

Construct Shoppette/Gas/NBFF/Class Six at Tyndall AFB, FL

- 1) I am reviewing the fueling plans for **Project Number: 0941-09-000003** at Tyndall AFB. And it appears that there is a significant discrepancy as to where the tanks are currently located and where they are expected to be at the end of the project. Sheet C100 is a survey of the site, this survey shows the existing tanks located near the north eastern side of the project parcel. Sheet C202 is the overlay that is supposed to show the existing along with the future on the same sheet for reference purposes. On this sheet the tanks are more to the south west side of the property, at the opposite end of the existing canopy. And Sheet L100 again shows the tanks in the south western portion of the project.

Now I may be confused about what I am looking at, but from what I see, the fuel tanks will not be able to be reused in the location shown on the plans without being dug up and moved which requires recertification by the original manufacturer as well as being nearly impossible to do with a fiberglass tank without damaging it in the process. I have attached marked up plans to illustrate what and where I am referring to on C100, C202 and L100. I had to crop the plan pages to make them small enough files to get all three on one email.

Answer: Sheet C100 is a site survey done in 2009 and should not be used for the tank location. The tanks shown on Sheet C100 were removed in 2010 and replaced with new fiberglass tanks. The location of the fiberglass tanks are shown on Sheet C101 which corresponds with Sheets C202 and L100.

Project No. 0941-09-000003, Construct Shoppette/Gas/NBFF/Class Six @ Tyndall AFB, FL

Amendment #1 – 10 Sep 2012

Revisions to:

PROJECT MANUAL

00002 PROJECT DIRECTORY – has been revised

00010 TABLE OF CONTENTS- has been revised

00300 INFORMATION AVAILABLE TO BIDDERS

- GROUND WATER SAMPLING REPORT- has been added

01026 UNIT PRICES- has been revised

01030 OPTIONS- has been revised

01331 WEATHER TABLE- has been revised

02010 SPECIAL SITE CONDITIONS- has been revised

02200 EARTHWORK- has been revised

13050 GASOLINE DISPENSING AND STORAGE- has been revised

Revisions to:

DRAWINGS

Sheet T-1 PRODUCT PIPING AND DISPENSER DEMOLITION PLAN- has been revised

Sheet T-2 FUEL STORAGE SYSTEM, NEW WORK – PLAN VIEW- has been revised

Sheet T-3 PETROLEUM PIPING ISOMETRIC- has been revised

Sheet T-4 FUEL STORAGE TANK DEMOLITION DETAILS- has been revised

Sheet T-5 FUEL STORAGE TANK NEW WORK DETAILS- has been revised

Sheet T-6 FUEL STORAGE SYSTEM MISCELLANEOUS DETAILS- has been revised

Sheet T-7 FUEL STORAGE SYSTEM MISCELLANEOUS DETAILS- has been revised

Sheet T-8 BILL OF MATERIALS CHART- has been revised

Sheet T-9 VEEDER-ROOT TLS-450 SCHEMATIC- has been revised

Sheet T-10 PETROLEUM / ELECTRIC SCHEMATICS- has been revised

SECTION 00002

PROJECT DIRECTORY

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END OF PROJECT DIRECTORY

SECTION 00010

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END OF SECTION

SECTION 00300

INFORMATION AVAILABLE TO BIDDERS

EXISTING REPORTS

1.01 SUBSURFACE INVESTIGATION REPORT

- A. A copy of the geotechnical report with respect to the building site is included with this document:
1. Title: **Geotechnical Engineering Report**
Proposed AAFES Shoppette
Tyndall Air Force Base
Panama City, Florida
GAI Project No: EA095004
 2. Date: November 2, 2009
 3. Prepared by: **GALLET & ASSOCIATES, INC.**, 9900 North Davis Highway, Pensacola, Florida 32514. Phone (850) 477-0454, Fax (850) 477-0534
 4. Prepared for: **Gonzalez-Strength and Associates, Inc.**, 2176 Parkway Lake Drive, Hoover, Alabama 35244.
- B. The report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Architect and Structural Engineer.
- C. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in the Contract Documents.
- D. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from those indicated in this report, changes in the design and construction of foundations may be made.

1.02 GROUND PENETRATING RADAR INVESTIGATION

- A. A copy of the Ground Penetrating Radar Investigation with respect to the building site is included with this document:
1. Title: **GROUND PENETRATING RADAR INVESTIGATION OF**
A Proposed ARMY AND AIR FORCE EXCHANGE
SERVICE (AAFES) CONSTRUCTION PROJECT,
TYNDALL AIR FORCE BASE, FLORIDA
PCI Project No. 30216
 2. Date: June 3, 2010
 3. Prepared by: **PANAMERICAN CONSULTANTS, INC.**, 924 26th Avenue East, Tuscaloosa, Alabama 35404. Phone (205) 556-3096
 4. Prepared for: **GALLET & ASSOCIATES, INC.**, 9900 North Davis Highway, Pensacola, Florida 32514. Phone (850) 477-0454, Fax (850) 477-0534
- B. The GPR investigation and mapping of subsurface reflectors that may be of concern during construction was prepared primarily for the use of government project planners, the Architect, Civil and Structural Engineer.
- C. The subsurface reflectors or GPR anomalies described shall not be construed as components of this Contract, unless specifically referenced in the Contract Documents.
- D. This report, by its nature, cannot reveal all conditions that exist on the site. The actual composition of the material creating the anomaly cannot be determined through GPR analysis. Should subsurface conditions be found to vary substantially from those indicated in this report, changes in the design and construction of foundations may be made.

1.03 GROUNDWATER SAMPLING RESULTS FOR MONITORING WELL SAMPLING AT THE BX SERVICE STATION AT TYNDALL AIR FORCE BASE

- A. A copy of the above referenced report is included with this document.
 - 1. Title: Groundwater Sampling Results for Monitoring Well Sampling at BX Service Station at Tyndall Air Force Base.
 - 2. Date: August 21, 2012
 - 3. Prepared by: Atkins North America, Inc.
2639 N. Monroe St., Building C
Tallahassee, FL 32303-4027.
Phone: (850) 575-1800
Fax: (850) 575-0105.
 - 4. Prepared for: AAFES
- B. This report was prepared primarily for the use of AAFES, the Installation, the civil engineer and the General Contractor.
- C. The recommendations described shall not be construed as requirements of this Contract, unless specifically referenced in the Contract Documents.
- D. This report, by its nature, cannot reveal all conditions that exist on the site. Should conditions be found to vary substantially from those indicated in this report and logs, changes in the design of remediation efforts may be made.

END OF SECTION

**Ground Water Sampling Report
Construct Shoppette/Food/Class6/ Gas
Tyndall AFB, Florida**

August 21, 2012

Prepared For:

PWBA/ Architects Inc.
529 South Perry Street Suite 15
Montgomery, Alabama 36104

Prepared By:

Atkins North America, Inc.
2639 North Monroe Street, Building C
Tallahassee, Florida 32303-4027
&
Flowers Chemical Laboratories Inc.
PO Box 150597
Altamonte Springs, Florida 32715-0597

August 21, 2012

Mr. William Henson
PWBA Architects, Inc.
529 South Perry Street, Suite 15
Montgomery, AL 36104

Re: Groundwater Sampling Results for Monitoring Well Sampling at the BX Service Station at the Tyndall Air Force Base, Panama City, FL

Dear Mr. Henson:

Atkins is pleased to provide PWBA Architects, Inc., (PWBA) with the results of sampling of the groundwater monitoring wells at the BX Service Station in the Tyndall Air Force Base, Panama City, Florida. Atkins sampled 18 monitoring wells at the site, as shown on the attached Figure (Monitoring Well Exhibit). Nine of the wells were 4 inches in diameter, seven were 2-inch diameter, and two were ½-inch diameter. The well numbering system (MW-1 through MW-18) provided by PWBA is different than the historical well numbering system that Tyndall Air Force Base personnel are familiar with. The attached Table provides the correlation between the two monitoring well numbering systems.

Groundwater Sampling Methods

The monitoring wells at the BX Service Station site were sampled on August 14 and 15, 2012. The samples were delivered on ice, following chain-of-custody procedure, to Flowers Chemical Laboratories in Altamonte Springs, FL on August 16, 2012. All of the monitoring wells were sampled for Benzene, Ethylbenzene, Toluene, and Xylenes (BTEX) and Methyl-tert-butyl-ether (MTBE) by EPA Method 8021 and Petroleum Range Organics (PRO, also known as Total Recoverable Petroleum Hydrocarbons -TRPH) by the FL-PRO Method. The sampling activities were performed in general compliance with all relevant State of Florida regulations and Florida Department of Environmental Protection (FDEP) Standard Operating Procedures. Groundwater Sampling Logs and Field Instrument Calibration Records are attached to this letter.

Groundwater Sampling Results

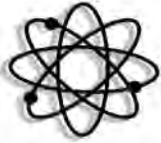
The Flowers Chemical Laboratories analytical reports associated with the groundwater sampling activities are attached to this letter, following the field data. Below is a brief summary of the sampling results as compared to FDEP groundwater criteria, which are the Groundwater Cleanup Target Levels (GCTLs) found in Chapter 62-777, Florida Administrative Code:

- No petroleum constituents were detected in 10 of the 18 monitoring wells.
- Low concentrations (less than GCTLs) of ethylbenzene and/or PRO/TRPH were detected in MW-2 (Tyndall AFB – MW-08), MW-4 (Tyndall AFB – MW-02-07), MW-6 (Tyndall AFB - MW-03-07), MW-7 (Tyndall AFB – MWD-09-97), MW-8 (Tyndall AFB – MWD-10-97), MW-9 (Tyndall AFB- MP-02), MW-11 (Tyndall AFB- MW-04-07), and MW-17 (Tyndall AFB – MW-03).
- **The benzene in MW-17 (Tyndall AFB – MW-03) was the only petroleum constituent detected at a concentration greater than its GCTL. The GCTL for benzene is 1 ug/l, while the concentration of benzene at MW-17 was 3.09 ug/l.**
- **The PRO/TRPH concentration in MW-9 (Tyndall AFB – MP-02) was just below the GCTL of 5,000 ug/L. Its concentration was 4,490 ug/L, so this constituent (in MW-9) may also be a concern to FDEP.**

It is our opinion that the low levels of petroleum constituents found at the BX Service Station site would likely qualify the site for a Natural Attenuation Monitoring (NAM) program. The NAM sampling program would ideally utilize only a limited number of the existing monitoring wells (or new wells). Thank you for the opportunity to work with PWBA, the Army and Air Force Exchange Service, and Tyndall Air Force Base. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

Brad Bayne, PG
Senior Scientist II



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E83018 (Main Lab)
E86562 (South Lab)
E82405 (North Lab)
E35834 (Keys Lab)

Atkins
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Orlando, FL 32810

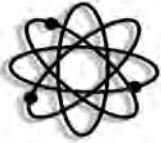
PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Report Summary

Date Received: Aug 16, 2012

FCL Project Manager: June S. Flowers

Laboratory #	Sample Description	Analysis	Chemist	Location	Sample Matrix
183073GW1	MW-1	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW2	MW-2	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW3	MW-3	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW4	MW-4	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW5	MW-5	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW6	MW-6	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW7	MW-7	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW8	MW-8	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW9	MW-9	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW10	MW-10	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW11	MW-11	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW12	MW-12	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW13	MW-13	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW14	MW-14	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	



FLOWERS CHEMICAL LABORATORIES INC.

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E83018 (Main Lab)
E86562 (South Lab)
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Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
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183073GW15	MW-15	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW16	MW-16	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW17	MW-17	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	
183073GW18	MW-18	EPA8021	CTH	Main Lab	Ground Water
		FL-PRO	CTH	Main Lab	
		XPRO	BRC	Main Lab	

Certificate of Results

Sample integrity was certified prior to analysis. Test results meet all requirements of the NELAC Standards except as noted in the Quality Control Report. Uncertainties for these data are available on request. This report may not be reproduced in part; results relate only to items tested.



Jefferson S. Flowers, Ph.D.
President/Technical Director



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482 S. Keller Rd.
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PO #: n/a
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Date Sampled: Aug 14, 2012
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Analysis Report

Lab #:	Sampled:	Desc:	Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
183073GW1	08/14/12 10:09 AM	MW-1	FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
			Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
			Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
			Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
			Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
			Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
			Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
			Surr:1-Chloro-2-fluorobenzene (72-132%)	102.26%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
			Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
			Surr:o-Terphenyl (28-112%)	53.89%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12
183073GW2	08/14/12 11:18 AM	MW-2	FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
			Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
			Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
			Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
			Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
			Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
			Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
			Surr:1-Chloro-2-fluorobenzene (72-132%)	102.89%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
			Petroleum Range Organics (C8-C40)	155 I	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
			Surr:o-Terphenyl (28-112%)	56.03%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12
183073GW3	08/14/12 11:53 AM	MW-3	FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12



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E83018 (Main Lab)
E86562 (South Lab)
E82405 (North Lab)
E35834 (Keys Lab)

Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW3 Sampled: 08/14/12 11:53 AM Desc: MW-3

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	102.18%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	54.75%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW4 Sampled: 08/14/12 12:23 PM Desc: MW-4

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	103.25%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	1030	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	45.20%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW5 Sampled: 08/14/12 01:18 PM Desc: MW-5

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12



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E82405 (North Lab)
E35834 (Keys Lab)

Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW5 Sampled: 08/14/12 01:18 PM Desc: MW-5

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	102.61%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	36.63%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW6 Sampled: 08/14/12 01:59 PM Desc: MW-6

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	101.99%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	636	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	39.97%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW7 Sampled: 08/14/12 02:40 PM Desc: MW-7

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12



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E83018 (Main Lab)
E86562 (South Lab)
E82405 (North Lab)
E35834 (Keys Lab)

Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW7 Sampled: 08/14/12 02:40 PM Desc: MW-7

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Surr:1-Chloro-2-fluorobenzene (72-132%)	102.10%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	113 I	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	21.31%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW8 Sampled: 08/15/12 09:53 AM Desc: MW-8

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	102.57%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	411	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	30.47%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW9 Sampled: 08/15/12 10:02 AM Desc: MW-9

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	1.67	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	1.67	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	105.22%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	4490 L	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	34.10%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12



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Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW10 Sampled: 08/15/12 10:35 AM Desc: MW-10

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	101.81%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	20.67%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW11 Sampled: 08/15/12 11:03 AM Desc: MW-11

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	102.58%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	411	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	25.20%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW12 Sampled: 08/15/12 11:53 AM Desc: MW-12

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12



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PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW12 Sampled: 08/15/12 11:53 AM Desc: MW-12

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	101.03%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	48.93%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW13 Sampled: 08/15/12 12:50 PM Desc: MW-13

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	88.82%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	25.22%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW14 Sampled: 08/15/12 02:45 PM Desc: MW-14

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12



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E82405 (North Lab)
E35834 (Keys Lab)

Atkins
482 S. Keller Rd.
Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW14 Sampled: 08/15/12 02:45 PM Desc: MW-14

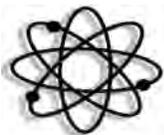
Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	99.98%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	27.97%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW15 Sampled: 08/15/12 01:50 PM Desc: MW-15

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	100.21%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	36.81%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW16 Sampled: 08/15/12 05:05 PM Desc: MW-16

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	100.69%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12



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Atkins
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PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Lab #: 183073GW16 Sampled: 08/15/12 05:05 PM Desc: MW-16

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	36.35%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW17 Sampled: 08/15/12 05:35 PM Desc: MW-17

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	3.09	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	9.53	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	12.6	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	100.02%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	327	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	47.96%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12

Lab #: 183073GW18 Sampled: 08/15/12 06:35 PM Desc: MW-18

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
FL_PRO_Extraction	1000	mL	1.00			10203657	XPRO		08/17/12
Benzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	71-43-2	08/17/12
Ethylbenzene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	100-41-4	08/17/12
Methyl-tert-butylether	1.00 U	ug/L	1.00	1.00	2.00	10203686	EPA8021	1634-04-4	08/17/12
Toluene	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	108-88-3	08/17/12
Total_BTEX	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021		08/17/12
Xylenes	0.500 U	ug/L	1.00	0.500	1.00	10203686	EPA8021	1330-20-7	08/17/12
Surr:1-Chloro-2-fluorobenzene (72-132%)	100.35%		1.00	0.500	0.500	10203686	EPA8021	348-51-6	08/17/12
Petroleum Range Organics (C8-C40)	100 U	ug/L	1.00	100	200	10203723	FL-PRO		08/20/12
Surr:o-Terphenyl (28-112%)	40.27%		1.00	0.100	0.200	10203723	FL-PRO		08/20/12



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Orlando, FL 32810

PO #: n/a
Client Project #: Tyndall AFB-BX Service Station
Date Sampled: Aug 14, 2012
Aug 21, 2012; Invoice: 183073

Quality Report

Quality Control Batch: 10203686 **Analyst:** CTH

Blank	Result	Units
Benzene	0.500U	ug/L
Ethylbenzene	0.500U	ug/L
Methyl-tert-butylether	1.00U	ug/L
Toluene	0.500U	ug/L
Total_BTEX	0.500U	ug/L
Xylenes	0.500U	ug/L
Surr:1-Chloro-2-fluorobenzene	52.0	ug/L

Laboratory Control Sample	Result	Units	Spike	%REC	%REC Lim
Benzene	39.6	ug/L	40.0	99.01	75.20-121.75
Ethylbenzene	40.8	ug/L	40.0	102.04	73.48-122.20
Methyl-tert-butylether	39.0	ug/L	40.0	97.48	70.43-122.22
Toluene	38.8	ug/L	40.0	97.02	75.19-121.77
Total_BTEX	238	ug/L	240	99.26	77.66-120.95
Xylenes	119	ug/L	120	99.16	70.74-126.90
Surr:1-Chloro-2-fluorobenzene	52.5	ug/L	50.0	104.98	72.00-132.00

Quality Control Batch: 10203723 **Analyst:** CTH

Blank	Result	Units
Petroleum Range Organics (C8-C40)	100U	ug/L
Surr:o-Terphenyl	81100	ug/L

Laboratory Control Sample	Result	Units	Spike	%REC	%REC Lim
Petroleum Range Organics (C8-C40)	1260	ug/L	850	148.66	22.95-149.72
Surr:o-Terphenyl	76400	ug/L	100000	76.40	28.90-112.00



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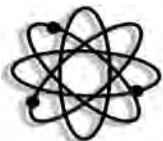
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Quality Control Batch: 10203723		Analyst: CTH							
Matrix Spike	Result	Units	Spike	%REC	%REC Lim	Sample			
Petroleum Range Organics (C8-C40)	1280	ug/L	850	151.15	59.38-137.83	100U			
Surr:o-Terphenyl	32400	ug/L	100000	32.39	28.90-112.00				
Matrix Spike Duplicate	Result	Units	Spike	%REC	%REC Lim	Sample	RPD	RPD Lim	
Petroleum Range Organics (C8-C40)	1260	ug/L	850	148.67	59.38-137.83	100U	1.66	10.61	
Surr:o-Terphenyl	30800	ug/L	100000	30.78	28.90-112.00		5.11	30.00	



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Date Sampled: Aug 14, 2012
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Narrative Report

Sample Handling

Sample handling and holding time criteria were met for all samples. Samples collected by submitter. No unusual events occurred during analysis. Results are reported on a wet weight basis for aqueous matrices and on a dry weight basis for sludge and soil matrices unless otherwise noted. Sample results reported as dissolved were field filtered.

Quality Control

Enclosed analyses met method or FCL criteria, unless otherwise denoted on the sample results. Applied data qualifiers are defined below.

Additional Comments

FL-PRO surrogate spikes recovered below current FCL control limits for samples MW-7, MW-10, MW-11, MW-13, but this was not evident in the Blank, so sample matrix is suspected.

Attachments

Chain of Custody

Qualifier	Meaning
U	Compound was analyzed for but not detected.
J	Estimated value; one or more QC components associated with this data value exceed current QC limits.
Q	Sample held beyond the accepted holding time.
L	Off-scale high; reported concentration exceeds the highest standard.
V	Analyte was detected in both the sample and the associated method blank.
W	The dissolved oxygen blank was above .02 mg/L but less than the MDL.
Z	Too numerous to count colonies on plate.
A	Absent
P	Present
T	Value reported is less than the statistical method detection limit. Reported for informational purposes only.
M	Value reported is greater than the statistical method detection limit, but less than the reported MDL.
G	The greatest of the dilutions performed did not yield sufficient oxygen depletion for valid data.
S	The least of the dilutions performed did not yield sufficient oxygen residual for valid data.
O	Result is greater than (over) the specified value.
I	Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
B	Results based upon colony plate count outside ideal range.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.

AAFES SHOPPETTE
TYNDALL AIR FORCE BASE



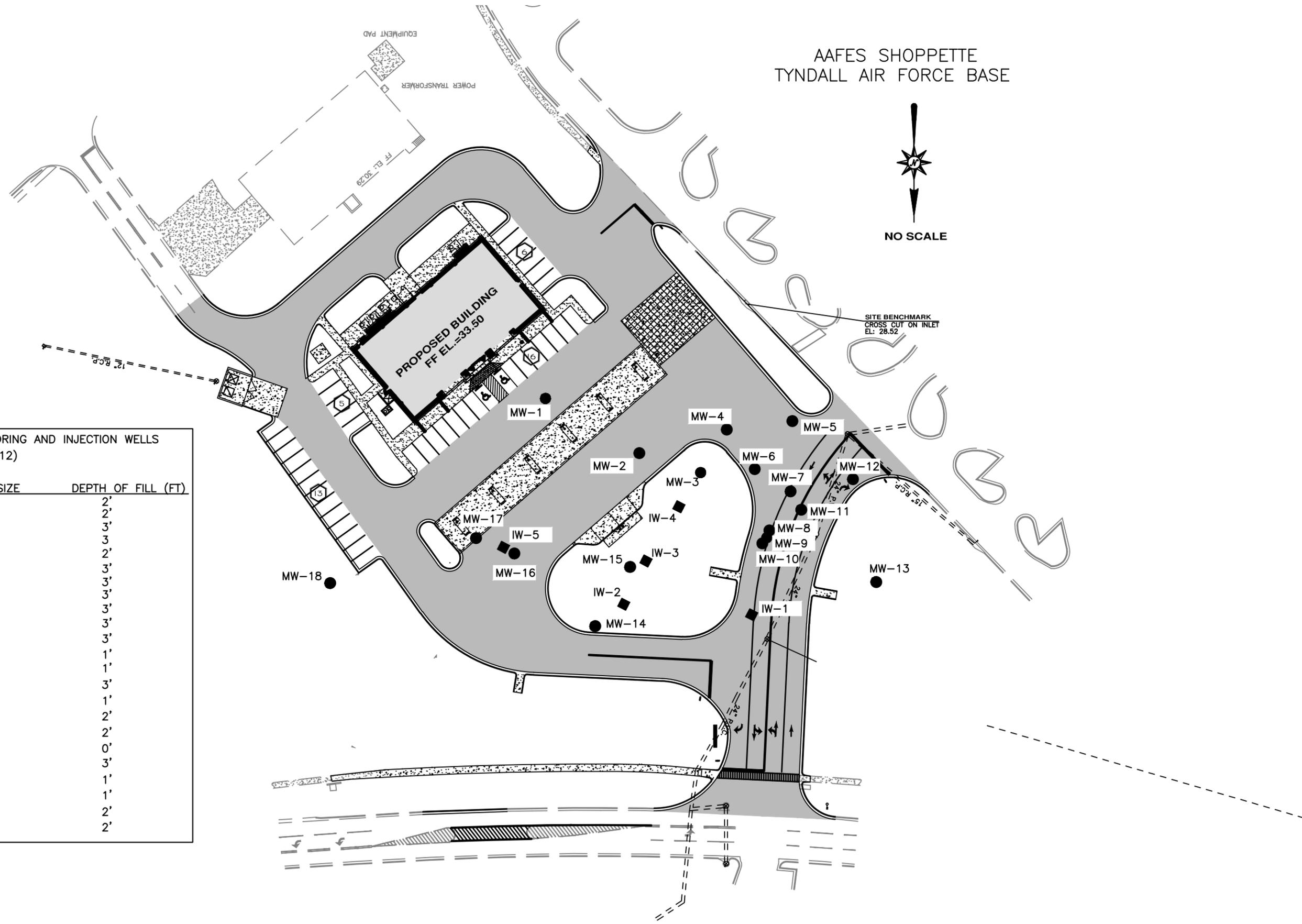
NO SCALE

LEGEND

- MONITORING WELL
- INJECTION WELL

TABLE OF FIELD LOCATED MONITORING AND INJECTION WELLS
(AS OF 7/24/12)

WELL ID	WELL TYPE	PIPE SIZE	DEPTH OF FILL (FT)
MW-1	MONITORING	4"	2'
MW-2	MONITORING	4"	2'
MW-3	MONITORING	1"	3'
MW-4	MONITORING	1"	3'
MW-5	MONITORING	4"	2'
MW-6	MONITORING	1"	3'
MW-7	MONITORING	1"	3'
MW-8	MONITORING	4"	3'
MW-9	MONITORING	1"	3'
MW-10	MONITORING	1"	3'
MW-11	MONITORING	1"	3'
MW-12	MONITORING	4"	1'
MW-13	MONITORING	4"	1'
MW-14	MONITORING	4"	3'
MW-15	MONITORING	4"	1'
MW-16	MONITORING	4"	2'
MW-17	MONITORING	1"	2'
MW-18	MONITORING	4"	0'
IW-1	INJECTION	N/A	3'
IW-2	INJECTION	N/A	1'
IW-3	INJECTION	N/A	1'
IW-4	INJECTION	N/A	2'
IW-5	INJECTION	N/A	2'



**TYNDALL AIR FORCE BASE
SS019 BS SERVICE STATION
GROUNDWATER SAMPLING
8/15/2012**

WELL #	EQUIVALENT WELL #
MW-1	MW-09
MW-2	MW-08
MW-3	MW-01-07
MW-4	MW-02-07
MW-5	MW-06
MW-6	MW-03-07
MW-7	MWD-09-97
MW-8	MWD-10-97
MW-9	MP-02
MW-10	MWD-11-97
MW-11	MW-04-07
MW-12	MW-06-07
MW-13	MW-05-97
MW-14	MW-08-97
MW-15	MW-07
MW-16	MP-01
MW-17	MW-03
MW-18	N/A

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME TYNDALL AFB, BY SERVICE STA	SITE LOCATION PANAMA CITY, FLORIDA
WELL NO MW-8	SAMPLE ID MWD-10-97
DATE 8/15/12	

PURGING DATA

WELL DIAMETER (inches) 4	TUBING DIAMETER (inches) 1/4	WELL SCREEN INTERVAL DEPTH (feet) 7	STATIC DEPTH TO WATER (feet) 3.73	PURGE PUMP TYPE OR BAILER PERISTALTIC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (27.88 feet - 3.73 feet) X 0.65 gallons/foot = 15.70 gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (0.0028 gallons/foot X 7 feet) + 0.20 gallons = 0.22 gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet) 7	FINAL PUMP OR TUBING DEPTH IN WELL (feet) 7	PURGING INITIATED AT 8:20	PURGING ENDED AT 9:50	TOTAL VOLUME PURGED (gallons) 18.00

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
9:40	16.00	16.00	0.20	3.74	5.75	23.91	0.269	3.5	14.6	CLEAR	NONE
9:45	1.00	17.00	0.20	3.74	5.75	23.81	0.268	3.3	14.8	n	n
9:50	1.00	18.00	0.20	3.74	5.76	23.82	0.267	3.3	14.3	n	n

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.68
 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: RAYMONDO CASTRO				SAMPLER(S) SIGNATURE(S): <i>Raymondo Castro</i>				SAMPLING INITIATED AT 9:53		SAMPLING ENDED AT 9:58	
PUMP OR TUBING DEPTH IN WELL (feet) 7				TUBING MATERIAL CODE: TYPE		FIELD-FILTERED Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Filtration Equipment Type		FILTER SIZE _____ µm			
FIELD DECONTAMINATION, PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>				TUBING Y <input checked="" type="checkbox"/> N (replaced)				DUPLICATE Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
MW-8	2	AG					RPPP		
MW-8	2	CG							
				SEE CHAIN OF CUSTODY					

REMARKS

MATERIAL CODES AG = Amber Glass, CG = Clear Glass, PE = Polyethylene, PP = Polypropylene, S = Silicone, T = Teflon, O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Draw); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: TYNDALL AFB - BX SERVICE STA	SITE LOCATION: PANAMA CITY, FLORIDA
WELL NO: MU-9	SAMPLE ID: MP-02 DATE: 8/15/12

PURGING DATA

WELL DIAMETER (inches): 1/2	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 3.00	PURGE PUMP TYPE OR BAILER: PERISTALTIC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (12.00 feet - 3.00 feet) X 0.02 gallons/foot = 0.18 gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (0.0026 gallons/foot X 7 feet) + 0.20 gallons = 0.22 gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7	PURGING INITIATED AT: 18:44	PURGING ENDED AT: 18:59	TOTAL VOLUME PURGED (gallons): 1.50

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
18:44	0.50	0.50	0.10	3.00	6.14	24.05	0.440	5.9	16.7	CLEAR	NONE
18:54	0.50	1.00	0.10	3.00	6.13	24.04	0.438	4.9	16.5	"	"
18:59	0.50	1.50	0.10	3.00	6.13	24.04	0.437	4.1	14.3	"	"

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02, 1" = 0.04, 1.25" = 0.06, 2" = 0.16, 3" = 0.37, 4" = 0.65, 5" = 1.02, 6" = 1.47, 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006, 3/16" = 0.0014, 1/4" = 0.0026, 5/16" = 0.004, 3/8" = 0.006, 1/2" = 0.010, 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: RAY MUNDO CASTRO			SAMPLER(S) SIGNATURE(S): <i>Raymundo Castro</i>			SAMPLING INITIATED AT: 19:02	SAMPLING ENDED AT: 19:04
PUMP OR TUBING DEPTH IN WELL (feet): 7			TUBING MATERIAL CODE: T+PE			FIELD-FILTERED Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	FILTER SIZE: _____ μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			TUBING Y <input checked="" type="checkbox"/> N (replaced)			DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (ml. per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
MU-9	2	CG						RFPP	
MU-9	2	AG							
SEE CHAIN OF CUSTODY									

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

Form FD 9000-24
GROUNDWATER SAMPLING LOG

SITE NAME: TYNDALL AFB-BY SERVICE STA.	SITE LOCATION: PANAMA CITY, FLORIDA
WELL NO: MW-12	SAMPLE ID: MW-06-07 DATE: 8/15/12

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 1/4	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 3.64	PURGE PUMP TYPE OR BAILER: PERISTALTIC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (12.20 feet - 3.64 feet) X 0.65 gallons/foot = 5.56 gallons				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (0.0026 gallons/foot X 7 feet) + 0.20 gallons = 0.22 gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7	PURGING INITIATED AT: 11:10	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) μmhos/cm or μS/cm	DISSOLVED OXYGEN (circle units) mg/l or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
11:40	6.00	6.00	0.20	3.64	6.94	25.63	0.607	16.7	4.8	CLEAR	NONE
11:45	1.00	7.00	0.20	3.64	6.94	25.64	0.607	17.0	5.92	"	"
11:50	1.00	8.00	0.20	3.64	6.94	25.58	0.607	17.4	4.11	"	"

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal /Ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: RAYMUNDO CASTRO			SAMPLER(S) SIGNATURE(S): <i>Raymundo Castro</i>			SAMPLING INITIATED AT: 11:53	SAMPLING ENDED AT: 11:56
PUMP OR TUBING DEPTH IN WELL (feet): 7			TUBING MATERIAL CODE: T+PE			FIELD-FILTERED Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	FILTER SIZE: μm
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			TUBING Y <input checked="" type="checkbox"/> N (replaced)			DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
MW-12	2	AG						RFP	
MW-12	2	CG							
SEE CHAIN OF CUSTODY									

REMARKS:

MATERIAL CODES AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

N 390335
E 1621968
TOC 28.97
NAD 83(90)

Check Box That Applies To Your Location

Flowers Chemical Laboratories, Inc.

481 Newburyport Ave.
Altamonte Springs, FL 32701
Bus: 407-339-5984
Fax: 407-260-6110

Flowers Chemical Labs South

West Park Industrial Plaza
571 N.W. Mercantile Pl., Ste. 111
Port St. Lucie, FL 34986
Bus: 772-343-8006
Fax: 772-343-8089

Flowers Chemical Labs-North

812 S.W. Harvey Greene Dr.
Madison, FL 32340
Bus: 850-973-6878
Fax: 850-973-6878

Flowers Chemical Labs-Keys

3980 Overseas Highway, Ste. 103
Marathon, FL 33050
Bus: 305-743-8598
Fax: 305-743-8598



DOWNLOAD REPORTS, INVOICES AND CHAINS OF CUSTODY www.flowerslabs.com

Client: ATKINS Project Name: TYNDALE AFB-BX SERVICE P.O.#: STATION

Address: 482 SOUTH KELLER RD. Client Contact: DAVE DEANS/BRAD BAYNE FAX:

Phone: ORLANDO FL 32810 FCL Project Manager: E-MAIL:

Sampled By (PRINT): RAYMUNDO CASTRO Date Sampled: 8/16/12

Sampler Signature: *Raymundo Castro*

Requested Due Date: 10 Day Standard 48 HOURS Vehicle Surcharge: \$ Sampling Fee: \$

GW - ground water DW - drinking water WW - wastewater
SW - surface water SO - soil/solid SL - sludge HW - waste

ITEM NO.	SAMPLE ID	DATE	TIME	MATRIX	(LAB USE ONLY) LAB NO.	PRESERVATIVES			ANALYSES REQUEST	COMMENTS	Total # Containers
						H ₂ SO ₄	HNO ₃	HCl			
1	MW-1	8/14/12	10:14	GW							
2	MW-2		11:18								
3	MW-3		11:53								
4	MW-4		12:23								
5	MW-5		13:10								
6	MW-6		13:59								
7	MW-7		14:40								
8	MW-8	8/15/12	9:53								
9	MW-9		10:02								
10	MW-10		10:15								

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time	Relinquished By / Affiliation	Date	Time

FINANCE CHARGES APPLIED TO PAST DUE INVOICES

Check Box That Applies To Your Location

Flowers Chemical Laboratories, Inc.

Flowers Chemical Labs-South

Flowers Chemical Labs-North

Flowers Chemical Labs-Keys

481 Newburyport Ave.
Altamonte Springs, FL 32701
Bus: 407-339-5984
Fax: 407-260-6110

West Park Industrial Plaza
571 N.W. Mercantile Pl., Ste. 111
Port St. Lucie, FL 34986
Bus: 772-343-8006
Fax: 772-343-8089

812 S.W. Harvey Greene Dr.
Madison, FL 32340
Bus: 850-973-6878
Fax: 850-973-6878

3980 Overseas Highway, Ste. 103
Marathon, FL 33050
Bus: 305-743-8598
Fax: 305-743-8598



DOWNLOAD REPORTS, INVOICES AND CHAINS OF CUSTODY www.flowerslabs.com

Client: **ATKINS** P.O. # _____
 Address: **482 SOUTH KELLER RD** FAX: _____
ORLANDO FL 32810 E-MAIL: _____
 Phone: **(407) 647-7275** Rush Charges May Apply

Requested Due Date: _____
 10 Day Standard: **48 HRS** Vehicle Surcharge: \$ _____
 Pick-Up Fee: \$ _____ Sampling Fee: \$ _____

Sampled By (PRINT): **RAYMUNDO CASTRO** Date Sampled: **8/16/12**
 Sampler Signature: *Raymundo Castro*

ITEM NO.	SAMPLE ID	DATE	TIME	MATRIX	(LAB USE ONLY) LAB NO.	PRESERVATIVES				ANALYSES REQUEST	COMMENTS	Total # Containers
						H ₂ SO ₄	HNO ₃	HCl	Na ₂ S ₂ O ₃			
1	MW-11	8/15/12	11:03	GW								
2	MW-12		11:53									
3	MW-13		12:50									
4	MW-14		14:45									
5	MW-15		13:50									
6	MW-16		17:05									
7	MW-17		17:35									
8	MW-18		18:35									
9												
10												

Relinquished By / Affiliation	Date	Accepted By / Affiliation	Date	Time	Relinquished By / Affiliation	Date	Accepted By / Affiliation	Date	Time

SECTION 01026

UNIT PRICES

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for unit prices.
 - 1. A unit price is an amount proposed by Bidders and as a price per unit of measurement for materials and/or services that will be added to or deducted from the Contract Sum by Change Order in the event unforeseeable site conditions are encountered or changes in the scope of work are directed. The extent of anticipated earthwork, utility work, and landscaping are indicated in the Drawings and Specifications and are included in the Base Bid.
 - a. Unit prices shall include all necessary material, labor, fees, layout, supervision (field and home office), general expenses, insurance, overhead, profit and applicable taxes.
 - b. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of approval, verification, measurement and payment for unit prices are specified in those sections.
- B. Related work specified elsewhere includes:
 - 1. 02200: Earthwork
- C. Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.
 - 1. The Government reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Government's expense. All quantities are subject to verification by the Testing Agency retained by AAFES at the time they are being removed or replaced.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 UNIT PRICE SCHEDULE

- A. Item No. 1 - Unsuitable Materials Removal:
 - 1. Description: Remove and dispose of unsuitable materials (except concrete foundations) encountered at subgrade or bearing elevations indicated on drawings, in accordance with Section 02200 - EARTHWORK. Pay particular attention to requirements for mudsills and over-excavations and work to be included in the Base Bid.
 - a. Note: Removal of unsuitable soils in the building area and replacement/remediation are described in the Drawings and Geotechnical Report and are part of the Base Bid.
 - 2. Unit of Measure: Cubic yard (CY) of material removed.
- B. Item No. 2 – #57 Crushed Stone:
 - 1. Description: Provide #57 crushed stone as backfill.
 - 2. Unit of Measure: Cubic yard (CY) of crushed stone.
- C. Item No. 3 - Mass Earth Excavation:
 - 1. Description: Remove and dispose of unsuitable earth encountered in open excavations, in accordance with Section 02200 - EARTHWORK.
 - 2. Unit of Measure: Cubic yard (CY) of earth excavated.

- D. Item No. 4 - Trench Earth Excavation:
1. Description: Remove and dispose of unsuitable earth encountered in trenches, in accordance with Section 02200 - EARTHWORK.
 2. Unit of Measure: Cubic yard (CY) of earth excavated.
- E. Item No. 5 - Hand Earth Excavation:
1. Description: Remove and dispose of unsuitable earth that must be excavated by hand, in accordance with Section 02200 - EARTHWORK.
 2. Unit of Measure: Cubic yard (CY) of earth excavated.
- F. Item No. 6 - Compacted Earth Fill:
1. Item No. 6a - General or Open Site Areas:
 - a. Description: Provide acceptable earth fill in general or open site areas, compacted to meet requirements specified for the affected area, in accordance with Section 02200 - EARTHWORK.
 - b. Unit of Measure: Cubic yard (CY) of fill, in place.
 2. Item No. 6b - Trench Backfill:
 - a. Description: Provide acceptable backfill in trenches, compacted to meet requirements specified for the affected area, in accordance with Section 02200 - EARTHWORK.
 - b. Unit of Measure: Cubic yard (CY) of backfill, in place.
 3. Item No. 6c - Select Fill:
 - a. Description: Provide acceptable select fill obtained from off-site locations, compacted to meet the requirements specified for the affected area, in accordance with Section 02200 - EARTHWORK.
 - b. Unit of Measure: Cubic yard (CY) of fill, in place.
- G. Item No. 7 - Topsoil:
1. Description: Provide additional topsoil from off-site locations, in accordance with Section 02200 - EARTHWORK, and applicable portions of Section 02900 - LANDSCAPE WORK.
 2. Unit of Measure: Cubic yard (CY) of topsoil, in place.
- H. Item No. 8 – Sodding (Turf):
1. Description: Provide additional sodding from off-site turf farm or supplier.
 2. Unit of Measure: Square yard (SY) of sod, in place.
- I. Item No. 9 – Removal of and Storage of Contaminated Ground Water During Dewatering:
1. Per Section 02200 Earthwork Part 3.02 DEWATERING paragraph 11
 2. Unit of Measure: gallons.
 3. Include in the **Contract Base Price** the removal and storage of 30,000 gallons of contaminated ground water. Provide a per gallon sum which may be added to or deducted from the **Contract** for any amount of contaminated groundwater greater than or less than 30,000 gallons.
 Deduct per gallon for quantities less than 30,000 gallons (\$ _____) per gallon.
 Add per gallon for quantities exceeding 30,000 gallons (\$ _____) per gallon.
 Note: Removal means removal from the ground and pumping into storage containers to be located on the project site.
- J. Item No. 10 – Testing of Ground Water During Dewatering:
1. Per Section 02200 Earthwork Part 3.02 DEWATERING paragraph 11
 2. Unit of Measure: one test per container. (Containers may be frac tanks or 55 gallon drums).
 3. Include in the **Contract Base Price** the cost of 25 tests. Provide a credit on a per test basis for fewer than 25 tests and an extra on a per test basis for tests in excess of 25.

END OF SECTION

SECTION 01030

OPTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Options submission procedures.
- B. Documentation of changes to Contract Sum/Price and Contract Time.

1.02 RELATED SECTIONS

- A. AAFES Solicitation/Proposal/Award form, contained in the AAFES solicitation package.
- B. AAFES Instructions to Offerors and Conditions of Proposal/Awards form, contained in the AAFES solicitation package.
- C. Individual specifications sections relevant to the work required under each alternate.

1.03 SUBMISSION REQUIREMENTS

- A. List options, along with price, on the AAFES Proposal option form.
- B. Options quoted on the AAFES Proposal Form will be reviewed and accepted or rejected at AAFES's option. Accepted options will be identified in the AAFES Contract Agreement.
- C. Coordinate related work and modify surrounding work to integrate the Work of each option.

1.04 SCHEDULE OF OPTIONS

- A. Option No. 1 **Drive Paving**. Per **Sheet C203 Separately Priced Paving Plan**: provide paving price as indicated on **Sheet C203**.
 - 1. Paving to be priced separately from remainder of paving work. Include grading and earthwork 5' past curbs, base work, asphaltic-base and wearing courses and concrete curbs and gutter as well as pavement markings and signs. Enter this as a separate item on bid form issued by Contracting Officer.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01331

WEATHER TABLE

PART 1 - GENERAL

1.01 INFORMATION AND DATA

- A. Information and data furnished or referred to in the weather table is furnished for the Contractor's information.

1.02 CONTRACT TIME LIMITS

- A. The contract time limits include weather conditions that are shown in the table listed herein.

1.03 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

- A. This provision specifies the procedure for the determination of time extensions for unusually severe weather affecting exterior work in accordance with the Contract. The following listing defines the monthly anticipated adverse weather for the contract period and is based on NOAA data for the geographic location of the project.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS

TYNDALL AFB, FLORIDA

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
3	3	3	4	4	4	5	5	5	4	3	3

- B. This listing of anticipated adverse weather will constitute the base line monthly weather time evaluations. Throughout the contract each month, actual adverse weather days will be recorded on a calendar basis (including weekends and holidays) and compared to the monthly anticipated adverse weather in this listing. The term "actual adverse weather days" shall include days impacted by actual adverse weather. The number of actual adverse weather days affecting exterior work shall be calculated chronologically from the first to the last day in each month. Adverse weather days must prevent work for 50 percent or more of the contractor's work day and delay work critical to the timely completion of the project. If the number of actual adverse weather days exceeds the number of days anticipated in the above listing, the Contractor may submit in writing to the Contracting Officer a request for a time extension within 30 days of the adverse weather. Based upon the above NOAA data the Contracting Officer will determine if the time extension for the Contractor is warranted. The Contracting Officer will then convert any qualifying delays to calendar days and issue a modification in accordance with the contract. All time extensions granted under this provision shall be at no cost to AAFES.

PART 2 - PRODUCTS

2.01 Not used.

PART 3 - EXECUTION

3.01 Not used.

END OF SECTION

SECTION 02010

SPECIAL SITE CONDITIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. All work indicated, detailed and otherwise shown on the drawings and specifications shall be furnished and installed or be performed by the Contractor.
- B. The contractor shall prevent dust and particulate matter from migrating offsite by watering the construction site as necessary.

1.02 OFF-SITE CONSTRUCTION

- A. It shall be understood that all work occurring off-site and on adjacent highways, roads, streets, or right-of-ways is to be constructed in accordance with latest edition of Standard Specifications of the Florida Department of Transportation, Tyndall AFB, and Bay County. Also, this work shall be subject to their inspection, regulations, and acceptance.
- B. All construction of highways or streets are to have appropriate signage and or barricades in accordance with traffic control manual and/or State Highway Department of Transportation requirements. Peak hour traffic is to be inconvenienced to an absolute minimum.

1.03 PROVIDED BY CONTRACTOR

- A. General Contractor is to provide all engineering, surveying, stake-out to properly control work and shall make "As Built" drawings and other required drawings or reports. Contractor will provide certain testing services as provided hereinafter. Contractor is to furnish certification or testing that all materials meet or exceed requirements as specified by plans and specifications.

1.04 MAINTENANCE

- A. Any note on plans or drawings shall supersede requirements of specifications if any conflict exists.
- B. Notes on the Drawings: The Contractor is responsible for notes on the Drawings that call attention to particular requirements or conditions. The fact that these requirements or conditions are not called out in these specifications does not relieve the Contractor of responsibility for such requirements or conditions.

1.05 EXISTING TOPOGRAPHY & UTILITIES

- A. It shall be the obligation of the Contractor to satisfy himself as to the accuracy of the topographic survey and existing utilities furnished on the grading plan by personal examination of the site and the existing conditions. If Contractor disagrees with topographic survey or the existing utility locations, he must notify the Contracting Officer in advance of bidding or it is taken that Contractor accepts topography and utilities.

1.06 THE PROJECT SITE CONTAMINATION ISSUES

- A. The project site has a number of monitoring wells and bio-injection wells. These wells were installed to monitor groundwater contamination on the site, primarily from old gasoline fueling system operations. Based on independent reports, it is believed there may be contamination of groundwater on the project site. Due to the high water table level, pumping of groundwater from excavations is very likely to be needed. The contractor for the AFFES project will be required to pump excavation water into tanks or drums which will be tested by the Testing Agency retained by the Contractor. If the pumped groundwater when tested is found to be contaminated, the Installation will be responsible for remediation of the contaminated groundwater and its disposition in accordance with FDEP regulations. Refer to: **SECTION 00300 INFORMATION AVAILABLE TO BIDDERS; Paragraph 1.03** GROUNDWATER SAMPLING RESULTS FOR MONITORING WELL SAMPLING AT THE BX SERVICE STATION AT TYNDALL AIR FORCE BASE.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Work on this section includes grading (excavating) and filling as indicated on Drawings and the following:
1. Installation of utilities or modification of existing utilities may require performing grading operations in stages, so that utilities may be installed and protected during site construction.
 2. Scarifying and compaction of previously graded sites to ensure proper preparation and acceptability.
 3. Excavation and embankment placement to required lines, grades, and elevations.
 4. Preparation of existing low areas for placing of fill, including disposal of muck, silt, wet, or unsuitable material.
 5. The presence of groundwater was consistently found in the geotechnical investigation at the site. Therefore, the Contractor shall be prepared to dewater the site and to implement a dewatering plan during construction. Dewatering design and implementation is a part of the Contractor's basic scope of work. No additional payment will be made for dewatering.
 6. If additional fill material is required the Contractor shall haul in additional suitable material as necessary to provide properly graded site lines and grades.
 7. If excess excavation is encountered and cannot be used to grade site in accordance with Drawings, remove excess material and dispose of material at locations as directed by the Contracting Officer.
 8. Remove materials from grading operations that are determined to be unsuitable by Government and dispose of on site at the locations shown on the plans.
 9. Preparation of embankments to receive fill and preparation of excavation areas.
 10. Removal of high plastic clays and replacement with suitable material within building pad.
- B. Work shall comply with the latest edition of Tyndall AFB requirements and/or regulations and requirements of all governing authorities (FDEP, etc.) in earthwork and erosion control of said above items.

1.02 REFERENCE STANDARDS

- A. Following most current publications from part of this specification to extent indicated by references thereto.
- B. American Association of State Highway and Transportation Officials Standard Specifications (AASHTO): T88 Mechanical Analysis of Soils
- C. American Society for Testing and Materials (ASTM):
1. D 422 Method for Particle Size Analysis of Soil
 2. D 698 Test for Moisture-Density Relations of Soils, Using 5.5 lb. (2.5 Kg) Rammer and 12-inch (304.8mm) Drop (Standard Proctor)
 3. D 1556 Test for Density of Soil in Place by the Sand Cone Method
 4. D 1557 Test for Moisture-Density Relations of Soils Using 10-lb. (4.5 Kg) Rammer and 18-inch (457 mm) Drop (Modified Proctor)
 5. D 1559 Test Method for Resistance to Plastic Flow of Bituminous Mixtures using Marshall Apparatus
 6. D 2167 Test for Density of Soil in Place by the Rubber Balloon Method
 7. D 2216 Laboratory Determination of Moisture Content Of Soil
 8. D 2487 Classification of Soils for Engineering Purpose
 9. D 2922 Tests for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

10. D 3017 Test for Moisture Content of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)
11. D 4318 Test Plastic Limit, Liquid Limit and Plasticity Index of Soils

- D. American Association of State Highway and Transportation Officials (AASHTO):
T 88 Mechanical Analysis of Soils

1.03 RELATED DOCUMENTS

- A. Refer to the architectural plans and specifications for specific requirements regarding the preparation of the building subgrade pad. Where those requirements for the building pad conflict with those stated herein, the architectural plans and specifications shall govern.
- B. Refer to Geotechnical Report for additional information regarding existing site conditions.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Stockpile existing topsoil and provide additional off-site topsoil at locations shown on the plans and as needed to complete landscape work indicated on drawings and in accordance with specifications for landscaping.
- B. Unclassified excavation is defined as any material encountered that is not suitable as structural fill without regard as to type or character; whether wet or dry; dark or light; dirt or rock; hard or soft; humus or non-humus; has a smell or does not smell; and is heavy or light in weight. The Contractor shall refer to the Geotechnical Investigation report provided by Gallet & Associates, Inc.
- C. Acceptable Stabilization Fabrics and Geogrids: (required only where indicated on drawings)
 1. Mirafi 500X or 600X
 2. Phillips 66 Supac 6WS
 3. Dupont Typar 3401 and 3601
 4. Trevira S1114 and S1120
 5. Tensar SS-1 and SS-2
- D. Filter/Drainage Fabrics: (required only where indicated on drawings or as required by Geotechnical Engineer)
 1. 140S
 2. Phillips 66 Supac 4NP
 3. Dupont Typar 3341
- E. Silt Fencing Fabrics:
 1. Phillips 66 Supac 5NP (UV)
 2. Mirafi 100X

PART 3 EXECUTION

3.01 PREPARATION

- A. Material encountered in grading operation that is unsuitable or undesirable shall be as follows:
 1. Unsuitable Materials: Material defined as organic or material that will not provide a stable foundation or material that will not compact to the requirements set forth in these specifications. Contractor's base bid will include accepting all material. No additional payment will be made for improvement or removal of unsuitable material.

2. All unsuitable material that is removed by the Contractor shall be disposed of offsite, but on the Installation, or in a manner satisfactory to the Contracting Officer at no additional cost to the Government.
 3. Backfill for these areas will be with material approved by the Independent Testing Agency, with layers of suitable material and compacted to the requirement set forth in these specifications.
- B. Prior to placing fill perform following procedures:
1. Drain water out by gravity with ditch having flow line lower than lowest elevation in low area. If drainage cannot be performed by gravity ditch then contractor shall refer to Section 3.02 "Dewatering" for requirements. Contractor shall at all times keep site graded to maximize runoff in case of rain. When rain is predicted, Contractor shall roll graded areas to seal against infiltration. Dewatering is part of the contractor's basic scope of work. No additional payment will be made for Dewatering.
 2. After drainage of area is complete, remove muck, mud, debris, and other material of unsuitable nature by using acceptable equipment and methods that will keep natural soils underlying low area dry and undisturbed.
 3. Contractor shall contact the independent testing representative to inspect proof rolling operations. All areas failing proof rolling shall be undercut and replaced in accordance with these specifications.
- C. Do not perform grading operations during period of wet weather when it would be impossible to control moisture of soils. All areas that will support floor slabs to ten feet outside the building walls and pavements to five feet beyond the edge of paving shall be properly prepared as controlled fill areas.
- D. After grade has been established in cut areas and prior to placement of fill in all fill areas, the exposed subgrade shall be carefully inspected by probing and testing as needed. All topsoil or other organic material still in place, frozen, wet, soft or loose soil and other undesirable materials shall be removed. The exposed subgrade shall furthermore be inspected by proof rolling to check for areas that rut, deflect or fail to tighten up or soft material hidden beneath a thin crust of better soil. All material thus exposed shall be considered unsuitable.
- E. Use earth fill to replace undercut in building area and in future expansion area to facilitate placement of utilities and future footings.

3.02 DEWATERING

- A. General:
1. Provide dewatering systems as required for excavations. In any event, dewatering should be such that the groundwater level is controlled to a minimum depth of 2 feet below the elevation that is being compacted.
 2. Design and provide dewatering system using accepted and professional methods consistent with current industry practice to eliminate water entering the excavation under hydrostatic head from the bottom or sides. Design system to prevent differential hydrostatic head, which would result in floating out soil particles in a manner, termed as a "quick" or "boiling" condition. System shall not be dependent solely upon sumps or pumping water from within the excavation where differential head would result in a quick condition, which would continue to worsen the integrity of the excavation's stability.
 3. Provide dewatering system of sufficient size and capacity to prevent ground and surface water flow into the excavation and to allow Work to be installed in a dry condition.
 4. Control, by acceptable means, all water regardless of source. Contractor shall be responsible for disposal of the water (non contaminated water).
 5. Confine discharge piping or ditches to available easement or to additional easement obtained by Contractor. Provide necessary permits or easement.

6. Control groundwater in a manner that preserves strength of foundation soils, does not cause instability or raveling of excavation slopes, and does not result in damage to existing structures. Where necessary, lower water level in advance of excavation utilizing wells, wellpoints, jet excavator or similar positive methods. The water level as measured by piezometers shall be maintained a minimum of 3 feet below prevailing excavation level.
7. Commence dewatering prior to any appearance of water in excavation and continue until Work is complete to the extent that no damage results from hydrostatic pressure, flotation, or other causes.
8. Open pumping with sumps and ditches will be allowed provided it does not result in boils, loss of fines, softening of the ground, or instability of slopes.
9. Install wells or well points, if required, with suitable screens and filters so that continuous pumping of fines does not occur. Arrange discharge to facilitate collection of samples by the Owner. During normal pumping and upon development of wells, levels of fine sand or silt in the discharge water shall not exceed 5 ppm. Install sand tester on discharge of each pump during testing to verify that levels are not exceeded.
10. Control grading around excavations to prevent surface water from flowing into excavation areas.
11. All groundwater encountered will be tested for waste characterization by a Florida Department of Environmental Protection (FDEP) certified lab. The sampling and analysis will be performed in compliance with all relevant State of Florida regulations. All test results will be submitted to 325 CES/CEAN (850-283-4780/2493) for waste disposal determination. The General Contractor will pay for all testing cost. If any contaminated water is encountered or suspected, the Contractor will advise 325 CES/CEAN immediately. All contaminated water will be containerized in 55 gallon drums, tanks, or treated through a filtration system depending on the concentrations and/or volume. The General Contractor will provide adequate storage until the impacted water can be properly disposed. Contact the 325 CES/CEAN Hazardous Waste Program Manager at 850-283-4780 for disposal. The installation shall be responsible for removing or treating impacted water from drums and tanks or providing treatment.
12. No additional payment will be made for any supplemental measures to control seepage, groundwater, or artesian head. The contractor shall provide all cost associated with Dewatering design and implementation to construct the proposed improvements to the lines and grades shown on the construction plans. The Contractor shall submit to 325 CES/CEAN a dewatering process plan for review.
13. The Contractor shall submit to the Contracting Officer and to 325 CES/CEAN for approval a work plan for groundwater pumping, showing the physical system planned, the point where groundwater will be tested for contamination, and how water will be staged to await test results, disposal requirement determination, and disposal by the Installation if contaminated. Testing shall be by the FDEP approved Testing Agency retained by the Contractor.
14. The Contractor shall submit to the Contracting Officer and to 325 CES/CEAN for approval a work plan for identifying and marking wells to be protected during work, for adjusting the wells needing adjusting, and for applying for permits and obtaining any permits that may be required for wells that are relocated.

B. Design:

1. Designate and obtain the services of a qualified dewatering specialist to provide dewatering plan as may be necessary to complete the Work.
2. Contractor shall be responsible for the accuracy of the drawings, design data, and operational records required.
3. Contractor shall be responsible for the design, installation, operation, maintenance, and any failure of any component of the system.

C. Damages:

1. Contractor shall be responsible for and shall repair any damage to work in place, other

contractor's equipment, utilities, residences, highways, roads, railroads, private and municipal well systems, adjacent structures, natural resources, habitat, existing wells, and the excavation. Contractor responsibility shall also include, damage to the bottom due to heave and including but not limited to, removal and pumping out of the excavated area that may result from Contractor's negligence, inadequate or improper design and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.

2. Remove subgrade materials rendered unsatisfactory by excessive wetting and replace with approved backfill material at no additional cost to the Owner.
- D. Maintaining Excavation in Dewatering Condition:
1. Dewatering shall be a continuous operation. Interruptions due to power outages, or any other reason will not be permitted.
 2. Continuously maintain excavation in a dry condition with positive dewatering methods during preparation of subgrade, installation of pipe, and construction of structures until the critical period of construction or backfill is completed to prevent damage of subgrade support, piping, structure, side slopes, or adjacent facilities from flotation or other hydrostatic pressure imbalance.
 3. Provide standby equipment on site, installed, wired, and available for immediate operation if required to maintain dewatering on a continuous basis in the event any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional cost to Owner.
 4. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components, and any other work required to maintain excavation in dewatered condition.
- E. System Removal: Upon completion of the work, remove dewatering equipment from the site, including related temporary electrical service.
- F. Monitor wells and bio-injection wells shall be treated as described on drawings

3.03 OVEREXCAVATION AND BACKFILL

- A. Over excavation which is required to remove unsuitable material shall be immediately reported to the Contracting Officer or his representative and performed as directed by the Contracting Officer, and the theoretical lines and grades will be adjusted accordingly. Material outside the excavation limits which is disturbed due to the fault or negligence of the Contractor, or due to his failure to exercise sound construction practices, shall be replaced by the Contractor with suitable materials (earth) at no cost to the Government.

3.04 PREPARATION OF SUBGRADE IN EMBANKMENTS (FILLS) AND CONTROLLED FILL AREAS

- A. The existing soil in fill areas shall be prepared for other phases of work to follow. All fill areas that will support floor slabs to ten feet outside the building walls and pavements to five feet beyond the edge of paving shall be properly prepared as controlled fill areas. This work shall include the following:
1. Remove all clearing and grubbing and topsoil from area to receive fill. All cavities and irregularities shall be enlarged to permit use of compaction equipment, backfilled, and compacted as required.
 2. Scarify and recompact the top 10" of the area to receive fill and all following fill layers to a minimum level of a 95% Maximum Dry Density based on the Modified Proctor Compaction Test, ASTM D-1557 within +3 to -2 percentage points of optimum moisture content.
 3. Proof roll prepared area in presence of testing representative.
 4. The exposed subgrade shall be inspected by proof rolling to check for areas that rut, deflect or fail to tighten up or soft material hidden beneath a thin crust of better soil. Any material

thus exposed shall be considered unsuitable. All areas failing proof rolling shall be undercut and replaced in accordance with these specifications.

3.05 PREPARATION OF SUBGRADES IN EXCAVATION (CUT) AREAS

- A. The exposed soil in cut areas shall be prepared for other phases of work to follow. All cut areas that will support floor slabs to ten feet outside the building walls and pavements to three feet beyond the edge of paving shall be properly prepared. This work shall include the following:
 - 1. After excavations have been cut to subgrade, the subgrade areas shall be scarified to a minimum depth of 8 inches and compacted a 95% Maximum Dry Density based on the Modified Proctor Compaction Test, ASTM D-698 within -2 to +3 percentage points of optimum moisture content.
 - 2. Proof roll prepared area in presence of testing representative.
 - 3. The exposed subgrade shall be inspected by proof rolling to check for areas that rut, deflect or fail to tighten up or soft material hidden beneath a thin crust of better soil. Any material thus exposed shall be considered unsuitable. All areas failing proof rolling shall be undercut and replaced in accordance with these specifications.

3.06 FILLING AND SUBGRADING

- A. Materials:

Offsite borrow fill material shall be used. The Contractor is responsible for locating an offsite adequate borrow source as part of the general scope of work. Borrow fill material is not available on the installation.
- B. Off site material to be used in controlled fill areas shall be free of topsoil and other organics. The liquid limit of less than 40 and the Plasticity Index less than 15. The dry density as determined by ASTM D-698 shall exceed 100 LB/CF. The maximum practice size shall be less than four (4") inches. The material must obtain a LBR (Load Bearing Ratio) soaked value of 10 minimum.
- C. Fill placement can proceed after the surface densification is accomplished and proof rolling is completed.
- D. Immediately prior to any slab construction or paving in areas which are at grade, subgrade should be proof-rolled to further densify the surface soils and detect soft areas. All areas that pump or rut shall be undercut.
- E. All controlled fill shall be placed in thin lifts (maximum 8 inches loose measure). Soil should be aerated or moisture conditioned as necessary to maintain the moisture content within -1 to +3 percent of the optimum moisture content and compacted to a minimum of 95% compaction based on the Modified Proctor Test, D-1557
- F. Remove areas of finished subgrade found to have soft spots to depth necessary and replace in a manner that will comply with compaction requirements by use of material equal to or better than best subgrade material on site. Surface of subgrade after compaction shall be hard, uniform, smooth, stable, and true to grade and cross-section. The surface shall be maintained for the duration of contract or until released by Government.
- G. Make acceptance of grades to receive buildings and paving by string line from grade stakes (blue tops) set to grade on not more than 50'0" centers. Tolerance of +0.10' will be permitted. There will be no decrease or loss of thickness, or no deviation from allowable grade tolerances of the higher grade materials to be placed over the subgrade (i.e. base mixes, bituminous paving, crushed stone, concrete slabs, etc.). Provide field staking of work and provide engineering necessary for verification of lines, grades and elevations.

3.07 FINISH GRADING - OTHER THAN PAVED AREAS

- A. Grade areas in which elevations or contours are indicated on Drawings, including excavated areas, filled and transition areas, and landscaped areas to uniform and smooth, finished surface, free from rock, debris, or irregular surface changes. Finished surface shall not be more than 0.10' above or below finish grade or grade required for placement of topsoil or other material as noted on drawings or as required in these specifications, and all ground surfaces shall vary uniformly between indicated elevations. Grade ditches and swales to allow for proper drainage without ponding and in a manner that will minimize erosion potential.
- B. Cover areas of project that have been disturbed by grading operations and are not to be covered by permanent construction such as pavements or buildings with 4" thickness of topsoil. Remove any excess topsoil from site, likewise, where deficient topsoil exist, import topsoil as needed.
- C. Correct settlement in grade within one year after date of completion at no additional expense to Government. Bring grades to proper elevation. Re-planting or replacing any grass, shrubs, bushes, or other vegetation or construction disturbed by corrective measures.
- D. All fill shall be placed in thin lifts (maximum 10 inches loose measure). Soil should be aerated or moisture conditioned as necessary to maintain the moisture content within -2 to +3 percent of the optimum moisture content and compacted to a minimum of 95% compaction based on the Modified Proctor Test, D-1557.
- E. Contractor shall include in the basic scope of work importing topsoil if none exists on the site.

3.08 FLOOR SLAB, FOOTING BEARING AND PAVED AREA REQUIREMENTS:

- A. Floor slabs and paved areas shall be supported on compacted controlled fill or prepared cuts exposed at grade.
- B. If high plastic soils or organic materials are encountered in the footings, the high plastic soils shall be undercut to a maximum depth of three feet below the finished grade at the exterior grade of the building. All highly organic material shall be removed completely. All excavations shall be backfilled with compacted controlled fill in accordance with these specifications.
- C. If high plastic soils or organic materials are encountered at subgrade below the floor slab, the high plastic soils shall be undercut to a maximum depth of three feet below the subgrade. All highly organic material shall be removed completely. All excavations shall be backfilled with compacted controlled fill in accordance with these specifications.
- D. A 4 inch granular drainage layer consisting of clean pea gravel or coarse sand shall be provided under all building slabs. The drainage layer shall have no more than 10% passing the #200 sieve, a maximum particle size of 1½", a plastic Index of 6 maximum, and a liquid limit of 25 maximum. A vapor barrier shall be installed on top of the granular drainage layer. This is not required for parking areas.
- E. Sand fill shall be compacted to a minimum 95% standard density as determined by ASTM D-1557. Gravel fill shall be consolidated use appropriate compaction techniques.
- F. Contractor shall remove and replace all material found to be inappropriate for footing bearing. All bearing surfaces consisting of fill are proof-compacted with a manually operated piston type tamper prior to placement of the reinforcing steel.

3.09 RIPRAP

- A. Place rip rap in all areas where indicated on the drawings. The stone for rip rap shall consist of field stone or rough unhewn quarry stone as nearly uniform in section as is practical. The stones shall be dense, resistant to the action of air and water, and suitable in all aspects for the purpose intended.
- B. Slopes and other areas to be protected shall be dressed to the line and grade shown on the plans prior to the placing of rip rap. Contractor shall then undercut the areas to receive rip rap to an elevation equal to the final elevation less the average diameter of the stones before placing the rip rap. This will be considered critical around flumes and other drainage structures. Stones shall be placed so that the greater portion of their weight is carried by the earth and not by the adjacent stones. The stones shall be placed in a single layer with close joints. The upright areas of the stone shall make an angle of approximately 90 with the embankment slope. The courses shall be placed from the bottom of the embankment upward, the larger stones being placed in the lower courses. open joints shall be filled with spalls. Stones shall be embedded in the embankment as necessary to present a uniform top surface such that the variation between tops of adjacent stones shall not exceed three inches.

3.10 FIELD QUALITY CONTROL

- A. Independent Testing Laboratory shall perform construction testing on site. General Contractor shall request for testing as follows:
 - 1. Fill Placed in Areas to be Paved: At least one compaction test for every 2,500 square feet of each 10" loose lift or layer.
 - 2. Fill Placed Under Building and Extending 10' outside Exterior Building Line: At least one compaction test for every 2,500 square feet of each 10" loose lift or layer, a minimum of 3 test per lift.
 - 3. Inspect proof rolling operations of all cuts and fills.
- B. If compaction requirements are not complied with at any time during construction process, remove and recompact deficient areas until proper compaction is obtained at no additional expense to AAFES.
- C. The Independent Testing Laboratory shall prepare test reports that indicate test location, elevation data, and test results. Contracting Officer, Architect/Engineer and Contractor shall be provided with copies of reports within 48 hours of time test was performed.
- D. In event that any test performed fails to meet these Specifications, AAFES and Contractor shall be notified immediately by the Independent Testing Laboratory.
- E. Foundation excavations shall be inspected and tested for appropriateness of bearing level by the Independent Testing Laboratory.
- F. All proof rolling operations shall be performed in the presence of the independent testing laboratory. The independent testing laboratory shall determine if the subgrade passes the proof rolling operation.

END OF SECTION

SECTION 13050

GASOLINE DISPENSING AND UNDERGROUND STORAGE TANK SYSTEMS

PART 1: GENERAL

1.1 DESCRIPTION OF WORK:

- A. **The underground fuel storage tanks (two tanks, one 20,000 gallon containing “regular”, and a second 15,000 gallon tank containing “premium”) are existing. Both underground tanks are double-walled fiberglass, manufactured by Xerxes. The contractor shall provide new submerged turbine pump (STP)/piping sumps, fill/spill bucket assemblies, surface manholes, fuel piping, dispenser sumps, and fuel system accessories as shown and described on/in the documents for this project, and coordinate the connection of the piping and accessories with the existing fuel storage tanks/existing conditions. The existing submerged turbine fuel pumps shall remain and be re-used. The existing Veeder Root TLS 450 ATG console shall be removed and saved for re-use. The existing Veeder Root inventory probes shall be reused. The Veeder Root UST interstitial sensors may be reused. All other Veeder Root sensors shall be new. The existing fuel dispensers shall be removed and saved for re-use; AAFES shall furnish three new dispensers (the new installation will have a total of 6 dispensers).**
- B. Provide a complete and operational gasoline fueling system, including the reuse of some existing components and the new equipment, components, accessories and appurtenances identified in the drawings and specifications. The complete fueling system shall include AAFES-furnished, Contractor-installed gasoline dispensers (and re-use of the existing dispensers), and electrical controls.
- C. The complete operational gasoline dispensing system must be successfully tested, certified, and registered, and shall have all necessary permits to conduct sales of gasoline. Contractor shall obtain and pay for all required testing, certifications and registrations. Testing requiring FDEP presence on site will be identified as work initiates.
- D. Provide complete double-wall product piping system, including secondary containment and accessories as specified, shown on the drawings, and as required to prevent the possibility of contamination of air, soil, water, or groundwater. Contractor shall remove existing piping which is not to be reused, decontaminate this existing piping, and properly dispose of the existing piping. Follow FDEP requirements for disposal.
- E. Provide fiberglass-reinforced plastic (FRP) sealed turbine pump/piping sumps/enclosures as specified and shown on the drawings, as required for a complete and operating system.
- F. Install AAFES-furnished electronic gasoline dispensing system including dispensers, control consoles, interconnecting devices and accessories furnished by AAFES and as required for a complete and operating system.
- G. **The existing Veeder Root TLS 450 console, fuel inventory probes, tank sump leak sensors, tank interstitial sensors, and three dispenser sump sensors shall be re-used. The TLS 450 console must be removed and re-located.** Provide tank monitoring/inventory control/release detection system including console with alarm capability, automatic tank gauging equipment, electronic line leak detectors for primary piping of double-walled product piping, sensors for all secondary containment (including tank, piping and dispenser sumps), an overfill alarm with acknowledgement switch, and accessories as specified, shown on the drawings, and required for a complete and operating system.

- H. Provide the excavation, trenching, and backfilling required for installation of the fuel system.
- I. Contractor shall prepare and pay for all required State, County, and Local permits, applications and registrations or other documents required for the installation and operation of gasoline storage and dispensing facilities. Coordinate the preparation and submission of documents with the Air Force Base Environmental Office.
- J. Coordinate installation construction with applicable sections within Division 16 - Electrical work.
- K. Related work specified elsewhere (as applicable to the project):
 - 1. Utility Excavating - Section 02219.
 - 2. Cast-in-Place Concrete - Section 03300.
 - 3. Mechanical Work - Division 15.
 - 4. Electrical work - Division 16.

1.2 QUALITY ASSURANCE:

- A. Comply with the following codes and standards (use the most recent version):
 - 1. NFPA No. 30, Flammable and Combustible Liquids Code.
 - 2. NFPA No. 30A, Automotive and Marine Service Station Code.
 - 3. NFPA No. 70, National Electrical Code
 - 4. NFPA No. 329, Handling Underground Release of Flammable and Combustible Liquids
 - 5. EPA 40 CFR Part 280, Technical Standards and Corrective Action Requirements for Contracting Officers and Operators of Underground Storage.
 - 6. OSHA 29 CFR Part 1910.106, Flammable and Combustible Liquids.
 - 7. ASTM D2310-80, Standard Classification for Machine-Made Reinforced Thermosetting-Resin Pipe.
 - 8. ASTM D2517-81, Standard Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings.
 - 9. ASTM D2996-88, Standard Specification for Filament-Wound "Fiberglass" (Glass Fiber-Reinforced Thermosetting Resin) Pipe.
 - 10. ASTM D4021-86, Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks.
 - 11. UL 79, Power-Operated Pumps for Petroleum Product Dispensing Systems.
 - 12. UL 87, Power-Operated Dispensing Devices for Petroleum Products.
 - 13. UL 567, Pipe Connections for Flammable and Combustible Liquids and LP-Gas.
 - 14. UL 842, Valves for Flammable Fluids.
 - 15. UL 860, Pipe Unions for Flammable and Combustible Fluids and Fire Protection Service.
 - 16. UL 1238, Control Equipment for Use with Flammable Liquid Dispensing Devices.
 - 17. UL 1316, Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products.
 - 18. API 1615 (1996) Installation of Underground Petroleum Storage Systems.
 - 19. API 1628 (1996) A Guide to the Assessment and Remediation of Underground Petroleum Releases (if a release is expected).
 - 20. California Air Resources Board (CARB) Executive Orders applicable to system.
 - 21. California Air Resources Board (CARB) Test Procedures applicable to system.
 - 22. PEI RP 100-05 Recommended Practices for Installation of Underground Storage Systems.
 - 23. PEI RP 300-04 Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites.
 - 24. PEI 400-02 Recommended Procedures for Testing Electrical Continuity of Fuel-Dispensing.

25. All other applicable ASTM and UL standards.
26. All applicable EPA requirements relating to release detection, spill and overflow prevention, and corrosion protection.
27. All other applicable Local, County, State, and Federal codes, standards, licensing and registration requirements.

B. Contractor Experience and Licensing:

1. Contractor shall certify that (or installation sub-contractor) has at least four years experience installing underground gasoline storage tanks and dispensing equipment and is certified by the State in which the project is to be constructed. Contractor shall also assure that the designed gasoline fuel system shall be installed by skilled workmen, licensed by the State in which the project is constructed (if required by the State of Florida regulations) or certified by the equipment manufacturers. Contractor's installer and electrician shall have prior experience with fuel systems and related equipment. As evidence of this experience, a list of the most recent three fuel system installations performed by this contractor with complete descriptions of the location, the project name, and the equipment installed and date of project shall be submitted to the Contracting Officer before construction begins.
2. Contractor Certification of Licensing and Experience. Contractor shall certify that (or installation subcontractor) is a certified installer and/or Authorized Service Contractor for the following equipment manufacturers, as applicable to the system being installed:
 - a. Dresser Wayne.
 - b. Veeder-Root
 - c. Red Jacket
 - d. OPW / Flexworks
 - e. Xerxes
 - f. Containment Solutions
 - g. F.E. Petro
 - h. Ameron International
3. Contractor shall also certify that he (or his installation subcontractor) holds all necessary licenses for construction and installation required under this contract at the project location. These certifications shall be submitted in writing to the Contracting Officer before construction begins. Changing of subcontractors after this certification will require re-certification of the new subcontractor, showing requisite experience.
4. Contractor shall certify that the installation of the petroleum system related electrical components will be done by an experienced contractor or subcontractor. This contractor shall have experience with fuel systems similar to those installed under this contract. Petroleum system related components are those essential to the legal operation of the petroleum storage, dispensing, leak detection, and emergency equipment. They include, but are not limited to: dispensers, submersible pumps, pump controllers, leak detection equipment, vapor recovery systems, emergency shut-off switches, and all conduit and wiring related to these systems. As evidence of this experience, a list of the most recent five (5) fuel system installations performed by this contractor with complete descriptions of the location, the project name, the equipment installed, and date of the project shall be submitted to the Contracting Officer before construction begins. NOTE: It is preferred, but not mandatory that the petroleum electrical subcontractor be a subcontractor to the petroleum system installer. If the petroleum electrical installer is a subcontractor to the petroleum system installer as described in 1 above, and worked on the projects submitted under that paragraph, the contractor shall so certify and no additional projects need to be reported.

- C. Detailed drawings of proposed departures due to actual field conditions or other causes shall be submitted to the Contracting Officer for coordination of approval. The contractor shall carefully examine the drawings and shall be responsible for the proper fitting of materials and equipment without substantial alteration. Materials and equipment installed in the system shall be suitable for the pressures and temperatures expected to be encountered and suitable to the climate and environmental conditions of the location of the project.
- D. Contractor's responsibilities under this quality assurance section include, but are not limited to, the following:
 - 1. Receipt and storage of all items of equipment in a location protected from theft, vandalism, inclement weather, or other damage.
 - 2. Providing required interconnections to product pumps and emergency disconnect systems.
 - 3. Construction of openings, depressions, and sleeves for mechanical and electrical piping and conduit as required.
 - 4. Providing hardware and related items as required to assure that equipment components are properly mounted, securely anchored, adequately ventilated, or where required, are adequately sealed from vapors.
 - 5. Verifying size of components to assure space required for dispensers, consoles and interconnecting devices does not exceed designated space available as indicated on drawings.
 - 6. Determining if unusual conditions or circumstances exist at the site (or in the vicinity of the installation) which could damage the electronic components or circuitry, or otherwise impair the proper function of the system, and incorporating, in such event, the necessary protective devices into the installation.

1.3 SUBMITTALS

- A. Submit shop drawings for the following in accordance with Section 01300 requirements:
 - 1. Dispenser sumps
 - 2. Tank-STP sumps
 - 3. Surface manholes
 - 4. Spill Containers/Fill bucket assemblies
 - 5. Product piping and fittings
 - 6. Sump penetration fittings
 - 7. Piping termination boots
- B. No work shall be performed without the shop drawing having been approved by Contracting Officer or his designated agent.
- C. Contractor shall provide a proposed schedule of the phases of the work for the installation of the gasoline storage tanks, piping and dispensing systems.
- D. Other underground fuel storage tank submittals shall include:
 - 1. Fuel System Environmental Compliance Documentation and Records. The following documents or the State/location equivalent of these records will be furnished in two copies, one left at AAFES facilities manager office and one furnished to the contracting officer for delivery to the installation environmental office.

Fuel System Environmental Compliance Documentation and Records

- 1. _____ UST registration for each tank including any changes to registration ("owner" is the Installation). (May be USEPA Form 7530 or extension of it.)
- 2. _____ Other permits (such as Air Operation Permit).

3. _____ As-built plans or site map with layout of tanks and piping.
 4. _____ Third Party Certifications of leak detection systems (equipment or methods).
 5. _____ Documentation of corrosion protection, if part of the system.
 6. _____ Manufacturer's manuals (owner's operator's and maintenance manuals) for all system components and equipment (including tanks, lines, leak detection components, dispensers, nozzles, etc.). CARB Executive Order for Stage II Vapor Recovery System, if installed.
 7. _____ Manufacturer's warranty documentation for all system components and equipment (including tanks, lines, leak detection components, dispensers, nozzles, etc.)
 8. _____ Initial Compliance Test Records (if not included with Installer Certification above).
 - a. _____ Tanks
 - b. _____ Lines
 - c. _____ Stage I (CARB TP 201.1E and TP 201.3)
 - d. _____ Stage II Vapor Recovery System (if required in the area)
 - e. _____ Dispenser Calibration and continuity test.
 9. _____ Training Roster for O & M Training given to AAFES associates.
 10. _____ Fuel System Final Inspection Report.
2. Digital photographs of main stages of tank installation and other construction activities, as shown below. Sufficient photographs to adequately document and represent the activity will be taken. Any problems encountered or authorized deviations from the drawings or specifications will be documented with appropriate photographs. The contractor will submit the photographs via the internet to the AAFES Constructware website as soon as possible but not later than 5 business days prior to any scheduled AAFES technical inspection (or 5 business days prior to the final inspection, if documenting work done between the last AAFES technical inspection by the AAFES A-E inspection and the final inspection).
3. Four copies of a chronological Installation Report of the complete tank system installation construction documenting all major activities related to the installation of the underground storage tanks, piping, dispensing and release detection equipment and Stage II Vapor recovery system (if required) shall be provided to AAFES Contracting Officer. Contractor's Installation Report shall include documentation of construction activities and photographs of the construction work in progress. Documentation of specific construction activities shall include, at a minimum the following:

	CONSTRUCTION ACTIVITIES	DOCUMENTED BY	REMARKS
1	Excavation of Tank Sump	Photographs Installation Report	Report shall include measured dimensions of the excavation and details about shoring and site conditions.
2	Final Tank Hole Excavation (with fabric liner as applicable under site specific conditions)	Photographs Installation Report	Report shall include final measured dimensions of the excavation and details about preparation for tank placement.
3	Tank Sump Excavation Backfilling Operations	Photographs, Field notes in Installation report	Report shall indicate how manufacturer's recommended procedures were followed
4	Installing the Product Lines	Photographs	Follow piping manufacturer's procedures
5	Air / Soap Testing of All Piping	Photographs Field notes	Air test must follow manufacturer's

		(signed)	procedures (air gauge must be equipped with a pressure relief valve set @ 60 PSIG)
6	Placement of Electrical Conduit	Photographs	
7	Forming / Pouring Concrete for Canopy Footings	Photographs	
8	Backfilling the Pipechase	Photographs	Document proper installation of piping
9	Installation of Dispensers	Photographs	
10	Purging of Product Piping with Air	Field notes (signed)	
11	Notification of System Testing to Regulators	Copy of Notification	Presence of regulator may be required
12	Calibration of Dispensers	Field Notes (signed)	Verify proper calibration tolerances
13	Flow Rate Determination	Field Notes (signed)	Verify flow rate not to exceed 10 GPM
14	Certification of Fueling System: Tank & Line Tightness Tests	Test Reports, copy of the Performance Criteria for the Test	Using an EPA third-party certified method
15	Certification of Vapor Recovery System: Stage I and Stage II (as required)	Test Reports	Following CARB Test Procedures
16	Certification of the Fueling Facility Operators (Training Documentation)	Outline of Course Content & Rosters	
17	Installer Certification of UST Installation	Affidavit/Oath	Signed EPA Form 7530 or State Form
18	Registration of Tank System	Copy of Registration	Signed EPA Form 7530 or State Form
19	Registration of Vapor Recovery System (as required)	Copy of Registration	Signed State Form
20	Warranty/Registration Paperwork for Equipment	Copy of Warranty and Registration	

E. Certification of Experience and Qualifications

1. Contractor shall submit Documentation of contractor or installer sub-contractor and of petroleum systems electrician's experience as required in B.1. of this section.
2. Contractor shall provide for approval the name of the testing company he will use to perform pressure testing of tanks and piping, and startup compliance testing of the Vapor Recovery system per manufacturers' instruction and as specified in this specification. Contractor-retained testing company shall have a minimum of three years of experience in performing such tests for retail gasoline stations and shall be responsible for notifying AAFES of the schedule for testing, following proper testing protocol, and prompt notification of test results.

Note: AAFES may retain another independent testing agency to observe and monitor the tanks and piping installation and testing performed by the contractor and his testing agency. AAFES-retained testing agency shall have access to the site, work area, shop drawings and results of testing during the construction period. Any changes or comments recommended by AAFES-retained agency must be approved by the Contracting Officer prior to implementation by the contractor. Any testing conducted by AAFES-retained testing agency is separate and independent of the contractor's requirements and SHALL NOT be considered a substitute for any tests required to be performed by contractor. The General Contractor's site superintendent must be notified of any independent testing schedule so that the General Contractor may ensure his representative's presence during any such test procedure.

- F. Contractor shall provide six copies of an Operations and Maintenance (O&M) Manual. This manual will describe all systems and equipment installed by the contractor, including but not limited to: underground storage tanks, piping and distribution lines, tank monitoring and release detection systems, vapor recovery systems, dispensers, and alarms. O&M Manual will list the manufacturers (including addresses and telephone numbers), make, model and serial numbers of all equipment and systems. Photocopies of equipment warranty registrations shall be included in the O&M Manual. The O&M Manual will be written in simple language and will give the operator information necessary to operate and maintain the system. Maintenance that is required but not normally performed by the operator will be so noted. The requirement for an O&M Manual may be met by compiling copies of materials provided by the manufacturers of the systems or equipment. However, if the manufacturer's materials do not explain how the system or equipment works as installed, Contractor will provide necessary supplemental information
- G. Six copies of the release detection system operation and maintenance manuals shall be provided as follows:
1. The AAFES Service Station Manager.
 2. The Local General Manager.
 3. The Installation Environmental Office, 96 CEG/CEVC.
 4. Three copies to the Contracting Officer for internal distribution.
- H. Copies of all documents, permits, applications and registrations required State, County, and Local shall be submitted to the AAFES Contracting Officer and the Base Environmental Office in a report documenting details of the installation.
- I. **GENERAL CONTRACTOR TO PROVIDE RECORD DRAWINGS OF COMPLETE FUELING SYSTEM TO AAFES PROJECT MANAGER AND CONTRACTING OFFICER PRIOR TO TURNING OVER OF PROJECT.**

1.4 UNATTENDED OPERATION:

- A. Contractor is on notice that the facility to be constructed may be used for 24-hour unattended self-service operation if customer service conditions warrant and all appropriate approvals are obtained.
- B. Contractor will use best professional judgment to suggest any other items that may be required by law at the project site for unattended operation or that may facilitate safe and environmentally sound, unattended operation and should identify those items to the Contracting Officer as soon as they are known.

1.5 DRAWINGS: Because of the small scale of the drawings, it is not possible to indicate all offsets, fittings and accessories that may be required. The contractor shall carefully investigate the site and job conditions affecting all work and shall arrange work accordingly, furnishing such fittings, valves and accessories as may be required to meet such conditions, at no additional cost.

1.6 PROTECTION OF MATERIALS AND EQUIPMENT: Pipe openings shall be closed and protected with caps or plugs (not tape) during installation. Equipment shall be tightly covered and protected against dirt, water, chemical or mechanical injury. Backfill material shall be kept clear of all trash and debris. Dispenser and tank sumps shall be closed or covered to prevent water and construction debris from accumulating within. Underground storage tanks and piping system shall be protected by barricades and construction fencing. Upon completion of all work, the materials and equipment shall be thoroughly cleaned, adjusted and operated. Belts, pulleys, gears, couplings, projecting setscrews, keys and other rotating parts shall be fully enclosed or properly guarded.

1.7 WARRANTIES: Contractor shall warrant the work specified according to the terms of the General Provisions. In addition, upon acceptance of the gasoline dispensing system for beneficial use by AAFES, he shall provide to the Contracting Officer the manufacturer's standard equipment warranty or warranties covering both parts and labor for a minimum period of one year. Warranty service shall be provided promptly upon request within 12 hours on weekdays and 24 hours on weekends. Contractor shall be responsible for the warranty of the equipment he furnished. Contractor is responsible for defects in installation of AAFES-furnished equipment.

PART 2: PRODUCTS

2.1 GENERAL: Contractor-furnished materials and equipment shall be as specified and/or as shown on the drawings. Equipment shall be the product of manufacturers regularly engaged in the manufacture of such products and shall be of the best quality used for the purpose in commercial practice. Each major component of equipment shall have the manufacturer's name, address and catalog number on a durable plate securely affixed in a conspicuous place. The nameplate of the distributing agent only will not be acceptable. Substitution of the specified equipment is acceptable upon review and approval by the Contracting Officer or his authorized agent. To obtain approval, Contractor shall make a written request to the Contracting Officer. Contractor's request will include or attach all data and information available on the equipment including warranties, guarantees, and UL certifications (if applicable).

2.2 PIPING, FITTINGS AND SPECIALTIES:

- A. All pipes, fittings, appurtenances, manways, accessories, and valves shall be provided by the Contractor after submittal to the Contracting Officer of shop drawings showing manufacturer and model number of each.
- B. All-metal flex connectors shall be used in all dispenser containment sumps, and be as shown in the drawings with all-metal tubes (no Teflon), hose ends, galvanized malleable iron nipples at both ends affixed with crimped fittings, maximum overall length 24".

- C. Aboveground vent piping shall be schedule 40 galvanized steel pipe with 150 lb. malleable iron screw fittings and couplings. Joints shall be connected using appropriate adhesive/sealant compatible with gasoline, alcohol-gasoline blended, and reformulated fuels. Vents shall be a minimum of 12 feet above finished grade or 24 inches above the building exterior wall. Vents shall be mounted (as shown on the drawings) to the building exterior wall or braced to stainless steel or galvanized steel pole which shall extend to 12 inches below the top of the vent. Vents shall be primed and painted with two coats of rust inhibiting paint in a CARB approved color that has also been approved by both AAFES and the installation.
- D. Underground vent and vapor recovery piping shall be Underwriters Laboratory, Incorporated approved rigid fiberglass-reinforced plastic (FRP) pipe with molded fittings and adapters. Manufacturer for vent and vapor recovery piping is A.O. Smith Inland, Inc. "Red Thread II" or equivalent by Ameron International.
- E. Provide buried warning tape or line markers for all underground piping to allow for verification of the piping location in the future. Fill piping and vapor recovery risers shall be schedule 40 galvanized steel piping. As a minimum, couplings and fittings should be 150-pound malleable iron. A thread sealant certified for petroleum service should be used for all fittings. Sealants certified for methanol and other fuels (for example, ethanol and MTBE blends) should be used when these substances are to be placed in the UST system. Projects being built where there are containment requirements for fill risers shall comply with that requirement.
- F. Contractor shall provide fiberglass (FRP) tank sumps as shown/noted, and manway covers as shown on the drawings and identified in the Bill of Materials. Each manway cover will be API color-coded with matching skirt, stabilizer kit and locking mechanism. Lifting tools will be supplied for each manway by contractor. An FRP ID plate will be provided by the manufacturer for each manway. The ID plates will specify the tank number, tank capacity, and product type. The manway cover assembly shall be as shown on the drawings.
- G. Contractor shall provide manway covers as shown on the drawings and identified in the Bill of Materials. Each manway cover will be API color-coded with matching skirt, stabilizer kit and locking mechanism. Lifting tools will be supplied for each manway by contractor. An FRP ID plate will be provided by the manufacturer for each manway. The ID plates will specify the tank number, tank capacity, and product type. The manway cover assembly shall be as shown on the drawings.
- H. Contractor shall provide and install multi-product, dual-hose type, blending dispensers to the contractor for installation and a Wayne control data distribution box as well as an Allied Equipment isolation board.

2.3 DOUBLE-WALL PRODUCT PIPING AND SECONDARY CONTAINMENT SYSTEM:

- A. All underground product piping shall be AO Smith Red Thread 2 inch fiberglass primary pipe with AO Smith Red Thread pipe fittings, or equivalent by Ameron International.
- B. All underground containment piping shall be AO Smith Red Thread fiberglass containment pipe with AO Smith Red Thread pipe fittings, sizes as shown on the drawings or equivalent by Ameron International. The piping installation shall strictly follow the recommended installation practices described by the manufacturer. The secondary containment pipe shall contain product leaked from the product pipe and drain to a tank piping sump or dispenser sump for leak detection and recovery of the released product.
 - 1. The primary piping shall be capable of successfully passing an air pressure test at fifty pounds per square inch after bleed back pressure stabilization, which shall be established by bringing the line pressure to fifty pounds per square inch for a

minimum of three hours. During the pressurizing period all fittings shall be observed for leaks by applying a soapy water solution. The secondary piping shall be capable of maintaining ten pounds per square inch for a one hour period during integrity testing.

2. The contractor shall follow the manufacturer's recommendation that after the primary piping has passed a 50 psig pressure test, the product line pressure should be reduced and maintained at a pressure of 25 psig until all paving has been completed, with OPW pressure gauge assemblies in place on each line for daily observation and verification that the pipe is holding pressure.
 3. Pressure gauge assemblies for testing shall be calibrated prior to use and be equipped with the proper pressure safety valve as recommended by piping manufacturer's testing procedures.
- C. Termination of product lines shall be within containment sumps with proper sealing of the ends to prevent water, liquid and debris from entering the sumps.
- D. All containment sumps shall be capable of passing a hydrostatic water test conducted to ensure that the sumps are liquid tight.

2.4 ELECTRONIC FUEL DISPENSING SYSTEM: AAFES - FURNISHED/ CONTRACTOR - INSTALLED:

- A. AAFES shall furnish multi-product, dual-hose type, blending dispensers to the contractor for installation. A Wayne control data distribution box as well as an Allied Equipment isolation board shall be furnished by AAFES and installed by contractor to connect the dispensers as indicated on the drawings. The dispensers shall be delivered directly to the contractor on site. The contractor is responsible for receiving, verifying, storing, uncrating and protecting the equipment. Contractor shall coordinate the delivery and installation dates with contracting officer in advance to meet the construction schedule.
- B. AAFES-furnished dispensers will be Dresser Wayne "Ovation" as shown on the drawings. All hoses, nozzles, swivels and safety breakaways shall be provided by the Contractor.
- C. A Dresser Wayne service representative under AAFES equipment contract will review and assist the contractor during installation and will perform initial start-up of each dispenser. Actual installation of the dispenser is not the responsibility of this service representative. The general contractor is responsible for providing knowledgeable Wayne equipment installers as well as coordinating the assistance of the Dresser Wayne service representative.

2.5 SUBMERSIBLE TURBINE PUMPS: **The existing submersible turbine pumps shall be re-used.**

2.6 UNDERGROUND FUEL STORAGE TANKS - DOUBLE-WALL FRP: **The existing underground tanks shall be re-used.**

2.7 TANK INVENTORY CONTROL AND RELEASE DETECTION SYSTEM:

- A. Provide Veeder-Root TLS-450 (860090-100) with integral printer and full VGA LCD display with SiteFax (332818-001) **AND** USB/Ethernet dual interface module (332913-001) as required and CSLD (332972-006) UST monitoring system. The Veeder-Root system consists of tank inventory control, release detection system (for tank, piping, and all sumps), control console, integral printer, tank probes, hydrostatic interstitial tank monitoring probes, sump sensors, fittings, etc., for a complete and operating system.
- B. Tank monitor and inventory control system shall have the following features:

1. Console – 8247 Microprocessor-based, 66MHZ system clock, 128MB RAM on Central Processing Unit. Standard model console provided with RS232 and RS422 communication interface ports with external communication capability for automatic inventory control. Approximate console size 18.5" x 11.5" x 8.5". The console shall be wall mounted using external mounting tabs, at a height of not more than 5 feet from the floor.
2. Inventory/Leak Detection Probe: Veeder-Root Series 846390-109-MAG Plus magnetostrictive probe.
3. Mag Sump Sensor: Veeder-Root Series 857080-112.
4. Digital Pressure Line Leak Detector: Complete assemblies for detecting leaks in product piping. Veeder-Root Series DPLLD 859080-001 for TRJ Red Jacket Pumps connected to controller in the building.
5. Hydrostatic Reservoir Sensor (dual-point): Veeder-Root Series 794380-303 to be incorporated into the integral tank reservoir.
6. Dispenser Mag Sump/Pan Sensor: Veeder-Root Series 857080-111.
7. Overfill Alarm and Acknowledgement Switch: Veeder-Root Series 790091-001 for the alarm and Series 790095-001 for the acknowledgement switch.
8. Modules:
 - a. One SiteFax Interface Module #332818-001.
 - b. One RS-232/RS-485 Dual Interface Module #332870-001.
 - c. One CSLD Software Enhancement Module #332972-006.
 - d. One Sixteen-Input Universal Probe/Sensor Interface Module #332812-001.
 - e. One Universal Input/Output Interface Module #332813-001.
 - f. One Risk Management Software Enhancement for DPLLD #332972-008.
 - g. One USB/Ethernet Dual Interface Module #332913-001.
 - h. One 'L2 Three Year Extended Storage Module #332971-003.
9. Console Features:
 - a. Printer: The console shall be equipped with an integral, thermal printer for hard-copy documentation of reports. Reports shall be printed in rows/columns format.
 - b. Display: The console shall be equipped with 7.4 inch full VGA LCD touch screen display for on-site viewing of information, programming, operating and reporting functions.
 - c. Modem: Internal 300/115200 baud capability for future expansion. (SiteFax Modem 332818-001).
 - d. Remote Access/Control: Direct Access TM.

C. Rated Cracking Pressure Vent Cap.

2.8 DISPENSER, TANK AND PIPING SUMPS:

- A. The contractor shall furnish and install pump and piping sump/enclosure as shown on the drawings. Depending upon the burial depth of the tanks, the contractor shall furnish and install the appropriate sump with the required extension as directed by the manufacturer. Depending on the presence of high groundwater, the contractor shall ensure the selection of a sump that is designed for keeping water out of the sumps under such high groundwater conditions. The contractor shall furnish and install tank sump accessories including, but not limited to, manway adapter kit, tank fitting adapters, collar adapter kit, sump access covers, and flexible entry boots for sump as manufactured and designed by the piping manufacturer selected.
- B. The sumps and accessories shall be chemically comparable with products to be stored (gasoline, gasoline with 9.5% oxinol, gasoline with 5% methanol and cosolvent, gasoline with 10% ethanol, and gasoline with 20% MTBE).

- C. All joints, connections, covers, pipe and conduit entries (including angular entries) shall be liquid-tight.
- D. Sumps shall not be deformed by backfill pressure or backfilling operations.
- E. The contractor shall furnish and install liquid-tight dispenser containment sumps under the product dispensers, to prevent any leaks or spills from escaping into the environment. The dispenser sumps shall be made of non-corrosive material and shall be compatible with the product being dispensed and with the chemicals and conditions found naturally in the underground environment.
- F. Dispenser sumps shall be specifically designed for installation with Wayne dispensers. All required stabilizers for shear valves and pipe entry conduits shall be factory-furnished. All sumps shall be liquid-tight to ground and surface water.
- G. Dispenser containment sumps shall be as compatible with the piping system selected.

PART 3: EXECUTION

3.1 UPGRADE OF EXISTING UNDERGROUND FUEL TANKS - BALLASTING:

- A. During construction/upgrade, existing underground fuel tanks shall be ballasted with water. Any gasoline or fuel in an existing tank shall be removed immediately prior to beginning the upgrade of the tank (prior to removal of the cover pad and overburden). At no point after the cover pad and overburden has been removed, shall the level of liquid in a tank be lower than the level of groundwater immediately surrounding the tank. At no point shall a tank be empty overnight or unattended by the contractor when empty. All ballast water shall be removed and disposed of (as hazardous waste - disposing of the ballast material in an environmentally safe manner) prior to filling the tank with fuel.

3.2 INSTALLATION OF DOUBLE-WALL PIPING SYSTEM WITH SECONDARY CONTAINMENT:

- A. The Contractor shall install the double-wall piping system in strict accordance with manufacturer's recommended installation practices and instructions. Particular attention will be paid to connection of fittings according to manufacturer's specifications. If the piping manufacturer specifies the use of particular tools to avoid over-tightening of fittings and damage to O-rings, contractor shall obtain and use recommended tools. Hanging hardware for dispensers shall be tested for continuity by experienced and knowledgeable personnel in accordance with PEI/RP-400-02.
- B. The interstitial space of the double-wall product line shall be air tested at the pressure recommended by the manufacturer and not to exceed 10 psig and the primary product line shall be tested at 1-1/2 times the operating pressure. The test pressure shall be held for one hour. The contractor shall conduct at least two tests, one at the time of installation, and the other during system startup. The Contractor shall furnish written reports of the test results to the Contracting Officer.
- C. Based on criteria available from manufacturer, contractor shall follow allowable minimum bending radii for pipe.

3.3 INSTALLATION OF ALL-METAL FLEXIBLE CONNECTORS:

- A. All-Metal flexible connectors (flex connectors) are to be installed as indicated on the drawings.
- B. Flexible connectors shall be installed so that there is no radial stress or twist in the hose when joints are assembled. Follow manufacturer's installation instructions.

- C. Flex connectors shall be UL-listed for such application and meet the requirements of NFPA 30A for being fire-safe. Teflon-lined flex connectors will not be permitted.

3.4 INSTALLATION OF TANK FITTINGS, MANWAYS AND APPURTENANCES:

A. Requirements for Tank Fittings, Manways, and Appurtenances:

1. Contractor shall be responsible to provide proper clearance between tank shell and submerged pumps or fill tubes. Contractor shall check the tank diameter at the pump and fill pipe opening and make necessary adjustments to maintain the specified minimum clearance of six inches from the bottom of the tank.
2. When installing spill containment basins at the fill points and Stage I vapor recovery adapters, contractor shall provide a minimum of 3" and a maximum of 6" clearance between the top of the cap and bottom of the manway cover. Proper clearance shall be provided between the top of the automatic tank gauge and its cover, and the interstitial monitoring probe and its cover.
3. Pump and fill manways and/or connecting piping shall be self-supporting and shall not contact the tank. No spacing materials shall be allowed on the top of the tank.
4. All manway covers and lids will be API color-coded according to the following: Regular unleaded covers will be white with a black cross, mid-grade unleaded covers will be blue with a white cross, and high-grade (premium) will be red with a white cross. Vapor Recovery covers will be orange. Observation well covers will be white with a black triangle. If applicable to the project, used oil covers will be marked with a purple square.

3.5 TRENCHING AND PIPE CHASES: Pipe trenches must be large enough to accommodate the piping, together with sufficient spacing and backfill material to provide protection from damage that might be caused by settlement, abrasion, vibration, expansion, contraction, or foreign materials. Vapor-return piping will be separated from product piping by at least twice the largest nominal pipe diameter, with at least six inches of distance between the piping and the trench excavation walls. Trenching width shall be sufficient to maintain the clearance between the pipes and side walls as shown on the drawings and of a depth sufficient to provide the proper bed and cover, and pitch of the lines. Note that the minimum cover to finish grade over product lines in paved areas is 12 inches and 18 inches in non-paved areas. Pipe chase in the concrete or asphalt paving shall be constructed as detailed on the drawings and as located on the plot plan. The minimum spacing between adjacent pipes is twice the pipe diameter between pipes; however, piping runs shall not be layered. Piping crossover must be minimized, but where piping runs must cross, the manufacturer's crossover fittings shall be used. Piping will be installed in a manner that will facilitate testing, resist corrosion, and prevent damage and movement of system components.

3.6 SLOPING OF VENT LINES AND VAPOR RETURN PIPING

- A. A minimum slope of 1/8" per foot (sloping downward toward the tanks) is required for all underground vent and vapor return piping. No less than this minimum slope shall be used within requirements for cover over piping and depth of tanks. Only rigid FRP piping compatible with the fuel stored shall be permitted for vent and vapor return piping. Pipe cover requirements are detailed on the drawings. Piping shall be installed on pre-graded compacted bed material. No support or spacing material other than the bed and backfill will be left in contact with the piping. This method of installation should prevent the possibility of any sags or sumps which might cause a liquid trap in the lines and which will not be permitted.
- B. If a uniform minimum slope of 1/8" per foot in the vapor lines (from the dispenser islands to the storage tanks) results in the line being deeper than the tank connection, a condensate trap and thief port (which automatically evacuates any accumulated gasoline condensation) shall be installed in the line just outside the tank excavation.

3.7 BEDDING AND BACKFILL MATERIAL:

- A. Backfill around fiberglass tanks and piping shall be pea gravel and shall strictly follow manufacturer instructions and recommendations: Standard bedding and backfill material shall be a naturally-rounded aggregate, clean and free flowing, with particle size not less than 1/8" or more than 1/2" in diameter. Prior to tank installation, Contractor shall furnish the pea gravel sieve analysis from the supplier to the Contracting Officer. Backfill around tanks and piping shall strictly follow manufacturer instructions and recommendations. Backfill material sieve analysis shall be furnished to the Contracting Officer by the contractor from the supplier.
- B. Storage and Handling of Bed/Backfill Material on Site:
1. Contractor shall store these materials so as not to allow bed/backfill material to intermix with any excavated soil or other material on site. Contamination of self-compacting gravel could result in need for mechanical compaction, as the minimum/maximum particle sizes specified are critical for self-compaction.
 2. In freezing conditions, material must be kept dry and free of ice.
 3. Do not intermix gravel, stone or gravel crushing, or sand in the same excavation or connected excavations.
- C. Poor Soil Conditions/Soils Stabilization and Filter Fabric:
1. Where soils of low bearing capacity are found such as plastic clays or where sand/sand-gravel may be of a free-flowing nature, a separation is necessary between the pea gravel backfill and the soil to prevent penetration or migration.
 2. Contractor shall line the excavation completely with an inert filter fabric, as per manufacturer's recommendations.
 3. Approved manufacturers are:
 - a. DuPont "Tyvar" Style 3401 - 4 oz./Sq. Yd.
 - b. Monsanto "Bidim" C-22 - 4 oz./Sq. Yd.
 - c. Phillips "Supac" Fabric - 4.1 oz./Sq. Yd.
 - d. Celanese "Mirafi" 140 Fabric - 4.1 oz./Sq. Yd.
 4. Material shall be cut to an appropriate width for the depth and width of the excavation so that there is sufficient material to overlay the top edges of the excavation during installation. Laps of material along the excavation should be a minimum of 2 feet.
- D. Bedding of Product Lines: A minimum of six inches deep compacted bed, graded to give the proper slope of depth of pipe runs, shall be laid in the trench before pipe runs are installed. Pipe runs shall be fabricated at grade and installed and properly spaced on the completed bed. After making necessary connections of runs, branches or fittings which shall be made up in the trench, bed material should be placed back under the piping and properly compacted.

3.8 BACKFILLING OF PIPING: After satisfactory completion of required testing and observation of piping, backfilling of trenches to subgrade elevation shall be completed. A minimum of six inches of backfill shall be bedded under the piping and minimum of 18 inches of combined cover (including surface paving and backfill material) over the piping is required. Ensure that marking tape or wire (for future location of piping) has been placed in the backfill at this time.

3.9 INSTALLATION OF FUEL DISPENSING EQUIPMENT: Dispensers will be mounted on islands that are protected from damage from vehicle collisions by posts, bollards or concrete bumpers as denoted on the plans. Installation shall be in strict compliance with manufacturer's written instructions. If unusual conditions or circumstances exist which could damage or impair the system and the special protective measures required are not covered in these instructions, their installation

shall be coordinated directly with the manufacturer. Actual installation of equipment and related components shall be under direct supervision at all times to assure compliance with specified requirements. Shear valves or breakaway devices will be installed on each product line and on each vapor return line and carefully tested for functioning. Actuation must be free and unobstructed. Shear valves for the product line must be double-poppeted. Dispenser sumps shall be placed such that the sump edge sets ½ inch above the finished surface of the dispenser island. Dispensers will be securely bolted to their mounting surface according to the manufacturer's instructions to ensure proper functioning of the shear valves

3.10 INSTALLATION OF INVENTORY/LEAK DETECTION SYSTEM:

- A. Installation of Veeder-Root tank inventory control and release detection system shall be in strict accordance with manufacturer's recommendations. The Contractor shall retain the services of the nearest authorized Veeder-Root distributor/installer. Name of the nearest distributor can be obtained by contacting Veeder-Root. This distributor shall be responsible for receiving and storing equipment, helping contractor to locate the conduits as shown on the drawings and installing the entire system excluding conduits and power wiring. At the completion of the installation, the contractor and installer shall test and shall certify the entire system. This distributor shall provide warranty for his work excluding hardware failure.
- B. Programming shall be in accordance with local operational conditions and applicable regulations. The program shall include, but not limited to, tank and line tightness monitoring, tank level monitoring, interstitial monitoring, tank overfill alarms, tank low level alarms, and tank/dispenser sump monitoring. The contractor shall print a complete Veeder-Root program report and leave with the manager. Programming and operations of the Veeder-Root system shall be documented by a certified Veeder-Root technician. A TLS-450 system and data backup is also recommended at the initial startup and on a regular schedule if a USB communication port is installed on the console. The backup is possible using the USB FLASH drive provided with the 450 console.
- C. All circuits shall be run in rigid conduit. Conduit shall be sealed off and jointed in explosion proof boxes. Conductor runs between all inventory and leak detection equipment, and the Veeder-Root system shall be made with continuous conductors (no splices). Inventory and leak detection circuits shall be in separate conduits for dispenser and pump power runs.

3.11 EMERGENCY SHUT-OFF SWITCH:

- A. Install the master emergency shut-off switch inside the building at the register areas. Add additional emergency shut-off switches outside at a well-lighted location that is not less than 20 feet from the nearest dispenser nor more than 100 feet from the farthest dispenser. The switch shall be visible from all dispenser locations; if this requires more than one switch, the appropriate number of duplicate switches will be provided and installed. Each switch will be identified by an all weather sign with letters at least 1 inch high with text as shown in the drawings. Lettering shall be reflective and will be in contrasting color to sign background, and the sign will be mounted at least 5 feet above ground level. The switch shall be installed in such a manner this it is clearly visible from the dispensers and meets ADA requirements.
- B. The emergency shut-off switch shall terminate electric power to all dispensers, pumps, and dispenser control devices. Power for the illumination of all dispensing areas will not be affected by the activation of the switch. The switch shall be of such a design or installed in such a way that it cannot be reset by customers. Unless a fire alarm box or automatically self-dialing telephone is located adjacent to the emergency shut-off, activation of the emergency shut-off switch shall transmit an alarm to the fire station or 24 hour security desk or other emergency agency. Contractor shall coordinate with facility officials regarding the final location of the alarm transmittal.

3.12 SYSTEM CHECKING:

- A. In addition to normal construction observation, three formal system checks shall be conducted. The Contractor shall inform the Contracting Officer and the Architect/Engineer one week in advance of the day and time of each test. Each test shall be performed in the presence of the Contracting Officer and the Architect/Engineer. The Contractor is cautioned that all components of the system being tested shall be installed, prepared for testing, exposed and in proper operating condition for each test. All costs associated with retesting or additional visits by the Contracting Officer, Architect/Engineer or other third-party technicians shall be at the expense of the Contractor.
- B. The manufacturer's recommendations for installation, in addition to the codes and standards listed in paragraph 1.02, A of this specification shall be referenced to determine proper installation and procedures for each system check. Documentation of each test (including copies of field notes) shall be provided to Contracting Officer and the Architect/Engineer. AAFES and the Architect/Engineer assume no responsibility or liability for the consequences of any testing practice.
- C. The Contractor shall provide labors and technicians to assist the Contracting Officer and the Architect/Engineer in the system operation and testing. All testing procedures shall be conducted by the Contractor for observation by the Contracting Officer and the Architect/Engineer. At the preconstruction meeting, the Contractor will be provided a copy of the checklist used by the Contracting Officer and the Architect/Engineer for each test. The following system checks shall be conducted:
 - 1. Product/Vent Lines and Sumps. Observed for proper installation and use of materials in conformance with plans and specifications. Observation of proper line placement, bedding and slope. Pressure test of the complete piping system prior to backfilling of piping. Soap test all pipe runs including fittings and joints. Water test all dispenser and tank pump sumps.
 - 2. Final System Check: Observed for proper installation and use of materials in conformance with plans and specifications. Observation of dispenser sumps and sensors. Observation of tank pump, fill, vent and hydrostatic systems, sumps and sensors. Observation of Veeder-Root system programming and detection of sensors floats.
- D. At the end of the each system check, all results shall be noted. The Contractor shall provide copies of the manufactures certifications indicating designation as a certified installer, authorized service contractor and technician shall be provided during final system check. Copies of the technician's certifications (i.e. Veeder-Root) provided shall be from the individuals responsible for installation of the appropriate system component. Full documentation of test results, including the test procedure used (and a copy of the test procedure's third-party certification) shall be provided to the Contracting Officer and the Architect/Engineer.
- E. System checks listed above are not intended to be exhaustive checks or detailed inspections of the work. Therefore, AAFES and the Architect/Engineer assume no responsibility or liability for the completeness or proper installation of the work. The system checks listed above do not relieve the Contractor of responsibilities under this Contract or relieve him of any portion of the system warranty.

3.13 FINAL ITEMS:

- A. All product piping (including dispensers) shall be bled completely of all trapped air as submerged pumps are tested. System shall be tested for tightness and proper operation of leak detectors and impact valves. At least 300 gallons (100 gallons of each product) of fuel

shall be pumped through each nozzle of each dispenser to insure that all trapped air is purged from the product lines.

- B. After meter calibration of each dispenser, filters shall be removed and replaced.
- C. Flow restriction devices must be installed if the system is determined to dispense fuel at more than 10 gallons per minute (GPM).
- D. Projects constructed where rules require Stage I Vapor Recovery Systems to meet efficiency standards, shall be successfully tested by the contractor according to CARB Test Procedures. This project is in an Stage I area, so testing is required.
- E. Only projects in which the entire Stage II Vapor Recovery System is installed, shall have appropriate compliance testing conducted by the contractor prior to gasoline being offered for commercial sale. Such testing shall include a Pressure Decay test, Dynamic Backpressure (or liquid blockage) test, a Flow Rate Determination, and either a Liquid Removal Device Performance test (for balance systems) or Air/Liquid Ratio test or Vapor/Liquid Ratio test for vacuum assist systems. Any other testing or monitoring required by the California Air Resources Board (CARB) Executive Order for that system shall be conducted or be provided in accordance with the test procedure or monitoring described therein.

3.14 Testing:

- A. During installation and upon completion of installation, the UST system shall be tested in the presence of the Contracting Officer or his representative. This testing shall be conducted using EPA third-party and CARB certified methods as applicable. Stage I tests will include CARB TP 201.1E, and TP 201.3 In addition to any other appropriate tests for the system. Certification of successful testing will be provided by Contractor and attached to the Notification of Compliance status under USEPA regulations at 40 CFR 63, Subpart CCCC pertaining to Gasoline Dispensing Facilities (GDFS). Contractor is responsible for providing USEPA and applicable State offices notice of this. CARB testing at least 60 days prior to conducting this test. Notification will be in writing or in written electronic format (telephone voice notification is not sufficient). Contractor will provide written documentation of passing tests. As a condition of acceptance, written certification shall be furnished to the contracting officer in evidence of full compliance with requirements specified herein, including successful testing and copies of the written notice furnished to EPA.
- B. The contractor will test all containment sumps and spill buckets hydrostatically to ensure they are liquid tight in accordance with PEI RP 1200 – 12, Chapter 6.
- C. Contractor will provide a test certificate showing the test methods used, date and time of tests, and that the tests were passed.

- 3.15 TRAINING OF AAFES PERSONNEL: Contractor shall provide total 8 hours of training of AAFES employees on the operation and maintenance of all equipment and systems. Training shall not be conducted during final testing and testing of the tank system, so that the quality of instruction is not compromised. A training attendance roster shall be completed for each training session held. The roster shall indicate the training subject, training date, length of the training class, the name, phone number and signature of the instructor, the name of the company he represents, as well as the full name, office symbol and complete telephone number of each attendee. A copy of class rosters and accompanying photograph of the class attending each session and instructor will be placed in each copy of the O&M manual.

END OF SECTION

GENERAL NOTES

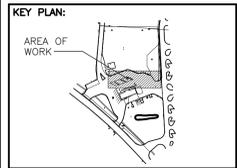
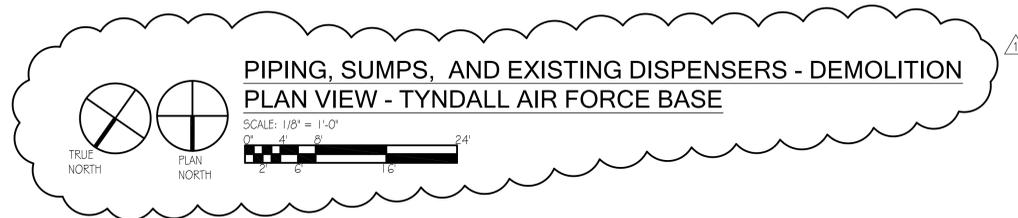
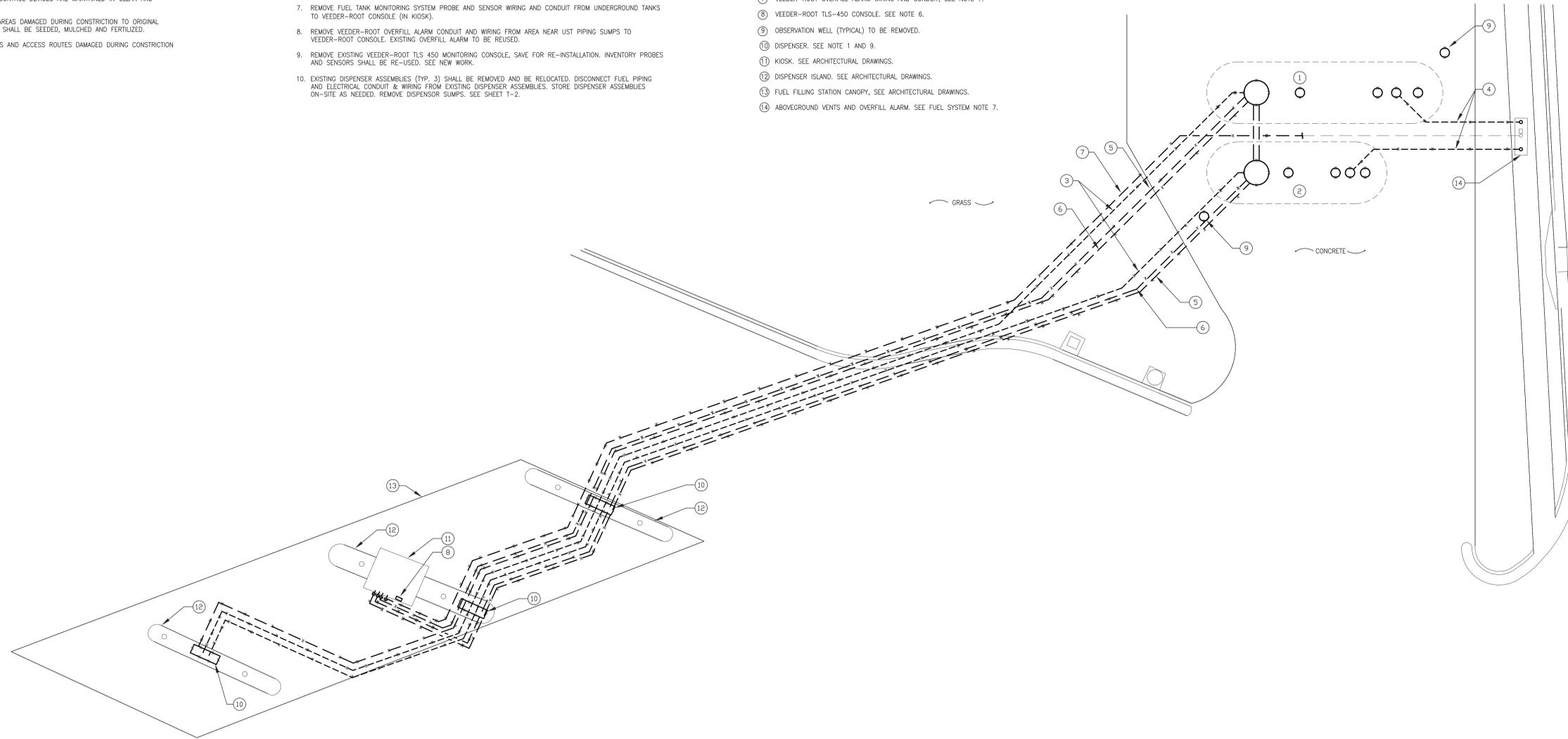
1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND EXACT LOCATION OF ALL UTILITIES BEFORE DIGGING.
2. SEE SPECIFICATIONS FOR GENERAL, PRODUCT AND EXECUTION REQUIREMENTS.
3. ACCESS SHALL BE PROVIDED TO SITE AND FACILITY AT ALL TIMES.
4. CONTRACTOR SHALL CONDUCT OPERATIONS SO AS NOT TO CREATE NUISANCE OR HAZARD TO PUBLIC OR TRAFFIC.
5. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DITCHES OR STRUCTURES DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION. ALL STORM WATER POLLUTION PREVENTION MEASURES SHALL BE IN COMPLIANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH PART VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" DURING CONSTRUCTION. CONTRACTOR SHALL INSURE ALL TRAFFIC CONTROL DEVICES ARE MAINTAINED IN CLEAN AND FUNCTIONAL CONDITION.
7. RESTORE ANY GRASSED AND LANDSCAPE AREAS DAMAGED DURING CONSTRUCTION TO ORIGINAL GRADE AND CONDITION. DISTURBED AREAS SHALL BE SEEDED, MULCHED AND FERTILIZED.
8. RESTORE ANY ROADWAYS, PAVED SURFACES AND ACCESS ROUTES DAMAGED DURING CONSTRUCTION TO ORIGINAL CONDITION.

FUEL SYSTEM NOTES

1. COORDINATE REMOVAL OF EXISTING DISPENSERS WITH CONSTRUCTION OF NEW FACILITY. WORK SHALL BE PERFORMED IN A SEQUENCE THAT MINIMIZES INTERRUPTION OF SERVICE. SEE GENERAL NOTES.
2. EXISTING UNDERGROUND FUEL TANKS TO REMAIN.
3. REMOVE UNDERGROUND FUEL PIPING FROM EACH UST PUMP/PIPING SUMP TO ALL DISPENSERS. REMOVE UNDERGROUND FUEL TANKS PIPING SUMPS, FILL ASSEMBLY, VAPOR RECOVERY/VENT PIPING, INTERSTITIAL ASSEMBLY AND OTHER TANK ACCESSORIES. EXCAVATE AREA ABOVE THE FUEL TANK AS NECESSARY FOR FUEL TANK UPGRADE AND PIPING REPLACEMENT. SEE SHEET T-4 FOR TANK DEMOLITION DETAILS.
4. REMOVE UNDERGROUND AND ABOVEGROUND VENT PIPING.
5. REMOVE EXISTING OBSERVATION WELL (TYP. 2).
6. REMOVE PUMP POWER WIRING AND CONDUIT FROM UNDERGROUND TANK TO DISTRIBUTION PANEL (IN KIOSK). SEE ELECTRICAL.
7. REMOVE FUEL TANK MONITORING SYSTEM PROBE AND SENSOR WIRING AND CONDUIT FROM UNDERGROUND TANKS TO VEEDER-ROOT CONSOLE (IN KIOSK).
8. REMOVE VEEDER-ROOT OVERFILL ALARM CONDUIT AND WIRING FROM AREA NEAR UST PIPING SUMPS TO VEEDER-ROOT CONSOLE. EXISTING OVERFILL ALARM TO BE REUSED.
9. REMOVE EXISTING VEEDER-ROOT TLS 450 MONITORING CONSOLE, SAVE FOR RE-INSTALLATION. INVENTORY PROBES AND SENSORS SHALL BE RE-USED. SEE NEW WORK.
10. EXISTING DISPENSER ASSEMBLIES (TYP. 3) SHALL BE REMOVED AND BE RELOCATED. DISCONNECT FUEL PIPING AND ELECTRICAL CONDUIT & WIRING FROM EXISTING DISPENSER ASSEMBLIES. STORE DISPENSER ASSEMBLIES ON-SITE AS NEEDED. REMOVE DISPENSER SUMPS. SEE SHEET T-2.

KEY NOTES

- ① EXISTING 20,000 GALLON (REGULAR) DOUBLEWALLED FIBERGLASS UNDERGROUND GASOLINE STORAGE TANK. SEE FUEL SYSTEM NOTE 2 & 3.
- ② EXISTING 15,000 GALLON (PREMIUM) DOUBLEWALLED FIBERGLASS UNDERGROUND GASOLINE STORAGE TANK. SEE FUEL SYSTEM NOTE 2 & 3.
- ③ UNDERGROUND FIBERGLASS PRIMARY FUEL PIPING AND SECONDARY CONTAINMENT (2" AMERON LXX). SEE FUEL SYSTEM NOTE 3.
- ④ UNDERGROUND VENT PIPING. SEE FUEL SYSTEM NOTE 4.
- ⑤ PUMP POWER WIRING AND GALVANIZED RIGID CONDUIT. SEE FUEL SYSTEM NOTE 7.
- ⑥ VEEDER-ROOT PROBE AND SENSOR WIRING IN GALVANIZED RIGID CONDUIT. SEE FUEL SYSTEM NOTE 6.
- ⑦ VEEDER-ROOT OVERFILL ALARM WIRING AND CONDUIT. SEE NOTE 7.
- ⑧ VEEDER-ROOT TLS-450 CONSOLE. SEE NOTE 6.
- ⑨ OBSERVATION WELL (TYPICAL) TO BE REMOVED.
- ⑩ DISPENSER. SEE NOTE 1 AND 9.
- ⑪ KIOSK. SEE ARCHITECTURAL DRAWINGS.
- ⑫ DISPENSER ISLAND. SEE ARCHITECTURAL DRAWINGS.
- ⑬ FUEL FILLING STATION CANOPY. SEE ARCHITECTURAL DRAWINGS.
- ⑭ ABOVEGROUND VENTS AND OVERFILL ALARM. SEE FUEL SYSTEM NOTE 7.



DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL

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PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE / ARCHITECTS INC.
MONTGOMERY, ALABAMA

DESIGN BY:
JGL
CHECKED BY:
JGL

RECOMMENDED: DATE
APPROVED: DATE

ARMY & AIR FORCE EXCHANGE SERVICE
DEPARTMENTS OF THE ARMY & AIR FORCE

RE-C
REAL ESTATE DIRECTORATE

PROJECT:
TYNDALL AFB
CONSTRUCT SHOPPETTE/
FOOD/CLASS6/GAS

TYNDALL, AFB
FLORIDA

DRAWING TITLE:
PRODUCT PIPING
AND DISPENSER
DEMOLITION
PLAN VIEW

DATE: 18 JANUARY 2012 SCALE: 1/8" = 1'-0"
DRAWING PROJECT NO. 0941-09-000003 SHEET: T-1

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND EXACT LOCATION OF ALL UTILITIES BEFORE DIGGING
2. SEE SPECIFICATIONS FOR GENERAL, PRODUCT, AND EXECUTION REQUIREMENTS
3. ACCESS SHALL BE PROVIDED TO SITE AND FACILITY AT ALL TIMES
4. CONTRACTOR SHALL CONDUCT OPERATIONS SO AS NOT TO CREATE NUISANCE OR HAZARD TO PUBLIC OR TRAFFIC
5. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DITCHES OR STRUCTURES DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION. ALL STORM WATER POLLUTION PREVENTION MEASURES SHALL BE IN COMPLIANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REQUIREMENTS
6. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH PART VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" DURING CONSTRUCTION. CONTRACTOR SHALL INSURE ALL TRAFFIC CONTROL DEVICES ARE MAINTAINED IN CLEAN AND FUNCTIONAL CONDITION
7. RESTORE ANY GRASSED AND LANDSCAPE AREAS DAMAGED DURING CONSTRUCTION TO ORIGINAL GRADE AND CONDITION. DISTURBED AREAS SHALL BE SEEDED, MULCHED AND FERTILIZED
8. RESTORE ANY ROADWAYS, PAVED SURFACES AND ACCESS ROUTES DAMAGED DURING CONSTRUCTION TO ORIGINAL CONDITION
9. ALL PRODUCTS REGARDING THE PETROLEUM SYSTEM SHALL BE NEW UNLESS OTHERWISE NOTED

FUEL SYSTEM NOTES

1. EXISTING UNDERGROUND FUEL TANKS TO REMAIN. PROVIDE NEW PIPING, SUMPS, PRODUCT PIPING, SECONDARY CONTAINMENT PIPING, FILL/SPILL BUCKETS, OVERFILL PREVENTION VALVE, TANK INTERSTITIAL RISER, VAPOR RECOVERY RISER AND ALL ASSOCIATED SURFACE MANHOLES. SEE SHEET T-5 FOR TANK DETAILS.
2. INSTALL NEW FUEL DISPENSER ASSEMBLIES, TYP. 3 (FURNISHED BY AAFES). RELOCATE EXISTING FUEL DISPENSER ASSEMBLIES (TYP. 3) FROM EXISTING FACILITY TO NEW FACILITY (SAME GEOGRAPHIC LOCATION). PROVIDE NEW STEEL ISLAND FORM (TYP. 6). SEE SHEET T-6.
3. PROVIDE NEW DISPENSER SUMP ASSEMBLIES.
4. PROVIDE NEW FUEL SYSTEM PIPING (FUEL SUPPLY) AND SECONDARY CONTAINMENT PIPING FROM FUEL TANKS TO DISPENSER ASSEMBLIES.
5. PROVIDE NEW DISPENSER GUARD ASSEMBLY (TYP. 12). SEE DETAIL SHEET T-6.
6. PROVIDE NEW "EMERGENCY INSTRUCTIONS" WARNING SIGNS, SEE "UNATTENDED FUELING NOTES" THIS SHEET.
7. INSTALL VEEDER-ROOT TLS 450 CONSOLE SALVAGED DURING DEMOLITION IN NEW BUILDING. CONSOLE MAY BE LOCATED DIFFERENTLY THAN SHOWN. COORDINATE WITH ARCHITECTURAL. SEE ELECTRICAL FOR POWER WIRING AND CONDUIT FROM DISTRIBUTION PANEL TO THE RELOCATED CONSOLE. PROVIDE CONDUIT AND WIRING FROM THE CONSOLE TO THE OVERFILL ALARM, AND TO THE PROBES AND SENSORS (POWER WIRING AND SENSOR WIRING SHALL NOT BE INSTALLED IN THE SAME CONDUIT).
8. PROVIDE NEW SURFACE MANHOLE OVER PIPING SUMPS. SEE SHEET T-5.
9. PROVIDE NEW OBSERVATION WELLS.

KEY NOTES

- ① EXISTING 20,000 GALLON, DOUBLEWALLED FIBERGLASS UNDERGROUND FUEL STORAGE TANK (CONTAINS REGULAR UNLEADED FUEL). SEE FUEL SYSTEM NOTES REGARDING UPGRADE.
- ② EXISTING 15,000 GALLON, DOUBLEWALLED FIBERGLASS UNDERGROUND FUEL STORAGE TANK (CONTAINS PREMIUM UNLEADED FUEL). SEE FUEL SYSTEM NOTES REGARDING UPGRADE.
- ③ NEW DISPENSER (TYP. 3). SEE FUEL SYSTEM NOTE 2.
- ④ RELOCATED DISPENSER (TYP. 3). SEE FUEL SYSTEM NOTE 2.
- ⑤ NEW STEEL ISLAND FORM (TYP. 6). SEE FUEL SYSTEM NOTE 2.
- ⑥ NEW 2" FIBERGLASS FUEL PIPING IN 3" FIBERGLASS SECONDARY CONTAINMENT TO DISPENSERS. SEE FUEL SYSTEM NOTE 3.
- ⑦ NEW PUMP/PIPING SUMPS AND SURFACE MANHOLES. SEE FUEL SYSTEM NOTE 1 AND 8.
- ⑧ NEW TANK VENTS AND EXISTING (RELOCATED) OVERFILL ALARM.
- ⑨ FUEL FILLING STATION CANOPY SUPPORT COLUMN (TYP. 12). SEE ARCHITECTURAL DRAWINGS.
- ⑩ FUEL FILLING STATION CANOPY OVERHEAD. SEE ARCHITECTURAL DRAWINGS.
- ⑪ CONCRETE PAVEMENT UNDER CANOPY. SEE ARCHITECTURAL DRAWINGS.
- ⑫ EXPANSION JOINT. SEE ARCHITECTURAL DRAWINGS.
- ⑬ NEW DISPENSER GUARD ASSEMBLY (TYP. 12). SEE FUEL SYSTEM NOTE 5.
- ⑭ CONCRETE ISLAND EXPANSION JOINT. SEE SHEET T-6.
- ⑮ NEW OBSERVATION WELL (TYP. 2).
- ⑯ NEW EMERGENCY STOP BUTTON AND SIGNAGE TYPICAL, EACH DISPENSER ISLAND, FRONT OF STORE, AND INTERIOR MAIN CASHIER STATION.
- ⑰ RELOCATED VEEDER-ROOT TLS 450 CONSOLE. SEE FUEL SYSTEM NOTE 7.

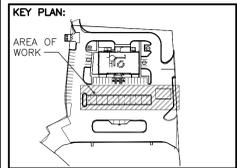
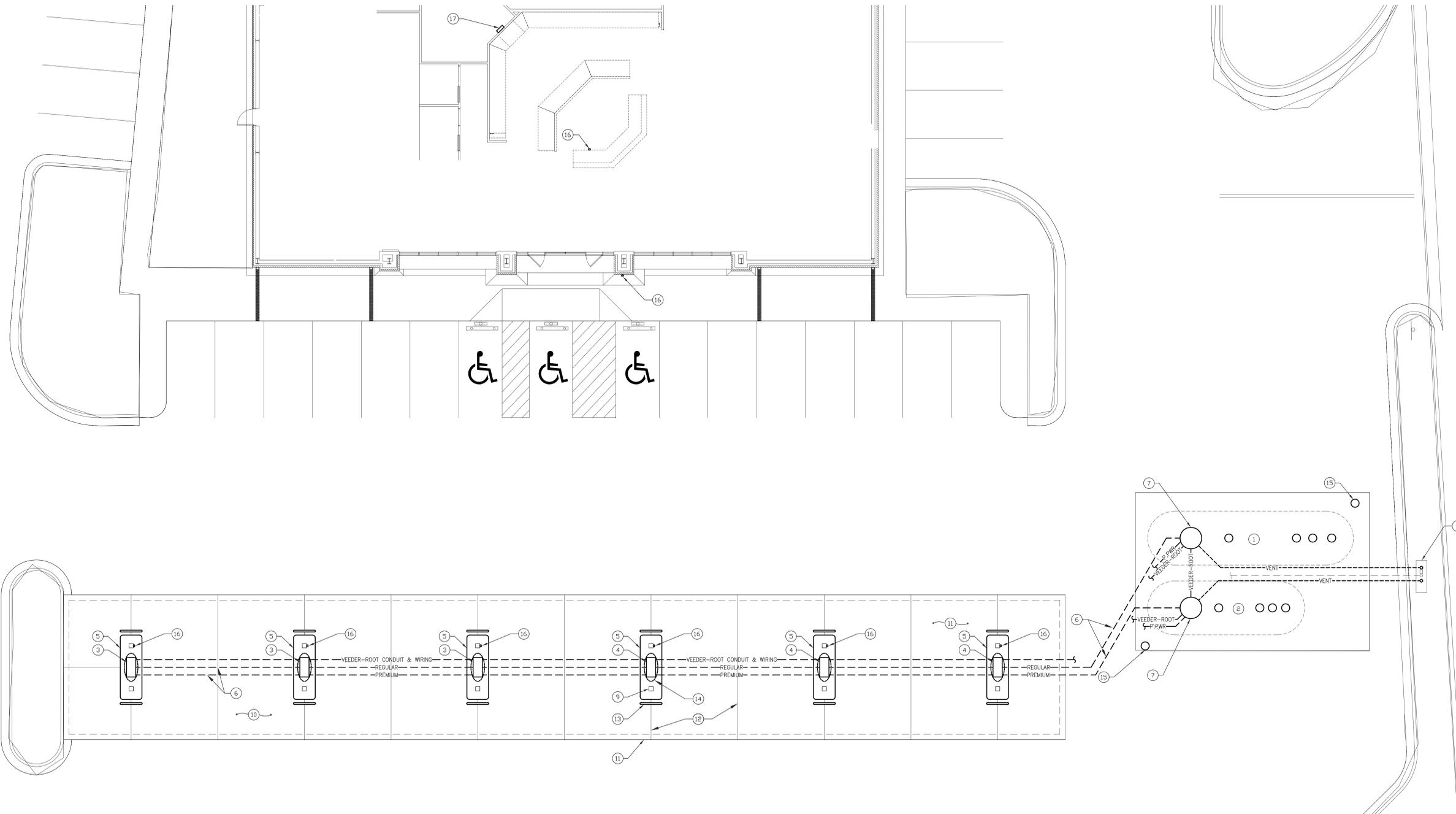
UNATTENDED FUELING NOTES:

OPERATING INSTRUCTIONS SHALL BE CONSPICUOUSLY POSTED IN THE DISPENSING AREA. THE INSTRUCTIONS SHALL INCLUDE LOCATION OF EMERGENCY CONTROLS AND THE REQUIREMENT THAT THE USER STAY OUTSIDE THE VEHICLE AND IN VIEW OF THE FUELING NOZZLE DURING DISPENSING.

WARNING SIGNS SPECIFIED "EMERGENCY INSTRUCTIONS" SHALL BE CONSPICUOUSLY POSTED IN THE DISPENSER AREA ADJACENT TO EMERGENCY STOP BUTTONS (TYP. 4). THE INSTRUCTIONS SHALL INCORPORATE THE FOLLOWING OR EQUIVALENT WORDING:

EMERGENCY INSTRUCTIONS
IN CASE OF FIRE OR SPILL:
(1) USE EMERGENCY STOP BUTTON.
(2) REPORT ACCIDENT BY CALLING 911.
(3) REPORT LOCATION 4310.

NOTE:
 ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.



DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	Δ MODIFIED PER OWNER'S COMMENTS	JGL

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PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE /
 ARCHITECTS INC.
 MONTGOMERY, ALABAMA

DESIGN BY:
 JGL
 CHECKED BY:
 JGL

RECOMMENDED: DATE
 APPROVED: DATE

ARMY & AIR FORCE EXCHANGE SERVICE
 DEPARTMENTS OF THE ARMY & AIR FORCE

RE-C
 REAL ESTATE DIRECTORATE

PROJECT:
 TYNDALL AFB
 CONSTRUCT SHOPPETTE/
 FOOD/CLASS6/GAS

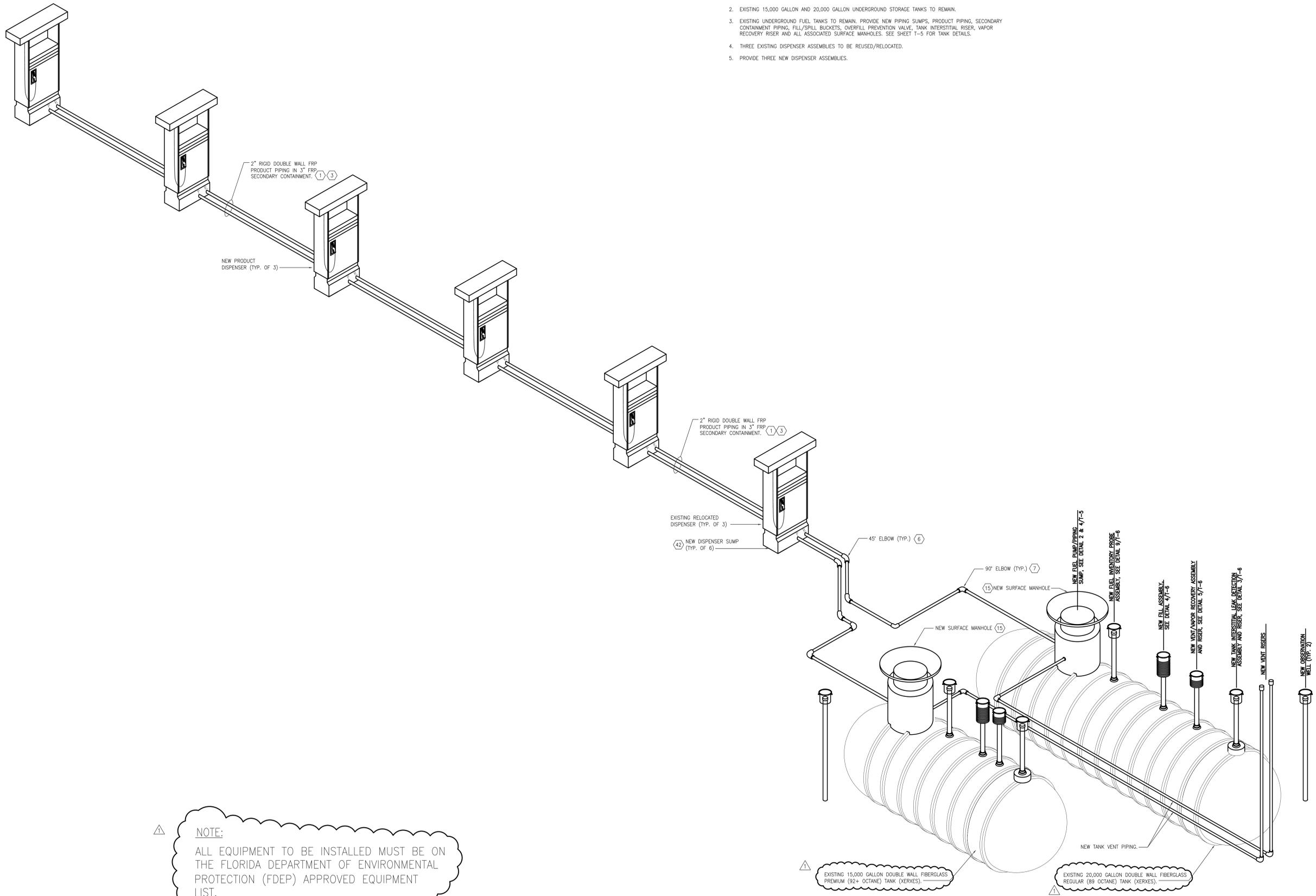
TYNDALL, AFB
 FLORIDA

DRAWING TITLE:
 FUEL STORAGE SYSTEM
 NEW WORK -
 PLAN VIEW

DATE: 18 JANUARY 2012 SCALE: 1/8" = 1'-0" SHEET: T-2
 DRAWING PROJECT NO. 0941-09-000003

FUEL SYSTEM NOTES

1. SEE SPECIFICATIONS FOR GENERAL PRODUCT AND EXECUTION REQUIREMENTS.
2. EXISTING 15,000 GALLON AND 20,000 GALLON UNDERGROUND STORAGE TANKS TO REMAIN.
3. EXISTING UNDERGROUND FUEL TANKS TO REMAIN. PROVIDE NEW PIPING, SUMPS, PRODUCT PIPING, SECONDARY CONTAINMENT PIPING, FILL/SPILL BUCKETS, OVERFILL PREVENTION VALVE, TANK INTERSTITIAL RISER, VAPOR RECOVERY RISER AND ALL ASSOCIATED SURFACE MANHOLES. SEE SHEET T-5 FOR TANK DETAILS.
4. THREE EXISTING DISPENSER ASSEMBLIES TO BE REUSED/RELOCATED.
5. PROVIDE THREE NEW DISPENSER ASSEMBLIES.



NOTE:
ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL

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PWBA PROJECT #290507



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MONTGOMERY, ALABAMA

DESIGN BY:
JGL
CHECKED BY:
JGL

RECOMMENDED: DATE
APPROVED: DATE

ARMY & AIR FORCE EXCHANGE SERVICE
DEPARTMENTS OF THE ARMY & AIR FORCE

RE-C
REAL ESTATE DIRECTORATE

PROJECT:
TYNDALL AFB
CONSTRUCT SHOPPETTE/
FOOD/CLASS6/GAS

TYNDALL, AFB
FLORIDA

DRAWING TITLE:
PETROLEUM PIPING
ISOMETRIC

DATE:	SCALE:	SHEET:
18 JANUARY 2012	NONE	T-3
DRAWING PROJECT NO. 0941-09-000003		

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
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PWBA PROJECT #290507



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MONTGOMERY, ALABAMA

DESIGN BY: JGL
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RECOMMENDED: _____ DATE _____
APPROVED: _____ DATE _____

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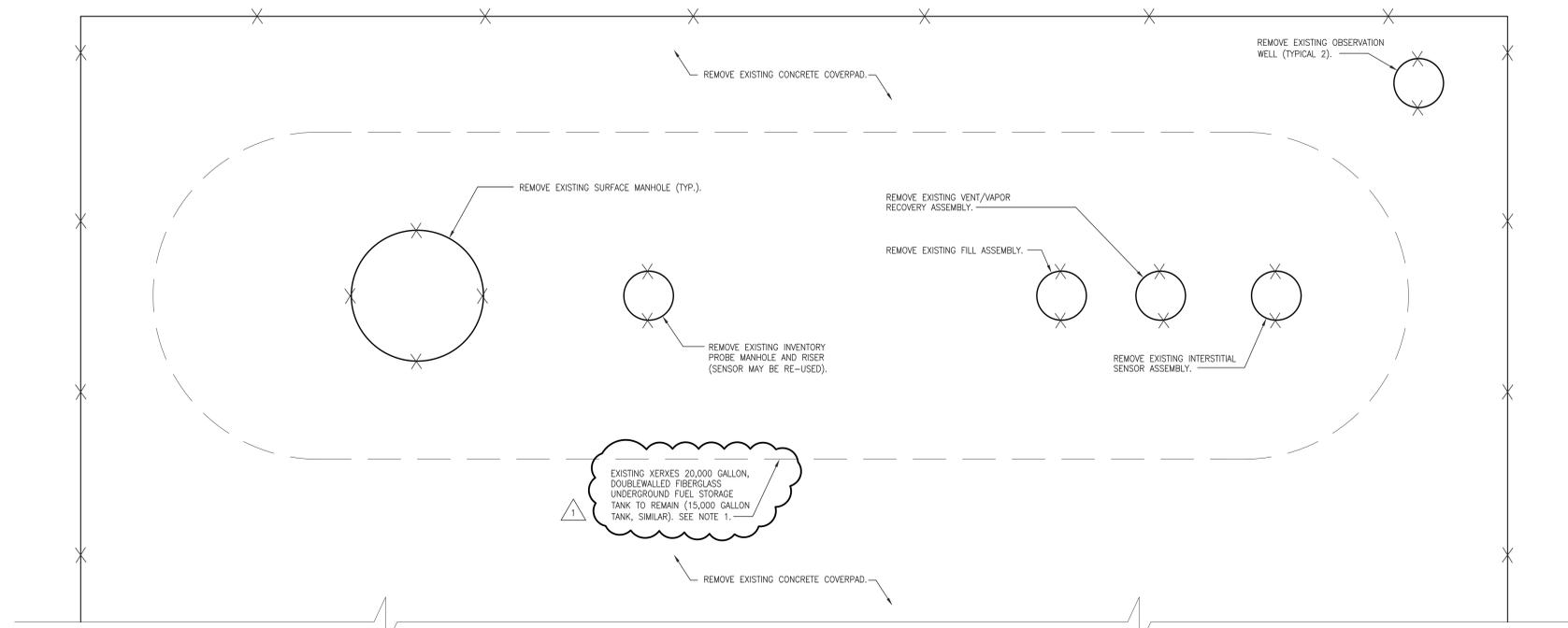
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PROJECT: TYNDALL AFB CONSTRUCT SHOPPETTE/ FOOD/CLASS6/GAS

TYNDALL, AFB FLORIDA

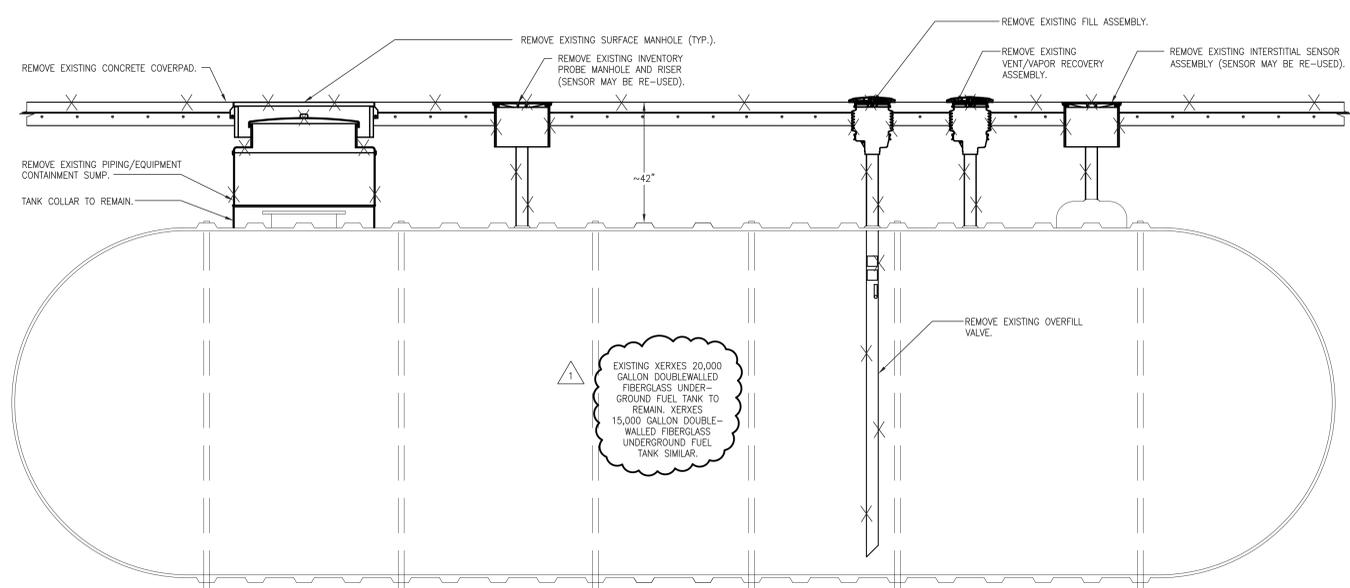
DRAWING TITLE:
FUEL STORAGE TANK DEMOLITION DETAILS

DATE: 18 JANUARY 2012 AS NOTED	SCALE: AS NOTED	SHEET: T-4
DRAWING PROJECT NO. 0941-09-000003		

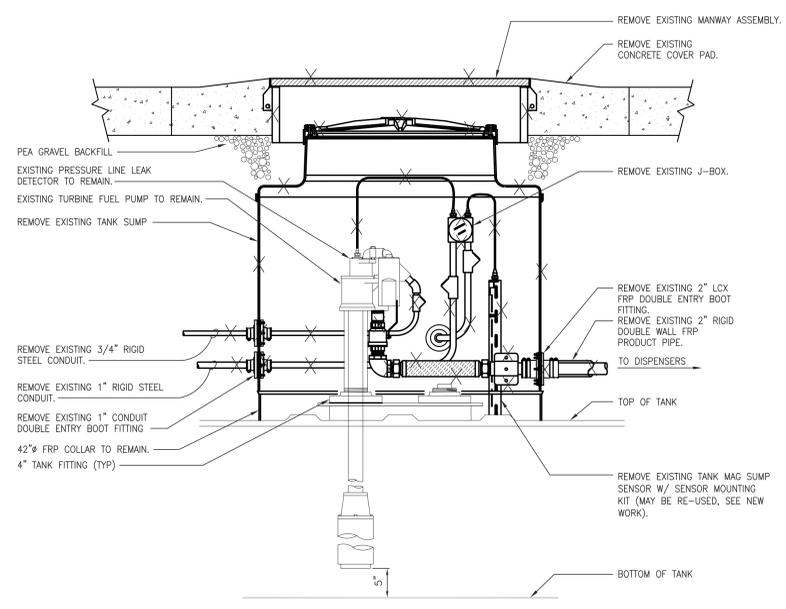


- NOTES:
1. PERFORM SAME UPGRADE TO THE EXISTING 15,000 GALLON "PREMIUM" XERKES DOUBLEDWALLED FIBERGLASS UNDERGROUND FUEL TANK.
 2. EXERCISE EXTREME CAUTION DURING THE UPGRADE OF THE UNDERGROUND FUEL TANKS TO PREVENT UPLIFT/DISPLACEMENT OF THE TANKS DUE TO THE HIGH WATER TABLE. DO NOT ALLOW THE LIQUID LEVEL IN EITHER TANK TO DROP BELOW 75%.
 3. EXERCISE EXTREME CAUTION DURING THE UPGRADE OF THE TANKS TO PREVENT THE INTRUSION OF GROUNDWATER OR RAINWATER INTO THE TANKS.

1 UNDERGROUND FUEL TANK DEMOLITION -- TOP VIEW
SCALE: 1/2" = 1'-0"



2 UNDERGROUND FUEL TANK DEMOLITION -- SIDE VIEW
SCALE: 1/2" = 1'-0"



3 PIPING CONTAINMENT SUMP DEMOLITION -- SIDE VIEW
SCALE: 2" = 1'-0"

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL

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MONTGOMERY, ALABAMA

DESIGN BY: JGL
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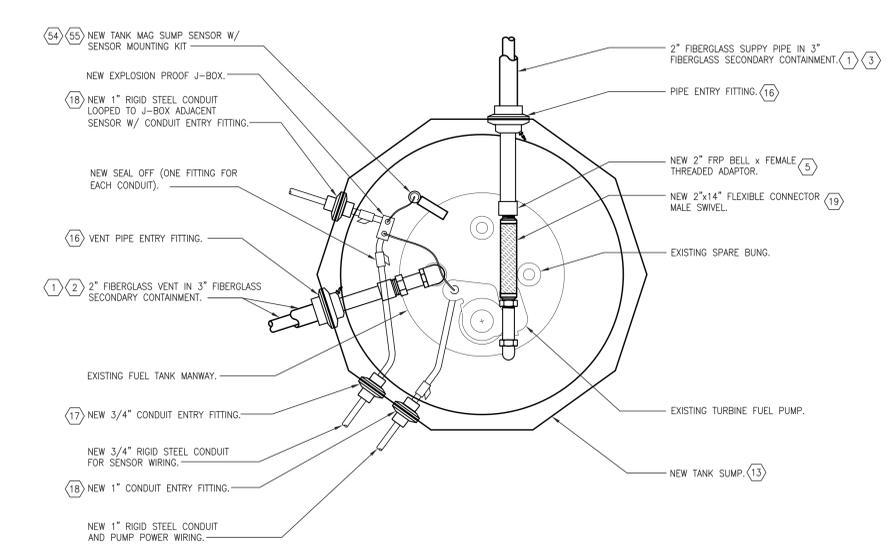
RE-C
REAL ESTATE DIRECTORATE

PROJECT: TYNDALL AFB CONSTRUCT SHOPPETTE/FOOD/CLASS6/GAS

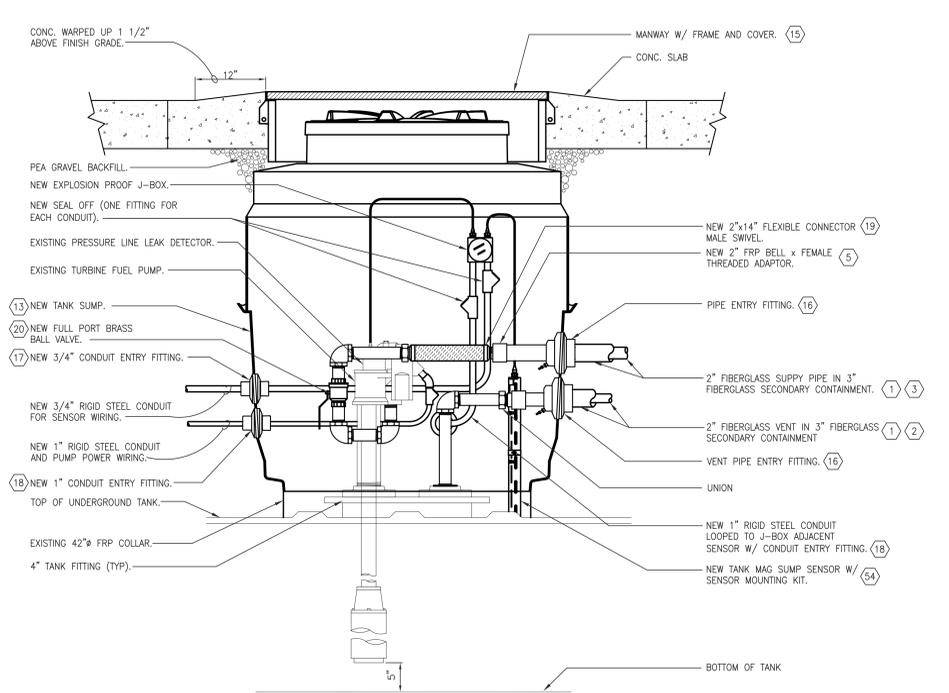
TYNDALL, AFB FLORIDA

DRAWING TITLE:
FUEL STORAGE TANK NEW WORK DETAILS

DATE:	SCALE:	SHEET:
18 JANUARY 2012 AS NOTED	AS NOTED	T-5
DRAWING PROJECT NO. 0941-09-00003		

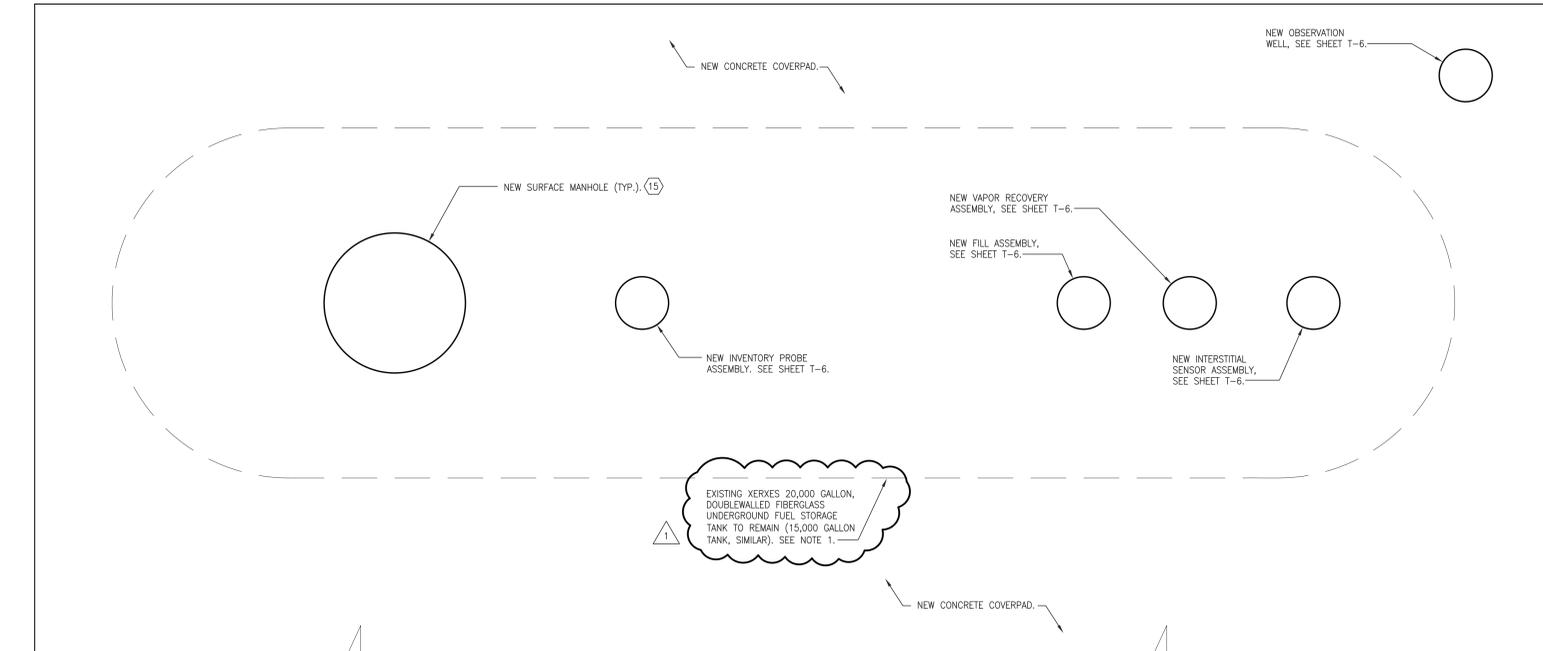


2 PIPING CONTAINMENT SUMP NEW WORK -- TOP VIEW
T-5 SCALE: 2" = 1'-0"



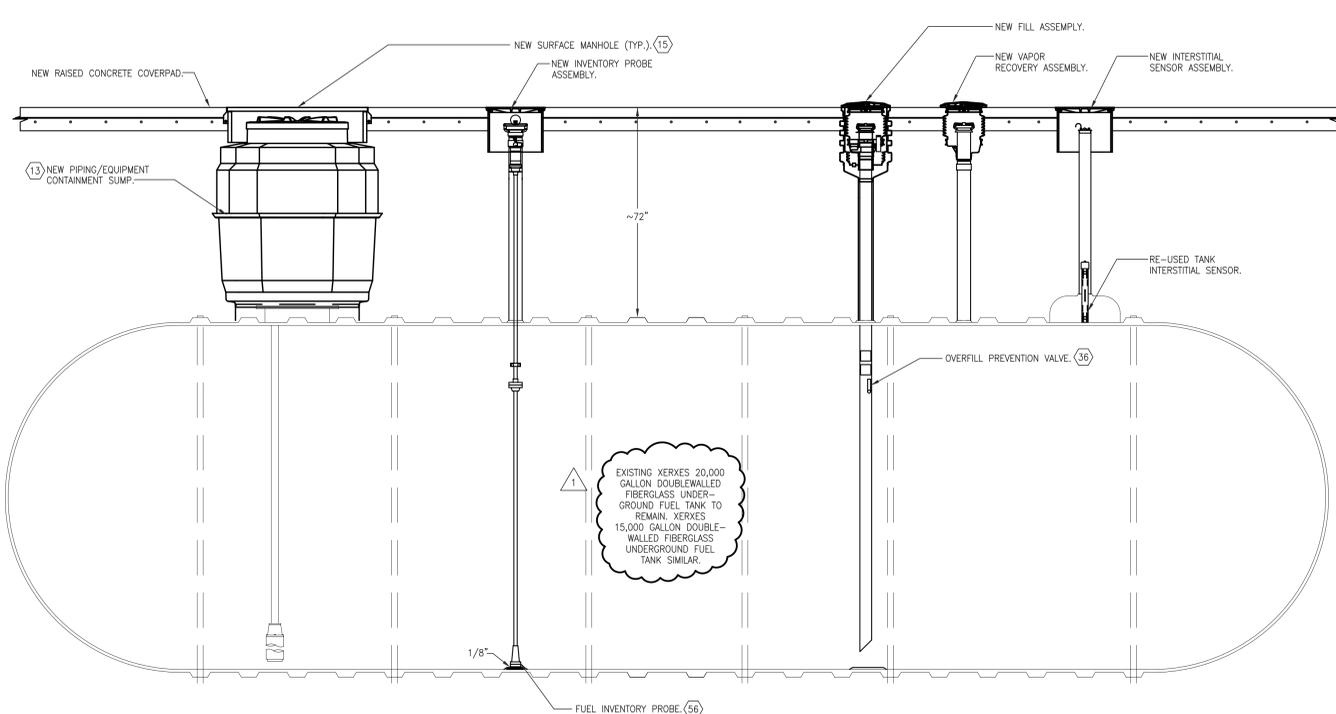
- NOTES:
1. NEW PRODUCT PIPING AND ELECTRICAL CONDUIT SHALL ENTER SUMP NO MORE THAN 10' FROM PERPENDICULAR (90°) TO SUMP WALL.
 2. REMOVE DIRT, DEBRIS AND LIQUID FROM PIPING SUMP PRIOR TO PROJECT COMPLETION.
 3. BOND NEW TANK SUMP TO EXISTING COLLER. PREPARE MATING SURFACE CAREFULLY AND THOROUGHLY, SEE SUMP AND TANK MANUFACTURER INSTRUCTIONS. JOINT MUST BE WATER TIGHT.

4 PIPING CONTAINMENT SUMP NEW WORK -- SIDE VIEW
T-5 SCALE: 2" = 1'-0"



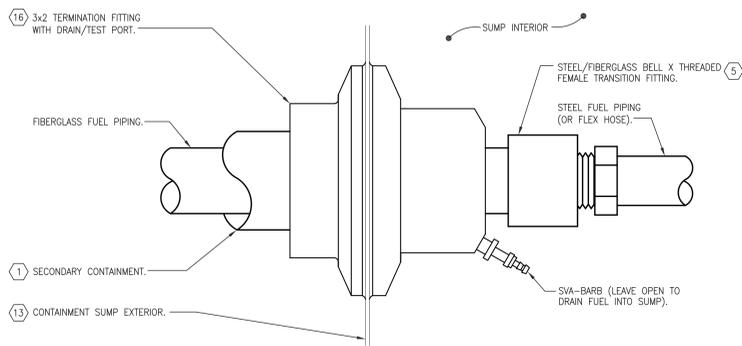
- NOTES:
1. PERFORM SAME UPGRADE TO THE EXISTING 15,000 GALLON "PREMIUM" XERKES DOUBLEWALLED FIBERGLASS UNDERGROUND FUEL TANK.
 2. EXERCISE EXTREME CAUTION DURING THE UPGRADE OF THE UNDERGROUND FUEL TANKS TO PREVENT UPLIFT/DISPLACEMENT OF THE TANKS DUE TO THE HIGH WATER TABLE. DO NOT ALLOW THE LIQUID LEVEL IN EITHER TANK TO DROP BELOW 75%.
 3. EXERCISE EXTREME CAUTION DURING THE UPGRADE OF THE TANKS TO PREVENT THE INTRUSION OF GROUNDWATER OR RAINWATER INTO THE TANKS.

1 UNDERGROUND FUEL TANK NEW WORK -- TOP VIEW
T-5 SCALE: 1/2" = 1'-0"

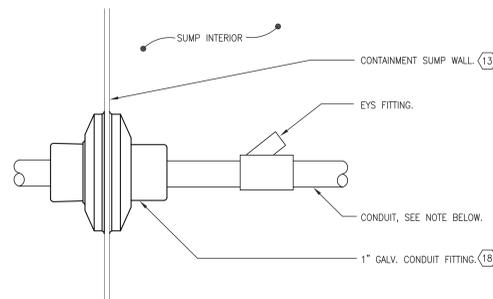


3 UNDERGROUND FUEL TANK NEW WORK -- SIDE VIEW
T-5 SCALE: 1/2" = 1'-0"

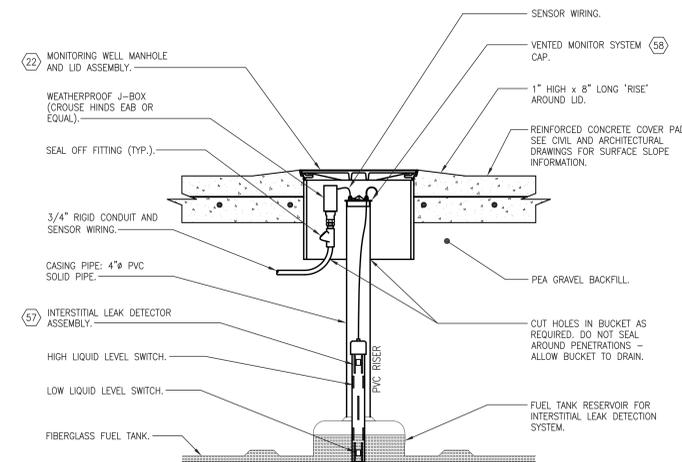
NOTE:
ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.



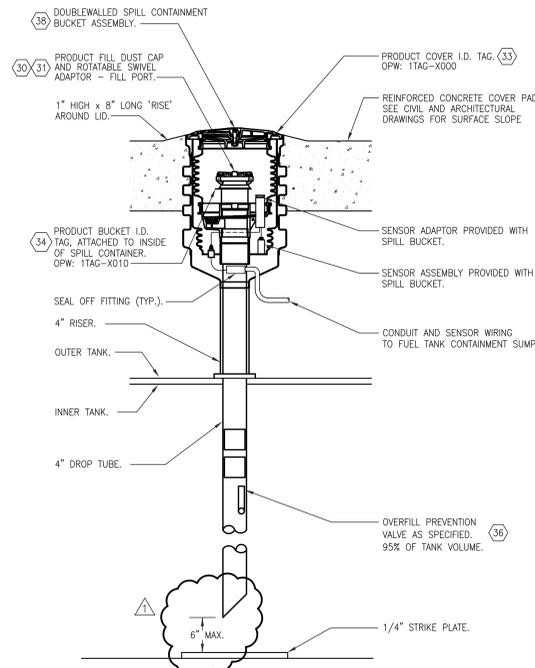
1 DETAIL - PIPE ENTRY INTO SUMP
T-6 SCALE: NOT TO SCALE



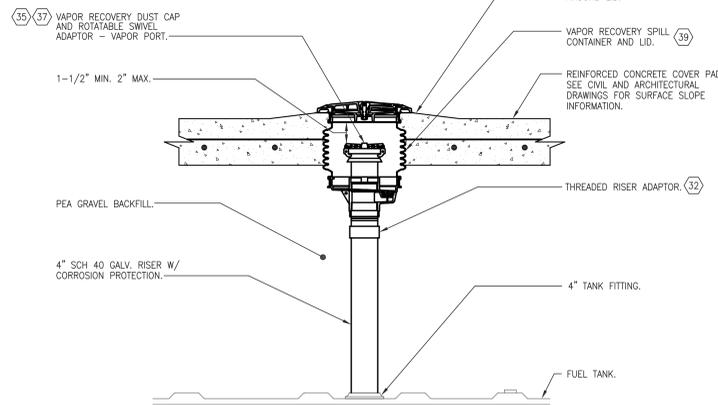
2 DETAIL - CONDUIT ENTRY INTO SUMP
T-6 SCALE: NOT TO SCALE



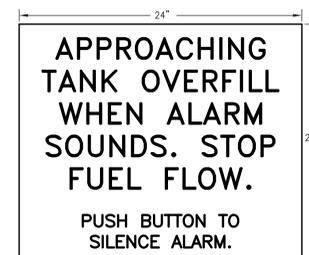
3 DETAIL - INTERSTITIAL MONITOR
T-6 SCALE: NOT TO SCALE



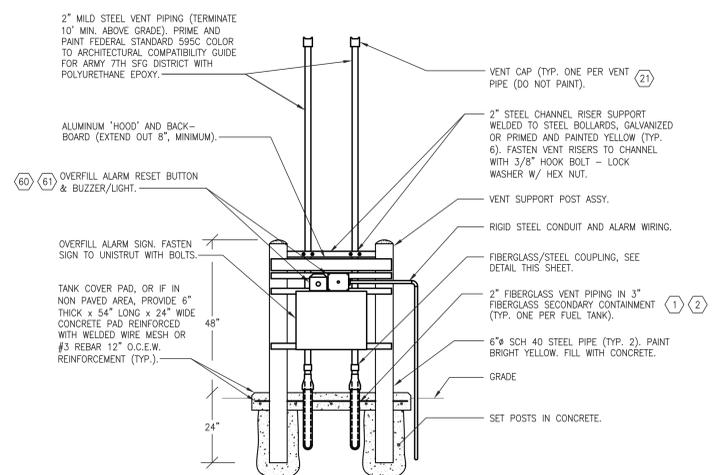
4 DETAIL - DOUBLEWALLED FILL ASSEMBLY
T-6 SCALE: NOT TO SCALE



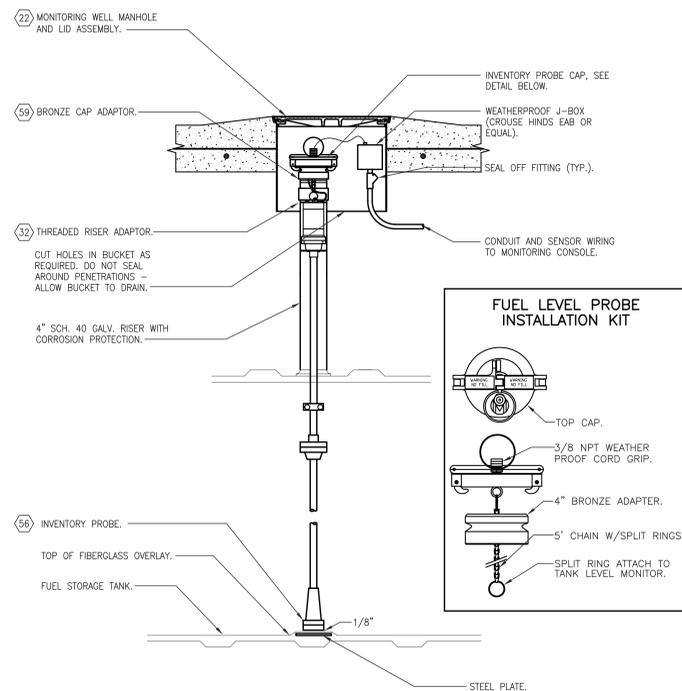
5 DETAIL - VAPOR RECOVERY
T-6 NOT TO SCALE



6 DETAIL - OVERFILL ALARM SIGN
T-6 NOT TO SCALE

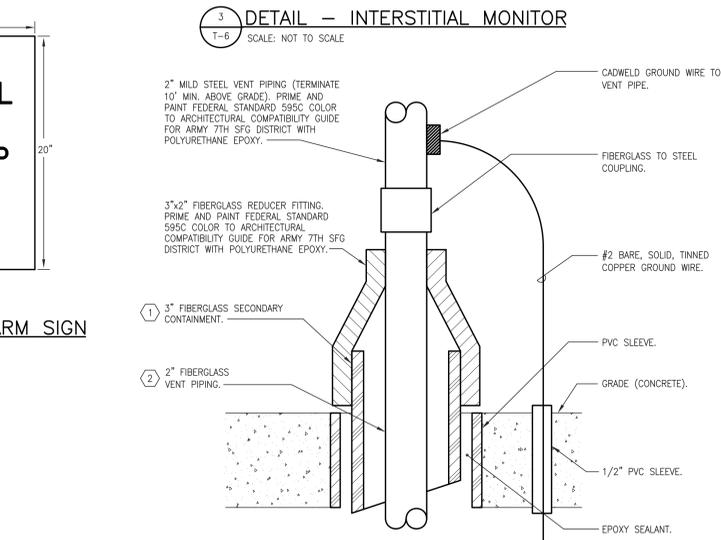


8 DETAIL - VENT PIPING/OVERFILL ALARM & SIGN SUPPORT ASSEMBLY
T-6 SCALE: NOT TO SCALE

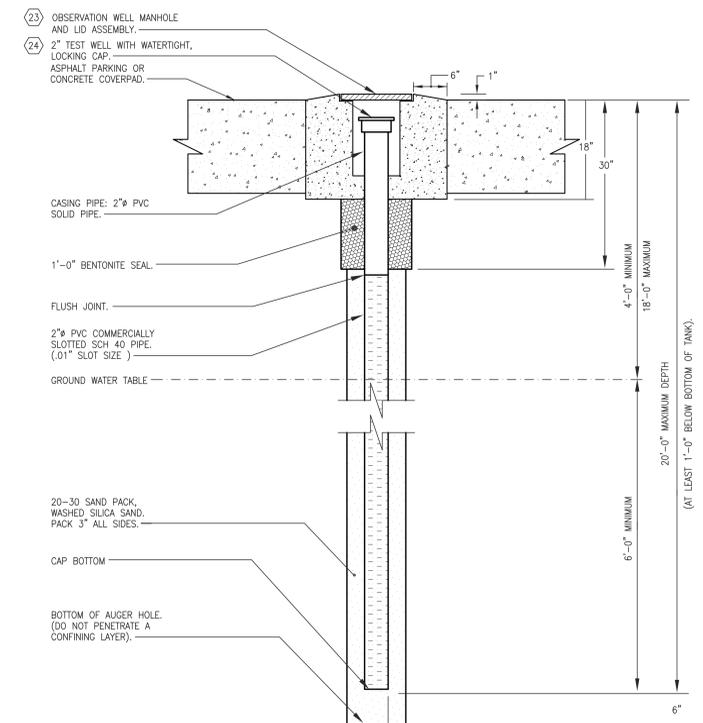


9 DETAIL - FUEL INVENTORY PROBE ASSEMBLY
T-6 NOT TO SCALE

NOTE:
ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.



7 DETAIL - VENT PIPING SECONDARY CONTAINMENT REDUCER
T-6 SCALE: NOT TO SCALE



10 DETAIL - OBSERVATION WELL
T-6 SCALE: NOT TO SCALE

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JG
09/05/12	MODIFIED PER OWNER'S COMMENTS	JG



DESIGN BY: JGL
CHECKED BY: JGL

RECOMMENDED: DATE
APPROVED: DATE

DATE: 18 JANUARY 2012 SCALE: NONE SHEET: T-6
DRAWING PROJECT NO. 0941-09-000003

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL

JCA
CONSULTING ENGINEERS
Johnson, Spellman & Associates, Inc.
6911 Peachtree Industrial Boulevard, Building 700,
Norcross, Georgia 30092
Phone (770) 447-4551 Fax (770) 246-9042
www.jsa.com
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PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE / ARCHITECTS INC.
MONTGOMERY, ALABAMA

DESIGN BY:
JGL
CHECKED BY:
JGL

RECOMMENDED: DATE
APPROVED: DATE

ARMY & AIR FORCE EXCHANGE SERVICE
DEPARTMENTS OF THE ARMY & AIR FORCE

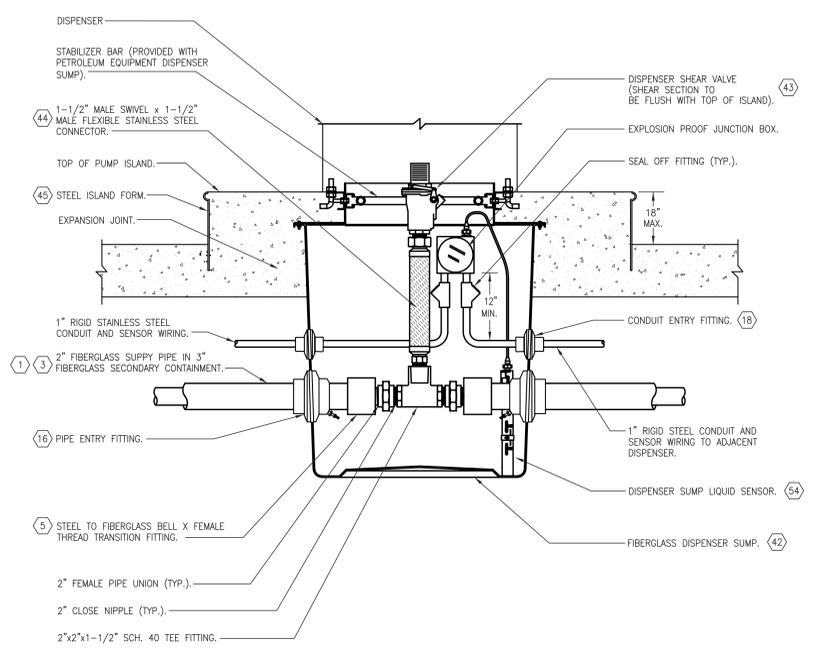
RE-C
REAL ESTATE DIRECTORATE

PROJECT:
TYNDALL AFB
CONSTRUCT SHOPPETTE/
FOOD/CLASS6/GAS

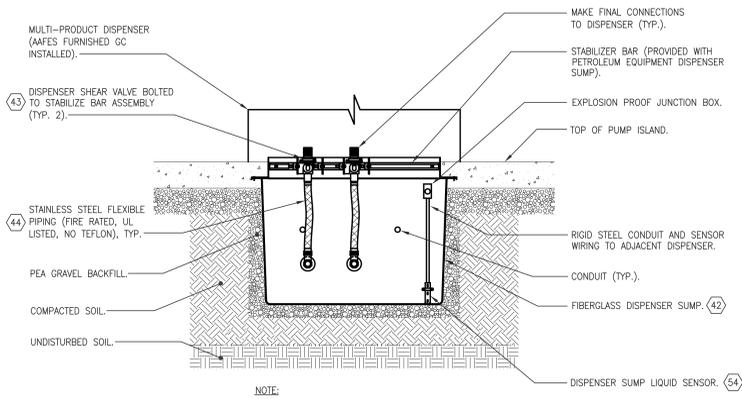
TYNDALL, AFB
FLORIDA

DRAWING TITLE:
FUEL STORAGE SYSTEM
MISCELLANEOUS
DETAILS

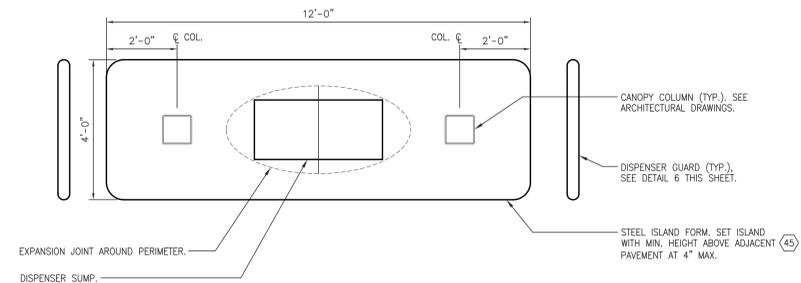
DATE: 18 JANUARY 2012 SCALE: NONE SHEET: T-7
DRAWING PROJECT NO. 0941-09-000003



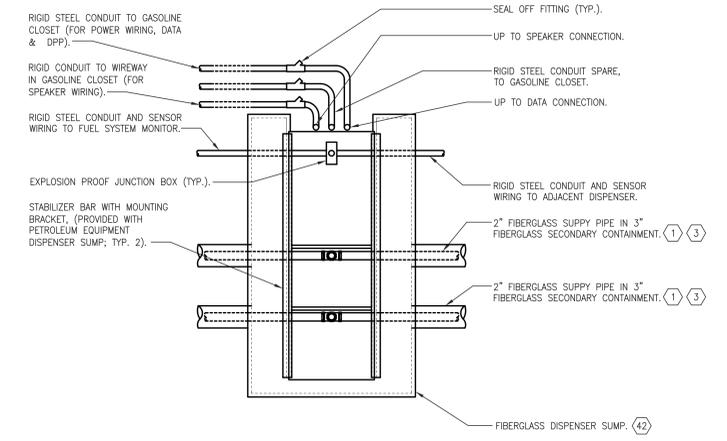
1 DETAIL - DISPENSER SUMP PIPING LAYOUT - ELEVATION
T-7 NOT TO SCALE



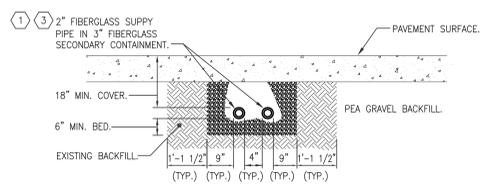
2 DETAIL - SIDE VIEW
T-7 NOT TO SCALE



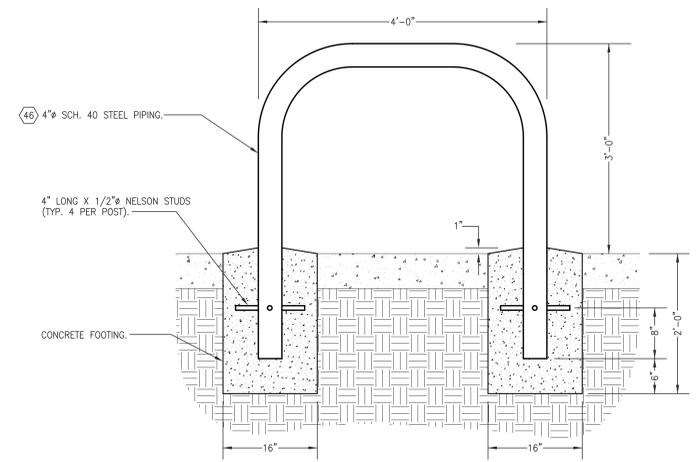
3 DETAIL - DISPENSER ISLAND
T-7 NOT TO SCALE



4 DETAIL - DISPENSER ISLAND PIPING
T-7 NOT TO SCALE



5 DETAIL - PIPING TRENCH UNDER PAVEMENT - ELEVATION
T-7 NOT TO SCALE



6 DETAIL - DISPENSER GUARD
T-7 NOT TO SCALE

DISPENSER SCHEDULE					
TAG	TYPE	PRODUCT(S)	HOSE(S)	TANK PUMP	REMARKS
	GASOLINE	REMOTE	GASOLINE	(2) 1"	P-1, P-2 (1)

1. TYPICAL OF (6) SIX.

NOTE:
ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.

BILL OF MATERIALS (DISPENSERS AND ISLANDS)

NO.	PART DESCRIPTION	STANDARD	FL EQ#
PRODUCT PIPING			
1	3" RIGID FRP CONTAINMENT PIPE W/ CLAMHELL FITTINGS	SMITH FIBERCAST: RED THREAD IIA	EQ-252
2	2" RIGID FRP VENT PIPE	SMITH FIBERCAST: RED THREAD IIA	EQ-252
3	2" RIGID FRP PRODUCT PIPE	SMITH FIBERCAST: RED THREAD IIA	EQ-252
4	2" RIGID FRP BELL X MALE THREADED ADAPTER	SMITH FIBERCAST: RED THREAD IIA	EQ-252
5	2" STEEL TO FIBERGLASS FITTING - BELL X FEMALE THREAD	SMITH FIBERCAST: 012020-194-4	EQ-252
6	3" FRP SECONDARY CONTAINMENT FITTING - 45°	SMITH FIBERCAST: 012030-310-3	EQ-252
7	3" FRP SECONDARY CONTAINMENT FITTING - 90°	SMITH FIBERCAST: 012030-360-3	EQ-252
8			
9			
10			
11			
12			
MISCELLANEOUS PIPING AND FITTINGS			
13	PIPING SUMP	PETROLEUM CONTAINMENT, INC: PC480BC	EQ-203
14	RIGID CONDUIT BOLTED FLANGE ENTRY FITTING	OPW: EBF-0751	EQ-285
15	SURFACE MANHOLE ASSEMBLY	OPW: CONQUISTADOR 39CD-PL10	EQ-285
16	3x2" TERMINATION FITTING W/ TEST PORT	BRAVO SYSTEMS: F-32-TS-T	EQ-615
17	3/4" CONDUIT ENTRY FITTING	BRAVO SYSTEMS: F-17-SS	EQ-615
18	1" CONDUIT ENTRY FITTING	BRAVO SYSTEMS: F-10-SS	EQ-615
19	2" SWIVEL X 2" STAINLESS STEEL FLEXIBLE CONNECTION, HOSE 14" LONG	OPW: FC20-SWM14	EQ-285
20	2" FULL PORT BALL VALVE	OPW: 21BV-0200	EQ-285
21	PRESSURE VACUUM VENT CAP	OPW: 623V-2203	
22	MONITORING WELL BUCKET AND LID ASSEMBLY (COMPOSITE WITH PLAIN LID)	EBW: 818-402-02	
23	MONITORING WELL BUCKET AND LID ASSEMBLY (COMPOSITE WITH TRIANGLE ON LID)	EBW: 818-402-01	
24	2" OBSERVATION WELL WITH WATERTIGHT, LOCKING CAP	FRANKLIN FUELING: 772-106-01	
25			
26			
27			
28			
29			
FILL/VAPOR			
30	PRODUCT FILL DUST CAP	OPW: 634TT-7085-EVR	EQ-285
31	ROTATEABLE SWIVEL ADAPTOR - FILL PORT	OPW: 615ALP-1020-EVR	EQ-285
32	THREADED RISER ADAPTOR	OPW: FSA-400	EQ-285
33	PRODUCT COVER I. D. TAG	OPW: 1TAG-X000	EQ-285
34	PRODUCT BUCKET I. D. TAG	OPW: 1TAG-X010	EQ-285
35	ROTATEABLE SWIVEL ADAPTOR - VAPOR PORT	OPW: 61VSA-1020-EVR	EQ-285
36	OVERFILL PREVENTION VALVE ASSEMBLY	OPW: 6150-4000	EQ-223
37	VAPOR RECOVERY DUST CAP	OPW: 1711T-7085-EVR	EQ-285
38	SECONDARY CONTAINED (DOUBLE WALLED) SPILL BUCKET WITH SENSOR	OPW: 1C-3132D	EQ-708
39	VAPOR RECOVERY SPILL CONTAINER WITH LID	OPW: 1C-2100-PEVR	EQ-285
40			
41			
DISPENSER			
42	FIBERGLASS DISPENSER SUMP WITH STABILIZER BAR (SEE NOTE 1)	PETROLEUM CONTAINMENT, INC: "CLE" SERIES SUMP	EQ-203
43	SHEAR VALVE (SEE NOTE 2)	OPW: 10P-0152	EQ-203
44	1-1/2" SWIVEL X 1-1/2" STAINLESS STEEL FLEXIBLE CONNECTOR 14" LONG	OPW: FC15-MM14	EQ-285
45	STAINLESS STEEL DISPENSER ISLAND FORM	OPW: 6013SS-SFR6W4L12	
46	DISPENSER GUARD	OPW: 6PGR4-4972	EQ-285
47			
48			
49			
50			
51			
52			
53			
MONITORING			
54	TANK AND DISPENSER SUMP LEAK SENSOR	VEEDER ROOT: 794380-323	EQ-724
55	UNIVERSAL SENSOR MOUNTING KIT	VEEDER ROOT: 330020-012	EQ-724
56	MAGNETOSTRICTIVE PROBE - 4" FLOATS	EXISTING TO BE REUSED	EQ-074
57	HYDROSTATIC RESERVOIR SENSOR - DUAL FLOAT	VEEDER ROOT: 794380-303	EQ-724
58	VENTED INTERSTITIAL MONITOR RISER CAP	INCON: TSP-KV4	EQ-757
59	MONITORING PROBE CAP W/BRONZE ADAPTOR KIT	OPW: 62MBB-0375	EQ-285
60	OVERFILL ALARM	VEEDER ROOT: 790091-001	EQ-724
61	OVERFILL ALARM ACKNOWLEDGEMENT SWITCH	VEEDER ROOT: 790095-001	EQ-724
62			
63			
64			
65			

BILL OF MATERIALS (DISPENSERS AND ISLANDS) NOTES

- ① FIBERGLASS DISPENSER SUMP MAY BE OPW/FLEXWORKS OR PETROLEUM CONTAINMENT INC.
- ② SHEAR VALVE MAY BE OPW/FLEXWORKS OR PETROLEUM CONTAINMENT INC.
- ③ EXISTING V-R CONSOLE, INVENTORY PROBES, LEAK SENSORS, AND OVERFILL ALARM MAY BE RE-USED IF IN GOOD CONDITION.



NOTE:

ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.



AAFES (RE-C) P.O. BOX 660320 DALLAS, TX 75266-0320

KEY PLAN:

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	△ MODIFIED PER OWNER'S COMMENTS	JGL



PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE / ARCHITECTS INC.
 MONTGOMERY, ALABAMA

DESIGN BY:
JGL

CHECKED BY:
JGL

RECOMMENDED: _____ DATE _____

APPROVED: _____ DATE _____

ARMY & AIR FORCE EXCHANGE SERVICE
 DEPARTMENTS OF THE ARMY & AIR FORCE

RE-C
 REAL ESTATE DIRECTORATE

PROJECT:
**TYNDALL AFB
 CONSTRUCT SHOPPETTE/
 FOOD/CLASS6/GAS**

TYNDALL, AFB
 FLORIDA

DRAWING TITLE:
**BILL OF MATERIALS
 CHART**

DATE: 18 JANUARY 2012	SCALE: NONE	SHEET: T-8
DRAWING PROJECT NO. 0941-09-000003		

DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL



PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE / ARCHITECTS INC.
MONTGOMERY, ALABAMA

DESIGN BY: JGL
CHECKED BY: JGL

RECOMMENDED: DATE
APPROVED: DATE

ARMY & AIR FORCE EXCHANGE SERVICE DEPARTMENTS OF THE ARMY & AIR FORCE

RE-C
REAL ESTATE DIRECTORATE

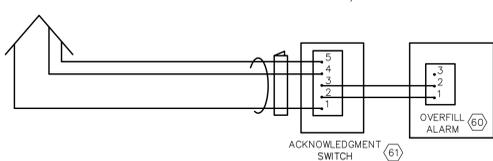
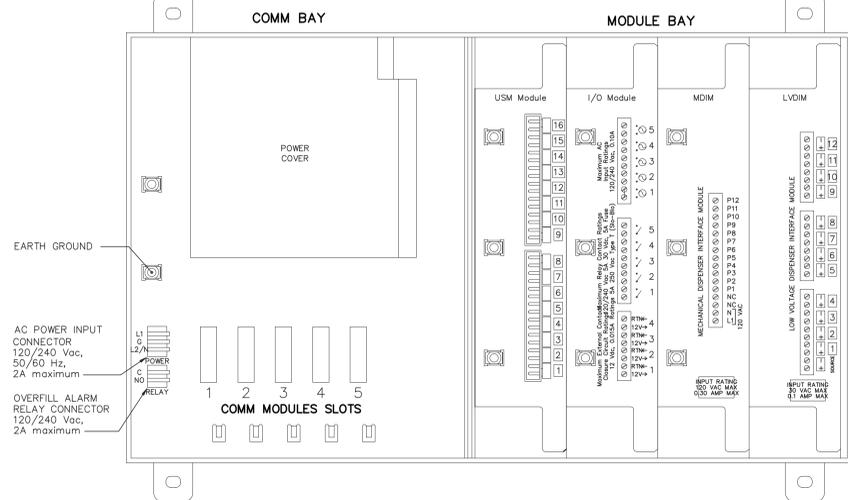
PROJECT: TYNDALL AFB CONSTRUCT SHOPPETTE/ FOOD/CLASS6/GAS

TYNDALL, AFB FLORIDA

DRAWING TITLE: VEEDER-ROOT TLS-450 SCHEMATIC

DATE: 18 JANUARY 2012 SCALE: SHEET: T-9
DRAWING PROJECT NO. 0941-09-000003

EXISTING
TLS-450
VEEDER-ROOT CONSOLE



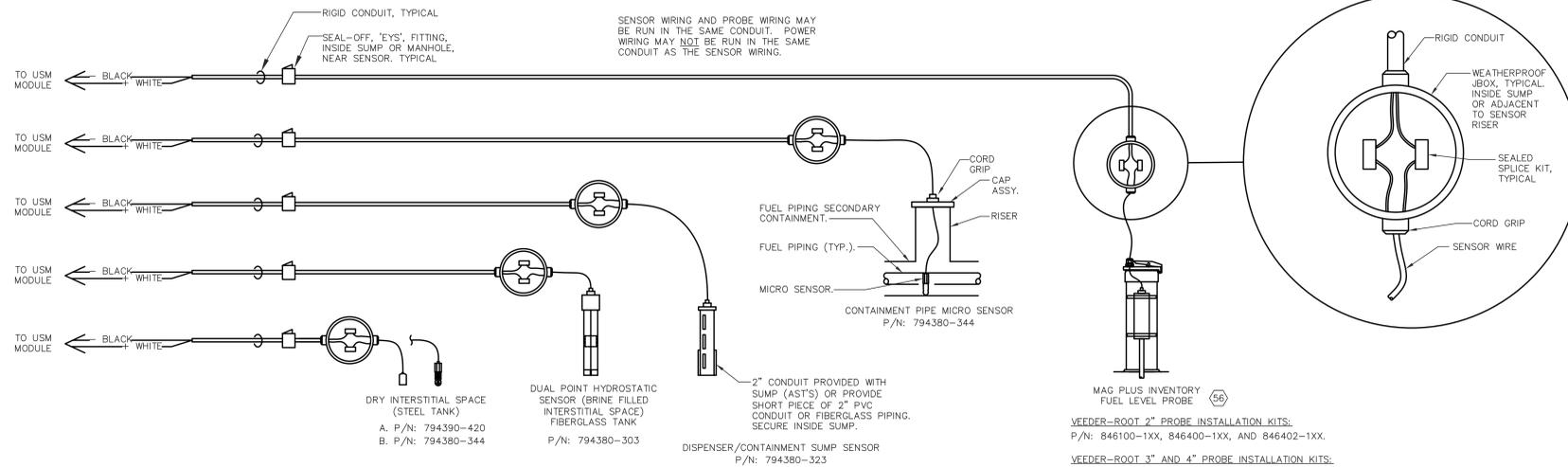
COMM MODULES	PERMISSIBLE SLOT(S)
MODEM MODULE	1, 2, OR 3
USB MODULE	5 ONLY
USB/ETHERNET MODULE	5 ONLY
ETHERNET MODULE	4 OR 5
SINGLE SERIAL PORT MODULE	1, 2, OR 3
DUAL SERIAL PORT MODULE	1, 2, OR 3
DIM MODULE	4 ONLY

NOTE: LIMITED SINGLE PORT CAPABILITY IN SLOT 3

INSIDE THE MODULE AREA OF BOTH THE TLS-450 CONSOLE AND THE EXPANSION BOX, ANY COMBINATION OF UP TO FOUR MODULES MAY BE INSTALLED. I/O MODULES PROVIDE WIRING TERMINALS FOR THE CONNECTION OF EQUIPMENT INSTALLED IN NON-HAZARDOUS LOCATIONS. THE USM (UNIVERSAL SENSOR MODULE) PROVIDES WIRING TERMINALS FOR THE CONNECTION OF INTRINSICALLY SAFE APPARATUS.

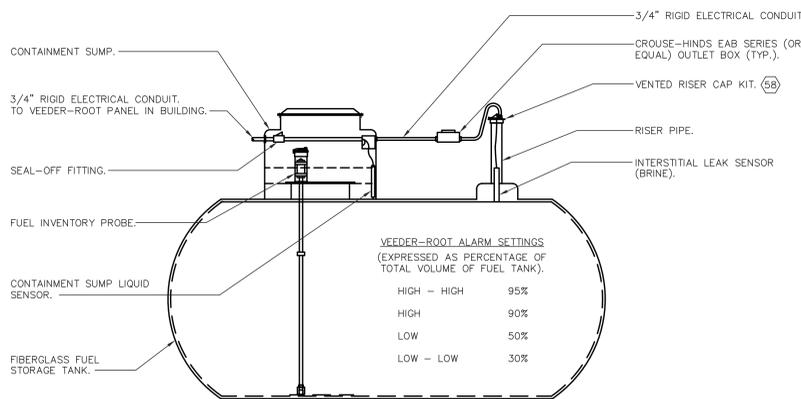
THE ELECTRONICS LOCATED IN THE BARRIER CIRCUIT OF THE USM MODULE FORMS AN INTRINSICALLY SAFE ENERGY LIMITED SYSTEM. PROBE AND SENSORS CONNECTED TO THE OUTPUT TERMINALS OF THE USM MODULE ARE CONSIDERED INTRINSICALLY SAFE APPARATUS AND ARE APPROVED FOR USE IN CLASS 1, GROUP D HAZARDOUS (CLASSIFIED) LOCATIONS.

SCHEMATIC FOR GENERAL INFORMATION. REFER TO VEEDER-ROOT LITERATURE/GUIDES FOR INSTALLATION INFORMATION.



NOTES:

- THIS SCHEMATIC IS GENERIC. THE NUMBER AND TYPE OF SENSORS AND PROBES WILL BE DIFFERENT FOR EACH SPECIFIC INSTALLATION.
- WIRING TO PROBE AND SENSORS MUST SHIELDED REGARDLESS OF CONDUIT MATERIAL OR APPLICATION. SHIELDED CABLE MUST BE RATED LESS THAN 100 PICO FARAD PER FOOT, AND BE MANUFACTURED WITH A MATERIAL SUITABLE FOR THE ENVIRONMENT (OIL & GAS RESISTANT); SEE VEEDER ROOT INSTALLATION INSTRUCTIONS.
- LABEL OR COLOR CODE ALL FIELD WIRING TO ENSURE POLARITY.
- LABEL ALL ALARM JUNCTION BOXES, MONITOR JUNCTION BOXES AND PANELS.
- PROVIDE PLASTIC PROTECTIVE BUSHING AT ALL CONDUIT ENTRANCES TO PANELS, JUNCTION BOXES & WIRING.
- PANEL POWER TO BE OBTAINED FROM A PROTECTED PANEL. PROVIDE NEW 20 AMP, 1-POLE BREAKER. TERMINATE CHASSIS AND BARRIER GROUND WIRE TO PANEL GROUND BUS. SEE ELECTRICAL DRAWING.
- CONDUIT TO BE RIGID GALVANIZED.
- MONITORING WIRES SHALL BE A SINGLE RUN OF WIRE WITH NO SPLICES.



HAZARDOUS AREA
(CLASS 1, DIVISION 1, GROUP D)

VEEDER-ROOT ALARM SETTINGS
(EXPRESSED AS PERCENTAGE OF TOTAL VOLUME OF FUEL TANK).

HIGH - HIGH	95%
HIGH	90%
LOW	50%
LOW - LOW	30%

NOTE:
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DATE	REVISION NO. & DESCRIPTION	BY
01/18/12		JGL
09/05/12	MODIFIED PER OWNER'S COMMENTS	JGL



PWBA PROJECT #290507



PARSONS WIBLE BRUMMAL ALKIRE / ARCHITECTS INC.
MONTGOMERY, ALABAMA

DESIGN BY: JGL
CHECKED BY: JGL

RECOMMENDED: DATE
APPROVED: DATE

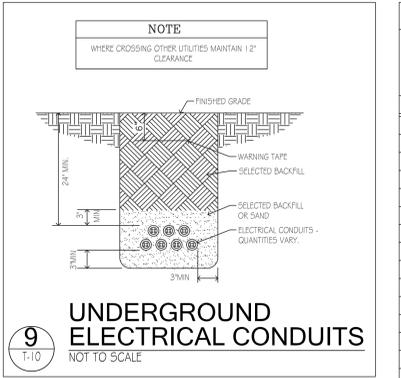
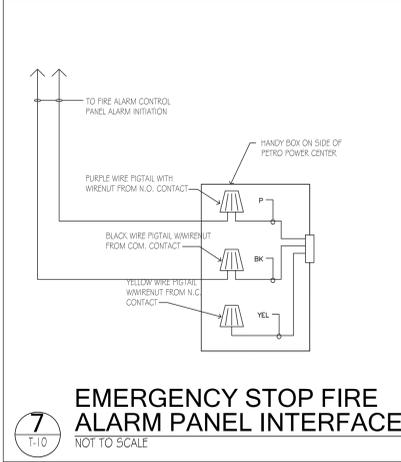
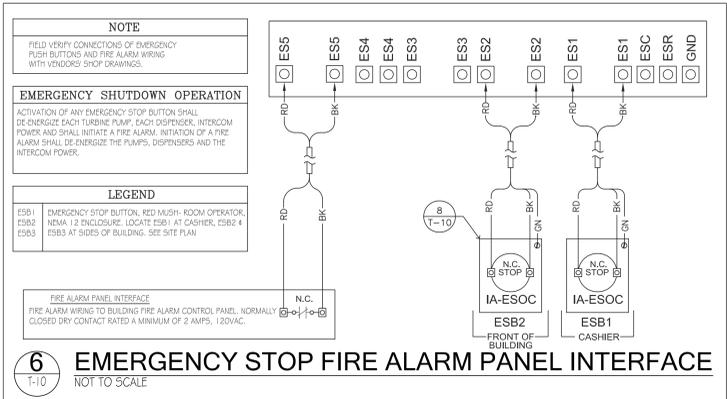
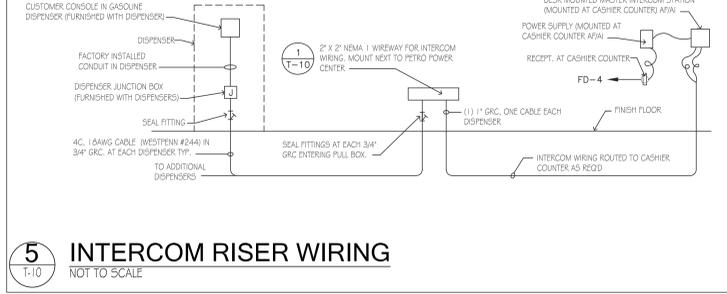
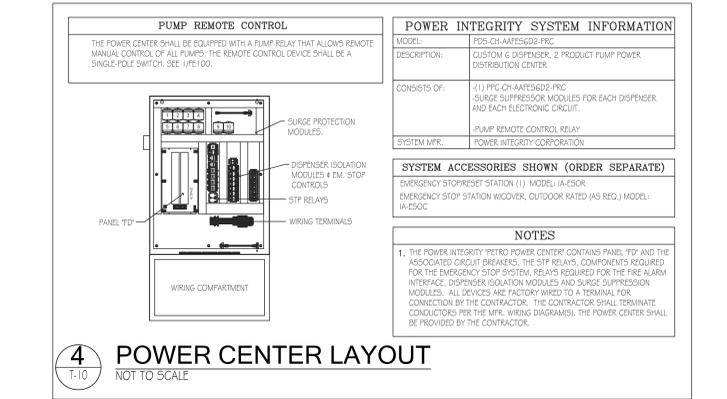
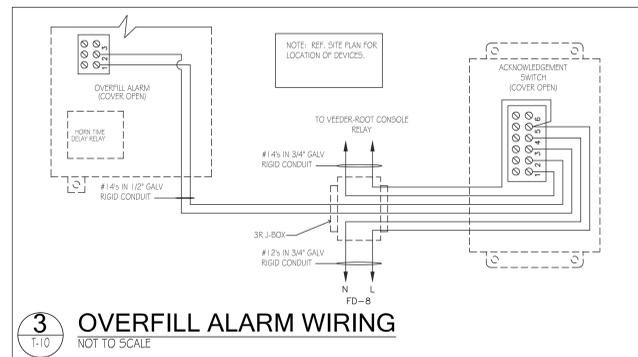
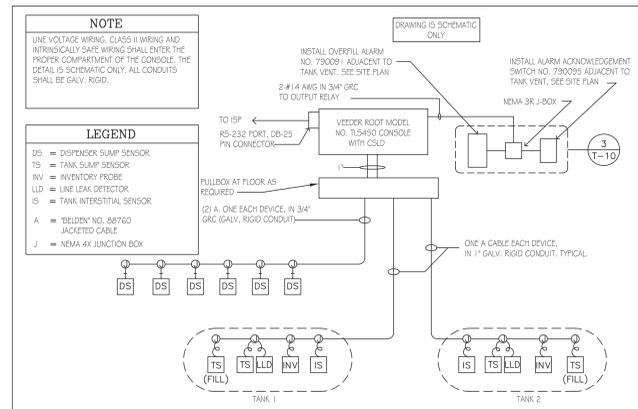
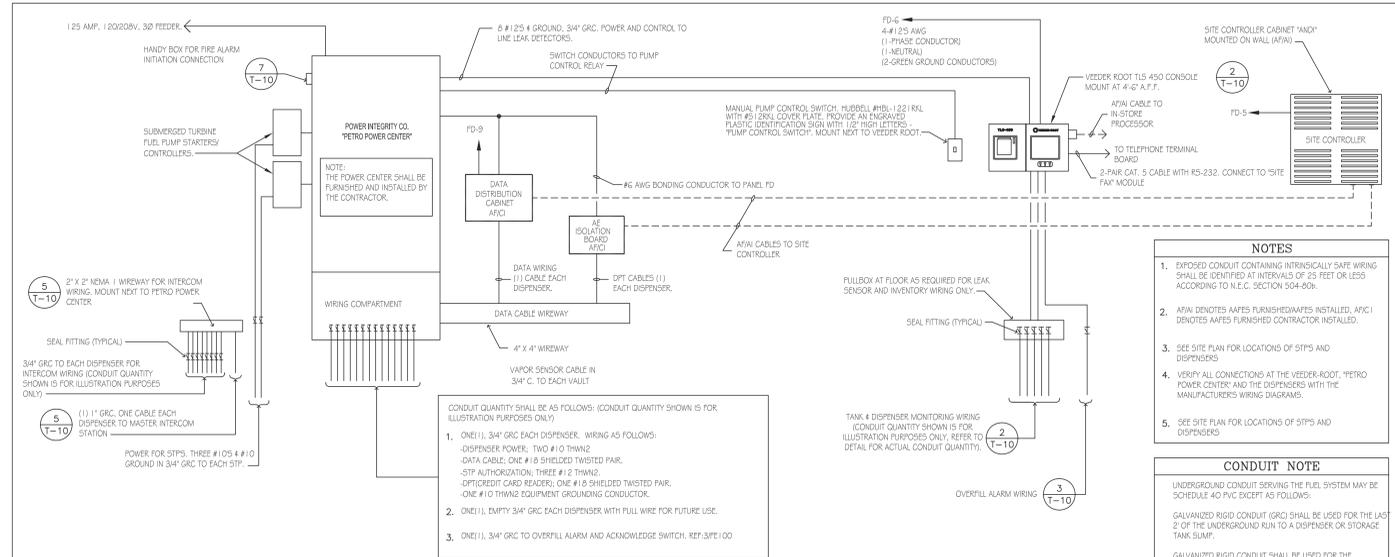
ARMY & AIR FORCE EXCHANGE SERVICE DEPARTMENTS OF THE ARMY & AIR FORCE
RE-C
REAL ESTATE DIRECTORATE

PROJECT: TYNDALL AFB CONSTRUCT SHOPPETTE/FOOD/CLASS6/GAS

TYNDALL, AFB FLORIDA

DRAWING TITLE: PETROLEUM/ELECTRICAL SCHEMATICS

DATE: 18 JANUARY 2012	SCALE:	SHEET: T-10
DRAWING PROJECT NO. 0941-09-00003		



PANELBOARD SCHEDULE - PANELBOARD #FD

CIRC. NO.	BKR. SIZE	WIRE SIZE	LOAD	REMARKS
1	*20A, 3P	#10	21P	SUB. TURBINE PUMP
2	*20A, 3P	#10	21P	SUB. TURBINE PUMP
3	*20A, 1P	#12	500VA	INTERCOM POWER
4	20A, 1P	#12	150VA	SITE CONTROLLER
5	20A, 1P	#12	240VA	VEEDER ROOT
6	20A, 1P	#12	250VA	CONTROL POWER
7	20A, 1P	#12	250VA	OVERFILL ALARM
8	20A, 1P	#12	500VA	DATA DIST. CABINET
9	20A, 1P	#12	100VA	V.V.M. CONTROLLER
10	*20A, 1P	#10	768VA	DISPENSER #1
11	*20A, 1P	#10	768VA	DISPENSER #2
12	*20A, 1P	#10	768VA	DISPENSER #3
13	*20A, 1P	#10	768VA	DISPENSER #4
14	*20A, 1P	#10	768VA	DISPENSER #5
15	*20A, 1P	#10	768VA	DISPENSER #6
16	-	-	-	-
17	-	-	-	-
18	-	-	-	-
19	-	-	-	-
20	-	-	-	-
21	-	-	-	-

PANEL FD ELECTRICAL NOTES:

- BREAKERS SUPPLYING THE DISPENSERS SHALL HAVE SWITCHED NEUTRALS.
- BRANCH BREAKERS SUPPLYING THE DISPENSERS, VEEDER-ROOT, SITE CONTROLLER AND THE DATA DISTRIBUTION BOX SHALL BE ON THE SAME PHASE.
- CIRCUIT NUMBERS ARE FOR REFERENCE ONLY AND ARE NOT INTENDED TO DESIGNATE SPACE LOCATION IN PANEL.
- * - INDICATES CIRCUIT CONTROLLED BY EMERGENCY STOP
- ALL ELECTRICAL EQUIPMENT, WIRING, DEVICES AND ETC., INCLUDING THE PETRO POWER CENTER, SHALL BE PROVIDED BY THE CONTRACTOR.

NOTE:
ALL EQUIPMENT TO BE INSTALLED MUST BE ON THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED EQUIPMENT LIST.