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Gilfilian Engineering, Inc.

Professional Environmental Consultants



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**UST REMOVAL
ENVIRONMENTAL SITE ASSESSMENT**

FOR

**ROBAIR REPAIR
BETHEL, ALASKA**

PREPARED FOR:

**Mr. Bill Stokes
Environmental Specialist
Bethel Field Office
Alaska Department of Environmental Conservation
P.O. Box 557
Bethel, Alaska 99515**

GEI PROJECT NO. 93092

September 7, 1993



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September 7, 1993

Mr. Bill Stokes
Environmental Specialist
Bethel Field Office
Alaska Department of Environmental Conservation
P.O. Box 557
Bethel, Alaska 99515

RE: ROBAIR REPAIR, LOCATED ON LOT 2, BLOCK 7, BETHEL AIRPORT
UST Removal Environmental Site Assessment Report
GEI Project No. 93092

Dear Mr. Stokes:

Enclosed with this letter is the report of the results of the Environmental Site Assessment conducted on the above referenced property, documenting the removal of two underground storage tanks. The tanks were removed in June 1993, but a site assessment was not conducted at that time. This report provides a summary of the field investigation, laboratory test results, and recommendations for further action.

If you have any questions regarding this report, please contact us at 376-3005.

Sincerely,

GILFILIAN ENGINEERING, INC.

Mary L. Shreves, P.E.I.
Project Engineer

Enclosure

c: Bruce Erickson, ADEC Western District Office
Rob Goethals, Robair

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ADEC NOTIFICATIONS

Enclosed with this report is a copy of the Decommissioning Notice submitted to the ADEC Tank Management Program by our firm on August 3, 1993. Also included with this report is a copy of the Post-Closure Notification submitted to the Tank Management Program by our office (see Appendix A: ADEC Notifications).

QUALITY ASSURANCE PROGRAM PLAN (QAPP)

The field investigation was supervised by Ms. Mary Shreves, and was conducted on August 4, 1993. All procedures for the site assessment were conducted in accordance with our firm's Quality Assurance Program Plan (QAPP), approved by ADEC in May 1993.

PROJECT DESCRIPTION

The subject property is located at the Bethel Airport, in Bethel, Alaska (see Appendix B: Site Location Map). Bethel is a large village in Southwest Alaska that serves as an air service hub to the surrounding small villages. The Bethel Airport is served by jet service from Anchorage, and has numerous air taxi and aircraft maintenance and repair shops bordering the main runway. The airport also has an FAA facility and a National Weather Service Station.

The airport is located approximately five miles from Bethel. The legal description of the site is:

Lot 2, Block 7, Bethel Airport; Township 8 North, Range 71
and 72 West, Seward Meridian, Alaska.

Lot 2 is approximately 250 feet by 150 feet in size, or 0.86 acres. The property is owned by State of Alaska, Department of Transportation and Public Facilities (ADOT & PF), Division of Airport Leasing. The leaseholder of the property at the time of the tank removal project was Robair Repair, an aircraft maintenance and repair business owned by Mr. Rob Goethals. The business was conducted in a 50-foot by 75-foot hangar building, with attached offices, that bordered on the west side of the north-south runway of the Bethel Airport. There are numerous air taxi operators and aircraft maintenance shops in the same area as Robair. Mr. Goethals is transferring the lease on Lot 2 to Delta Airlines.

In June 1993, two 1,000-gallon aviation gasoline tanks were excavated and removed from the site. A site assessment was not conducted at that time. The tanks were located approximately 45 feet from the hangar building, in the area of the airport ramp between the hangar and the Building Restriction Line (BRL). There was a small shed constructed directly above the tanks, which provided a locked area for the tank dispenser units. This shed was removed at the time the tanks were removed.

When the tanks were installed they were configured such that the round ends were on the top and bottom, and the tank length was vertical. The majority of the piping (product, vent, and fill pipes) were plumbed into the tank surface nearest to the ground surface, which was the round tank end, except the vent pipe for the north tank. This pipe dropped vertically from the surface to just below the top of the tank where it turned a 90 degree elbow to the tank. The tanks were installed such that they were approximately 1 foot apart. Our firm was contacted by Mr. Goethals to travel to Bethel to conduct a site assessment on the site where the tanks had previously been located.

FIELD DATA

On August 4, 1993, our firm monitored the excavation of soil from the imprint where the Underground Storage Tanks (USTs) were previously located (see Appendix B: Site Plan). We were able to confirm the location by information provided by the original excavator of the tanks and by Mr. Goethals. This was reconfirmed as the excavation proceeded into the tank imprint area, when disturbed and undisturbed soil was encountered. We were able to determine the edges of the original excavation by these observations.

The outline of the surface area of the two 1,000-gallon USTs was approximately 7 feet by 12 feet, based on typical measurements for 1,000-gallon tanks configured in a way similar to these tanks. The tanks were buried such that the tops of the tanks were approximately 6 feet below ground surface. The length of a typical 1,000-gallon tanks is 73 inches; therefore, the bottom of the tanks would have been approximately 12 feet below ground surface.

12 ÷ 3 = 4.0 ds
17 ÷ 3 = 5.67 ds
17 ÷ 2 = 8.5 ds



Soil was excavated such that the dimensions of the pit were 12 feet by 17 feet in surface area, and 14 feet to 15 feet in depth (see Appendix B: Excavation Details). Groundwater was not encountered. Because the airline would not allow us to transport our PID meter (because of the pressurized calibration gas cylinder), we were unable to perform field screening on the soil to determine the presence of volatile petroleum hydrocarbons. We had to rely on odor to aid in segregating contaminated soil from noncontaminated soil. As each backhoe bucket of soil was brought to the surface, it was immediately examined, with those soils that appeared to be contaminated stockpiled separately from those that did not.

2,256

Approximately 30 cubic yards of soil suspected to be contaminated with petroleum hydrocarbons was excavated and stockpiled. The stockpile was placed on a gravel

105.9 cuds²
- 30.0

75.9 cuds² ref

lot immediately west of Lot 2, across the state highway that forms the west border of the subject lot. The gravel lot is owned by the excavating company, Foundation Services, who performed the excavating for this project. The soil was stockpiled for long-term storage, according to ADEC Guidance for Storage, Remediation, and Disposal of Petroleum Contaminated Soil.

Four discrete grab soil samples were collected from the excavation pit, from the undisturbed soil at the 14-foot and 15-foot depths of the pit. Two discrete grab samples were collected from the soil stockpile, as well as a duplicate sample. The pit was backfilled with clean backfill material, on top of which was placed the clean soil excavated from the pit. The tanks were in the possession of the excavator, and so it was possible to inspect them. Both tanks appeared to be in good condition, with no rusting or pitting observed.

The soils in the area of Bethel Airport were classified in the field as silty sand (SM). This was reconfirmed by a sieve analysis conducted by Mat-Su Test Lab. It appears the contamination in the soil was likely the result of a loose fitting on one of the pipes on the south tank. The contaminated soil was mostly concentrated in the area along the west side of that tank.

RESULTS

The soil samples were submitted to Commercial Testing and Engineering (CT&E) of Anchorage for analysis of the following:

Gasoline: Analyzed for total Volatile Petroleum Hydrocarbons (VPH) and volatile organics (BTEX), according to EPA Methods 8015M and 8020, respectively.

The executed Chain of Custody as well as the test results are included with this report and referenced as CT&E Ref. No. 93.3903 (see Appendix C: Test Results). A summary of the results can be seen in the following table:

TABLE 1: ANALYTICAL TEST RESULTS

Sample No.	Location of Sample	Depth Below Grade (ft.)	Date Collected	VPH (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)
S1	S. Tank, W. Side	14	8/4/93	1230	0.090	53.02
S2	S. Tank, E. Side	14	8/4/93	7.47	0.037	1.323
S3	N. Tank, E. Side	15	8/4/93	22.9	0.027	1.575
S4	N. Tank, W. Side	15	8/4/93	172	0.034	8.039
S5	Stockpile	—	8/4/93	2150	0.204	116.574
S6	Stockpile	—	8/4/93	1130	0.270	59.870
S7	Duplicate of S6	—	8/4/93	1540	0.189	51.289

QUALITY ASSURANCE

According to Section 8.4.3, Data Deliverables for Samples, of our firm's Quality Assurance Program Plan (QAPP), "for all samples taken in conjunction with a site assessment or release investigation under the provisions of 18 AAC 78.090, Items 1 through 16 of the list (seen in Section 8.4.3 of the QAPP) must be included in the report on the project." Items 1 through 16 include those items provided with the test results, such as lab sample number, dates of extraction and analysis, locations of sample collection points, project name, etc.

The information provided in the test results was used to calculate whether the precision and completeness of the field objectives and the analyses were performed within the limits of the quality control objectives indicated in our QAPP. The holding times, precision and completeness for the gasoline range petroleum hydrocarbons

(VPH) and aromatic volatile organics (BTEX) for this project can be seen in the following table:

TABLE 2: FIELD QUALITY CONTROL OBJECTIVES

Parameter	CT&E Ref. No.	Holding Time (Extract/Analysis)	Precision %	Completeness %
Total BTEX (Soil)	93.3903	3 days/8 days (ASAP/14 days)	15 (± 40)	100 (85)
VPH (Soil)	93.3903	3 days/8 days (ASAP/14 days)	30 (± 50)	100 (85)

The numbers in parentheses indicate Data Quality Objectives, as established in the QAPP, Table 1 and Table 2.

The deviations from the QAPP include not performing field screening on the soil in the excavation and the stockpile. As was previously discussed in this report, we were informed at the time we were checking onto the flight to Bethel that we could not take the PID meter on the airline. We are in the process of resolving that particular issue so that we do not encounter the problem in the future.

DISCUSSION OF RESULTS

A Matrix Score was calculated for the determination of a target cleanup level. A score of 19 was calculated for this site, placing it in Level D (see Appendix D: Matrix Score Sheet). The target cleanup levels for Level D, as established in 18 AAC 78.315.c, can be seen in the following table:

**TABLE 3: TARGET CLEANUP LEVELS
LEVEL D**

Diesel Range Petroleum Hydrocarbons (mg/kg)	Gas Range Petroleum Hydrocarbons (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)
2000	1000	0.5	100

Reviewing the test results for the soil samples collected from the excavation, Sample S1 shows levels of VPH of 1230 mg/kg that exceeds the target cleanup level for gas range petroleum hydrocarbons of 1000 mg/kg. The test results for Benzene and Total BTEX show levels that are below the Level D target cleanup levels. The soil stockpile soil sample results also indicate levels of VPH that exceed the target cleanup level.

The test results for the samples collected from the tank pit were plotted on a scaled drawing of the excavation (see Appendix B: Excavation Details). It can be seen that, based on the volume of contaminated soil removed from the pit, it is our estimate that less than 1 cubic yard of soil would require excavation to achieve the target cleanup level of 1000 mg/kg in the pit.

As was discussed in the report, groundwater was not encountered during excavation. First groundwater in the area of the airport is reported to be at 220 feet below ground. There was a water well at the nearby federal flight service station that has been abandoned, and was reportedly drilled to 460 feet below ground. The air taxi operations and hangars at the Bethel Airport have water transported to their sites and stored in holding tanks. The sewage is then pumped and transported for disposal elsewhere.

CONCLUSIONS AND RECOMMENDATIONS

Based on the information presented in this report, it is our opinion the decommissioning of the two USTs at this site has been adequately addressed for petroleum hydrocarbon contamination. No further action is recommended for the tank excavation pit.

The soil stockpile has been constructed with a perforated pipe system to allow for passive ventilation, and has been adequately sealed to protect it from the elements. Due to considerations that include the remote location of the site, the cost of traveling to the site, the stockpile soil sample test results that show levels of contamination that are not excessively above the target cleanup levels, and the volatile nature of the petroleum hydrocarbons present, it is our recommendation that the soil stockpile stay in its current location, with passive ventilation occurring, for a period of one year. After that time, which would be August 1994, the pile can be spread out on-site. While contamination levels might at that point be below target cleanup levels, spreading the soil and exposing it to the air over a large surface area would enhance complete ventilation and volatilization of the material.

APPENDIX A: ADEC NOTIFICATIONS



CLOSURE NOTICE FOR ALASKA UNDERGROUND STORAGE TANKS

Notice of Closure is required for any tank removed or closed in-ground.



Facility - Location

(Do not use P.O. Box)

Name ROBAIR
 Address 3241 North Ramp
Bethel, AK
 Phone NA

Tank Owner

Name Robert Goethals
 Address P.O. Box 2214
Bethel, AK 99559
 Phone 543-2003

Facility ID Number (If Known) Unknown
 Scheduled Date for Closure Closure completed on 7/12/93

This form MUST be completed and sent at least 15 and no more than 60 days prior to closure.

Alaska Statute 46.03.375 requires those who supervise an UST closure be certified after March 25, 1992.

A Site Assessment in accordance with 18 AAC 78.090 must be performed at time of closure by an impartial third party with an approved quality assurance program plan (QAPP).

Contractor to Perform Closure NA UST Worker License # -

Firm to Perform Site Assessment Gilfilian Engineering, Inc. QAPP on File? Yes
 to be conducted on 8/4/93

Method of Closure: Removal In-ground If In-ground, Type of Fill Material _____

Is there a leak/spill at this site? Unknown (if so, please notify the closest DEC office)
 Have you contacted the local fire department of your intent to close the tank(s)? -

Where are the tank, piping, equipment, and sludge to be disposed? Contractor took possession.

Tanks to be Closed

Tank Number	Tank Age	Tank Size	Last Product Stored	Date Last Used
1	10 yrs.	1000 gal.	AV-gas	June 1993
2	10 yrs.	1000 gal.	AV-gas	June 1993

Closure Notice Submitted By:

Mary L. Shreves Project Engineer 8/3/93
 (Signature) (Title) (Date)

Mary L. Shreves, P.E.I. Gilfilian Engineering, Inc. 376-3005
 (Please print name) (Phone)

Return Completed Form to: Alaska Department of Environmental Conservation
 3601 C Street, Suite 398
 Anchorage, AK 99503
 FAX # (907) 273-4280



**POST-CLOSURE INFORMATION
FOR ALASKA UNDERGROUND STORAGE TANKS**
Post Closure information and site assessment report is required 30 days closure activities.



Facility - Location
(Do not use P.O. Box)

Tank Owner

Name Robair
Address 3241 N. Ramp, Bethel Airport
Bethel, AK
Phone _____

Name Robert Goethals
Address P.O. Box 2214
Bethel, AK 99559
Phone 543-2003

Facility ID # Unknown

SITE ASSESSMENT MUST BE COMPLETED FOR ANY TANK CLOSURE

Site Assessment Performed By: Gilfilian Engineering, Inc.

Date Site Assessment Performed: August 4, 1993

SITE ASSESSMENT REPORT MUST BE SUBMITTED TO DEPARTMENT OF ENVIRONMENTAL CONSERVATION DISTRICT OFFICE

Was the closed tank replaced by new UST? Yes _____ No X
If yes, please submit a new registration form containing information on the new tanks.

Tanks Removed Or Closed In-ground				
<u>Tank Number</u>	<u>Tank Size</u>	<u>Removed or Closed In-ground</u>	<u>Last Product Stored</u>	<u>Leaking?</u>
<u>1</u>	<u>1000 gal .</u>	<u>Removed</u>	<u>AV-gas</u>	<u>No</u>
<u>2</u>	<u>1000 gal .</u>	<u>Removed</u>	<u>AV-gas</u>	<u>No</u>

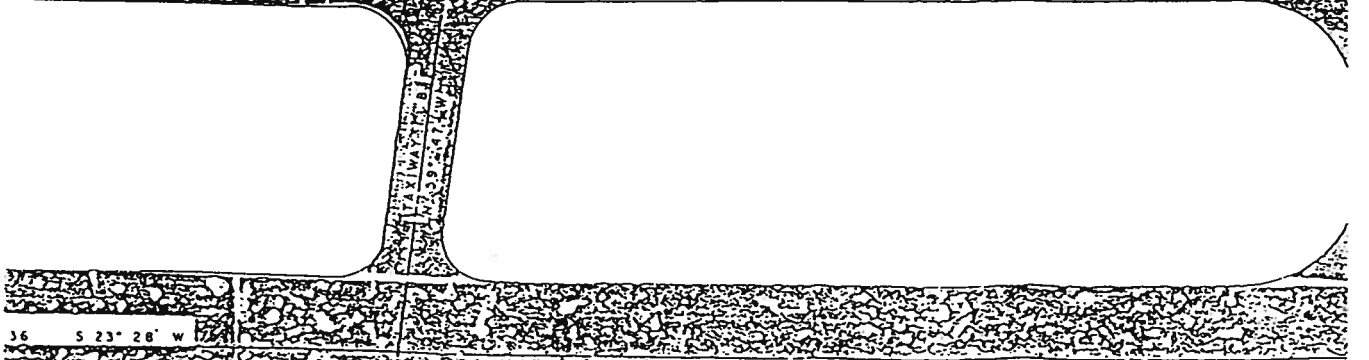
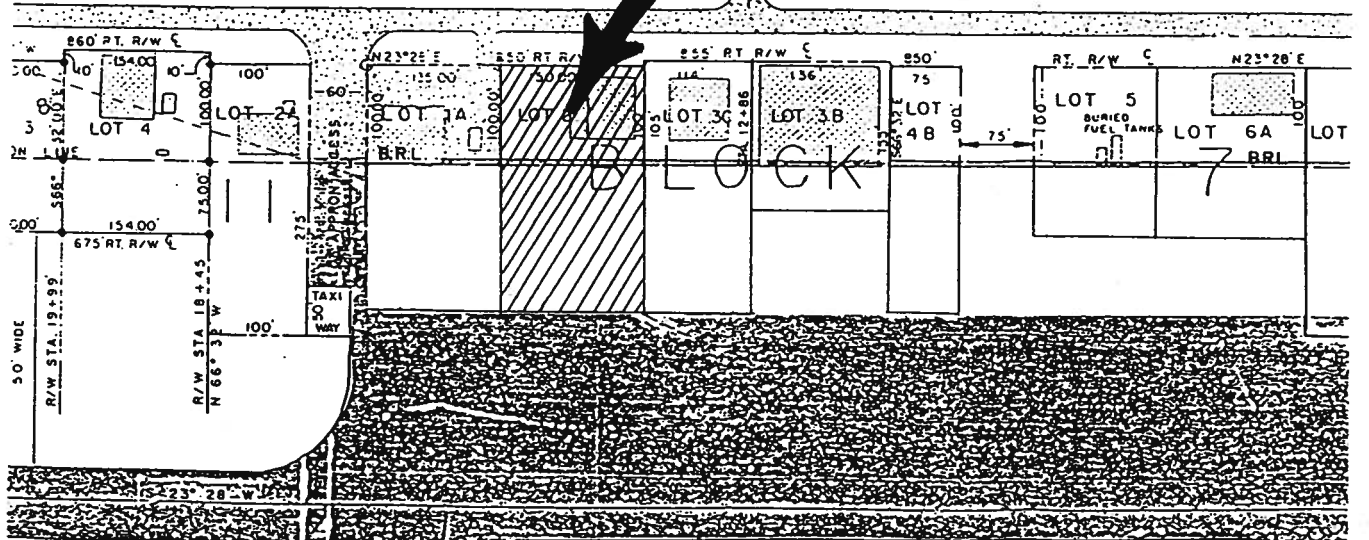
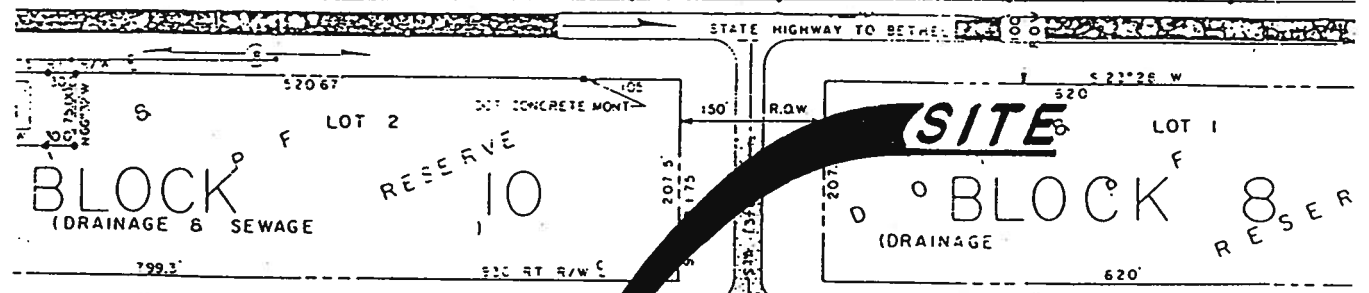
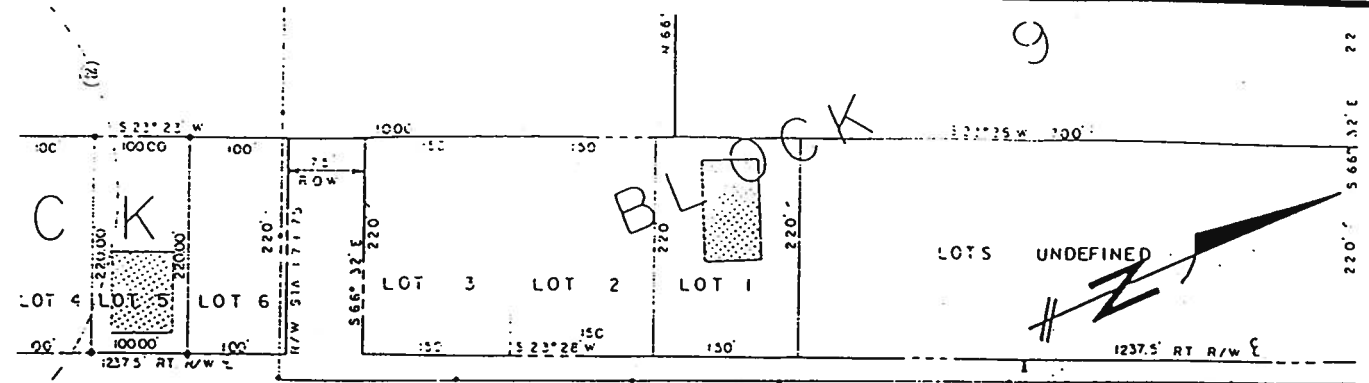
All releases should be reported to a DEC District Office within 24 hours. For further information refer to the Alaska Underground Storage Tank Regulations (18 AAC 78) or contact the Department of Environmental Conservation.

Submitted By: Mary L. Shreves ^{MLS} Gilfilian Engineering, Inc. 376-3005
(Name) (Firm) (Phone)

Return Completed Form to: Alaska Department of Environmental Conservation
3601 C Street, Suite 398
Anchorage, AK 99503
FAX # (907) 273-4280

APPENDIX B: SITE MAPS

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ROBAIR, BETHEL AIRPORT, BETHEL, ALASKA - SITE LOCATION MAP

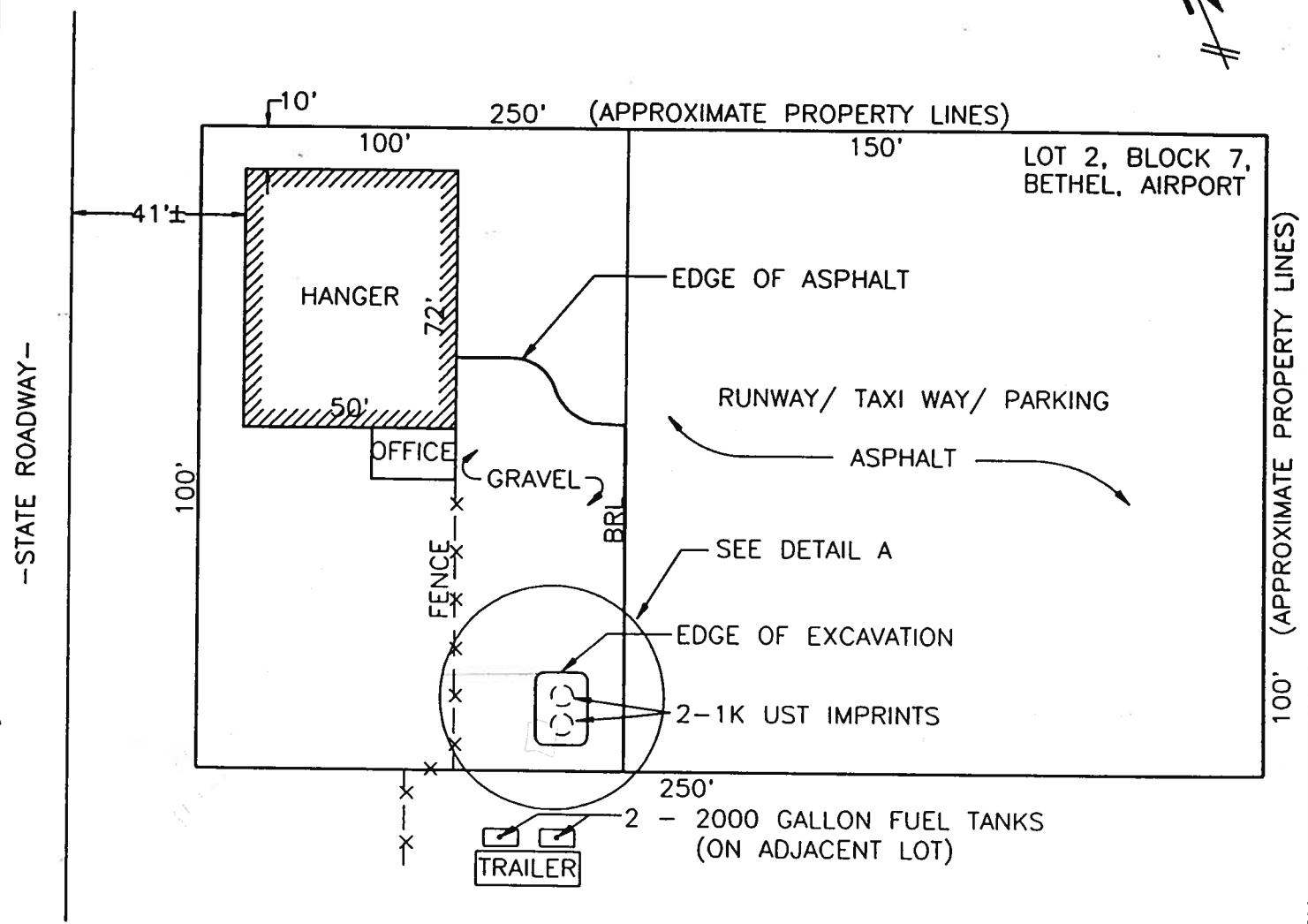
GILFILIAN ENGINEERING, INC.

Mat-Su Office: 1800 E. Parks Highway, Suite D-100, Wasilla, Alaska 99654
Anchorage Office: 255 E. Fireweed Ln., Suite 102, Anchorage, Alaska 99503

SCALE: 1" = 200'

DATE: 8/31/93

GEI PROJECT NO. 93092

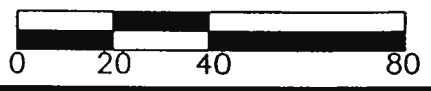


LEGEND:

BRL - BUILDING RESTRICTION LINE

NOTE:

PLAN VIEW OBTAINED FROM FIELD MEASUREMENTS MADE WITH HANDHELD EQUIPMENT, AND NOT BY CONVENTIONAL SURVEY METHODS.



ROBAIR, BETHEL AIRPORT, BETHEL, ALASKA - SITE PLAN

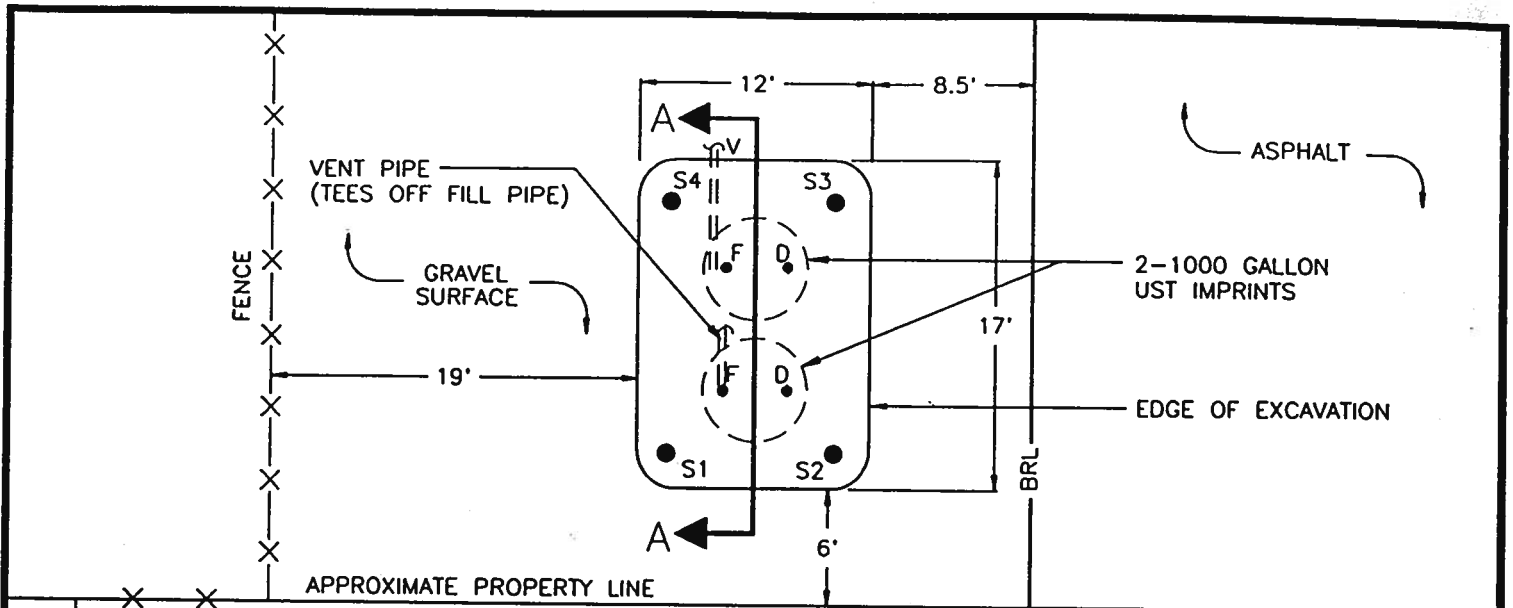
GILFILIAN ENGINEERING, INC.

Mat-Su Office: 1800 E. Parks Highway, Suite D-100, Wasilla, Alaska 99654
 Anchorage Office: 255 E. Fireweed Ln., Suite 102, Anchorage, Alaska 99503

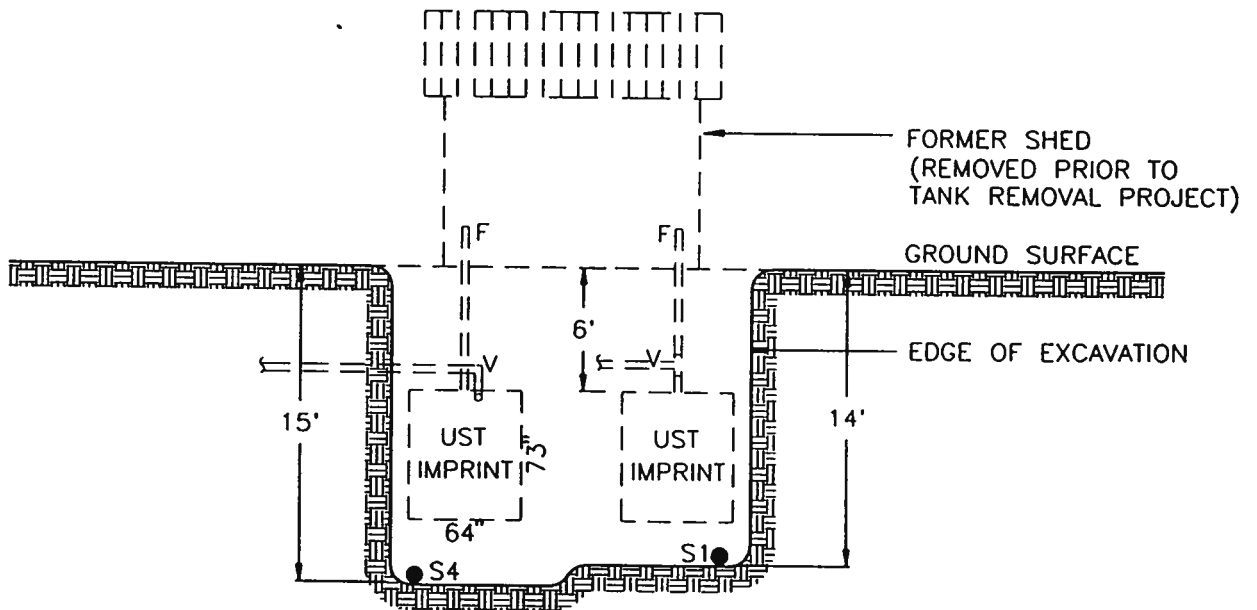
SCALE: 1" = 40'

DATE: 8/31/93

GEI PROJECT NO. 93092



UST EXCAVATION DETAILS - PLAN VIEW



UST EXCAVATION DETAILS - SECTION A-A

LEGEND:

- - SAMPLE LOCATION
- BRL - BUILDING RESTRICTION LINE
- D = DISPENSER PIPE
- F = FILL PIPE
- V = VENT PIPE

ROBAIR, BETHEL AIRPORT, BETHEL, ALASKA - DETAIL A

GILFILIAN ENGINEERING, INC.

Mat-Su Office: 1800 E. Parks Highway, Suite D-100, Wasilla, Alaska 99654
 Anchorage Office: 255 E. Fireweed Ln., Suite 102, Anchorage, Alaska 99503

SCALE: 1" = 10'

DATE: 8/31/93

GEI PROJECT NO. 93092