FINAL

Work Plan Addendum for Installation of Monitoring Wells and Groundwater Extraction Well

DO 0050

Prepared for:

Camp Stanley Storage Activity
Boerne, Texas

April 2010

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DELIVERY ORDER 0050
WORK PLAN ADDENDUM
FOR INSTALLATION OF MONITORING WELLS AND GROUNDWATER EXTRACTION WELL

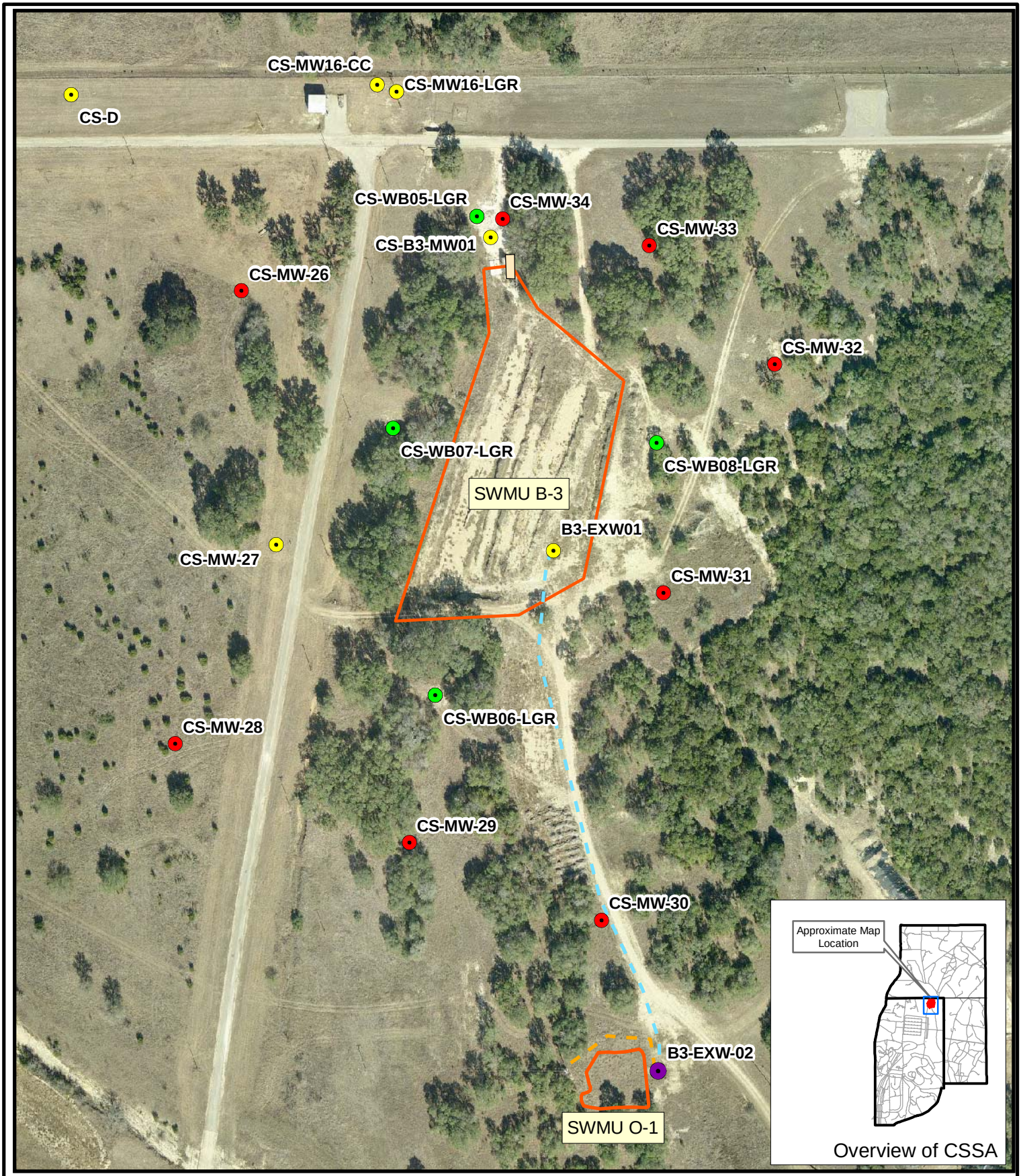
1.1 STATEMENT OF OBJECTIVE

This addendum to the work plan for the **Enhanced Anaerobic Biodegradation Pilot Study** (***CSSA Environmental Encyclopedia, Volume 1: Work Plans, Parsons, 2006***) describes activities supporting construction of eight shallow monitoring wells and one groundwater extraction well in support of ongoing activities at Solid Waste Management Unit (SWMU) B-3. The field investigation will be documented by a technical memorandum, and in attachments to monthly SWMU B-3 Quarterly Bioreactor Performance reports. This work is authorized under the United States Army Corps of Engineers (USACE) contract W9126G-07-D-0028, delivery order 0050 (DO-50), Task 3.

1.2 INTRODUCTION

This work plan provides a general description of the activities and requirements for completion of eight monitoring wells and one groundwater extraction well as part of the ongoing Enhanced Anaerobic Biodegradation Pilot Study at SWMU B-3. Existing work plans and quality control plans for current and previous CSSA task orders fulfilled by Parsons remain in effect and are available in the *CSSA Environmental Encyclopedia, Volume 1, Work Plans*. General activities to be conducted for DO-50 will follow the provisions of those prior documents, as applicable. General descriptions of site history, geology, and hydrogeology are also found therein. The following paragraphs describe the planned field activities and procedures to be completed under DO-50.

Well construction consists of drilling eight shallow monitoring wells to supplement existing SWMU-B-3 monitoring wells, and one new groundwater extraction well along with associated piping and electrical connections to supplement three existing wells presently supplying injection water to the SWMU B-3 bioreactor. The proposed shallow monitoring wells are located at various intervals around the outside perimeter of the SWMU B-3 site, and will monitor groundwater present in the Upper Glen Rose (UGR) limestone. The intention is to provide data for a refined understanding of local groundwater occurrence and movement, additional characterization of subsurface contamination related to past and present activities at SWMU B-3, and to monitoring the ongoing bioreactor pilot study. The new extraction well will be located approximately 20 feet east of former SWMU O-1 (closure approved in 2002), and drilled into the Lower Glen Rose (LGR) portion of the Middle Trinity aquifer. Water from the extraction well will be pumped into the SWMU B-3 distribution system. Figure 1 illustrates the proposed drilling locations. This task also contains subtasks of well construction, water and power distribution, and control connections.



Aerial Photo Date: 2009

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200 100 0 200 Feet

- Proposed UGR Monitoring Well Location
- Proposed Groundwater Extraction Well Location
- Existing Westbay Multi-port Well
- Existing Supply/Monitoring Well
- SWMU Boundary
- Proposed HDPE Water Delivery
- Proposed Power Extension

Figure 1

Proposed Wells, Groundwater Delivery, and Electrical Service for SWMU B-3 Camp Stanley Storage Activity

PARSONS

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2.0 MONITORING WELL INSTALLATIONS

The current drilling program includes eight shallow UGR monitoring wells intended to complement existing SWMU B-3 monitoring wells. Drilling locations were chosen based on information from previous investigations as included in well installation reports and the CSSA Hydrogeologic Conceptual Site Model (HCSM), as well as recent data generated through recent SWMU B-3 Treatability Study activities. Topography and drill rig accessibility are factors that were also considered.

Actual drilling footage will be a function of each well's location, land surface elevation, and depth to UGR-LGR contact. During actual fieldwork, drilling depths may be advanced from 3 to 6 feet below the estimated UGR-LGR contact, depending on local hydrogeologic characteristics. If necessary, total drilling footage greater than that in the statement of work (SOW) will be addressed with a scope modification as field conditions warrant. The estimated total drilling depths range from 15 to 45 feet below ground surface (bgs) for the UGR wells (Table 1). Figure 2 represents typical well construction for the proposed monitoring wells.

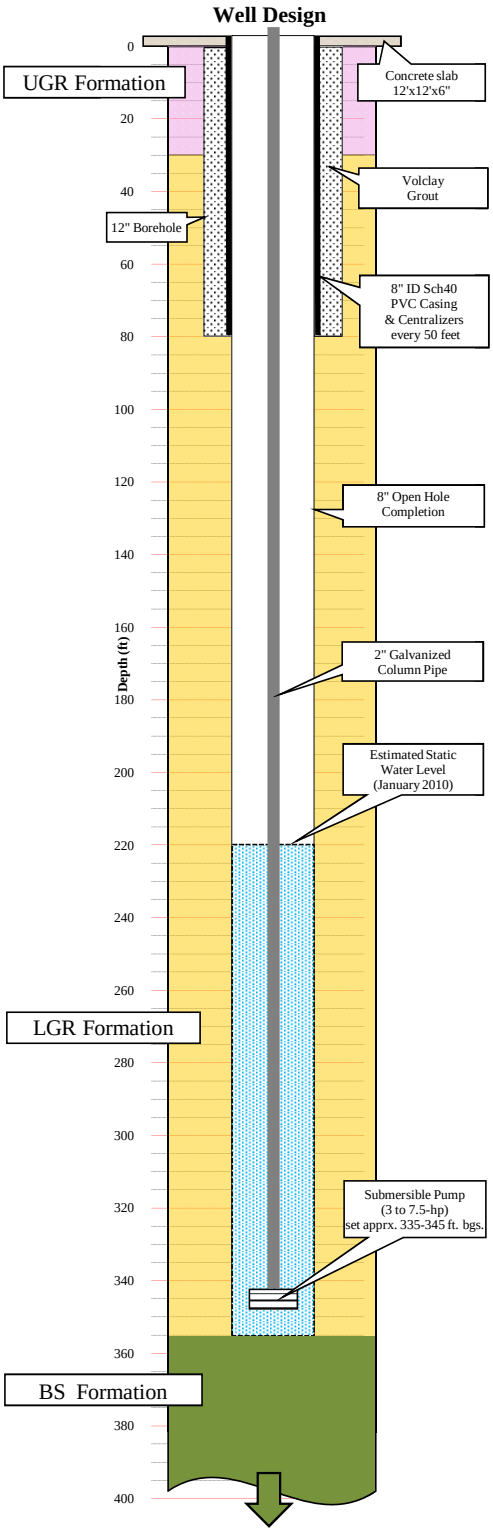
TABLE 1
ESTIMATED QUANTITIES OF MONITORING WELL REQUIREMENTS

Monitoring Well	Screened Interval	Total drilled depth (ft.)	4-inch Screen (ft.)	4-inch riser to surface (ft.)	Total riser incl. 3 ft. stickup
B3-MW-26-UGR	Upper Glen Rose	17	10	7	10
B3-MW-28-UGR*	Upper Glen Rose	15	10	5	8
B3-MW-29-UGR	Upper Glen Rose	15	10	5	8
B3-MW-30-UGR	Upper Glen Rose	18	10	8	11
B3-MW-31-UGR	Upper Glen Rose	38	20	18	21
B3-MW-32-UGR	Upper Glen Rose	42	20	22	25
B3-MW-33-UGR	Upper Glen Rose	26	20	6	9
B3-MW-34-UGR	Upper Glen Rose	22	15	7	10
Totals:	8	193	115	78	102

* CS-MW27-UGR installed by Boart-Longyear, 12-03-09.

Figure 2

SWMU B-3 Groundwater Extraction Well B3-EXW02
General Construction Design
Camp Stanley Storage Activity



Nominal 4-inch inside diameter (ID) Schedule 40 PVC casing riser and Schedule 40 PVC screen will be installed in each well. The well riser will consist of Schedule 40 PVC of nominal 4-inch ID with flush-threaded joints. Screens will have a slot size of 0.050-inches (50-slot), with a 10 to 20-foot intake. Wells deeper than 20 feet will have a stainless steel centralizer placed at the top of the screen.

The annular space will be filled with a 6/9 or 4/10-mesh filter pack from the base of the borehole to 1 to 2 feet above the top of the screened interval, depending on location. A 100 percent sodium bentonite seal with a maximum thickness of 3 feet will be emplaced within the borehole above the filter pack. The bentonite seal will be allowed to fully hydrate per the manufacturer's specifications before grouting activities commence. Beginning with small lifts, a Volclay/bentonite grout mixture will be slowly applied to the remaining annular space by straight pumping or using a side-discharge tremie pipe, depending on depth. The grout will be allowed to cure for at least 48 hours prior to well development. Volclay has been selected as the sealing method in lieu of Portland cement in response to elevated pH problems associated with the use of Portland in previous well installations at CSSA.

Wells will be completed with minimum 2-foot cement surface seals, 4-foot square concrete pads, and locking well protectors in accordance with state regulations, and 4 protector posts each in accordance with CSSA requirements. A brass monument will be placed in each monitoring well concrete pad to serve as a permanent benchmark. Monuments will be stamped with each corresponding well's official identification. Each well will be surveyed by a State of Texas registered land surveyor. All wells will be secured as soon as possible after drilling with corrosion-resistant locks.

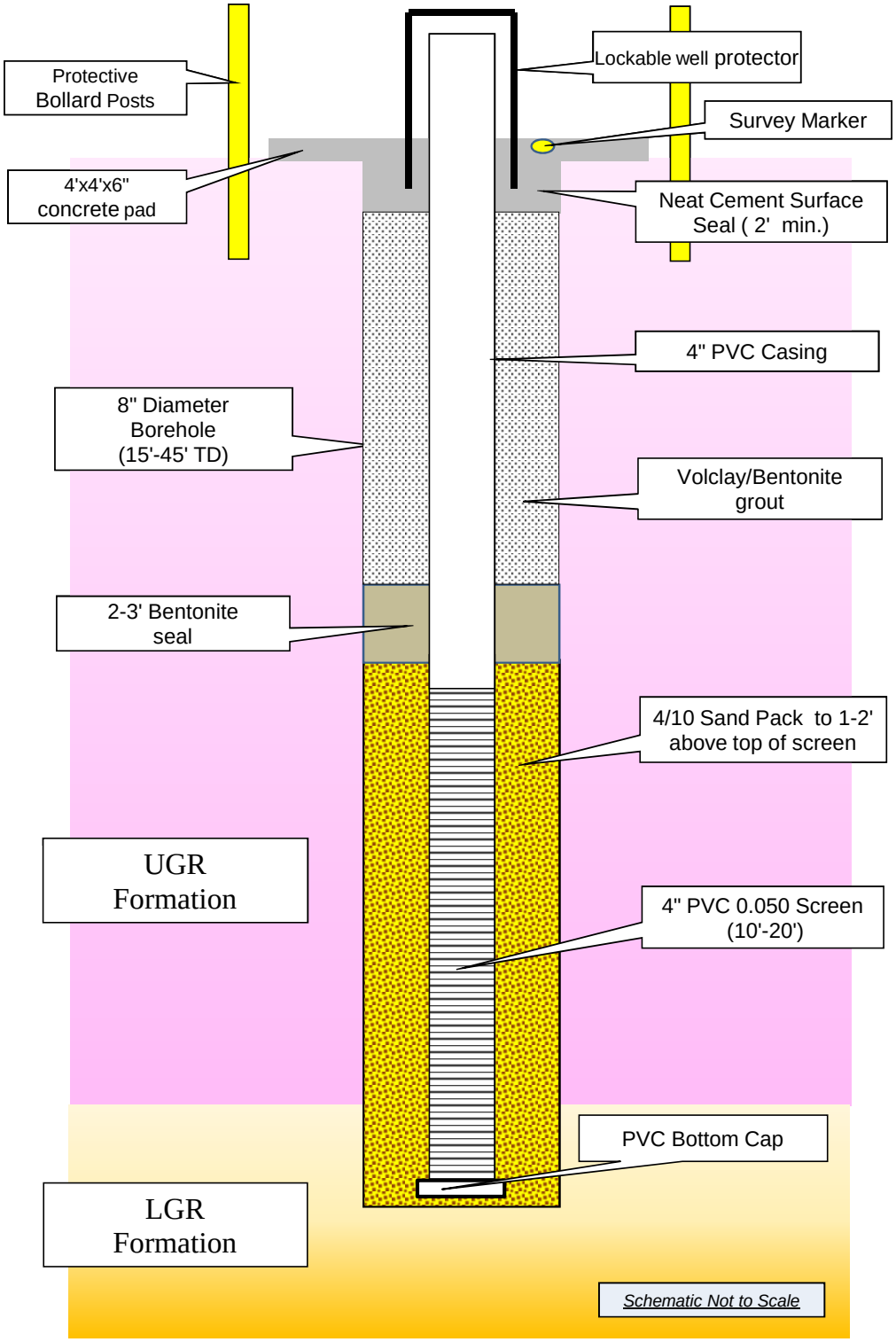
If sufficient groundwater is present, the shallow monitoring wells will be developed by the drilling subcontractor using surging, bailing, and pumping techniques. Well development requirements will follow the Model Field Sampling Plan (MFSP) document previously employed by CSSA.

3.0 GROUNDWATER EXTRACTION WELL INSTALLATION

For the purposes of providing water to the SWMU B-3 Bioreactor treatability study system, Parsons will install a groundwater extraction well which will produce groundwater from the LGR portion of the Middle Trinity aquifer to supplement the current demands of the treatment system. In general, a telescoping, single-cased open borehole well shall be constructed with a nominal diameter of 8 inches with up to 100 feet of 8-inch Schedule 40 PVC casing, as warranted by site conditions. However, considerably less surface casing may be installed to maximize the productivity of the well. The diameter of the well shall allow for the installation of a standard 6-inch groundwater submersible pump, which shall be sufficiently sized to pump groundwater at that depth. Figure 3 represents the generalized well construction for the proposed extraction well.

Figure 3

SWMU B-3 Typical Monitoring Well Completion
Camp Stanley Storage Activity



Once constructed, the well will convey LGR groundwater from the SWMU O-1 subsurface vicinity to the Bioreactor holding tank, approximately 1,200 feet north of the well site. Construction activities to fully commission the extraction well include drilling, conveyance system installation, electrical utilities, and integration into the SWMU B-3 automation system.

3.1 Drilling

It is anticipated that the actual drilling depth will range between 355 and 365 feet bgs, depending on conditions. The actual drilling depth will be a function of the well's specific location, land surface elevation, and proximity to structural features (e.g., faults). The final depth shall be determined by the on-site geologist based upon the results of the geophysical and video logs, geological formation contacts, and the presence of structural features. If necessary, total drilling footage greater than that in the statement of work (SOW) will be addressed with a scope modification as field conditions warrant.

The completed well will have telescoped design (surface casing in large bore with narrower open borehole completion) with a nominal diameter of 8 inches. Considering the material to be bored through, air rotary drilling with water injection is the preferred method of well borehole advancement. Clean, unchlorinated injection water will be made available from the CSSA water supply system at wells CS-10 and CS-12. The well will be drilled by a licensed well service contractor, and the construction and surface completion will adhere to local and state regulations. The use of "Quickfoam®" is an allowable drilling additive for assisting in cutting removal during the drilling process.

The drilling subcontractor shall use a single shot declination tool to check the plumbness and straightness of the borehole. The declination tool shall be run in the borehole after every 50 feet of advancement. The well shall be plumb within 2 degrees of vertical unless otherwise stated by Parsons and CSSA. The drilling subcontractor will make adequate provisions for the containment, control, and de-foaming of all fluids and solid media exiting the wellhead.

Drilling will pause between 50 and 100 feet, at the discretion of the site geologist, in order to obtain a groundwater sample. When the selected depth is attained, the drill string will be tripped out and groundwater allowed to accumulate in the hole. Drilling will resume after the site geologist has obtained a representative groundwater sample. The Subcontractor shall ream the borehole to 12-1/4 inch diameter and install PVC casing from ground surface to an estimated 100 feet below grade. The primary protective casing in the well shall be no larger than 8-inch inner diameter ID (8-5/8 inch outer diameter (OD) PVC casing completed within a borehole with a nominal diameter of 12-1/4 inches. The casing shall be centered within the borehole using steel centralizers at 50-foot intervals. The casing will stick up 3 feet above the ground surface. The casing shall be grouted, and then allowed to cure at least 24 hours before advancing the boring.

Beginning with small lifts (less than 250 gallons), a Volclay grout mixture shall be slowly pumped into the annular space using a side-discharge tremie pipe. Past problems with elevated pH resulting from use of Portland grout has prompted the use Volclay in lieu of Portland cement. The volume of grout shall be calculated prior to its emplacement. The slurry shall be injected until grout flows freely at the surface. The annular space shall be checked periodically for settlement, and shall be topped off as needed to no greater than two foot below ground surface.

The grout shall be allowed to cure for at least 48 hours prior to well development. The surface casing shall also rise 3 feet above ground surface.

Following curing, the Subcontractor shall drill the remainder of the borehole until it has advanced to the predetermined depth (to base of LGR) to the base of the LGR Limestone using a 7-7/8-inch drill bit. The borehole will be completed as an open borehole LGR well.

3.2 Geophysical Logging

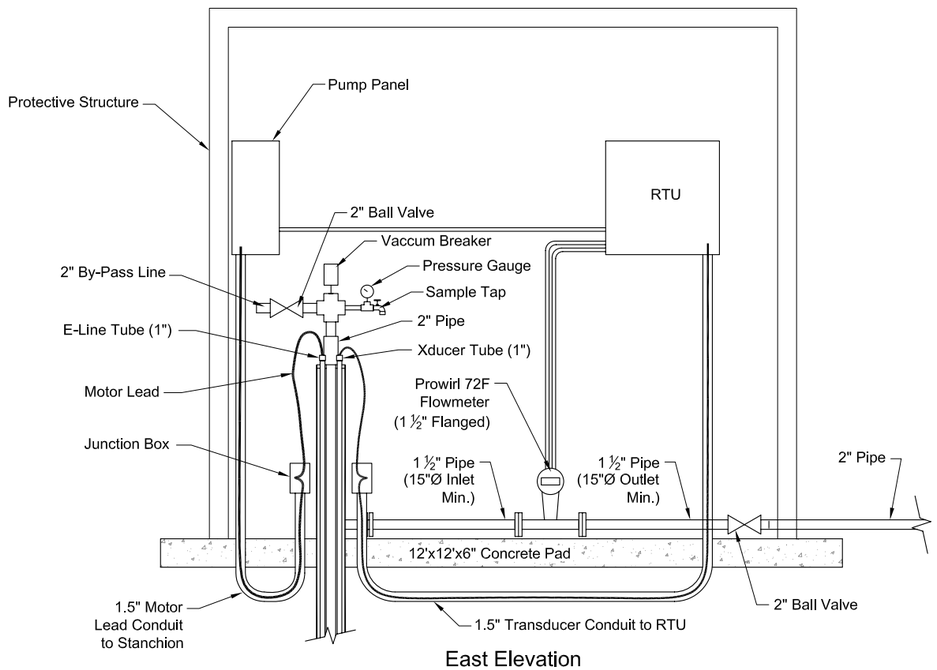
The shallow wells will not be geophysically logged. The extraction well borehole will be inspected by geophysical and video logging upon reaching the target depth and before casing is emplaced. The downhole logging tools will be used to characterize and correlate the geologic/hydrogeologic conditions relative to similar data collected throughout the base in previous efforts. The logging efforts can also help identify significant production zones and will aid in the construction and casing design of the well. Gamma, resistivity, spontaneous potential (SP), and caliper logging shall be conducted. Gross-count natural gamma ray logging shall also be conducted with both short (16") and long (64") resistivity and SP methods to augment identification and correlation of strata or soil/rock types between boreholes, upon the discretion of Parsons geologists. A borehole video camera will be used to inspect and record (analog or digitally) the condition of the well borehole.

3.3 Well Development and Pumping Test

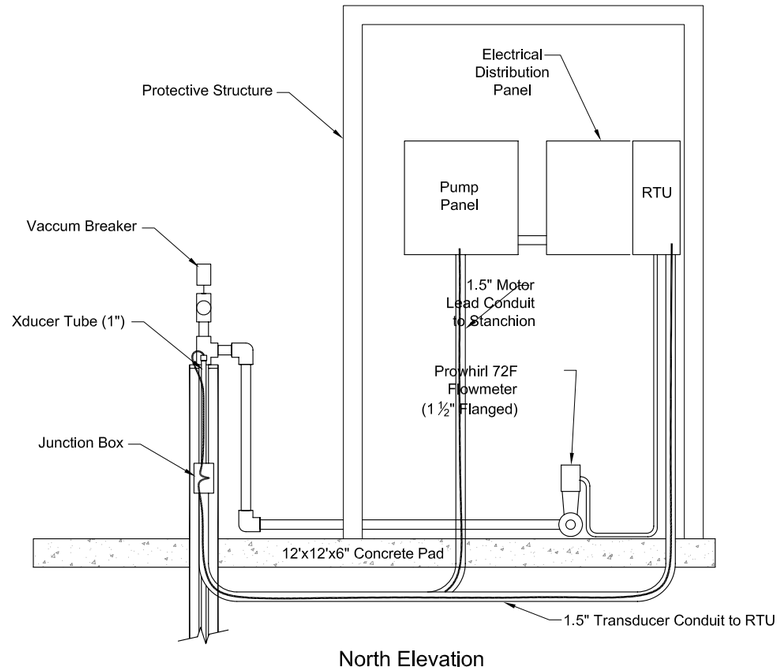
For the extraction well, a sufficiently-sized pump will be utilized during well development to ascertain the appropriate pump size for long-term pumping. The well service subcontractor shall perform a short-term pumping test (minimum of 4 hours) to determine the yield and capacity of the extraction well. It is assumed that a 4-inch pump capable of 50 gallons per minute (gpm) will be needed for the pumping test (3 to 7.5 horsepower). However, the prevailing environmental conditions will dictate that actual test pumping rate, which could range between 10 and 50 gpm. Development and pumping test discharge will be managed at the on-post water treatment (granular activated carbon system) unit (GAC) or within SWMU B-3, or a combination thereof. Once the well has been developed, logged, and tested, a permanent submersible pump and motor controls will be selected and installed at the well. The final column pipe shall include a minimum of two in-line check valves.

3.4 Surface Completion

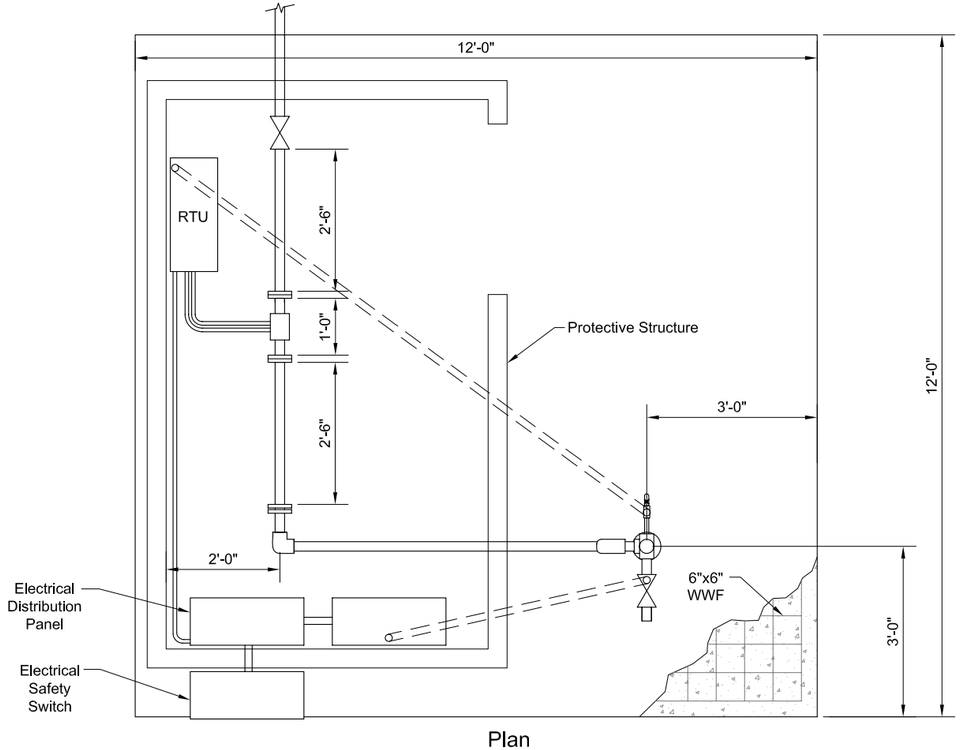
Parsons and its subcontractors shall perform all services necessary to complete the wellhead and make it operational to convey water from the wellhead to a holding tank on the north side of SWMU B-3. In general, the subcontractors shall grade and prepare the ground surface, run sub-slab conduits, form and install a 12-foot square concrete slab, install a prefabricated pump house, and install the necessary plumbing, metering and control assemblies. The conceptual design for the wellhead is presented in Figure 4, which is similar to existing well B3-EXW01.



East Elevation
Scale: 3/8"=1'-0"



North Elevation
Scale: 3/8"=1'-0"



Plan
Scale: 3/8"=1'-0"

Figure 4

Proposed O-1 Extraction Well EXW-02
Surface Completion Design

Camp Stanley Storage Activity

7471145 O1 WELLHEAD PLAN.DWG 11/4/09

The ground surface shall be prepared with a highly compacted, flexible base. The properly compacted base will support the weight of a dual axle truck without creating ruts. The compacted base will be moist prior to the placement of concrete material, but without puddles of free standing water. A 12-foot by 12-foot slab with 6 inches of thickness, reinforced by welded wire fabric, will be formed around the well. The slab shall be placed so that the well is offset from the southeast corner of pad by 3 feet in both directions. The sub-slab motor lead the transducer conduits will be 2 inches in diameter. The conduits will originate at the wellhead, and will terminate at their respective control boxes mounted within the prefabricated pump house.

A 10-foot by 6-foot pre-fabricated steel structure similar to current the pump house assembled for B3-EXW01 will be installed. The pump motor control panel and remote telemetry unit (RTU) will be mounted in the pump house, and the necessary electrical connections between the well and the control panels will be made.

The wellhead plumbing will consist of 2-inch galvanized steel pipe and fittings. The installation will also include incorporating a 1.5-inch flanged flowmeter (SCADA-capable). The flow meter will require a minimum of 15 pipe diameters (30 inches) of straight pipe before and after the meter for accurate measurement. A 2-inch gate valve will be installed to control the flow and isolate the system as necessary.

At the wellhead, an air relief/vacuum breaker valve will be installed to allow any accumulated gases (air) to be purged from the column pipe. A pressure gauge will also be incorporated at the wellhead. Additionally, a hose bib (sample faucet) to allow for groundwater sampling will also be installed.

A 2-inch bypass with gate valve will be installed for filling of external tanks (e.g., water trucks) with non-chlorinated water, or purging of the well as necessary. Finally, a 2-inch gate valve will be installed at the wellhead to allow for flow to be regulated, or allow the well to be manually isolated from the remediation system.

A swing check valve to prevent backflow from the remediation system will be installed. This check valve will work in conjunction with the downhole check valves to ensure that backflow into the well from the bioreactor storage tank is not possible.

3.5 Electrical Utility

CSSA currently distributes power throughout the installation via 4,160V, 3 phase transmission lines. An electrical subcontractor will be required to provide all the materials and services necessary to extend the existing electrical system approximately 170 feet around the north side of the O-1 cap, via underground service entrance conductors, and provide 120/208V, 3 phase power to the extraction well.

An existing, nearby utility pole on the west side of O-1 will be utilized to extend the electrical distribution to the new O-1 groundwater extraction well. Pole-mounted transformers will be required to step down the primary 4,160 voltage to the desired 120/208V, 3 phase service required at the wellhead, where a 100 amp, 120/208V, 3 phase, 4 wire service panel will be installed. The well pump and other ancillary equipment will be wired to the service panel to operate the well and control system.

3.6 Integration into the SWMU B-3 Bioreactor

The project also includes installation of additional equipment and controls to expand the bioreactor pumping system to include the new groundwater extraction well located at the closed O-1 site. The new well will operate in conjunction with three existing wells (CS-16-LGR, MW16-CC, and B3-EXW01), which are already integrated into the Bioreactor automation system.

The submersible pump in the O-1 extraction well will convey up to 50 gpm to a 5,000-gallon storage tank for a distance of approximately 1,200 linear pipe feet through a 2-inch HDPE line. The installed pump will be a 3-phase, 208v pump rated between 5 and 7.5 horsepower. The SCADA integrator will equip the well with a narrow diameter pressure transducer that is set to signal deactivation of the pump if the water level gets too low during the drawdown phase and will also signal the pump when the water level is high enough for the pump to restart after the recovery phase of the well.

New 2-inch HDPE pipe will extend approximately 700 feet from the wellhead to a manifold to be constructed at well B3-EXW01. Valves will be installed at the manifold to isolate the extraction wells as needed. From that point, groundwater will be conveyed to the holding tank located using the existing B3-EXW01 discharge pipe.

A programmable logic controller (PLC) will be required at the wellhead equipment to interpret the transducer signal and provide the start/stop logic for the well pump based upon the current water level and control signals from the 5000-gallon storage tank. In addition to the PLC controller at the well, there is a master controller located at the GAC Shack that automates the entire Bioreactor processes. For the integration of the new O-1 extraction well, the SCADA integrator will implement a wireless technology utilizing spread spectrum radios between the controllers to actuate the well pump.

4.0 DECONTAMINATION PROCEDURES

To prevent sample contamination from the onsite sampling equipment and machinery, decontamination will follow the general procedures outlined in the MFSP. A decontamination station will be set up within the SWMU B-3 site.

Drill rigs, drill pipe and bits, and other equipment that does not come into contact with the sample medium will be decontaminated with a steam cleaner before initial use and after each borehole is completed. Drill bits will be decontaminated with a steam cleaner prior to use at each boring or monitoring well location. If hot water cleaning alone is found to be ineffective, the equipment may be scrubbed with laboratory-grade detergent and then rinsed with high-pressure steam. All visible dirt, grime, grease, oil, loose paint, *etc*., will be scrubbed until it has been removed. When possible, drilling will proceed from the "least" to the "most" contaminated sites.

Casing pipe and centralizers will either be certified clean by the manufacturers or if necessary, decontaminated by steam cleaning. Prior to well development, equipment such as pumps or surge blocks will be decontaminated by flushing or pumping laboratory-grade

detergent solution, potable water, then ASTM Type II reagent water through the internal components.

5.0 INVESTIGATION-DERIVED MEDIA MANAGEMENT

Investigation-derived media (IDM) may include soil cuttings, drilling fluids, purged groundwater, well development water, decontamination fluids (water and other fluids), and disposable personal protective equipment (PPE).

For the O-1 well, the drilling subcontractor may use up to 30-yard, transportable roll-off boxes placed at the drilling location to contain LGR drilling fluids and solid cuttings as necessary. Additional roll-off boxes (covered, lined, and leak-proof) may be placed near the water treatment plant for processing fluids through the GAC unit. Sediment-free groundwater generated during drilling activities and well development, as well as decontamination water, will be transported to this roll-off container via vacuum truck for treatment in the GAC unit in accordance with TPDES Permit number WQ0003849000, or managed on the SWMU B-3 site under SWMU B-3 Bioreactor TCEQ Class V Underground Injection Control (UIC) permit number 5X2600431.

The remaining solids, fluids or drill cuttings will be containerized in roll-offs or by plastic sheeting at the wellhead, and managed as appropriate. For those solids and fluids determined non-hazardous by analytical results, CSSA may opt for an alternative recycling or reuse method.

5.1 Temporary Storage Containers

Due to drilling in a potentially contaminated portion of the aquifer, generated drilling fluids may have to be contained in multiple 20- to 30-yard roll-off boxes. Drilling fluids would be placed directly into the containers at the site and allowed to settle before decantation of the water for processing. Once the solid fraction has sufficiently settled, the liquid fraction of a roll-off container can be characterized for short list VOCs to determine if the water will meet surface discharge requirements (less than MCLs). The liquid fraction of each roll-off is sampled to make the discharge determination.

Once a roll-off container is sampled, the determination to discharge water is based on the analytical results being less than the MCL (or Tier 1 PCL) for a particular compound. The determination of releasing uncontaminated groundwater is made in conjunction (and permission) of the CSSA environmental officer. Discharges to the surface are made to areas that do not have the potential for draining off-post. The roll-off may then be reused to store drilling fluids. Once the roll-off has accumulated approximately 50 percent solids, the container should not be used to store additional fluids until the solid fraction can be characterized and removed from the roll-off.

6.0 SAFETY PROCEDURES AND REQUIREMENTS

Work to be conducted under this DO will be compliant with the safety procedures set out in the DO 0050 Health and Safety Plan (updated, January, 2010) and the comprehensive CSSA Health & Safety Plan (April 2005). The identified potentially hazardous activities under this work plan include heavy equipment operations, drilling and augering, electrical equipment

operation, and noise-induced hearing loss activities. An activity hazards analysis for each activity is included in Attachment 1.

7.0 SAMPLING REQUIREMENTS

The planned sampling activities for this project include initial groundwater samples after well completion, and possibly IDM screening. One shallow groundwater sample will be collected from the extraction well during the first 100 feet of drilling. In general, sampling activities conducted under this DO will occur at locations outside defined SWMU and AOC areas, and will not be related to direct characterization of SWMUs or AOCs as addressed in the RFI and Interim Measures Waste Management Plan (2006, Revised). The IDM generated during these well installations, both soils and fluids, are addressed in the RFI and Interim Measures Waste Management Plan and the general requirements of the Plan will be followed for the IDM.

7.1 IDM Samples

IDM for both soils and fluids may be collected for characterization prior to management activities. Fluids generated during drilling may be containerized in transportable 20 to 30-yard roll-off boxes. If analytical results indicate that the IDM is contaminated, it will be transported to the appropriate TPDES permitted outfall treatment system by vacuum truck. The liquid fraction will be treated and discharged in accordance with the TPDES permit. If analytical results indicate that the generated IDM is not contaminated, the material will be reused within CSSA.

7.2 Initial Groundwater Samples

The wells will be sampled initially under this delivery order for the list of SWMU B-3 parameters (please refer to ***SWMU B-3 Bioreactor Operation and Maintenance Manual***, March 2010). Following the initial sampling events, the wells will be incorporated into the ongoing SWMU B-3 groundwater sampling program under DO-50. Well sampling techniques and parameters will be consistent with those existing for the SWMU B-3 bioreactor treatment study.

Sampling to be conducted will be consistent with sampling and analysis plans previously approved for CSSA investigations. The field team will follow the methods approved in CSSA Quality Assurance Project Plan (QAPP) and the CSSA Sampling and Analysis Plan (SAP). Quality Assurance/Quality Control (QA/QC) sampling and analysis will be performed to meet the requirements in the CSSA QAPP.

8.0 REPORTING PROCEDURES

Parsons will provide draft and final versions of a technical memorandum to document activities associated with installation of the wells. Geologic logs, construction diagrams, and analytical documentation will be included in the attachments. The memo will be incorporated into SWMU B-3 Quarterly Bioreactor Performance reports as appropriate. Daily fieldwork activities will be recorded by the onsite geologist in the project's field logbook.

9.0 SCHEDULE

Fieldwork is anticipated to begin in April 2010. It is anticipated that one drilling rig will install the majority of the wells. If available, a second subcontractor drilling rig appropriately

sized to competently perform the assigned tasks will also be mobilized to complete the shallow wells, while the larger rig drills the extraction well. With the current scope of work, and employing one drill rig, it is expected that the well construction efforts will require a minimum of a 6-week field effort. The schedule will be maintained and updated, and routine submittals will be included in the monthly man-hours and expenditure reports.

Attachment 1

Activity Hazards Analysis

Project Name & Number: **Well Installations (DO0050)**		**AHA No.: 747145-03000**	**Date Prepared: 12/1/09**	
Location: CSSA, Boerne, Texas		**Contractor: Parsons/GeoProjects**	**Analysis by: Eric Tennyson**	Date: 12/1/09
Required Personal Protective Equipment: Level D		**Field Team Leader: Eric Tennyson**		
Work Activity		**Potential Hazards**	**Preventive or Corrective Measures**	Inspection Requirements
Well Installation Activities				
Drilling UGR & LGR wells	Workers "struck-by" Strains Slips, Trips, and Falls Weather Noise Dust resulting from Air Coring	Be aware of all site workers and equipment. Ensure all subcontractors follow the Subcontractor PSP. Do not assist subcontractors with drilling operations. Maintain a safe distance from the drilling rig while in operation. Follow proper lifting and handling techniques when working with sampling equipment. Practice good housekeeping in work areas. Be aware of developing, adverse weather conditions. At a minimum, wear hard-hats, safety glasses, steel-toed boots, and hearing protection, as necessary. Utilize safety glasses w/side shields and dust masks if excessive dust is generated.	At a minimum, a competent person will inspect the work area, materials handling equipment, and tools daily.	

Project Name & Number: **Well Installations (DO0050)**		**AHA No.: 747145-03000**	**Date Prepared: 12/1/09**	
Location: CSSA, Boerne, Texas		**Contractor: Parsons/GeoProjects**	**Analysis by: Eric Tennyson**	Date: 12/1/09
Required Personal Protective Equipment: Level D		**Field Team Leader: Eric Tennyson**		
Work Activity		**Potential Hazards**	**Preventive or Corrective Measures**	Inspection Requirements
Extraction well Surface completion	General construction	Equipment operators and ground personnel maintain eye contact and employ proper communication protocols.		
	Electrical	Electrical work shall be undertaken only by qualified personnel under direct supervision of a licensed electrician.		
	Poisonous wildlife	Be aware of potential encounters with snakes, scorpions, poison ivy, etc.		

Note: Any additional hazards noted during the project that are not included in this AHA will be logged in the project field book.

Training Requirements:
All assigned employees are required to familiarize themselves with the contents of this AHA before starting a work activity and review it with their Supervisor during their Daily Safety Huddle.