

November 8, 2007



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Billings, Montana 59102
406-656-3072 Fax: 406-656-3578

Windsor Energy Resources, Inc.
14313 North May Avenue, Suite 100
Oklahoma City, Oklahoma 73134

Attn: William C. Liedtke, III
Vice President and General Counsel

Re: Interim Measures Remedial Action
Croby 25-3 Natural Gas Well Release
Road 1AB
Clark, Park County, Wyoming
Terracon Project No. 26067064

Dear Mr. Liedtke:

Terracon Consultants, Inc. (Terracon) has prepared this letter to discuss the implementation of interim measures remedial action at the above-referenced site. Terracon conducted a desktop review of several remediation technologies that could potentially be implemented to either capture and treat or treat in-situ the dissolved petroleum hydrocarbon contaminant plume in a location upgradient of the King water supply well (hereinafter referred to as the treatment area). The interim measures are not intended to treat the entire area of petroleum hydrocarbon impact at the site.

Remediation Technology Evaluation

Terracon has conducted a cursory evaluation of a limited number of possible remediation technologies that could be implemented as an interim measure in the treatment area. Two remedial options were chosen for further evaluation. The first option was the installation of a pump and treat system with several recovery wells to pump groundwater from the valley fill formation, treat the recovered groundwater, and then discharge the treated groundwater to Line Creek. The second option that was evaluated was an in-situ groundwater treatment method, the installation of an air sparge curtain wall combined with soil vapor extraction (SVE).

Upon further evaluation it was decided that technologies that involve removal of groundwater, such as pump and treat, would not be considered for implementation as an interim measure in the treatment area. This was based on several factors, the most notable being freezing conditions and the likelihood that, in order to be discharged to Line Creek, the recovered groundwater would have to be treated to stringent discharge criteria (not only for contaminants

of concern, but also for inorganic parameters and physical characteristics such as total suspended solids, total dissolved solids, and turbidity). This would tend to lengthen the time to implement (due to equipment procurement, construction issues, and permitting) and increase the initial cost of a remediation system, as well as long term operation and maintenance (O&M) costs. In general, O&M costs of systems that remove and treat groundwater tend to be higher than systems that rely on in-situ treatment. Thus, Terracon decided to focus on a remediation technique that uses in-situ groundwater treatment methods for the interim remedy. Please note that the final site remedy for areas outside the interim measures treatment area may or may not include groundwater extraction.

After evaluation of in-situ groundwater treatment methods, Terracon is proposing that an air sparge/soil vapor extraction (AS/SVE) treatment line (a series of vertical air sparge wells combined with a horizontal SVE trench) be installed upgradient of the King water supply well. The advantages of an AS/SVE system over an ex-situ groundwater treatment method such as pump and treat include lower initial and operating costs, the reasonable time frame for implementation, and the stimulation of in-situ biological aerobic degradation of contaminants. Air sparging is an in-situ groundwater remediation technology in which compressed air is injected below the water table to strip dissolved contaminants from the groundwater. Air sparging can also increase dissolved oxygen levels to stimulate natural attenuation through aerobic degradation. Air sparging is generally used in combination with soil vapor extraction, as SVE removes the "stripped" contaminants from the vadose zone. This reduces the chances of vapor migration. Air sparging is more effective in homogeneous, coarser grained soil types. These materials may be present in the treatment area but the geology is heterogeneous. Air sparging is not as effective in fine-grained soils due to channelization.

SVE is an in-situ unsaturated (vadose) zone soil remediation technology in which a vacuum is applied to the soil to induce the controlled flow of air and remove volatile and some semi-volatile contaminants. The vapor leaving the soil may be treated, depending on mass removal rates and air discharge regulations. The technology is generally more effective with lower boiling point and higher vapor pressure compounds, which in general is most VOCs. However, air movement through the subsurface often stimulates in-situ aerobic biological activity that degrades some contaminants with high boiling points and lower vapor pressures. SVE is often a cost-effective vadose zone remedial technology for a range of soil types, although it is less effective in fine-grained soils and soils with a high percentage of soil moisture. Disadvantages of SVE systems include the inability to efficiently remediate groundwater and saturated zone soils (unless SVE is used in combination with other technologies, such as groundwater recovery or air sparge) and the potential need for treatment of SVE air discharge. However, due to relatively low contaminant concentration in the remediation target area and based on pilot testing results, it is not anticipated that treatment of the air discharge would be required.

Pilot Test

To evaluate the suitability of AS/SVE at the site, estimate the radius of influence (ROI) of sparge wells, zone of influence of SVE screened laterals, and evaluate flow and pressure requirements for the remediation equipment, Terracon conducted pilot test activities in the treatment area on November 5 and 6, 2007. Pilot testing involved the installation of an air sparge well (designated AS-1), an approximate 30-foot section of SVE screened lateral trench, and observation wells (designated MW-40, MW-41, and MW-42) spaced at intervals of approximately 10 feet, 18 feet, and 33 feet from the air sparge well, respectively. The SVE screened lateral was located approximately 4 feet from the air sparge well AS-1. The air sparge well AS-1 consisted of a 2-inch nominal diameter, PVC casing, with a two-foot long screened interval from approximately 40 to 42 feet below ground surface (bgs). At the AS-1 well boring location, the top of the Tertiary Fort Union Formation conglomerate was encountered at approximately 43 feet bgs. Observation wells consisted of a 2-inch nominal diameter, PVC casing, with a screened interval varying from approximately 5 to 40 feet bgs for MW-40 and MW-41 to approximately 5 to 45 feet bgs for MW-42.

The pilot test SVE screened lateral consisted of a 2-inch nominal diameter, PVC, slotted screen (0.01 slot size) placed within a pipe bedding material (3/4 inch crushed rock). The 30-foot long trench was excavated to a depth of approximately 6 feet bgs, and the screened lateral was placed at a depth of approximately 5 to 5.5 feet bgs. An approximate 6-inch layer of soil was placed above the pipe bedding, overlain with a 6-mil sheet plastic (at a depth of approximately 4.5 ft bgs). The trench above the plastic sheeting was backfilled with excavated soil.

Pilot testing activities were conducted by first applying a vacuum to the SVE screened lateral. The applied vacuum was adjusted to approximately 20 inches of water column ("WC), which resulted in an extraction air flow rate of approximately 140 standard cubic feet per minute (scfm). Monitoring of the observation wells did not indicate a measurable induced vacuum. The applied vacuum was lowered to approximately 10 inches of WC, which resulted in an air flow rate of approximately 90 scfm. The SVE blower exhaust was monitored with a photo-ionization detector (PID). PID readings did not increase over the course of the test, ranging from 2 to 4 parts per million. Because the pilot test location and interim measures treatment area is in the downgradient portion of the known contaminant plume (where dissolved contaminant levels are relatively low), elevated PID results were not anticipated and were not observed during pilot testing.

The air sparge pilot testing was conducted at several air injection flow rates to evaluate radius of influence (ROI) of the air sparge wells. Pressure, dissolved oxygen, well casing vapor concentration (using a photo-ionization detector [PID]), and bubble flux were monitored at the observation wells. Based on the preliminary evaluation of the short duration pilot test results, the air sparge ROI is estimated at approximately 25 to 30 feet. However, this may vary with

longer term air sparging activities. This ROI estimate is with a saturated thickness of 25 feet above the top of the air sparge well screen and an air injection rate of about 8 actual cubic feet per minute (acfm) at approximately 12.5 pounds per square inch (PSI).

Proposed Interim Measures AS/SVE System

Based on the results of the pilot testing, components of the proposed interim measures AS/SVE system may include the following (these are typical system components and are subject to change as applicable):

- A line of air sparge wells, spaced at intervals of approximately 40 feet, across the dissolve benzene contaminant plume in the vicinity of the area shown on Figure 1. Several options for the line of wells are shown. The actual location of sparge wells will be dependent upon several factors, including variations in saturated thickness, obtaining access to the Line Creek Wilderness Subdivision "common ground", and depth to water. The air sparge well spacing is based on an estimated ROI of approximately 25 to 30 feet based on the pilot testing in an area with a saturated thickness of approximately 25 feet. The well spacing may vary with changes in the saturated thickness.
- Sparge wells would be 2-inch nominal diameter, PVC, with a two-foot long screened interval a depth that corresponds to the top of the Tertiary Fort Union Formation conglomerate. Based on drilling of the pilot test air sparge well AS-1, this depth was approximately 43 feet at the pilot test well location. A typical air sparge well design is depicted on Figure 2.
- Installation of horizontal SVE screened lateral lines in the excavated trench that would be used to install compressed air lines to sparge wells. The SVE screened lateral trench would be located hydraulically downgradient of the line of air sparge wells, at the approximate location shown on Figure 1. As with the sparge wells, several options for the SVE screened lateral location are shown on Figure 1. The SVE screened lateral would be installed in the trench provided the depth to water in the corresponding section of trench is greater than approximately 7 feet.
- The SVE screened laterals would consist of a 2-inch nominal diameter, PVC, slotted screen placed within a granular pipe bedding material. Based on the SVE pilot testing results, Terracon proposes to install a plastic sheet and bentonite-cement grout layer above the pipe bedding prior to backfill the trench. Depending on the length of the treatment line, several screened lateral sections may be installed with each segment length of approximately 150 to 200 feet. The SVE screened laterals would be placed at a depth sufficient to keep them below the typical frost line and maintain air flow during

winter months (estimated at 5 feet bgs). A typical SVE trench cross section is depicted on Figure 2.

- Buried compressed air and SVE extraction piping. Each air sparge well and SVE screened lateral would have separate piping connected to a manifold in the enclosure, allowing for flow and pressure control and monitoring from the enclosure.
- A heated and ventilated remediation system equipment enclosure to house an air compressor for operation of sparge wells and a blower for generating a vacuum for application to the SVE screened lateral. The location of the equipment enclosure has not been chosen at this time, however, due to noise considerations, location of available electrical power, and access issues, we are anticipating a location near the road, south of the Crosby Well pad. A typical AS/SVE system process and instrumentation diagram (P&ID) is included as Figure 3. The P&ID is presented as preliminary information and is subject to change as the pilot test data is evaluated further.

General Comments

The analysis and opinions expressed in this report are based upon data obtained from the soil borings and monitoring wells installed at the indicated locations; the November 5 and 6, 2007 pilot test results; and from any other information discussed in this report. This report does not reflect any variations in subsurface chemistry, stratigraphy, or geohydrology which may occur between borings or across the site. Actual subsurface conditions may vary and may not become evident without further exploration.

This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties, either express or implied, are intended or made. In the event any changes in the nature or location of observed conditions as outlined in this report are found, this report cannot be considered valid unless these changes are reviewed and the opinions of this report are modified or verified in writing by Terracon.

**Interim Measures Remedial Action
Crosby 25-3 Natural Gas Well Release
Terracon Project No. 26067064
November 8, 2007**

Terracon

We appreciate the opportunity to be of service to the Windsor Energy Group on this project. If you have any questions, please call.

Sincerely,
TERRACON CONSULTANTS, INC.



Michael Reif, P.E.
Environmental Engineer

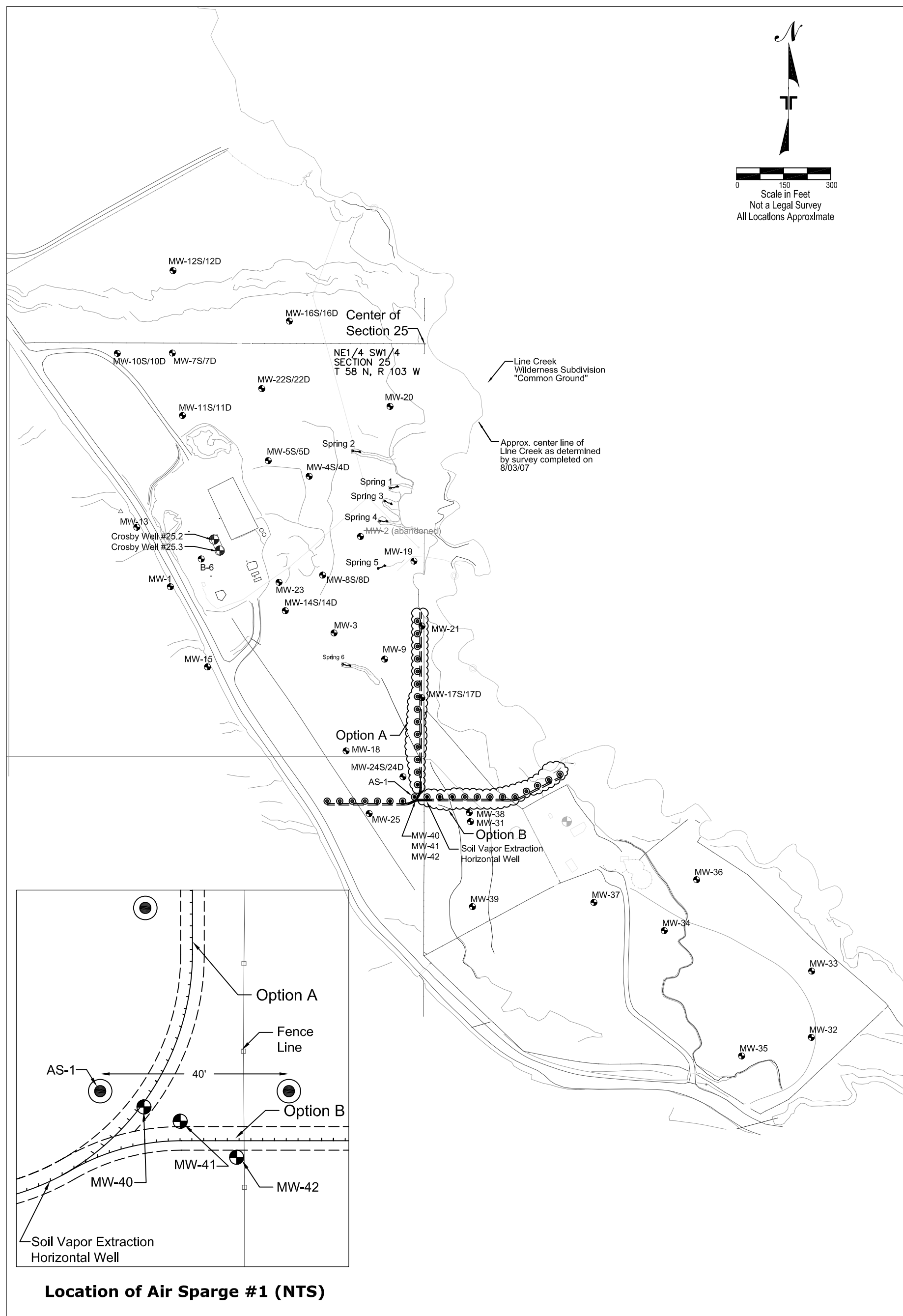
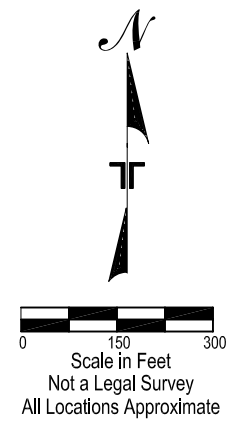


Michael E. Hagemester, P.E.
Principal Engineer

MBR/MEH/MLB:mbr/cjf

Copies to: Addressee (1)
 Kathy Brown, Wyoming Department of Environmental Quality (1)

Attachments



Location of Air Sparge #1 (NTS)

Figure 1 - Proposed Interim Remedial Installation Plan

Crosby #25-3 Natural Gas Well Release
Road 1AB, Park Co., Wyoming

2110 Overland Avenue, Suite 124
Billings, Montana 59102
ph: 406-656-3072
fax: 406-656-3578

Job #	26067064	Date	Nov. 2007	Drawn	W. Knudsen	Scale	As Shown
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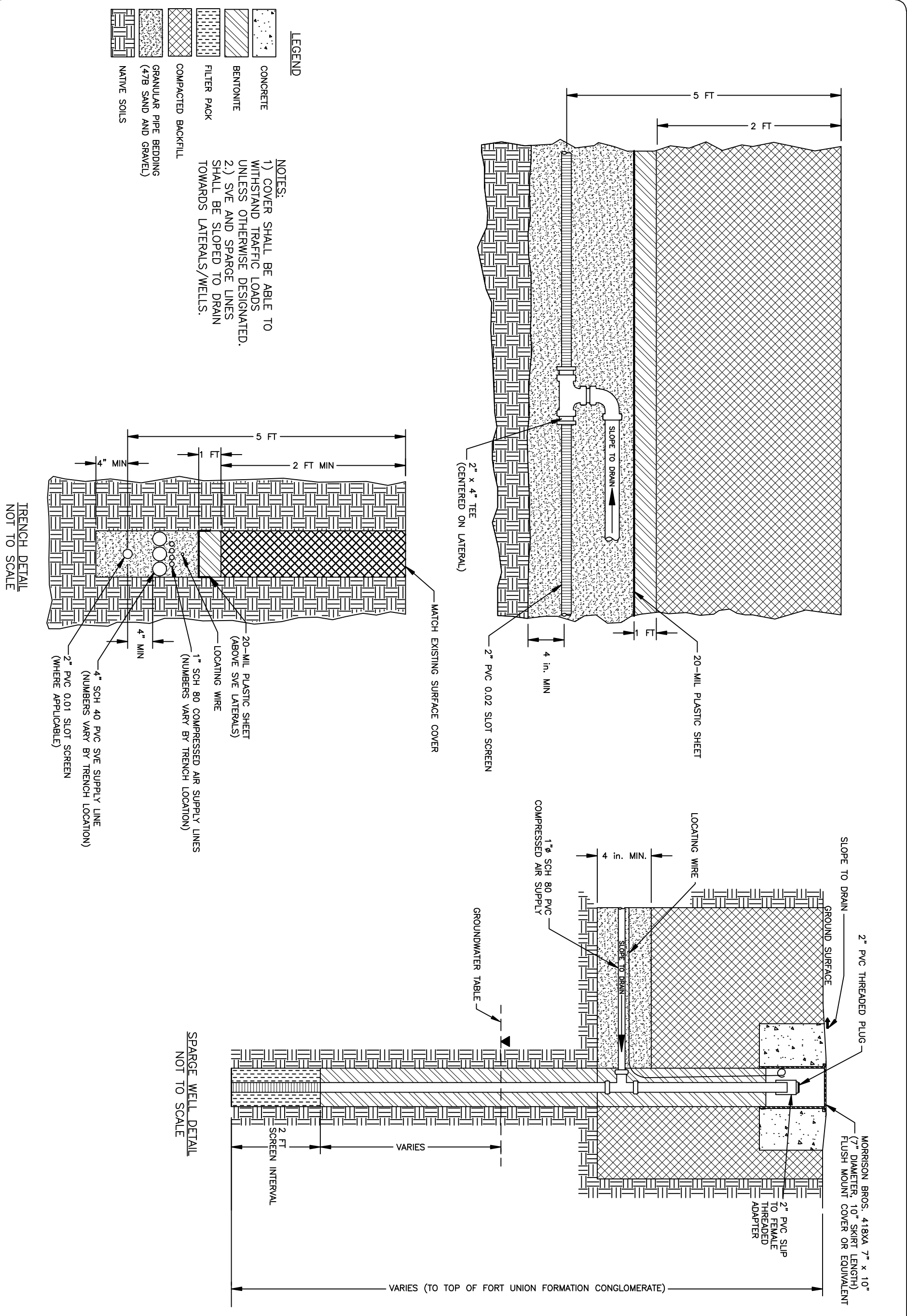


Figure 2 - Proposed Sparge Well and SVE Trench Details
 Crosby #25-3 Natural Gas Well Release
 Road 1AB, Park Co., Wyoming

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