



September 28, 2017

Jeremy McCall, P.E., CFM
City of Greensboro Stormwater Engineering Supervisor
2602 S Elm Eugene Street
Greensboro, NC 27402

RE: 3930 Battleground Avenue – Type 4 Modification of Watershed Critical Area – Fueling Equipment Narrative

The subject property was originally developed as a fuel station in 1964 with (2) 1,000 gallon gasoline underground storage tanks (UST) and (2) 6,000 gallon gasoline aboveground storage tanks (AST). This system was removed and the existing system was constructed in 1992. The existing system consists of (3) 8,000 gallon gasoline UST's. The existing and operating system will not conform to current UST standards set by the United States Environmental Protection Agency (US EPA) and the State of North Carolina Department of Environmental Quality (NCDEQ).

The system to be installed meets and exceeds the standards set forward by the US EPA and NCDEQ. Every tank and pipe in the proposed design is double walled and carefully selected to be compatible with the different fuels. The tanks have systems to monitor any leaks in the interstitial space, and any spills that might occur when filling the tanks. We are unaware of any monitoring system on the existing tanks. The dispensers that are being proposed are up to date with all current technologies and standards. The dispensers are located above sumps that are monitored by level sensors. The sumps are used to collect any leaks or spills in the dispenser so that it does not contaminate the surrounding environment. We are unaware of any sumps under the existing dispensers.

The new equipment will utilize the latest pumping technologies to have the maximum efficiencies for the seven (7) pumps. The older existing pumps are worn from years of abuse, and as a result are far less efficient than modern pumps. The attached documents utilize the NCDEQ UST Pre-Installation forms to compare the known current equipment on site to the proposed equipment.

Attachment 1: NCDEQ UST 6 Pre-Installation Form

Please contact me at 704-40-1803 or Adam.Essink@kimley-horn.com should you have any questions.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Adam Essink, P.E.

12. Description of all Underground Storage Tanks (USTs) at this Facility

Instructions: Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1 and revise as necessary, making sure to indicate those changes, and then complete Part 2. If there are more than four USTs at facility, please attach additional copies of this page.

PART 1 – PRE-INSTALLATION

12.1	UST – General				
12.1.1	TANK IDENTIFICATION NO. (e.g., A, B, C or 1, 2, 3; If compartment tank 1A, 1B, 1C, etc.)	Tank No. Old	Tank No. New	Tank No.	Tank No.
12.1.2	Indicate if tank is N= new, U=used, or E=existing ¹	Existing	New		
12.1.3	Capacity (gallons) If compartment tank, list compartment size.	(3) 8K / 8K/ 8K	(2) SW 20k/8 10k/8k		
12.2	UST – Product Stored				
12.2.1	Product stored or to be stored (if other specify below) ²	Gasoline	Gasoline		
12.2.2	If Other (specify)	Unknown	Gas, Diesel, E-0		
12.2.3	If hazardous substance, provide Chemical Abstract Service (CAS) number	Unknown	8006-61-9		
12.3	UST – Construction				
12.3.1	Tank manufacturer	Unknown	Xerxes		
12.3.2	Tank model	Unknown	DW FRP		
12.3.3	Materials of construction ³	Other	DW FRP		
12.3.4	If other (specify)	Unknown	N/A		
12.3.5	Check if tank is siphon manifolded and enter tank # it is manifolded with.	☐ / N/A	☐ / N/A	☐ /	☐ /
12.4	UST – Interstitial Monitoring (Leak Detection) ⁴				
12.4.1	Method of monitoring tank interstice ⁵	Other	Hydrostatic Float		
12.4.2	Tank interstitial sensor manufacturer	Unknown	Franklin Fueling		
12.4.3	Tank interstitial sensor model	Unknown	FMP-HIS		

PART 2 – POST INSTALLATION

12.5	UST – Post Installation Certification (To Be Filled Out After Installation is Complete)				
12.5.1	Date of UST installation ⁶	Unknown			
12.5.2	Tank UL (or serial) number	Unknown			
12.5.3	With respect to the tanks, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No If “Yes”, then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):				

¹ If UST is “used” attach a completed manufacturers re-certification checklist. If “existing”, please fill out sections 12.1 and 12.2 at a minimum.

² Enter one of the following choices: Aviation Gas, Biodiesel (> 20%) – Diesel Mix*, Diesel, Ethanol (> 10%) – Gas Mix*, Fuel Oil, Gasoline, Hazardous Substance, Heating Oil, Kerosene, Motor Oil, Other Non-Petroleum, Other Petroleum, Transmission Fluid, or Used Oil

* Tanks with ≤20% Biodiesel should list the product as “Diesel” and tanks with ≤10% Ethanol should list the product as “Gasoline”

³ Enter one of the following choices: DW* FRP** (e.g. Xerxes, Containment Solutions), DW* Steel/FRP** (e.g. ACT-100), DW* Steel/Polyurethane (e.g. ACT-100-U), DW* Steel/Jacketed (e.g. Perm tank, Titan), Other

*DW = Double-walled

**FRP = Fiberglass Reinforced Plastic

⁴ All tanks installed on or after November 1, 2007 must be of double-walled construction with continuous interstitial monitoring.

⁵ Enter one of the following choices: , VM=Vacuum Sensor, PR=Pressure Sensor, HYDRO=Hydrostatic Float*, LDS=Liquid Detecting (dry) Sensor (usually position-sensitive)*, OTH=Other (specify type)

* Tanks using liquid detecting (dry) interstitial sensors must also be tested for tightness in accordance with 15A NCAC 02N.0903(f) & tanks using hydrostatic (wet) interstitial sensors must be dual-float/(to monitor both low & high level alarm conditions).

⁶ For consistency, please use the same installation date as recorded on the tank manufacturer’s installation checklists.

13. Description of All Piping Systems at this Facility

Instructions: Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1 and revise as necessary, making sure to indicate those changes, and then complete Part 2. If there will be piping associated with more than four USTs, more than four different types of piping installed, etc., please attach additional copies of this page.

PART 1 – PRE-INSTALLATION**13.1 Piping System – General**

13.1.1	Tank # (associated with piping) ¹	(3) old	(2) New		
13.1.2	Indicate if piping is N=new or E=existing ²	Existing	New		
13.1.3	Indicate piping use/application ³	Product Distribution	Product Distribution		
13.1.4	If Other (specify)	N/A	N/A		
13.1.5	Piping configuration (PR=Pressurized, SU=Suction, SI=Siphon or GR=Gravity)	Pressurized	Pressurized		

13.2 Piping System – Construction

13.2.1	Piping manufacturer	Unknown	OPW		
13.2.2	Piping model	Unknown	Loop/Flexworks C15A		
13.2.3	Material of construction ⁴	Other	DW Flex		
13.2.4	If Other (specify)	Unknown	N/A		

13.3 Piping System – Interstitial Monitoring (Leak Detection) ⁵

13.3.1	Method of monitoring piping interstice ⁶	Other	Liquid Detecting Sensor		
13.3.2	Piping interstitial sensor manufacturer	Unknown	Franklin Fueling		
13.3.3	Piping interstitial sensor model	Unknown	TSP-ULS		
13.3.4	Indicate if piping interstitial sensor is N=new or E=existing	Existing	New		

13.4 Piping System – Automatic Line Leak Detector (To Be Filled Out for Pressurized Piping Only)

13.4.1	Automatic Line Leak Detector (ALLD) (Mechanical or Electronic)		Electronic		
13.4.2	ALLD manufacturer	Unknown	Franklin Fueling		
13.4.3	ALLD model	Unknown	TS-LS500/3		
13.4.4	Indicate if ALLD is N=new or E=existing	Existing	New		

¹ Indicate which tank the piping is associated with (e.g., Tank 1, Tank 2A, Tank 2B). If the piping is associated with two or more USTs (e.g., a siphon manifold), then list both tanks in the column (e.g., Tank 1 & 2). If there is more than a single kind of piping associated with an individual tank, list each kind of piping in a separate column.

² If "existing", provide (minimally) the use, type of piping and configuration and as much other information as available.

³ Enter one of the following choices:

PD = Product Distribution
M = Tank Manifold (Siphon Bar)
RF = Remote Fill
PR = Product Return
OTH = Other (specify)

⁴ Enter one of the following choices:

DW Flex = Double-walled Flex Piping (e.g., APT XP, APT UPP, OPW FlexWorks)
DW FRP = Double-walled Fiberglass Reinforced Plastic (e.g., NOV Fiberglass Dualoy 3000/L (3" over 2"), Dualoy 3000/LCX, Red Thread IIA)
None
OTH = Other (specify)

⁵ All piping installed on or after November 1, 2007 must be of double-walled construction with continuous interstitial monitoring

⁶ Enter one of the following choices:

LDS = Liquid Detecting Sensor (e.g., sump sensor)
VM = Vacuum Sensor
PR = Pressure Sensor
HYDRO = Hydrostatic Float
OTH = Other (specify)

Note that discriminating sensors must be set up to detect and alarm with all liquids

13. Description of All Piping Systems at this Facility (cont)

Instructions: Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1 and revise as necessary, making sure to indicate those changes, and then complete Part 2. If there will be piping associated with more than four USTs, more than four different types of piping installed, etc., please attach additional copies of this page.

PART 1 – PRE-INSTALLATION (cont)**13.5 Piping System Information – Associated Piping Components**

13.5.1	Tank # (associated with piping)	(3) Old	(2) New		
13.5.2	Flex connectors present? (Yes, No)		No		
13.5.3	Flex connectors located within monitored containment sumps (Yes, No, N/A)		N/A		
13.5.4	Submersible turbine pump, metal piping extensions and/or other metal fittings present? (Yes, No)		Yes		
13.5.5	Submersible turbine pump, metal piping extensions and/or other metal fittings located within monitored containment sumps (Yes, No, N/A)		Yes		
13.5.6	Method that will be used to allow piping to be located once it is backfilled? ¹		Detectable Tape		
13.5.7	If Other (specify)	Unknown Information	N/A		

PART 2 – POST INSTALLATION**13.6 Piping System – Post Installation Certification (To Be Filled Out After Installation is Complete)**

13.6.1	Date of piping installation ²	1992			
13.6.2	Piping manufacturing code number ³	Unknown			
13.6.3	With respect to the piping, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No	If "Yes", then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):			

¹ If detectable tape/wire is proposed, also list manufacturer/model number on UST-6C; tape/wire width (gauge) & installation depth on UST-6C or plans. Note that NC DENR may require documentation that the pipe can be located after installation for compliance with 15A NCAC 02N.0904(d).

² For consistency, please use the same installation date as recorded on the piping manufacturer's installation checklists.

³ The piping manufacturing code number is printed on the exterior of the piping and indicates the date the piping was manufactured among other things and can be used to certify that the piping met the UL 971 construction standard at the time of installation.

14. Description of All Containment Sumps at this Facility

Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1, revise as necessary and complete Part 2.

PART 1 – PRE-INSTALLATION

Enter the type and number(s) in each column that will have the same make/model of containment sumps. If all containment sumps will be the same then list the range of sump numbers in one column. Containment sumps with the same make/model only have to be entered in one of the columns with a list of the sumps that have that make/model. For example, a gas station with three tank top containment sumps of the same make and model and four under dispenser containment (UDC) sumps of the same make and model could be grouped as Tank 1-3 and Disp. 1/2 – 7/8, respectively.

14.1 Containment Sumps - General

14.1.1	Containment sump identifier / name (e.g., Disp. 1/2 - 7/8, Tank 1-3, etc.)	Tank 1A, 1B, 2A, 2B	Dispensers 1-7	Old Tank 1,2,3	Old Dispensers 1-4
14.1.2	Quantity of containment sumps of this type	4	7	3	4
14.1.3	Containment sump type ¹	Tank Top Sump	UDC Sump		
14.1.4	If Other (specify)	N/A	N/A	Unknown	Unknown
14.1.5	Indicate if containment sump is N=new or E=existing ²	New	New	Existing	Existing

14.2 Containment Sumps - Construction

14.2.1	Containment sump manufacturer	Bravo	OPW	Unknown	Unknown
14.2.2	Containment sump model	B427X3338T22BPPSL	Loop DSLR-15-1543	Unknown	Unknown
14.2.3	Material of construction ³	FRP	Plastic	Other	Other
14.2.4	If Other (specify)	N/A	N/A	Unknown	Unknown

14.3 Containment Sumps – Leak Detection ⁴

14.3.1	Method of monitoring containment sump ⁵	Liquid Detecting Sensor	Liquid Detecting Sensor	Other	Other
14.3.2	Interstitial sensor manufacturer	Franklin Fueling	Franklin Fueling	Unknown	Unknown
14.3.3	Interstitial sensor model	TSP-ULS	TSP-ULS	Unknown	Unknown
14.3.4	Indicate if interstitial sensor is N=new or E=existing	New	New	Existing	Existing

PART 2 – POST INSTALLATION**14.4 Containment Sumps - Post Installation Certification (To Be Filled Out After Installation is Complete)**

14.4.1	With respect to the containment sumps, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No	If “Yes”, then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):
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¹ Enter one of the following choices:

TTS = Tank Top Sump (e.g., STP sump)
UDC = Under Dispenser Containment Sump
TS = Transition Sump
OTH = Other (specify)

² Note that existing containment sumps, when connected to replacement piping, will require continuous monitoring and must be tested for integrity

³ Enter one of the following choices:

PLS = Plastic
FRP = Fiberglass Reinforced Plastic
OTH = Other (specify)

⁴ All single-walled or metal UST system components (e.g., flex connectors, automatic line leak detectors, submersible turbine pumps, shear valves) installed on or after November 1, 2007 must be located within continuously monitored containment sumps

⁵ Enter one of the following choices:

LDS = Liquid Detecting Sensor (e.g., sump sensor)
VM = Vacuum Sensor
PR = Pressure Sensor
HYDRO = Hydrostatic Float
OTH = Other (specify)

Note that discriminating sensors must be set up to detect and alarm with all liquids

15. Description of Spill Prevention Equipment at this Facility

Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1, revise as necessary and complete Part 2.

PART 1 – PRE-INSTALLATION**15.1 Spill Prevention Equipment - General**

15.1.1	Tank # (associated with)	1A	1B	1,2,3	
15.1.2	Indicate if spill prevention equipment is N=new or E=existing ¹	New	New	Existing	

15.2 Spill Prevention Equipment - Construction

15.2.1	Spill prevention equipment type ²	DW	DW		
15.2.2	Spill prevention equipment manufacturer	OPW	OPW	Unknown	
15.2.3	Spill prevention equipment model	1C-3132D	1C-3132D	Unknown	

15.3 Spill Prevention Equipment - Interstitial Monitoring Information ³

15.3.1	Method of monitoring interstice ⁴	Liquid Detecting Sensor	Liquid Detecting Sensor	Other	
15.3.2	Does spill prevention equipment have built-in sensor (Yes/No)?	Yes	Yes		
15.3.3	Interstitial sensor manufacturer (if not built-in)	OPW	OPW	Unknown	
15.3.4	Interstitial sensor model (if not built-in)	N/A	N/A	Unknown	

PART 2 – POST INSTALLATION**15.4 Spill Prevention Equipment - Post Installation Certification (To Be Filled Out After Installation is Complete)**

15.4.1	With respect to the spill prevention equipment, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No	If "Yes", then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):
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¹ If "existing", fill out Section 15.1 at a minimum

² Enter one of the following choices:

DW = Double-walled spill bucket

SW+MCS = Single-walled spill bucket within a monitored containment sump

SW = Single-walled spill bucket (only valid if installed prior to November 1, 2007)

NR = Not Required (only valid for USTs that are always filled by transfers that are 25 gallons or less)

³ All spill prevention equipment installed on or after November 1, 2007 must be of double-walled construction with continuous interstitial monitoring.

⁴ Enter one of the following choices:

LDS = Liquid Detecting Sensor (e.g., sump sensor, float switch, etc.)

VM = Vacuum Sensor

PR = Pressure Sensor

HYDRO = Hydrostatic Float

OTH = Other (specify type)

Note: Discriminating sensors must be set up to detect and alarm with all liquids

16. Description of Overfill Prevention Equipment at this Facility

Please complete Part 1 of this Section when submitting a UST-6A (proposed installation). Upon completion of installation, verify the information in Part 1, revise as necessary and complete Part 2.

PART 1 – PRE-INSTALLATION**16.1 Overfill Prevention Equipment - General**

16.1.1	Tank # (associated with)	1A	1B	1,2,3	
16.1.2	Overfill prevention equipment type ¹	Overfill Alarm	Overfill Alarm		
16.1.3	Indicate if overfill prevention equipment is N=new or E=existing ²	New	New	Existing	

16.2 Overfill Prevention Equipment - Construction

16.2.1	Overfill prevention equipment manufacturer	Franklin Fueling	Franklin Fueling	Unknown	
16.2.2	Overfill prevention equipment model	TS-RA1	TS-RA1	Unknown	

16.3 Overfill Prevention Equipment - Design

16.3.1	Percentage of total tank capacity the overfill prevention equipment is set to activate	☐ ≤ 95% ☒ ≤ 90% ☐ N/A, overfill prevention equipment restricts flow 30+ minutes before tank is filled to capacity	☐ ≤ 95% ☒ ≤ 90% ☐ N/A, overfill prevention equipment restricts flow 30+ minutes before tank is filled to capacity	☐ ≤ 95% ☐ ≤ 90% ☐ N/A, overfill prevention equipment restricts flow 30+ minutes before tank is filled to capacity	☐ ≤ 95% ☐ ≤ 90% ☐ N/A, overfill prevention equipment restricts flow 30+ minutes before tank is filled to capacity
16.3.2	Specify the minimum installation depth of the overfill prevention equipment, as measured from the top of the inside of the tank to the activation point of the overfill prevention equipment, that is necessary to meet the requirement in 16.3.1.	19.25"	18.625"	Unknown	

PART 2 – POST INSTALLATION**16.4 Overfill Prevention Equipment - Post Installation Certification (To Be Filled Out After Installation is Complete)**

16.4.1	With respect to the overfill prevention equipment, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No	If "Yes", then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):
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¹ Enter one of the following choices:

AS = Automatic shutoff device (e.g., flapper valve)

BF = Ball float vent valve (e.g., vent restriction device) [Note: Ball Floats cannot be used with coaxial vapor recovery or suction piping systems.]

OA = Overfill alarm [Note: Alarm must be located where fuel delivery takes place.]

NR = Not required [Note: Not Required is only valid for USTs that are always filled by transfers that are 25 gallons or less.]

[Note: If installing an automatic shut off device (e.g., flapper valve) and a ball float vent valve on the same tank, the ball float must be set to activate at a level higher in the tank than the automatic shut-off device. Only show the primary overfill prevention device in this section.]

² If "existing", provide (minimally) the type of equipment and as much other information as available.

17. Description of Leak Detection Monitoring Equipment at this Facility

Please complete Part 1 of this Section when submitting a UST-6A (proposed installation) application. Upon completion of installation, verify the information in Part 1, revise as necessary and complete Part 2.

PART 1 – PRE-INSTALLATION

Please list the manufacturer and model of each leak detection monitoring console that is being used at the UST facility. If more than one monitoring console is being used, list each monitoring console and specify which tanks, piping, containment sumps, etc. are being monitored by each.

17.1 Leak Detection Monitoring Equipment - General

		Monitoring Console #1	Monitoring Console #2	Monitoring Console #3	Monitoring Console #4
17.1.1	Monitoring console manufacturer	Franklin Fueling	Exisitng - Unknown		
17.1.2	Monitoring console model	TS-550 EVO	Exisitng - Unknown		
17.1.3	Indicate if N=new or E=existing Equipment	New	Existing		
17.1.4	If this UST facility has more than one leak detection monitoring console, please specify which tanks, piping, containment sumps, spill buckets, etc. are monitored by each. If there is only one monitoring console, you may leave section 17.1.4 blank.	Tanks:	Tanks:	Tanks:	Tanks:
		Piping:	Piping:	Piping:	Piping:
		Spill Containment:	Spill Containment:	Spill Containment:	Spill Containment:
		Containment Sumps:	Containment Sumps:	Containment Sumps:	Containment Sumps:
		Other:	Other:	Other:	Other:

17.2 Leak Detection Monitoring Equipment - Reporting

17.2.1	Monitoring console capable of generating a printed leak detection report? (Yes / No)	Yes			
17.2.2	Monitoring console capable of generating a printed alarm history report? (Yes / No)	Yes			

PART 2 – POST INSTALLATION**17.3 Leak Detection Monitoring Equipment - Post Installation Certification (To Be Filled Out After Installation is Complete)**

17.3.1	With respect to the leak detection equipment, were there any modifications to the approved UST-6A application? ☐ Yes ☐ No	If "Yes", then indicate changes to the information above that were made to reflect the modifications that were made (Note: Professional Engineer must approve and seal any changes to the UST-6C and original design plans):			
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18. Description of Stage I Vapor Recovery Equipment at this Facility

Note: the following gasoline USTs are not required to have Stage I vapor recovery equipment: a) new USTs that are 500 gallons or less in capacity, and b) facilities that have a combined throughput of less than 50,000 gallons per year. If vapor recovery is not required for a UST at this facility, then the last box in this section should be marked. If you have any questions about Stage I vapor recovery, please call the Air Quality Section at (919) 707-8400.

18.1.1	Tank # (associated with)	1A	1B	1,2,3	
18.1.2	Indicate if N=new or E=existing Equipment	New	New	Existing	
18.1.3	Type of Stage I vapor recovery	☐ Coaxial system ☒ Dual-point system ☐ Stage I vapor recovery is not required for this UST	☐ Coaxial system ☒ Dual-point system ☐ Stage I vapor recovery is not required for this UST	☐ Coaxial system ☐ Dual-point system ☐ Stage I vapor recovery is not required for this UST	☐ Coaxial system ☐ Dual-point system ☐ Stage I vapor recovery is not required for this UST