	
Attachments: Inspection team roster attached <input checked="" type="checkbox"/> Site map attached	
II. INTERVIEWS (Check all that apply)	
1. O&M site manager <u>N/A</u>	
Name _____ Title _____ Date _____ Interviewed at site _____ at office _____ by phone _____ Phone no. _____ Problems, suggestions; Report attached _____	
2. O&M staff <u>N/A</u>	
Name _____ Title _____ Date _____ Interviewed at site _____ at office _____ by phone _____ Phone no. _____ Problems, suggestions; Report attached _____	

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3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency N/A
 Contact _____
 Name _____ Title _____ Date _____ Phone no. _____
 Problems; suggestions; Report attached _____

Agency _____
 Contact _____
 Name _____ Title _____ Date _____ Phone no. _____
 Problems; suggestions; Report attached _____

Agency _____
 Contact _____
 Name _____ Title _____ Date _____ Phone no. _____
 Problems; suggestions; Report attached _____

Agency _____
 Contact _____
 Name _____ Title _____ Date _____ Phone no. _____
 Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached. Appendix F

Leland Clemons, Director of WRA on May 28, 2010
817-377-8061

OSWER No. 9355.7-03B-P

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1.	O&M Documents O&M manual As-built drawings Maintenance logs Remarks _____	Readily available Readily available Readily available	Up to date Up to date Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks _____	Readily available Readily available	Up to date Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
3.	O&M and OSHA Training Records Remarks _____	Readily available	Up to date <input checked="" type="checkbox"/> N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits _____ Remarks _____	Readily available Readily available Readily available Readily available	Up to date Up to date Up to date Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	Gas Generation Records Remarks _____	Readily available	Up to date <input checked="" type="checkbox"/> N/A
6.	Settlement Monument Records Remarks _____	Readily available	Up to date <input checked="" type="checkbox"/> N/A
7.	Groundwater Monitoring Records Remarks <i>LTM reports not onsite but available for review from AFPT LTM contractor, when requested.</i>	<input checked="" type="checkbox"/> Readily available	Up to date <input checked="" type="checkbox"/> N/A
8.	Leachate Extraction Records Remarks _____	Readily available	Up to date <input checked="" type="checkbox"/> N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks _____	Readily available Readily available	Up to date Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
10.	Daily Access/Security Logs Remarks _____	Readily available	Up to date <input checked="" type="checkbox"/> N/A

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IV. O&M COSTS																																											
1.	O&M Organization	<i>N/A</i>	Contractor for State Contractor for PRP Contractor for Federal Facility Other _____																																								
2.	O&M Cost Records	<i>N/A</i>	Readily available _____ Up to date Funding mechanism/agreement in place Original O&M cost estimate _____ Breakdown attached Total annual cost by year for review period if available <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">From _____</td> <td style="width: 15%;">To _____</td> <td style="width: 15%;">_____</td> <td style="width: 15%;">Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>_____</td> <td>Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> </table>	From _____	To _____	_____	Breakdown attached	Date	Date	Total cost		From _____	To _____	_____	Breakdown attached	Date	Date	Total cost		From _____	To _____	_____	Breakdown attached	Date	Date	Total cost		From _____	To _____	_____	Breakdown attached	Date	Date	Total cost		From _____	To _____	_____	Breakdown attached	Date	Date	Total cost	
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3.	Unanticipated or Unusually High O&M Costs During Review Period																																										
	Describe costs and reasons: <i>N/A</i>																																										
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A																																											
A. Fencing																																											
1.	Fencing damaged	Location shown on site map <input checked="" type="checkbox"/>	Gates secured <input checked="" type="checkbox"/> N/A																																								
	Remarks <i>Swms 23 through 25 & AOC 5 were secured & fence damage was not identified.</i>																																										
B. Other Access Restrictions																																											
1.	Signs and other security measures	Location shown on site map <input checked="" type="checkbox"/>	N/A																																								
	Remarks <i>Swms 23 through 25 & AOC 5 are on secured NAS Fort Worth JRB, TX.</i>																																										

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C. Institutional Controls (ICs)			
1. Implementation and enforcement			
Site conditions imply ICs not properly implemented	Yes	<input checked="" type="checkbox"/> No	N/A
Site conditions imply ICs not being fully enforced	Yes	<input checked="" type="checkbox"/> No	N/A
Type of monitoring (e.g., self-reporting, drive by)	drive by		
Frequency	every 5 years		
Responsible party/agency	AFCEE		
Contact	Mr. Steven Dea	AFCEE COR/PM	3/23/10 210-395-8071
	Name	Title	Date Phone no.
Reporting is up-to-date	<input checked="" type="checkbox"/> Yes	No	N/A
Reports are verified by the lead agency	<input checked="" type="checkbox"/> Yes	No	N/A
Specific requirements in deed or decision documents have been met	<input checked="" type="checkbox"/> Yes	No	N/A
Violations have been reported	Yes	<input checked="" type="checkbox"/> No	N/A
Other problems or suggestions:	Report attached		
	ICs associated w/ BRAC Parcel G were noted & are identified at the end of this report.		
2. Adequacy			
	<input checked="" type="checkbox"/> ICs are adequate	ICs are inadequate	N/A
Remarks			
D. General			
1. Vandalism/trespassing			
Remarks	<input checked="" type="checkbox"/> Location shown on site map	No vandalism evident	
SWMU 22 illegal dumping debris. Construction debris (pallets, brush, rock, mulch, wire, tires, etc.). Ruts in surface approx. 6 ft long, 3 ft wide, 1.5 ft deep (SWMU 22)			
2. Land use changes on site			
Remarks	<input checked="" type="checkbox"/> N/A		
3. Land use changes off site			
Remarks	<input checked="" type="checkbox"/> N/A		
VI. GENERAL SITE CONDITIONS			
A. Roads			
	Applicable	<input checked="" type="checkbox"/> N/A	
1. Roads damaged			
Remarks	Location shown on site map	Roads adequate	N/A

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B. Other Site Conditions	
Remarks <u>Recent precipitation has collected in ruts on Summu 22 cover - drainage issues. An oil sheen was not observed in areas with standing water.</u>	
VII. LANDFILL COVERS	
<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A <u>Summu 22, 23</u>	
A. Landfill Surface	
<u>(MSW landfill cover)</u>	
1.	Settlement (Low spots) Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Areal extent _____ Depth _____ Remarks _____
2.	Cracks Location shown on site map <input checked="" type="checkbox"/> Cracking not evident Lengths _____ Widths _____ Depths _____ Remarks _____
3.	Erosion Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Areal extent _____ Depth _____ Remarks _____
4.	Holes <input checked="" type="checkbox"/> Location shown on site map Holes not evident Areal extent _____ Depth _____ Remarks <u>Summu 22 had several ruts from heavy machinery used on top of cover. Largest rut was 6ft long, 3 ft wide, 1.5 ft deep.</u>
5.	Vegetative Cover Grass Cover properly established No signs of stress Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>Summu 23 in good condition. Natural vegetative cover at Summu 22.</u>
6.	Alternative Cover (armored rock, concrete, etc.) <input checked="" type="checkbox"/> N/A Remarks _____
7.	Bulges Location shown on site map <input checked="" type="checkbox"/> Bulges not evident Areal extent _____ Height _____ Remarks _____

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8.	Wet Areas/Water Damage	Wet areas/water damage not evident	Areal extent _____
	Wet areas	Location shown on site map	Areal extent _____
	Ponding	<input checked="" type="checkbox"/> Location shown on site map	Areal extent <u>6'x3'x65'</u>
	Seeps	Location shown on site map	Areal extent _____
	Soft subgrade	Location shown on site map	Areal extent _____
	Remarks _____		
9.	Slope Instability	Slides	Location shown on site map <input checked="" type="checkbox"/> No evidence of slope instability
	Areal extent _____		
	Remarks _____		
B. Benches	Applicable	<input checked="" type="checkbox"/> N/A	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	Flows Bypass Bench	Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
2.	Bench Breached	Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
3.	Bench Overtopped	Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
C. Letdown Channels	Applicable	<input checked="" type="checkbox"/> N/A	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	Settlement	Location shown on site map	No evidence of settlement
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Material Degradation	Location shown on site map	No evidence of degradation
	Material type _____	Areal extent _____	
	Remarks _____		
3.	Erosion	Location shown on site map	No evidence of erosion
	Areal extent _____	Depth _____	
	Remarks _____		

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4.	Undercutting	Location shown on site map	No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
5.	Obstructions	Type _____	No obstructions
	Location shown on site map	Areal extent _____	
	Size _____		
	Remarks _____		
6.	Excessive Vegetative Growth	Type _____	
	No evidence of excessive growth		
	Vegetation in channels does not obstruct flow		
	Location shown on site map	Areal extent _____	
	Remarks _____		
D. Cover Penetrations Applicable <input checked="" type="checkbox"/> N/A			
1.	Gas Vents	Active	Passive
	Properly secured/locked	Functioning	Routinely sampled
	Evidence of leakage at penetration		Good condition
	N/A		Needs Maintenance
	Remarks _____		
2.	Gas Monitoring Probes	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
3.	Monitoring Wells (within surface area of landfill)	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
4.	Leachate Extraction Wells	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
5.	Settlement Monuments	Located	Routinely surveyed
			N/A
	Remarks _____		

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E. Gas Collection and Treatment		Applicable	<input checked="" type="checkbox"/> N/A
1.	Gas Treatment Facilities Flaring Good condition Remarks _____	Thermal destruction Needs Maintenance	Collection for reuse
2.	Gas Collection Wells, Manifolds and Piping Good condition Remarks _____	Needs Maintenance	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____	Needs Maintenance	N/A
F. Cover Drainage Layer		Applicable	<input checked="" type="checkbox"/> N/A
1.	Outlet Pipes Inspected Remarks _____	Functioning	N/A
2.	Outlet Rock Inspected Remarks _____	Functioning	N/A
G. Detention/Sedimentation Ponds		Applicable	<input checked="" type="checkbox"/> N/A
1.	Siltation Areal extent _____ Siltation not evident Remarks _____	Depth _____	N/A
2.	Erosion Areal extent _____ Erosion not evident Remarks _____	Depth _____	
3.	Outlet Works Remarks _____	Functioning	N/A
4.	Dam Remarks _____	Functioning	N/A

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H. Retaining Walls		Applicable <input checked="" type="checkbox"/> N/A
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	Location shown on site map Deformation not evident Vertical displacement _____
2.	Degradation Remarks _____	Location shown on site map Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		Applicable <input checked="" type="checkbox"/> N/A
1.	Siltation Areal extent _____ Remarks _____	Location shown on site map Siltation not evident Depth _____
2.	Vegetative Growth Vegetation does not impede flow Areal extent _____ Remarks _____	Location shown on site map N/A Type _____
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map Erosion not evident Depth _____
4.	Discharge Structure Remarks _____	Functioning N/A
VIII. VERTICAL BARRIER WALLS		<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A (BRAC Parcel G)
1.	Settlement Areal extent _____ Remarks _____	<input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Depth _____
2.	Performance Monitoring Performance not monitored Frequency <u>annual</u> Head differential _____ Remarks <u>PRB not assessed for performance as part of this review.</u> <u>Visual inspection of area & MWs was performed. See Fig 5 in rpt for</u>	Type of monitoring <u>Performance Monitoring</u> Evidence of breaching _____

Items noted:

- 1) WtGLTA069 missing bolt in manhole cover.
- 2) new gravel cart maintenance road b/w Trasect 1 & Trasect 2.
no settling or depressions noted.
- 3) 4" pvc pipe is located w/in 25-ft PRB buffer zone. Pipe is 2ft bgs/dy.
Golf course maintenance crew plans to build a smaller rinse pad like one
on east side of bldg. D-16
- 4) WtGLTA074 completely covered w/ pea gravel. WtGLTA073 partially covered by
building materials (wood, rebar)
- 5) RW11 partially covered by dirt - in road. Pothole immediately south of RW11 3"x3"x4"
- 6) Small bush / construction debris (rocks) located west of Trasect 3.
- 7) Pallets of building materials (brick, rock) located west of PRB & b/w Trasect 2 & 3.
No settling or depressions noted.
- 8) Ponding w/in entire PRB Trasect 4 segment that is on NASFW.

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IX. GROUNDWATER/SURFACE WATER REMEDIES		Applicable	<input checked="" type="checkbox"/>	N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines		Applicable	<input checked="" type="checkbox"/>	N/A
1.	Pumps, Wellhead Plumbing, and Electrical Good condition All required wells properly operating	Needs Maintenance		N/A
Remarks _____ _____				
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance			
Remarks _____ _____				
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade			Needs to be provided
Remarks _____ _____				
B. Surface Water Collection Structures, Pumps, and Pipelines		Applicable	<input checked="" type="checkbox"/>	N/A
1.	Collection Structures, Pumps, and Electrical Good condition Needs Maintenance			
Remarks _____ _____				
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance			
Remarks _____ _____				
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade			Needs to be provided
Remarks _____ _____				

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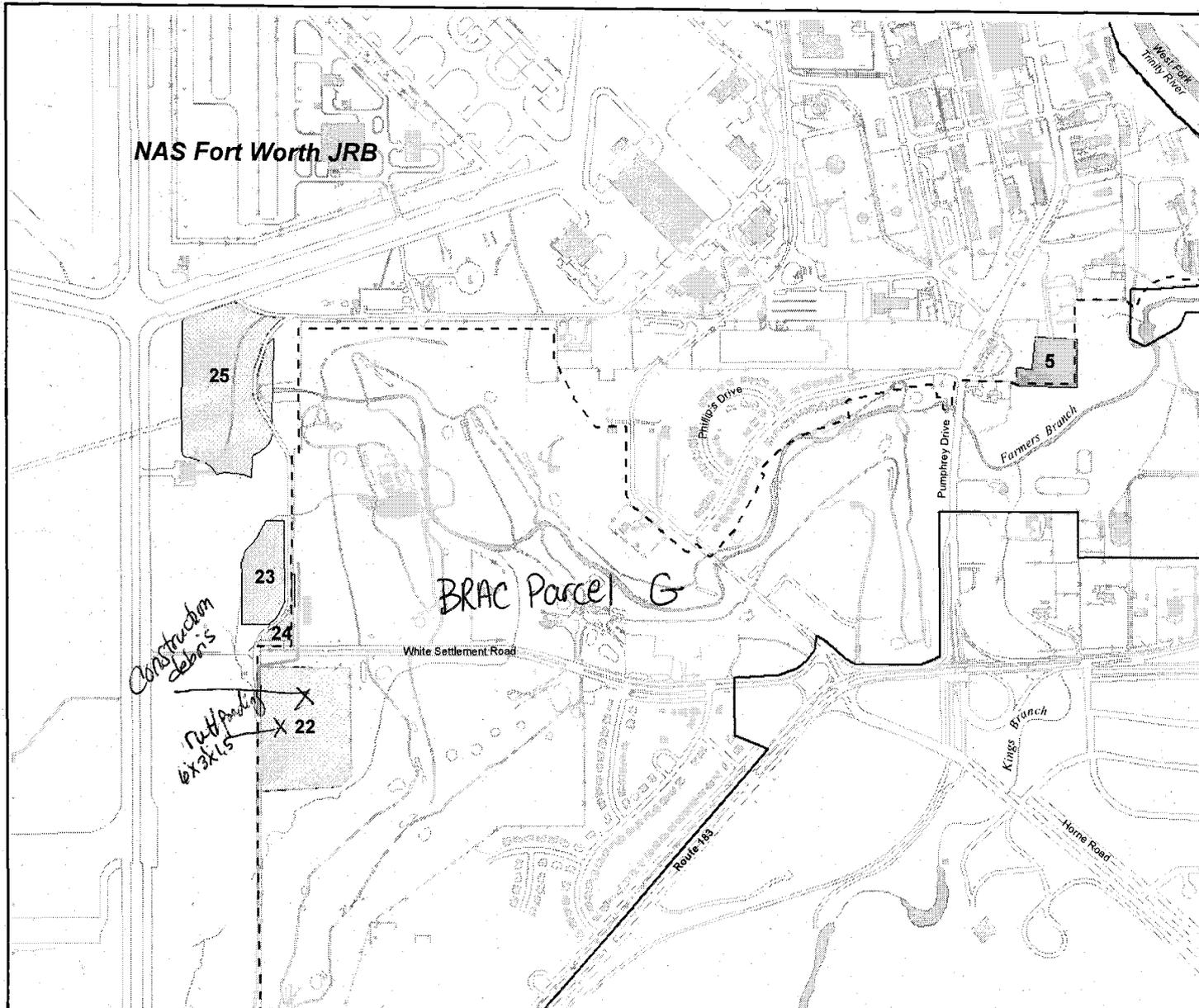
C. Treatment System		Applicable	<input checked="" type="checkbox"/> N/A
1.	Treatment Train (Check components that apply) Metals removal _____ Oil/water separation _____ Bioremediation _____ Air stripping _____ Carbon adsorbers _____ Filters _____ Additive (e.g., chelation agent, flocculent) _____ Others _____ Good condition _____ Needs Maintenance _____ Sampling ports properly marked and functional _____ Sampling/maintenance log displayed and up to date _____ Equipment properly identified _____ Quantity of groundwater treated annually _____ Quantity of surface water treated annually _____ Remarks _____		
2.	Electrical Enclosures and Panels (properly rated and functional) N/A _____ Good condition _____ Needs Maintenance _____ Remarks _____		
3.	Tanks, Vaults, Storage Vessels N/A _____ Good condition _____ Proper secondary containment _____ Needs Maintenance _____ Remarks _____		
4.	Discharge Structure and Appurtenances N/A _____ Good condition _____ Needs Maintenance _____ Remarks _____		
5.	Treatment Building(s) N/A _____ Good condition (esp. roof and doorways) _____ Needs repair _____ Chemicals and equipment properly stored _____ Remarks _____		
6.	Monitoring Wells (pump and treatment remedy) Properly secured/locked _____ Functioning _____ Routinely sampled _____ Good condition _____ All required wells located _____ Needs Maintenance _____ N/A _____ Remarks _____		
D. Monitoring Data <i>N/A to 5 BRAC soil sites</i>			
1.	Monitoring Data Is routinely submitted on time _____ Is of acceptable quality _____		
2.	Monitoring data suggests: Groundwater plume is effectively contained _____ Contaminant concentrations are declining _____		

OSWER No. 9355.7-03B-P

D. Monitored Natural Attenuation N/A			
1.	Monitoring Wells (natural attenuation remedy)		
	Properly secured/locked	Functioning	Routinely sampled
	All required wells located	Needs Maintenance	Good condition
	Remarks		N/A
X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A. Implementation of the Remedy			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).			
Remedies for the five BRAC sites are LUC/ICS & SWMUs 22/23 have MSW landfill covers to prevent access to medical waste. LUC/IC objectives are to ensure the 5 sites are used for non-residential purposes. All sites are compliant although, illegal dumping & drainage issues are evident at SWMU 22.			
B. Adequacy of O&M			
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.			
N/A			

OSWER No. 9355.7-03B-P

<p>C. Early Indicators of Potential Remedy Problems</p>
<p>Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.</p> <p>As noted in overall observation A, illegal dumping & drainage issues are evident at SWMUL 22. If these activities continue future protectiveness of human health & the environment may be impacted.</p> <p>Additionally, future VSIs should be conducted annually - at the 5 BRAC sites & the BRAC Property Parcel G to ensure deed restrictions are followed.</p>
<p>D. Opportunities for Optimization</p>
<p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.</p> <p>Consolidate inspection of five BRAC sites w/ BRAC Property Parcel G inspection.</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>



HGL - Second Five-Year Review for Carswell AFB, Texas

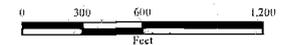
2010 Five-Year Review Sites

Air Force Center for
Engineering and the Environment



Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Permeable Reactive Barrier
- BRAC Solid Waste Management Unit
 - 22 Landfill 4
 - 23 Landfill 5
 - 24 Waste Burial Area 7
 - 25 Landfill 8
- BRAC Area of Concern
 - 5 Grounds Maintenance Yard
- Building/Structure



F:\Carswell_AFB\AFSTO_29\2010-05_Secnd_Five-Year_Review
5_SWMU_AOC_Locations.mxd
05/21/10 PJD
Source: HGL GIS Database



APPENDIX E
SITE VISIT PHOTOGRAPHS

APPENDIX E.1

SWMU 22 – LANDFILL 4



Photo 1: Looking south toward SWMU 22.



Photo 2: Looking northeast across SWMU 22.



Photo 3: Looking south at SWMU 22.



Photo 4: Looking south east across SWMU 22.



Photo 5: Looking northeast at debris located on SWMU 22 cover.



Photo 6: Looking north at run in SWMU 22 cover.



Photo 7: Looking east at LF04-4F on the northeast side of SWMU 22.



Photo 8: Looking west at LF04-4F on the northeast side of SWMU 22.

APPENDIX E.2

SWMU 23 – LANDFILL 5



Photo 1: Looking northwest across SWMU 23.



Photo 2: Looking north across SWMU 23.



Photo 3: Looking west across SWMU 23. A new fence has been installed along the unnamed drainage ditch which limits access to the airfield.

APPENDIX E.3

SWMU 24 – WASTE BURIAL AREA 7



Photo 1: Looking east across SWMU 24.



Photo 2: Looking northeast across SWMU 24.

APPENDIX E.4

SWMU 25 – LANDFILL 8



Photo 1: Looking southeast at SWMU 25.



Photo 2: Looking south at SWMU 25. A new fence has been constructed that prevents access to the airfield and bisects the site.

APPENDIX E.5

AOC 5 – GROUND MAINTENANCE YARD



Photo 1: Looking east across AOC 5.



Photo 2: Looking southeast across AOC 5.

APPENDIX E.6

PRB AREA



Photo 1: Looking east from Transect 3 of the PRB. PRB recirculation well 15 is in view.



Photo 2: Looking west at PRB Transect 3 wells WHGLTA075, WHGLFE003, and WHGLTA076 (left to right).



Photo 3: PRB recirculation well 16.



Photo 4: Looking west toward PRB recirculation well 16.



Photo 5: Looking east at concrete piled north of PRB recirculation well 16.



Photo 6: Looking north along PRB segment that crosses White Settlement Road. PRB recirculation well 12 is in view.



Photo 7: View of partially covered PRB recirculation well 11 and pot hole south of the well.



Photo 8: Looking north toward PRB Transect 2. PRB recirculation well 10 is in view.



Photo 9: Looking north toward PRB Transect 2. View of landscaping materials on or west of PRB.



Photo 10: Looking northwest at landscaping material west of PRB.



Photo 11: Looking north at PRB Transect 2 wells WP07-10B, WHGLFE002, and WHGLTA071 (left to right). PRB recirculation well 8 is also in view.



Photo 12: Looking north along PRB. PRB recirculation wells 5 and 6 are in view. Additionally 4-inch PVC pipe can be seen east of PRB.



Photo 13: Looking northeast of 4-inch PVC pipe installed 2 feet below grade within the PRB 25-foot radius restricted digging area. Pipe is scheduled to be used for small golf course maintenance vehicle rinse pad.



Photo 14: Looking north toward PRB Transect 1.



Photo 15: Looking north at PRB Transect 1 wells WHGLTA070, WHGLFE001, and WP07-10C (left to right).



Photo 16: View of PRB northern bypass well WHGLTA069.



Photo 17: Looking south from PRB northern bypass well WHGLTA069.



Photo 18: View of PRB Transect 2 WHGLTA073 that is covered by building materials.



Photo 19: Looking east toward location where PRB Transect 2 well WHGLTA074 should be located. Well is covered by pea gravel.



Photo 20: Looking north at PRB southern bypass well FT09-12E. Standing water covers the portion of the PRB located on NAS Fort Worth JRB property.



Photo 21: View of PRB Transect 4 wells WHGLFE004 and WHGLTA056. Unknown PRB recirculation well is also in view.



Photo 22: Looking north from PRB Transect 4 wells.



Photo 23: View of PRB Transect 4 well WHGLTA077.

APPENDIX F

INTERVIEW QUESTIONS AND RESPONSES

INTERVIEW RECORD		
Site Name: <i>Former Carswell AFB, TX</i>	EPA ID No.:	
Subject: <i>Five-Year Review (Second)</i>	Time: <i>3:30pm</i>	Date: <i>5/28/10</i>
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	<input type="checkbox"/> Incoming <input checked="" type="checkbox"/> Outgoing	
Location of Visit:		
Contact Made By:		
Name: <i>Jennifer Spies</i>	Title: <i>PM</i>	Organization: <i>HGL</i>
Individual Contacted:		
Name: <i>Leland Clemons</i>	Title: <i>Director of WRA</i>	Organization:
Telephone No: <i>817-377-8061</i>	Street Address:	
Fax No:	City, State, Zip:	
E-Mail Address: <i>wrauthority@hotmail.com</i>		
Summary Of Conversation		
<i>See attached summary of conversation.</i>		

Interview Record for Former Carswell AFB, Texas
Individual Contacted: Leland Clemons
Title: Director of Westworth Redevelopment Authority
Date Contacted: May 28, 2010

The discussion involved comments or concerns about project activities that have occurred since transfer of the property and the BRAC property Parcel G inspection findings associated with the PRB and SWMU 22.

1. What is your overall impression of the project? (general sentiment)

SWMU 22 is a dormant site where organic clippings and wood chips are placed for golf course maintenance activities.

2. Have site operations had an effect on the surrounding community?

No.

3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.

No.

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.

Yes, illegal dumping of construction type material (e.g., pallets, rock, wire, and tires) has occurred at SWMU 22. Mr. Clemons indicated that illegal dumping has been an issue at SWMU 22 despite posting "No Dumping" signs in the past. He said that the golf course maintenance crew has only placed brush on the landfill cap aside from the additional 1.5 feet of soil that's been added over several years. Additionally, Mr. Clemons indicated that the brush has been chipped into mulch on the landfill cap. Mr. Clemons added that the presence of other construction materials at SWMU 22 is not from the golf course maintenance crew or other WRA personnel.

a. Construction and vegetation debris on landfill 4 seems to be accumulating, and it was recently observed that more vegetation was being hauled by golf course workers to Landfill 4. Do you plan to have the debris removed? When?

Mr. Clemons indicated that he has cleared similar construction debris from SWMU 22 in the past and has observed that the cap has poor drainage after precipitation events. He indicated that a natural gas pipeline is scheduled to be installed on the east side of the BRAC property which will produce spoils. The pipeline will be located east of Roaring Springs Road and approximately 100 yards north of the former Family Camp (AOC 16). He said that with AFCEE's approval, he would like to use the spoils from the natural gas line, mix them with compost, and apply them to SWMU 22 and then regrade the area

to allow for proper drainage. Mr. Clemons added that the regrading would be completed by the end of June 2010 and the landfill area would be seeded with buffalo grass in September 2010.

- b. Is there any dumping of chemicals or solutions onsite? On November 19, 2009, Mr. George Walters of the Aeronautical System Center observed a golf course person dumping residual liquid on SWMU 22 from a white tank on the back of a mower.**

Mr. Clemons inquired further on this subject and confirmed that it was a City of Westworth Village employee emptying water from the tank onto the landfill. Mr. Clemons added that this container is shared between the City of Westworth and the golf course maintenance crew, and very rarely is used for fertilizer. Minimal pesticides are used at the site, and when used, are applied with a hand held pump. Herbicides are not used at the site.

- c. Does this occur routinely?**

Mr. Clemons indicated that he is not aware of this occurring routinely.

- 5. Several parties have expressed concern about the pallets of landscaping materials (e.g., bricks, boulders, etc.) stored on and within the vicinity of the PRB. Do you plan to continue to store landscaping materials at this location?**

Mr. Clemons was not aware that the pallets of landscaping materials (e.g., bricks, boulders, etc.) have been placed on or near Transect 2 of the PRB. He indicated that he will have this material moved despite no impacts on the integrity of the PRB. Mr. Clemons added that he will inform the golf course maintenance staff to store these materials in another location away from the PRB.

- 6. A 4-inch pipe was observed to be installed 2 feet below grade and golf course maintenance personnel indicated that there are plans to install a small golf maintenance rinse pad on the west side of the maintenance building. Are you aware of the no-digging restriction within a 25-ft radius around the PRB and any digging must be approved by AFCEE first?**

Mr. Clemons was aware of the no digging restrictions and indicated that he was not sure when the 4-inch pipe for the small rinse pad was installed on the west side of the golf course maintenance building. He added that the WRA will coordinate with AFCEE and USEPA/TCEQ prior to installation of the rinse pad.

- 7. Do you feel well informed about the site's activities and progress?**

Yes, he attends the Restoration Advisory Board meetings to get information.

- 8. Are you aware of any changes regarding, or concerned about, the institutional controls and/or access controls (deed restrictions) at the site?**

No.

9. Are you aware of any projected changes in land uses at the project site?

No, the BRAC property will remain used for recreational purposes. Mr. Clemons added that the building and surrounding property at 6550 White Settlement Road changed ownership. The WRA provided a copy of the deed restrictions to the new property owner and they are aware of the history of the TCE plume that is west of their property. Mr. Clemons indicated that the new property owner has performed soil and groundwater investigations in the area to determine the nature and extent of contamination. Building design plans are in progress and will be provided to AFCEE, USEPA, and TCEQ for approval prior to initiating construction activities.

10. Are you aware of any projected changes in land uses surrounding the project site?

No.

11. Do you have any comments, suggestions, or recommendations regarding the sites management or operation?

No.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE