SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

REMEDIATION SYSTEM AS-BUILT REPORT

Property:
TOC Holdings Co. Facility No. 01-169
851 North Broadway
Everett, Washington

Prepared for:
TOC Holdings Co.
2737 West Commodore Way
Seattle, Washington

Report Date:
February 6, 2014

Remediation System As-Built Report

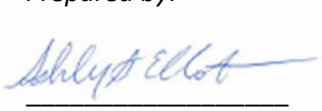
Prepared for:

TOC Holdings Co.
2737 West Commodore Way
Seattle, Washington 98199

TOC Holdings Co. Facility No. 01-169
851 North Broadway
Everett, Washington 98021

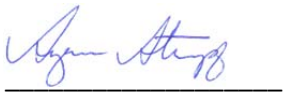
Project No.: 0440-002

Prepared by:



Ashley Elliott, EIT
Staff Engineer

Reviewed by:



Suzy Stump, PE
Associate Engineer

February 6, 2014

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APPENDICES

1.0 INTRODUCTION

SoundEarth Strategies, Inc. has prepared this Remediation System As-Built Report for the remediation system that currently operates at the TOC Holdings Co. Facility No. 01-169, located at 851 North Broadway in Everett, Washington (the Property). The following sections are intended to document the installed components of the remediation system as well as to provide TOC Holdings Co. with as-built figures of the system (Appendix A) for future reference.

1.1 PROPERTY DESCRIPTION AND LOCATION

According to Snohomish County Assessor records, the Property consists of an irregularly shaped tax parcel (Snohomish County parcel number 29051700200700) that covers approximately 18,731 square feet (0.43 acres) of land, and is generally located east of the intersection of North Broadway and Tower Street, in Everett, Washington. The Property is listed as 851 North Broadway, approximately 1.7 miles north of downtown Everett, Washington (Figure 1).

The Property is currently occupied by a retail shopping center and is owned by P&M Partnership. Tenants include a Subway restaurant and a 7-Eleven convenience store. The exterior portions of the Property are predominately paved with asphalt. Other improvements include perimeter landscaping and chain-link fencing.

2.0 PROPERTY BACKGROUND

Historical records indicated that the Property was initially developed in 1959 with a retail gasoline station equipped with a 500-gallon waste oil underground storage tank (UST), two 6,000-gallon USTs, and an 8,000-gallon UST, as well as two fuel-dispensing pump islands and associated product delivery lines. An addition was added to the 1959-vintage building in 1977, and a 12,000-gallon UST was installed on the Property in 1978. According to aerial photographs, a canopy was constructed in the central portion of the Property between 1974 and 1978. Everett Fire Department records indicated that a permit was issued in 1990 to remove the 500-gallon waste-oil UST from the Property. In 2003, the four remaining USTs and associated structures were removed from the Property. In 2004, Time Oil Co (currently TOC Holdings Co.) sold the Property to its current owner, P&M Partnership. In 2008, the Property was redeveloped as a retail shopping center.

Based on the findings from the investigations conducted by SoundEarth and others between 2003 and 2011 contamination on the Property includes petroleum-contaminated soil beneath the central and northwestern portions of the Property in the vicinity of the underground storage tank excavation, extending beneath a portion of the North Broadway right-of-way, and contamination of a discontinuous, perched water-bearing zone located in the vicinity of the underground storage tank excavation. Additional details regarding the Property background are available in the *Remedial Investigation Report, TOC Holdings Co. Facility No. 01-169, 851 North Broadway, Everett, Washington,* prepared by SoundEarth and dated March 20, 2013.

In May 2006, a dual-phase extraction (DPE) system was installed that treated contamination in wells RW01 through RW07. This single pump DPE system simultaneously removed hydrocarbon-impacted groundwater and vapors from the subsurface with a single liquid ring pump. The water and vapor streams were separated in a moisture separator. The water was treated with granular-activated carbon

(GAC) and discharged to the sanitary sewer. The vapor was passed through a separate set of GAC canisters and discharged to atmosphere. The system was shutdown in July 2009 to accommodate construction of the current retail shopping center.

3.0 REMEDIATION SYSTEM

Based on the Property-specific subsurface characteristics and conceptual site model, the recommended remedial technology for the Property remains DPE, which involves simultaneous soil vapor extraction (SVE) and groundwater extraction and treatment. The SVE system applies a vacuum to the subsurface by means of wells OW02, MW08, RW02 through RW04, and RW08 through RW11 (Appendix B). The applied vacuum draws vapor-phase volatile organic compounds from the subsurface to the remediation compound where the vapor is discharged to the atmosphere. In addition to SVE, three remediation wells (RW02, RW03, and RW10) are equipped with submersible pneumatic pumps and three wells (OW02, RW09, and RW11), which have significant groundwater but do not consistently have enough water to use a pump, have drop tubes to recover groundwater from the subsurface. The recovered groundwater is treated in the compound before being discharged to the sanitary sewer. The remediation system components are detailed on Sheet M-100 located in Appendix A. Below is a brief description of the remediation system process flow:

- **SVE Process Flow.** The main component of the SVE system is a 9 horsepower (hp) Busch-Mink 1332 AV, capable of 200 cubic feet per minute and 25 inches of mercury. The negative pressure (vacuum) created by the vacuum blower draws air from the vadose zone to the remediation compound through the SVE wells and subsurface piping. At the remediation compound, air flow and vacuum pressure can be controlled to enhance vapor recovery before the vapor stream passes through a moisture separator and inline filter designed to remove both moisture and particulates, respectively. The extracted vapor is pumped through the blower and discharged to the atmosphere through a 12.5-foot tall exhaust stack.
- **Groundwater Treatment Process Flow.** Wells RW02, RW03, and RW10 are equipped with QED model AP4 pneumatically driven pumps set near the bottom of each well. The well pumps transfer water through subsurface process piping to the remediation compound. At the remediation compound, the water is stored in a 500-gallon batch tank. As the water level in the tank rises, a high level switch triggers a ¾ hp Dayton multistage booster pump, which pumps the extracted groundwater through a particulate filter to a four-tray stainless steel tray stripper. The stripper utilizes vapor-liquid contact separation to volatilize and remove contaminants from the water. The resulting vapor stream is then discharged to the atmosphere, and the treated water is pumped from the bottom of the tray stripper to the City of Everett sanitary sewer.
- **Condensate Process Flow.** The main components of the condensate flow process are the moisture separator and the 500-gallon batch tank. The vapor air stream passes through the moisture separator to remove residual moisture in the air. The cyclonic action of air within the moisture separator cause excess moisture to drop out of the vapor stream, and water will begin to collect within the unit. The moisture separator is located upstream of the vacuum blower. In addition, groundwater recovered from the drop tubes employed in remediation wells OW02, RW09, and RW11 is separated from the vapor stream in the moisture separator. Water removed from the vapor stream collects in the moisture

separator until a high level switch is activated. Upon activation of this switch, a transfer pump operates, until a low level switch is deactivated, to empty condensate from the moisture separator. Condensate generated in the SVE moisture separator is transferred to the groundwater treatment batch tank and treated by the tray stripper before being discharged to the City of Everett sanitary sewer system.

- **Programmed Alarm Conditions.** The system will partially or completely shut down if any of the following conditions are met:
  - **Batch Tank High Level.** If the remediation system does not process water from the batch tank, the system will shut down. This could be caused by failure of the transfer pump or blockage of the line, filters, or too much water in the system.
  - **Tray Stripper Sump High Level.** If the remediation system does not process water from the tray stripper sump, the system will shut down. This could be caused by failure of the transfer pump or blockage of the discharge line.
  - **Moisture Separator High Level.** If the remediation system is unable to process water from the moisture separator to the batch tank, the system will shut down. This could be caused by failure of the transfer pump or blockage of the line to the batch tank.
  - **Vacuum Blower Shutdown.** If the remediation system trips the motor starter thermal overload, the system will shut down. This could be caused by the blower pulling too much power, indicating a problem with the blower.

The remediation system was constructed as a turn-key system and housed in an 8-foot by 24-foot steel connex box. The remediation equipment, control panel and programmable logic controller (PLC), and telemetry unit were included with the system. The ladder logic and system controls for the PLC is included in Appendix C.

Quality control was documented in daily field reports and in system installation checklists completed during the installation of the remediation system (Appendices D and E, respectively). Photographs taken during the remediation system installation are included as Appendix F.

4.0 SUMMARY OF SYSTEM INSTALLATION

System installation activities began on September 26, 2011, with the mobilization of the civil contractor to the Property, AEC LLC (AEC). AEC completed the main trenching, vaults, and piping by October 19, 2011. AEC installed the system piping under the concrete pad for the remediation system connex box, poured the pad, set the connex box, and built the wellheads between April 23, 2012, and May 3, 2012. Additional Site visits were made on May 22, and May 23, 2012, to observe AEC setting downwell pumps and drop tubes. The power drop was completed on June 1, 2012, and a site visit was completed to verify system power. The system was started on June 7, 2012.

The system installation was completed in two phases. The first phase was the excavation of trenches; installation of vaults, process piping and electrical conduit; backfilling; and paving. The second phase was preparing the system pad; placement of the connex box; and connecting process piping from the trench to the system manifolds inside the connex box.

A summary of the installation and all major events is included below:

- September 26, 2011—Conducted a pre-construction site walk with AEC (Photograph 1 and 2). Completed a private utilities locate (Photograph 1), laid out the trench lines, and cut asphalt along the trenches (Photograph 3). Secured the northern portion of the parking lot (Photograph 4) and began to remove asphalt.
- September 27, 2011—Finished removal of asphalt. Started excavating the trench and removing monuments (Photograph 5). Abandoned lines were found from the past system and a vent from removed tanks (Photograph 6).
- September 28, 2011—Continued excavating the trench, began installing vaults, and began laying out the vault drain lines (Photograph 7 and Photograph 8). Cut and capped old system lines that crossed the new trench.
- September 29, 2011—Continued excavating trench, laid drain line, and placed vaults. PCE, the electrical contractor for AEC, installed vault conduits for signal lines. Started laying galvanized air line (Photograph 9).
- September 30, 2011—Continued laying galvanized air lines, and pressure testing segments of the line (Appendix G). Backfilled over the tested air lines.
- October 3, 2011—Started laying SVE lines and continued building the air lines in vault (Photograph 10).
- October 4, 2011—Pressure tested SVE lines and installed water recovery line (Appendix G). Began grouting vault penetrations and backfilling the trench.
- October 5, 2011—Prepared the northern portion of the parking lot for asphalt placement (Photograph 11). Paved and sealed the trench (Photograph 12). Moved fencing to the southern portion of the parking lot.
- October 6, 2011—Saw cut trench outline and removed asphalt. Started to excavate trench for the southern portion of the parking lot.
- October 7, 2011—Imported crushed rock for bedding and future use, while removing native soils unsuitable as backfill. Continued to excavate trench while bedded exposed trench bottom (Photograph 13).
- October 10, 2011—Continued excavating the trench, setting the remaining vaults, and bedding the trench bottom.
- October 11, 2011—Laid galvanized pipe, and finished the stormwater drain line (Photograph 14). PCE electricians laid conduit for signal lines (Photograph 15).
- October 12, 2011—Finished air piping to system location, and pressure tested the air lines (Appendix G). PCE electricians onsite to finish laying conduit. Started installing SVE piping and water recovery line.
- October 13, 2011—Finished laying SVE and water recovery lines (Photograph 16), and pressure testing the SVE and water lines (Appendix G). Finished grouting in vaults.

- October 14, 2011—Finished pressure testing the SVE and water lines (Appendix G). Removed old equipment from site. Backfilled trenching in the parking lot with crushed rock up to 3 inches below grade. Saw cut sewer trench and back curb for removal.
- October 17, 2011—Continued backfilling trench to grade. Removed asphalt and excavated the sewer trench and back curb to riser locations for system lines. During excavation a buried excavator boom was discovered, as well as an old process pipe of unknown origin (Photograph 17); the pipe was not damaged during excavation. Moved trees and plants from system pad area, and graded the area. Removed, loaded, and shipped liquid GAC vessels from the previous system. Poured cement to form vault bottoms.
- October 18, 2011—Saw cut electrical trench, and continued excavating the sewer trench and electrical trench. Tied into the sanitary sewer (Photograph 18), with sewer going to pad location.
- October 19, 2011—Extended system piping from the trench to the system pad location, where it was capped. PCE electricians laid conduit from power feed to system pad location (Photograph 19). The conduit behind the building was approved after an electrical inspection; afterwards, the electrical trench was backfilled. The sewer tie in was completed, inspected, and backfilled (Photograph 21). Backfill was completed to the end of the pavement on the east side of the Property, leaving the pad area and the ends of all lines exposed. Paved and sealed the system trenches on the southern half of the parking lot and the trench adjacent to the remediation system pad. The asphalt patches were sealed with asphalt tar (Photograph 22). Previously removed plants were replanted outside of the system footprint. A small part of the trench was left open for access to capped system piping to be connected to the system manifolds in the connex box.

Delivery of the remediation system connex box was delayed between October 2011 and April 2012 due to additional permitting and inspection requirements from the Washington State Department of Labor & Industries. In April 2012, system installation activities resumed in preparation for the delivery of the connex box.

- April 23, 2012—Excavated area for final piping runs under connex location. Laid out all lines and parts to connex connection. Exposed all ends of piping.
- April 24, 2012—Piped air, SVE, and water lines to their vertical risers through the system pad (Photograph 23).
- April 25, 2012—Finished manifolds and pressure tested galvanized air and water lines (Appendix G).
- April 26, 2012—Backfilled the pad area up to grade and finished the surface in preparation for pouring the concrete pad. Repaired cut irrigation piping.
- April 27, 2012—Built forms for concrete pad, set reinforcements, and poured concrete (Photograph 24). Reset and staked trees.
- April 30, 2012—Cut seams in pad and caulk, and prepared pad for connex. Worked on wellheads in vaults.
- May 1, 2012—Worked on wellheads.

- May 2, 2012—Set connex on pad, connected manifolds (Photograph 25, Photograph 26, and Photograph 27). Pulled electrical wiring for the control panel mounted on the exterior of the connex.
- May 3, 2012—Anchored connex to pad, and finished MW08 and RW08 wellheads (Photograph 26 and Photograph 25). Completed electrical wiring for the control panel and remediation system equipment.

The final wellhead connections were completed between May 3 and May 22, 2012, after a delivery delay on the Campbell well seals for the drop tubes and the QED pump wellheads.

- May 22, 2012—Installed pumps and finished pumping wellheads (Photograph 34, Photograph 35, and Photograph 36).
- May 23, 2012—Built drop tubes and finished wellheads (Photograph 28, Photograph 29, Photograph 30, and Photograph 31).
- June 1, 2012—The power drop occurred on June 1, 2012, for the system. Completed final landscaping.
- June 7, 2012—Started up the system.

5.0 DEVIATIONS FROM THE PROPOSED DESIGN

Several deviations from the original design occurred during the remediation system installation and initial operation. The original design figures were amended to reflect the as-built conditions and are included as Appendix A. In summary, the following notable alterations were completed during installation:

- Due to regulations by the Washington State Department of Labor & Industries, the remediation container is installed on and anchored to a reinforced concrete slab (Appendix A, Sheet C106).
- Due to the topography of the Site, the main trench southwest of the building, between the storm drain and MW11, does not slope back to the compound as specified, which creates a slight belly in the SVE lines for this portion of the system trench.
- Precast, bottomless concrete vaults that were 30” x 30” x 24” (PN. 3030 HH SN PSE) were used as an approved equivalent.
- Due to the substitution of vaults, some pipe penetrations were rearranged in the vaults for appropriate access. Photographs are attached to this report (Appendix F).
- The section of the trench from MW08 to the main trench was shifted northeast approximately 5 feet between MW08 and RW08. This change improves piping access to RW08 by routing pipes between the wells instead of around the MW08 vault (Appendix A, Sheet C-100).
- The length of trench from RW11 to the main trench was altered, extending the main trench northeast, and turning 90 degrees southeast to the well, which eliminates a 90 degree turn in the process piping. It also serves to avoid process piping from the previous system. (Appendix A, Sheet C-100).

6.0 PERMITTING REQUIREMENTS

The remediation system operates under the jurisdiction of the Puget Sound Clean Air Agency; however, based on the pilot test and the estimated air emissions, no permit is required for the system (Appendix H). The Puget Sound Clean Air Agency (PSCAA) air emissions analysis estimated that the annual emissions of benzene and total volatile organic compounds are below the permit threshold limits of 15 and 1,000 pounds per year. SoundEarth will collect monthly air discharge samples to track mass recovery and ensure compliance with PSCAA regulations.

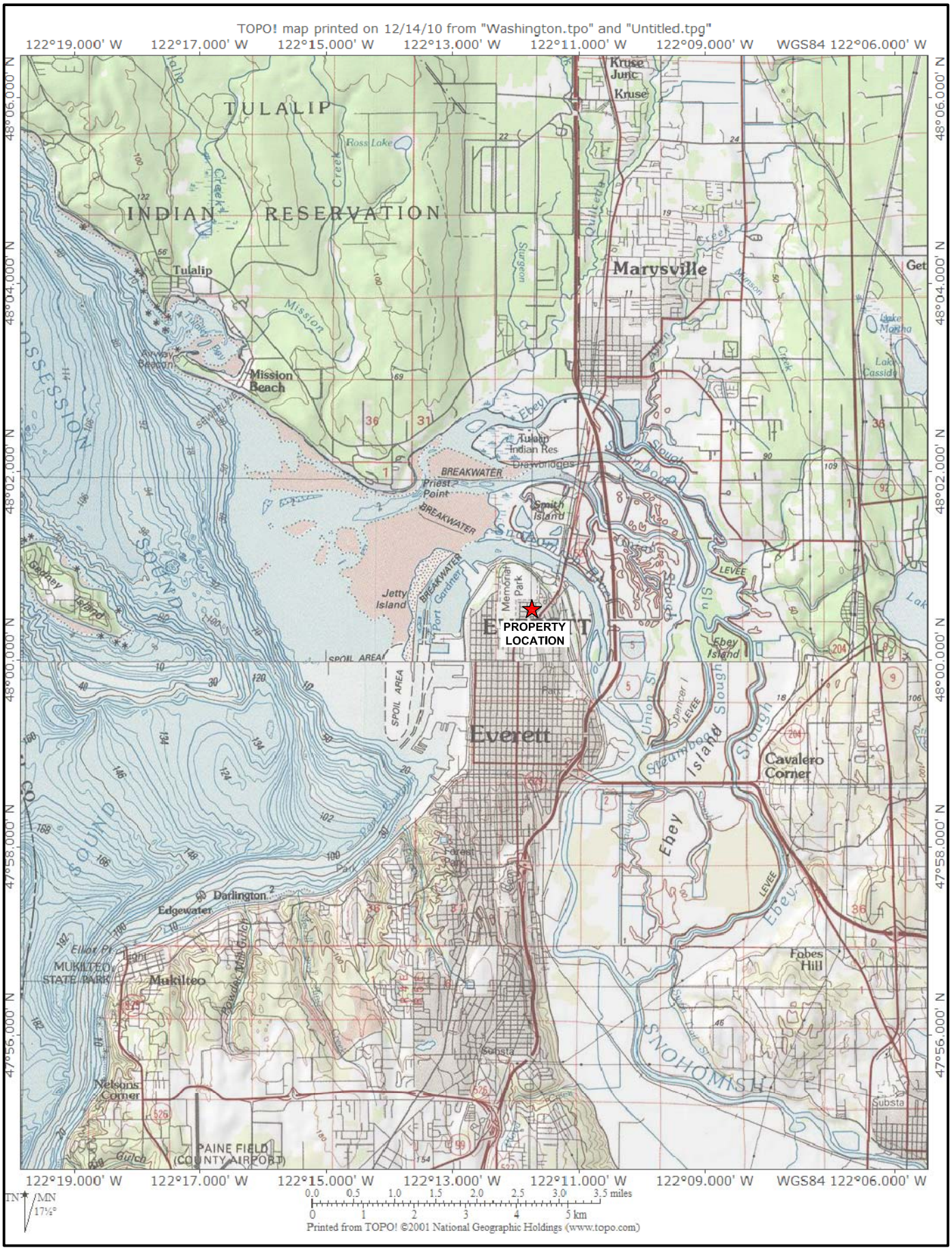
The discharge of treated groundwater and SVE condensate into the City of Everett sanitary sewer system is regulated by the City of Everett Public Works Department under an Industrial Pretreatment Discharge Permit (Appendix I). Per the permit, the treated water volume must be tracked and reported quarterly to City of Everett Public Works Department. Further compliance samples will be collected and analyzed quarterly for lead, oil & grease, flashpoint, benzene, toluene, ethylbenzene, and total xylenes. Results of these samples will be reported quarterly to City of Everett Public Works Department. The permit expires on December 6, 2013 (Appendix I).

7.0 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

FIGURE



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PROJECT NAME: TOC HOLDINGS CO. FACILITY NO. 01-169 PROJECT NUMBER: 0440-002 STREET ADDRESS: 851 NORTH BROADWAY CITY, STATE: EVERETT, WASHINGTON	**FIGURE 1** PROPERTY LOCATION MAP

2/7/2012

P:\0440 TOC HOLDINGS CO\01-169 EVERETT - 851 BROADWAY\TECHNICAL\CAD\FIGURE 1\01-169_FIG1_F.DWG

APPENDIX A

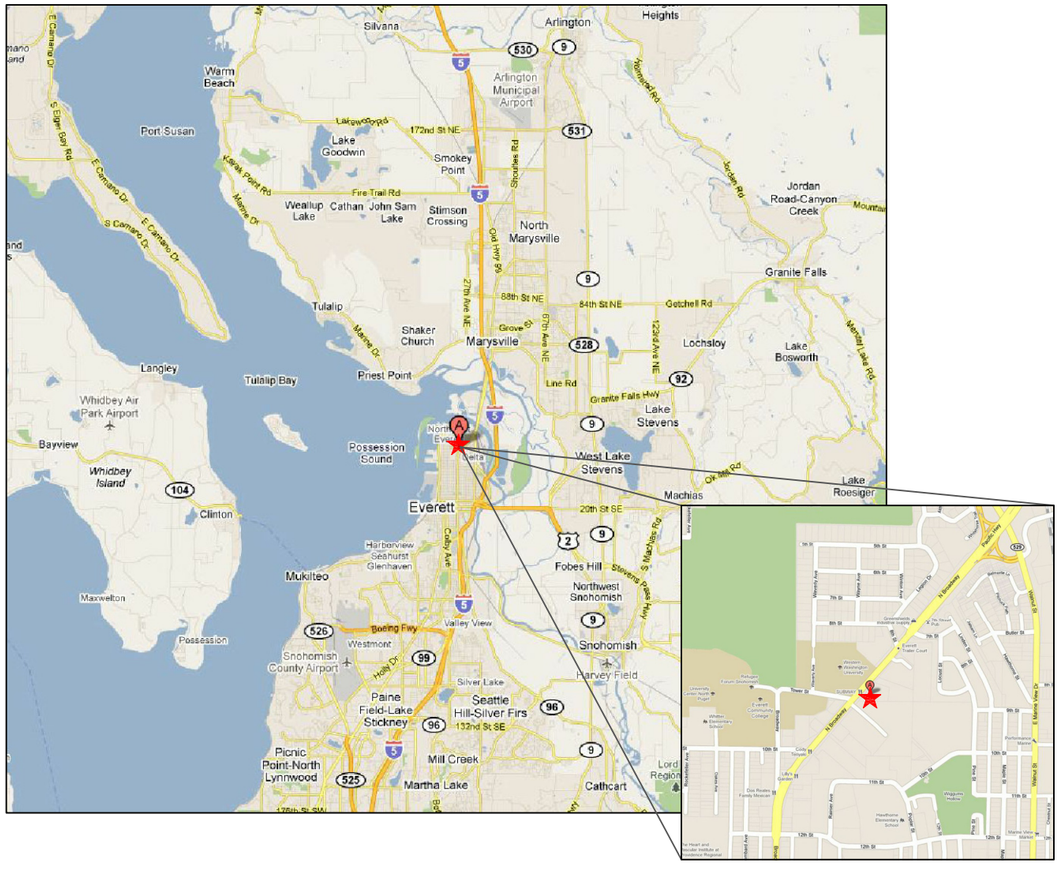
REMEDIATION SYSTEM AS-BUILT DRAWINGS

TOC HOLDINGS CO. FACILITY NO. 01-169

REMEDIATION SYSTEM DESIGN CONSTRUCTION DRAWINGS

851 NORTH BROADWAY

EVERETT, WASHINGTON



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PROJECT NUMBER: 0440-002
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CITY, STATE: EVERETT, WASHINGTON

SHEET G-100
COVER SHEET

REGION:

DATE: 01/21/2014
DRAWN BY: BLR/JQC
CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_COVER

NOT TO SCALE

2/7/13	AS-BUILT	
1/28/14	ADDENDUM	
	ISSUED FOR:	

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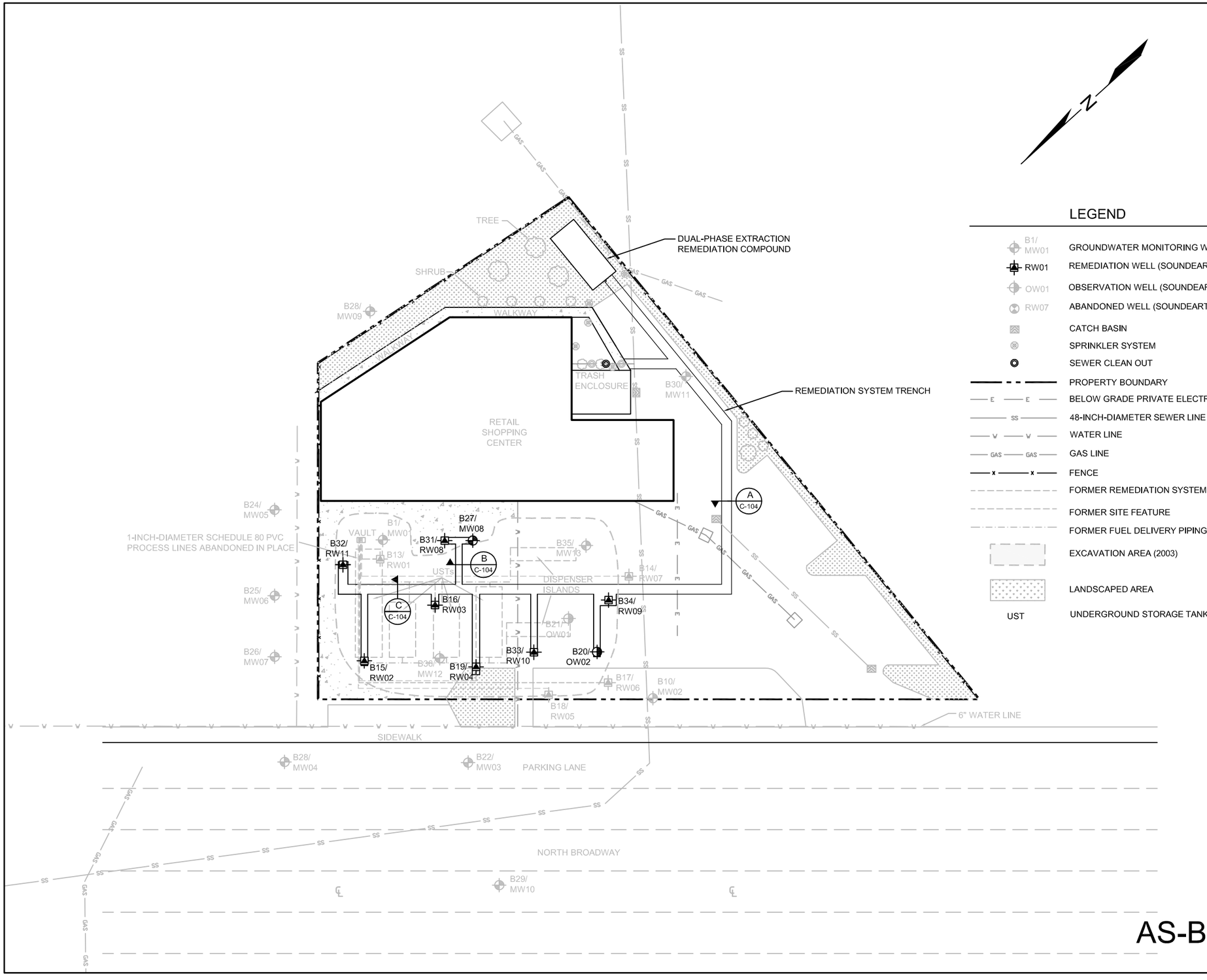

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PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

SHEET C-100
EXISTING SITE LAYOUT

REGION:

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CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_C100

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2/7/13	AS-BUILT	
4	1/28/14	SHEET NO.

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1/28/2014
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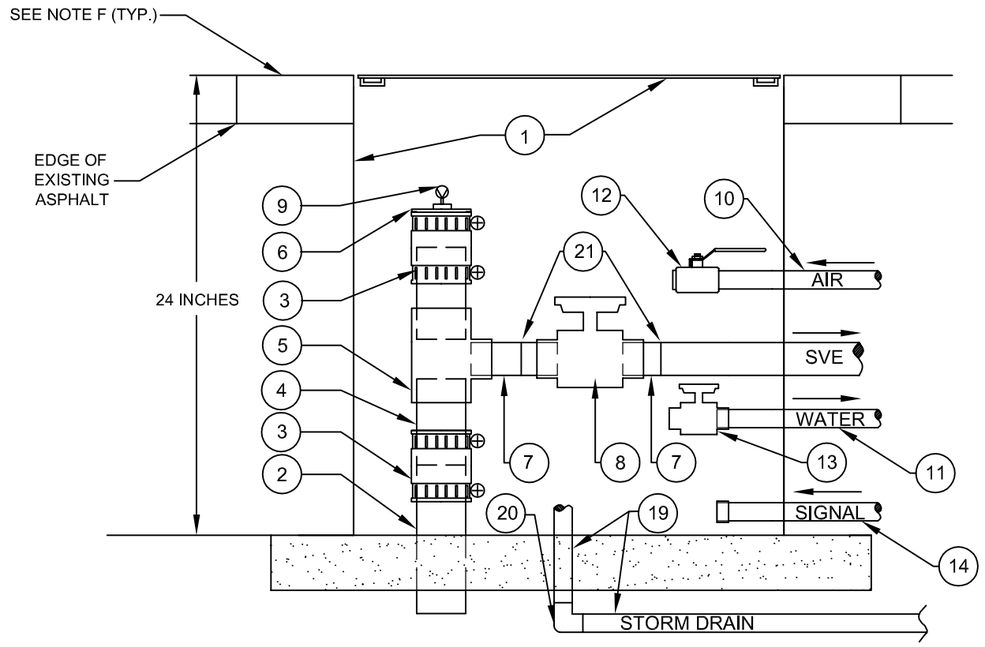
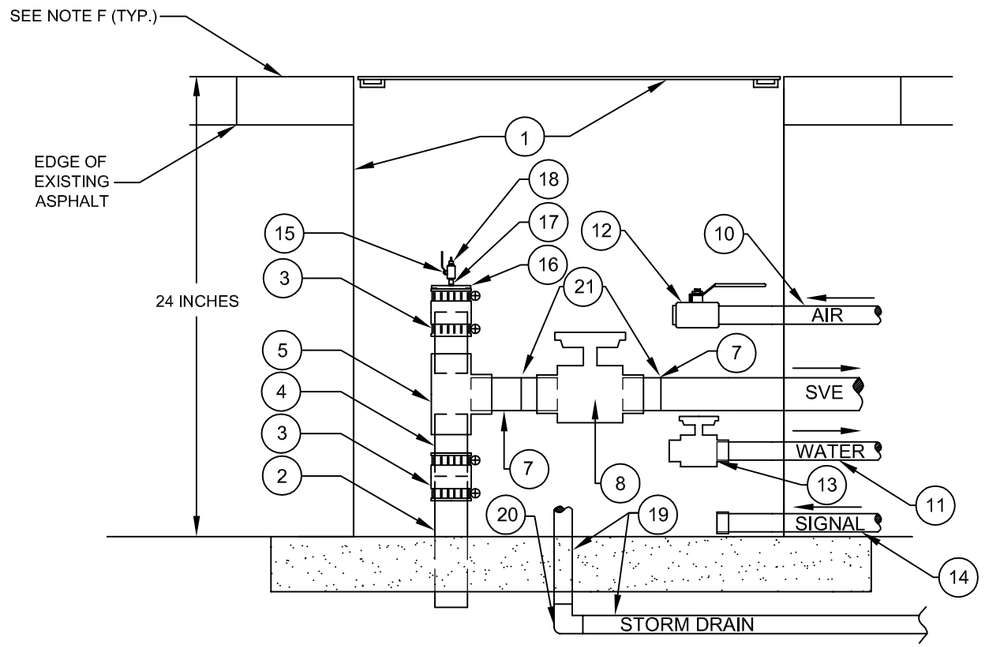


4-INCH SVE VAULT AND WELLHEAD DETAILS FOR WELL RW04



2- OR 4-INCH SVE VAULT AND WELLHEAD DETAILS FOR WELLS MW08 AND RW08

DESCRIPTION OF WELLHEAD ITEMS:

1. LIMITED ACCESS HANSON 3030 HHSN, CONCRETE BOTTOMLESS VAULT. THE VAULT WAS 30 INCHES LONG BY 30 INCHES WIDE BY 24 INCHES DEEP, EQUIPPED WITH AN H-20 TRAFFIC-RATED COVER.
2. EXISTING 2-INCH-DIAMETER, SCHEDULE 40 PVC MONITORING WELL FOR MW08 AND EXISTING 4-INCH-DIAMETER SCHEDULE 40 PVC MONITORING WELL FOR RW04 AND RW08.
3. 2-INCH- OR 4-INCH-DIAMETER FLEXIBLE PVC COUPLING WITH TWO CLAMPS. FERNCO MODEL NO. 1056-22 FOR MW08, FERNCO MODEL NO. 1056-44 FOR RW04, AND REDUCING FERNCO MODEL NO. 1056-42 FOR RW08.
4. 2-INCH-DIAMETER OR 4-INCH-DIAMETER, SCHEDULE 80 OR 40 PVC STUB SECTION.
5. 2-INCH SCHEDULE 80 PVC TEE. OR 4-INCH X 4-INCH X 2-INCH REDUCING SPEARS PART NO. 801-020 FOR MW08 AND 4-INCH SCHEDULE 40 TEE WITH A SCHEDULE 40 4-INCH X 2 INCH REDUCING BUSING SPEARS FOR RW04 AND RW08.
6. 4-INCH-DIAMETER, SCHEDULE 80 PVC PLUG (SPEARS PART NO. 849-040; TAPPED FOR ITEM NO. 9).
7. 2-INCH-DIAMETER, SCHEDULE 80 PVC SVE VACUUM LINE.
8. 2-INCH-DIAMETER, PVC SPEARS THREADED GATE VALVE (SPEARS PART NO. 2021-020).
9. OIL-FILLED VACUUM GAUGE RATED FROM 0-30 INCHES OF MERCURY CENTER BACK MOUNTED.
10. 1-INCH-DIAMETER SCHEDULE 40 GALVANIZED STEEL AIR SUPPLY LINE. **PLEASE NOTE THE AIR SUPPLY ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 7).**
11. 1-INCH-DIAMETER SCHEDULE 80 PVC GROUNDWATER RECOVERY LINE. **PLEASE NOTE THE WATER RECOVERY ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 7).**
12. 1-INCH-DIAMETER BRASS BALL VALVE (FNPT).
13. 1-INCH DIAMETER, PVC TRUE UNION 2000 STANDARD BALL VALVE (SPEARS PART NO. 3639-010).
14. 1-INCH-DIAMETER, ELECTRICAL CONDUIT WITH CAP. **PLEASE NOTE THE ELECTRICAL CONDUIT ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 7).**
15. $\frac{1}{4}$-INCH DIAMETER BRASS BALL VALVE (FNPT).
16. 2-INCH DIAMETER SCHEDULE 40 PVC PLUG (SPIGOT) DRILLED AND TAPPED FOR $\frac{1}{4}$-INCH MNPT .
17. $\frac{1}{4}$-INCH X 1 $\frac{1}{2}$ -INCH BRASS PIPE NIPPLE WITH $\frac{1}{4}$-INCH FNPT X$\frac{3}{16}$-INCH BRASS HOSE BARB .
18. $\frac{1}{4}$-INCH MNPT X $\frac{3}{16}$-INCH BRASS HOSE BARB.
19. 1-INCH-DIAMETER SCHEDULE 40 PVC PIPE.
20. 1-INCH-DIAMETER SCHEDULE 40 PVC 90°.
21. 2-INCH-DIAMETER SCHEDULE 40 SLIP X MNTP PVC ADAPTER.

GENERAL NOTES:

A. THE CONTRACTOR REMOVED EXISTING WELL MONUMENTS PRIOR TO INSTALLING NEW WELL VAULTS. DURING REMOVAL, CONTRACTOR PROTECTED EXISTING WELLS FROM DAMAGE.

B. THE CONTRACTOR INSTALLED VAULTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES. BACKFILL COMPACTION IS 95% STANDARD PROCTOR PER ASTM STANDARD D698. AN UNYIELDING SURFACE ON THE FINAL LIFT OF THE BACKFILL WAS PROVIDED PRIOR TO PAVING. CONTRACTOR WILL REMEDY ANY SUBSIDENCE THAT OCCURS WITHIN 1 YEAR WITHOUT COST TO SOUNDEARTH OR TOC HOLDINGS CO.

C. THE CONTRACTOR SEALED PIPING PENETRATIONS THROUGH VAULT WALL WITH NON-SHRINK GROUT.

D. THE CONTRACTOR GROUTED IN FLOOR FOLLOWING INSTALLATION OF VAULT TO MINIMIZE VACUUM SHORT CIRCUITING.

E. THE CONTRACTOR AVOIDED PENETRATING OR DAMAGING THE EXISTING GROUTED WELL SEAL [I.E., THE SEAL BETWEEN THE WELL CASING AND THE BOREHOLE WALL (ANNULAR SEAL)] WHEN INSTALLING THE PRECAST VAULT. THE WELL SEAL TYPICALLY EXTENDS A MINIMUM OF FOUR INCHES HORIZONTALLY BEYOND THE SIDE OF THE WELL CASING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ANNULAR SEAL AT THE CONTRACTOR'S EXPENSE IF THE SEAL IS DAMAGED BY THE CONTRACTOR DURING THE INSTALLATION OF THE VAULT. THE CONTRACTOR COMPLIED WITH THE REQUIREMENTS OF WASHINGTON ADMINISTRATIVE CODE (WAC) §173-160-450.

F. THE CONTRACTOR SET TOP OF VAULT FLUSH WITH THE EXISTING GRADE.

G. THE CONTRACTOR INSTALLED PIPES FOR EACH VAULT AT THE ELEVATION REQUIRED TO MAINTAIN A MINIMUM PIPE SLOPE OF $\frac{1}{2}$% (6 INCHES PER 100 FEET) FROM WELLHEAD TO REMEDIATION ENCLOSURE. PIPES SLOPE DOWNWARDS FROM THE REMEDIATION WELLHEAD TO ENCLOSURE.

AS-BUILT

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/14
DRAWN BY: BLR/JQC
CHECKED BY: SES
CAD FILE: 01-169_2013ASBUILT_C101

SHEET C-101
SVE VAULT AND WELLHEAD DETAILS

REGION:

NOT TO SCALE

NO.	DATE	DESCRIPTION
1	02/7/13	AS-BUILT

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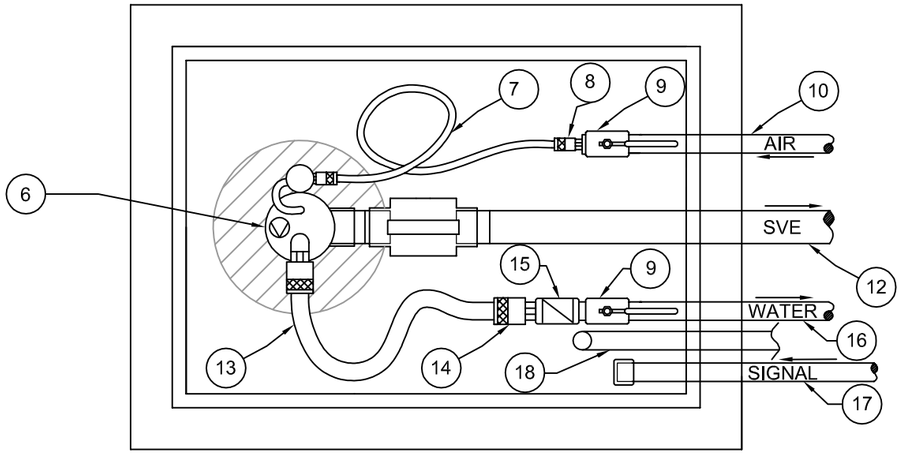
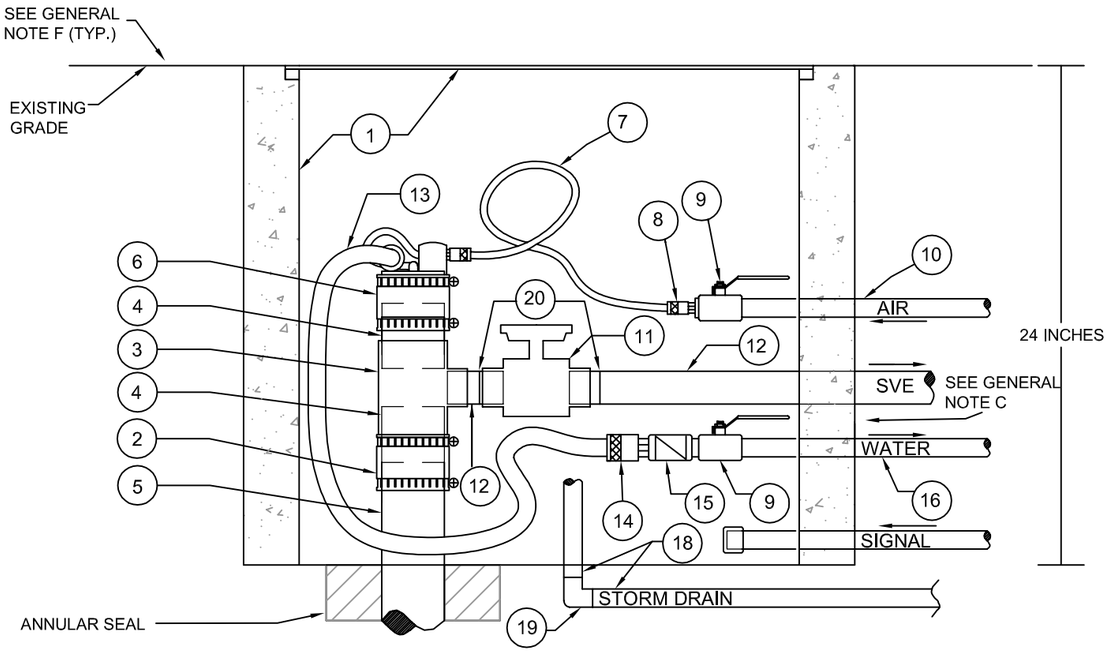


PLAN VIEW



DPE WELLHEAD DETAIL FOR WELL

RW02, RW03 AND RW10 VAULT AND WELLHEAD DETAIL

DESCRIPTION OF WELLHEAD ITEMS :

1. LIMITED ACCESS HANSON 3030 HHSN, CONCRETE BOTTOMLESS VAULT. THE VAULT WAS 30 INCHES LONG BY 30 INCHES WIDE BY 24 INCHES DEEP EQUIPPED WITH AN H-20 TRAFFIC-RATED COVER.
2. 4-INCH-DIAMETER FLEXIBLE PVC COUPLING WITH TWO CLAMPS (FERNCO MODEL NO. 1056-44).
3. SCHEDULE 40 PVC REDUCING TEE 4-x4-x2-INCH (SPEARS PART NO. 401-420).
4. 4-INCH-DIAMETER SCHEDULE 40 PVC STUB SECTION.
5. EXISTING WELL (4-INCH-DIAMETER SCHEDULE 40 PVC).
6. 4-INCH-DIAMETER QED VACUUM SEAL WELL CAP WITH FILTER REGULATOR, CYCLE COUNTER, BRASS QUICK CONNECTS, AND OIL-FILLED G-160 IOW INCHES OF MERCURY VACUUM GAUGE.
7. 1/4-INCH-DIAMETER AIR SUPPLY HOSE EQUIPPED WITH BRASS QUICK CONNECTS.
8. 1/4-INCH-BRASS QUICK CONNECT COUPLER.
9. 1-INCH REGULAR PORT THREADED BRONZE BALL VALVE (APOLLO VALVE SERIES 32-100).
10. 1-INCH-DIAMETER SCHEDULE 40 GALVANIZED STEEL AIR SUPPLY PIPE. **NOTE: THE AIR SUPPLY ENTERS THE VAULT AT THE SAME ELEVATION AS THE SVE VACUUM LINE (ITEM 12)** .
11. 2-INCH-DIAMETER PVC SPEARS THREADED GATE VALVE (SPEARS PART NO. 2021-020).
12. 2-INCH-DIAMETER SCHEDULE 80 PVC SVE VACUUM LINE.
13. 1-INCH-DIAMETER GROUNDWATER RECOVERY HOSE EQUIPPED WITH BRASS QUICK CONNECTS.
14. 1-INCH-DIAMETER BRASS QUICK CONNECT COUPLER.
15. 1-INCH-DIAMETER HORIZONTAL USE CHECK VALVE.
16. 1-INCH- DIAMETER SCHEDULE 80 PVC GROUNDWATER RECOVERY LINE. **NOTE: THE GROUNDWATER RECOVERY ENTERS THE VAULT AT SAME ELEVATION AS THE SVE VACUUM LINE (ITEM 12)** .
17. 1-INCH-DIAMETER, ELECTRICAL CONDUIT WITH CAP. **NOTE: THE ELECTRICAL CONDUIT ENTERS THE VAULT AT SAME ELEVATION AS THE SVE VACUUM LINE (ITEM 12).**
18. 1-INCH-DIAMETER SCHEDULE 40 PVC PIPE.
19. 1-INCH-DIAMETER SCHEDULE 40 PVC 90°.
20. 2-INCH-DIAMETER SCHEDULE 40 SLIP X MNPT PVC ADAPTER.

GENERAL NOTES:

A. THE CONTRACTOR REMOVED EXISTING WELL MONUMENTS PRIOR TO INSTALLING NEW WELL VAULTS. DURING REMOVAL, CONTRACTOR PROTECTED EXISTING WELLS FROM DAMAGE.

B. THE CONTRACTOR INSTALLED VAULTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES. BACKFILL COMPACTION WAS 95% STANDARD PROCTOR PER ASTM STANDARD D698. AN UNYIELDING SURFACE ON THE FINAL LIFT OF THE BACKFILL WAS PROVIDED PRIOR TO PAVING. CONTRACTOR WILL REMEDY ANY SUBSIDENCE THAT OCCURS WITHIN 1 YEAR WITHOUT COST TO SOUNDEARTH OR TOC HOLDINGS CO.

C. THE CONTRACTOR SEALED PIPING PENETRATIONS THROUGH VAULT WALL WITH NON-SHRINK GROUT.

D. THE CONTRACTOR GROUTED IN FLOOR FOLLOWING INSTALLATION OF VAULT TO MINIMIZE VACUUM SHORT CIRCUITING.

E. THE CONTRACTOR AVOIDED PENETRATING OR DAMAGING THE EXISTING GROUTED WELL SEAL [I.E., THE SEAL BETWEEN THE WELL CASING AND THE BOREHOLE WALL (ANNULAR SEAL)] WHEN INSTALLING THE PRECAST VAULT. THE WELL SEAL TYPICALLY EXTENDS A MINIMUM OF FOUR INCHES HORIZONTALLY BEYOND THE SIDE OF THE WELL CASING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ANNULAR SEAL AT THE CONTRACTOR'S EXPENSE IF THE SEAL IS DAMAGED BY THE CONTRACTOR DURING THE INSTALLATION OF THE VAULT. THE CONTRACTOR COMPLIED WITH THE REQUIREMENTS OF WASHINGTON ADMINISTRATIVE CODE (WAC) §173-160-450.

F. THE CONTRACTOR SHALL SET TOP OF VAULT FLUSH WITH THE EXISTING GRADE.

G. THE CONTRACTOR INSTALLED PIPES FOR EACH VAULT AT THE ELEVATION REQUIRED TO MAINTAIN A MINIMUM PIPE SLOPE OF $\frac{1}{2}$% (6 INCHES PER 100 FEET) FROM WELLHEAD TO REMEDIATION ENCLOSURE. PIPES SLOPE DOWNWARDS FROM THE WELLHEAD TO REMEDIATION ENCLOSURE.

AS-BUILT

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/14
DRAWN BY: BLR/JQC
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CAD FILE: 01-169_2013ASBUILT_C102

SHEET C-102
DPE VAULT AND WELLHEAD DETAILS

REGION:

NOT TO SCALE

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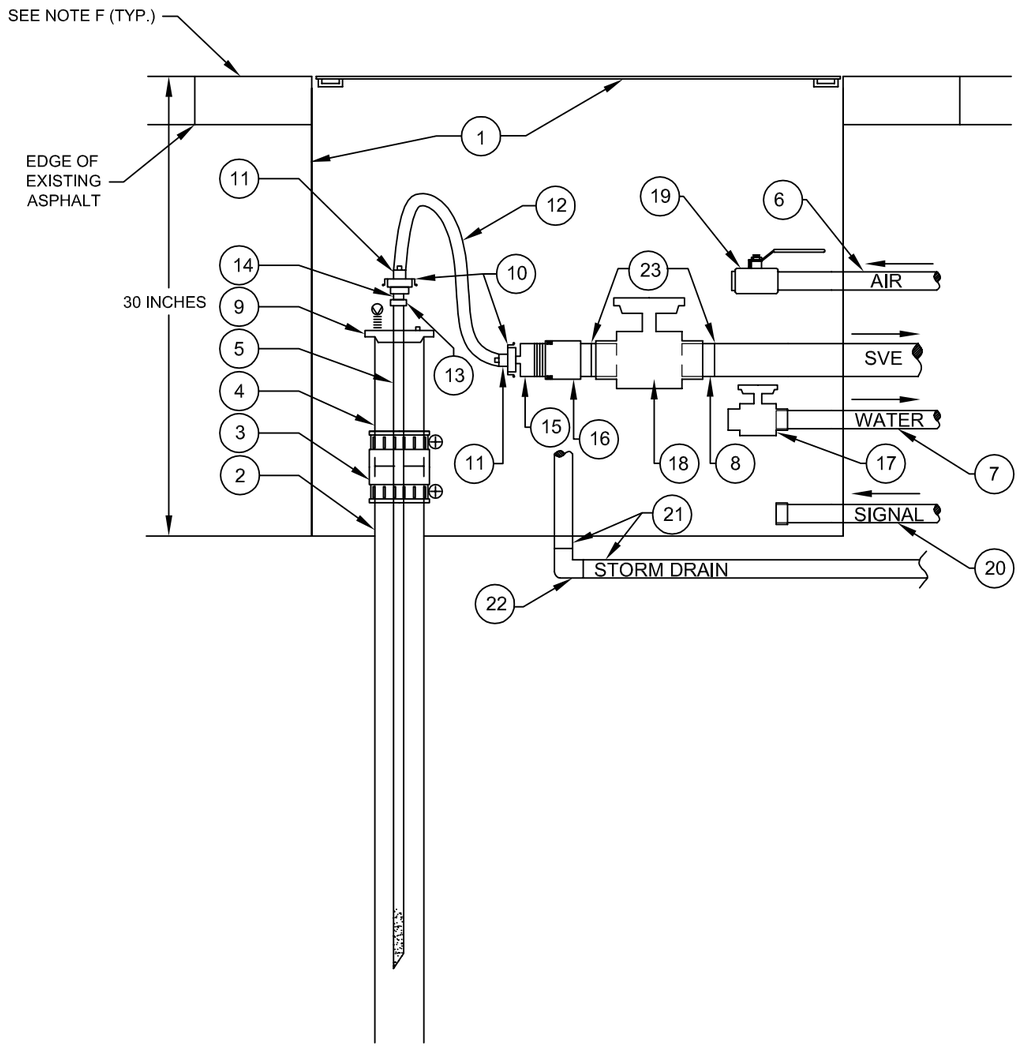

4-INCH-DIAMETER WELL HEAD AND VAULT DETAIL FOR DROP TUBE WELLS RW09, RW11, OW02

AS-BUILT

DESCRIPTION OF WELLHEAD ITEMS:

1. LIMITED ACCESS HANSON 3030 HHSN, CONCRETE BOTTOMLESS VAULT. THE VAULT WAS 30 INCHES LONG BY 30 INCHES WIDE BY 24 INCHES DEEP, EQUIPPED WITH AN H-20 TRAFFIC-RATED COVER.
2. EXISTING 4-INCH-DIAMETER, 2-INCH FOR OW02, SCHEDULE 40 PVC WELL.
3. 4-INCH-DIAMETER FLEXIBLE PVC COUPLING, 2-INCH FOR OW02 (FERNCO MODEL NO. 1056-44).
4. 4-INCH-DIAMETER SCHEDULE 40 PVC STUB SECTION, 2-INCH FOR OW02.
5. ¾-INCH-DIAMETER SCHEDULE 40 PVC DROP TUBE. **PLEASE NOTE BOTTOM WAS CUT AT AN ANGLE AND 1/4-INCH HOLES DRILLED INTO BOTTOM 12 INCHES.**
6. 1-INCH-DIAMETER, SCHEDULE 40 GALVANIZED STEEL AIR SUPPLY LINE. **PLEASE NOTE THE AIR SUPPLY ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 8).**
7. 1-INCH-DIAMETER, SCHEDULE 80 PVC WATER DISCHARGE LINE. **PLEASE NOTE THE WATER RECOVERY ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 8).**
8. 2-INCH-DIAMETER, SCHEDULE 80 PVC SVE VACUUM LINE.
9. CAST IRON CAMPBELL SPLIT WELL SEAL (SUB 4X¾ WITH ¾-INCH DROP PIPE AND ½-INCH VENT TAP AND CABLE HOLE). FOR OW02 TWO 2-INCHX¾-INCH NPT REDUCING BUSHINGS IS GLUED INTO A 2-INCH SCHEDULE 40 COUPLET. THE DROP TUBE IS ATTACHED TO ONE BUSHING AND THE CAM IS SET IN THE OTHER. THIS UNIT WILL BE HELD IN PLACE BY A 2-INCH PVC COUPLING(FERNCO) ON THE WELL CASING.
10. ¾-INCH-DIAMETER FEMALE CAM LOCK (MNPT).
11. ¾-INCH-DIAMETER MALE CAM LOCK (BARB).
12. ¾-INCH-DIAMETER SPIRILITE HOSE (PVC REINFORCED).
13. 1-INCH-DIAMETER PVC FEMALE ADAPTER.
14. 1-INCH- X ¾-INCH-DIAMETER REDUCER BUSHING (MNPT X FNPT).
15. 2-INCH- BY ¾-INCH-DIAMETER REDUCER BUSHING (MNPT X FNPT) (SPEARS PART NO. 839-248).
16. 2-INCH-DIAMETER FEMALE ADAPTER (SPEARS PART NO. 835-020).
17. 1-INCH-DIAMETER PVC TRUE UNION 2000 STANDARD BALL VALVE (SPEARS PART NO. 3639-010).
18. 2-INCH-DIAMETER PVC SPEARS THREADED GATE VALVE (SPEARS PART NO. 2021-020).
19. 1-INCH-DIAMETER BRASS BALL VALVE (FNPT).
20. 1-INCH-DIAMETER, ELECTRICAL CONDUIT WITH CAP. **PLEASE NOTE THE ELECTRICAL CONDUIT ENTERS THE VAULT AT THE SAME ELEVATION AS SVE VACUUM LINE (ITEM 8).**
21. 1-INCH-DIAMETER SCHEDULE 40 PVC PIPE.
22. 1-INCH-DIAMETER SCHEDULE 40 PVC 90°.
23. 2-INCH-DIAMETER SCHEDULE 40 SLIP X MNPT PVC ADAPTER.

GENERAL NOTES:

A. THE CONTRACTOR REMOVED EXISTING WELL MONUMENTS PRIOR TO INSTALLING NEW WELL VAULTS. DURING REMOVAL, CONTRACTOR PROTECTED EXISTING WELLS FROM DAMAGE.

B. THE CONTRACTOR INSTALLED VAULTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES. BACKFILL COMPACTION WAS 95% STANDARD PROCTOR PER ASTM STANDARD D698. AN UNYIELDING SURFACE ON THE FINAL LIFT OF THE BACKFILL WAS PROVIDED PRIOR TO PAVING. CONTRACTOR WILL REMEDY ANY SUBSIDENCE THAT OCCURS WITHIN 1 YEAR WITHOUT COST TO SOUNDEARTH OR TOC HOLDINGS CO.

C. THE CONTRACTOR SEALED PIPING PENETRATIONS THROUGH VAULT WALL WITH NON-SHRINK GROUT.

D. THE CONTRACTOR GROUTED IN FLOOR FOLLOWING INSTALLATION OF VAULT TO MINIMIZE VACUUM SHORT CIRCUITING.

E. THE CONTRACTOR AVOIDED PENETRATING OR DAMAGING THE EXISTING GROUTED WELL SEAL [I.E., THE SEAL BETWEEN THE WELL CASING AND THE BOREHOLE WALL (ANNULAR SEAL)] WHEN INSTALLING THE PRECAST VAULT. THE WELL SEAL TYPICALLY EXTENDS A MINIMUM OF FOUR INCHES HORIZONTALLY BEYOND THE SIDE OF THE WELL CASING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ANNULAR SEAL AT THE CONTRACTOR'S EXPENSE IF THE SEAL IS DAMAGED BY THE CONTRACTOR DURING THE INSTALLATION OF THE VAULT. THE CONTRACTOR COMPLIED WITH THE REQUIREMENTS OF WASHINGTON ADMINISTRATIVE CODE (WAC) §173-160-450.

F. THE CONTRACTOR SET TOP OF VAULT FLUSH WITH THE EXISTING GRADE.

G. THE CONTRACTOR INSTALLED PIPES FOR EACH VAULT AT THE ELEVATION REQUIRED TO MAINTAIN A MINIMUM PIPE SLOPE OF ⅓% (6 INCHES PER 100 FEET) FROM WELLHEAD TO REMEDIATION ENCLOSURE. PIPES SHALL SLOPE DOWNWARDS FROM THE WELLHEAD TO REMEDIATION ENCLOSURE.

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/14
DRAWN BY: BLR/JQC
CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_C103

SHEET C-103
DPE DROP TUBE VAULT AND WELLHEAD DETAILS

REGION:

NOT TO SCALE

NO.	DATE	DESCRIPTION
1	02/7/13	AS-BUILT

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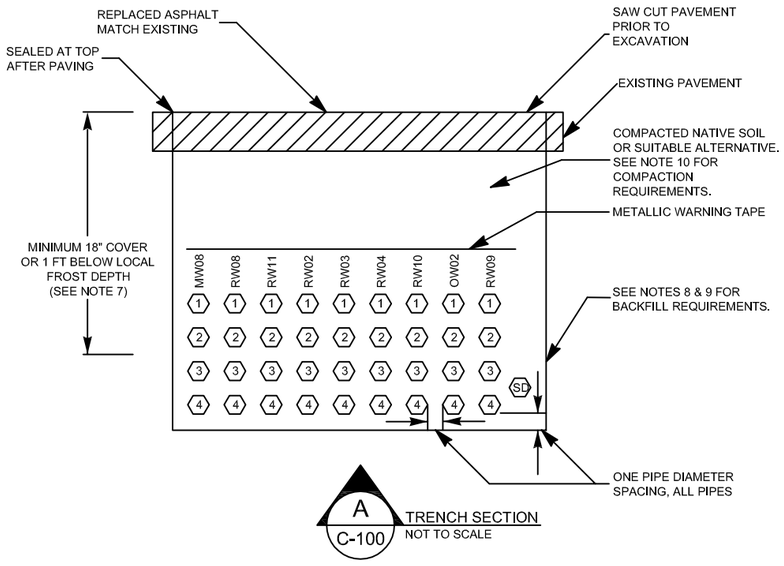
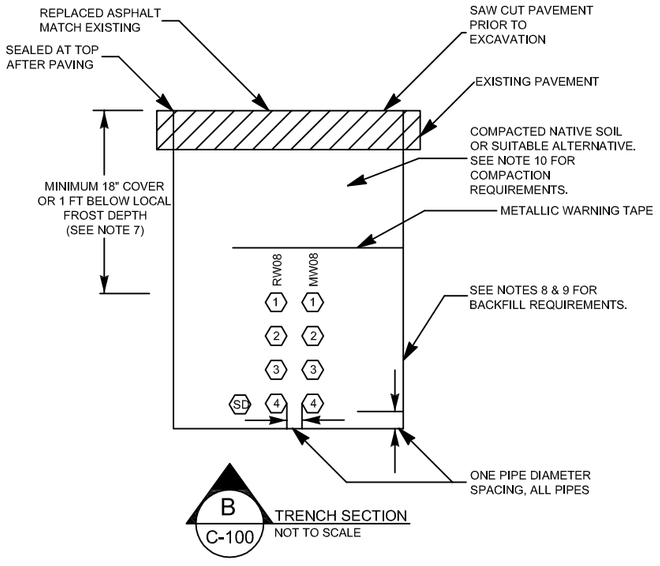
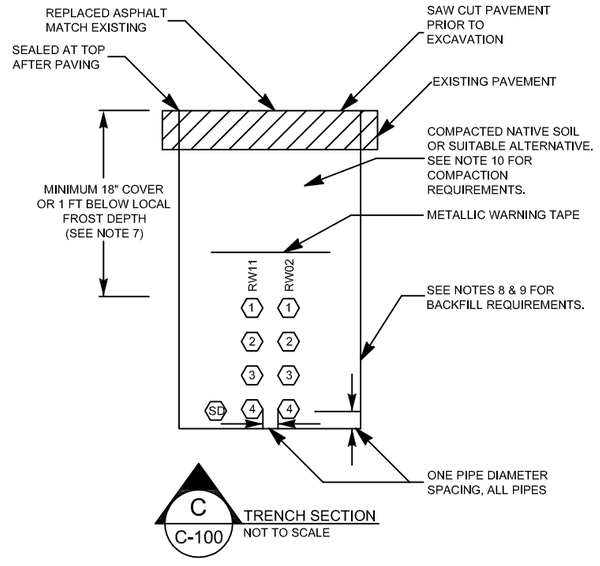


GENERAL NOTES:

1. INSPECTED ALL PIPE FOR CUTS, SCRATCHES, GOUGES, OR SPLIT END UPON DELIVERY TO SITE AND PRIOR TO INSTALLATION. DID NOT USE DAMAGED SECTIONS OF PIPE.
2. STORED AND HANDLED PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE ENDS OF ALL PIPE WERE CAPPED OR SEALED AT ALL TIMES TO PREVENT FOREIGN MATERIALS FROM ENTERING PIPES (e.g., RABBITS).
3. TRENCH BOTTOM WAS CONTINUOUS, FREE OF ROCKS, AND RELATIVELY SMOOTH. WHEN NECESSARY, PADDED TRENCH BOTTOM WITH MIN. 4" TAMPED EARTH OR SAND BELOW PIPE TO CUSHION PIPE AND PROTECT PIPE FROM DAMAGE.
4. FOLLOWED MANUFACTURER'S RECOMMENDATIONS FOR PIPE SOLVENT CONNECTIONS AND CURE TIMES.
5. PIPES WERE TESTED FOR LEAKS PRIOR TO BACKFILLING.
6. FOLLOWED PVC PIPING MANUFACTURER'S RECOMMENDATIONS FOR SNAKING OF BURIED PIPE TO COMPENSATE FOR THERMAL EXPANSION/CONTRACTION. (i.e. 3" OFFSET FOR 20' OF PIPE WITH TEMP. VARIATION OF 10 DEGREES F, 5" OFFSET FOR 20' OF PIPE WITH TEMP. VARIATION OF 30 DEGREES F).
7. ALL PIPING WAS SLOPED A MINIMUM OF ⅛" (6"/100') DOWN TOWARDS EACH WELLHEAD FROM THE MINIMUM COVER DEPTH OF 12 INCHES AT REMEDIATION COMPOUND.
8. SURROUNDED THE PIPE(S) WITH 6 TO 8 INCHES OF BACKFILL. BACKFILL WAS FREE OF ROCKS WITH A PARTICLE SIZE OF ½ INCH OR LESS.
9. BACKFILL WAS PLACED IN 6- TO 8-INCH LOOSE LIFTS AND COMPACTED BY HAND OR WITH A MECHANICAL TAMPER. A 12-INCH LOOSE LIFT WAS PLACED ABOVE PIPES PRIOR TO BEGINNING COMPACTION. LARGE OR SHARP ROCKS, FROZEN CLODS, AND OTHER DEBRIS GREATER THAN 3" IN DIAMETER WAS REMOVED. ROLLING EQUIPMENT OR HEAVY TAMPER WAS ONLY USED TO CONSOLIDATE THE FINAL BACKFILL.
10. BACKFILL COMPACTION WAS 95% STANDARD PROCTOR. AN UNYIELDING SURFACE ON THE FINAL LIFT OF THE BACKFILL WAS PROVIDED PRIOR TO PAVING.
11. CONTRACTOR DIRECTLY LOADED EXCAVATED SOIL INTO TRUCKS AND ARRANGED FOR WASTE PROFILING OFFSITE TRANSPORTATION AND DISPOSAL ON BEHALF OF CLIENT. THE DISPOSED SOIL WAS TREATED BY THERMAL DESORPTION. NO ODORS WERE OBSERVED DURING SHALLOW SYSTEM TRENCHING.





PIPING LEGEND

1	2"-DIA. SCH. 80 PVC SVE LINE
2	1"-DIA. SCH. 80 PVC WATER LINE
3	1"-DIA. SCH. 40 GALV. STEEL AIR LINE
4	1"-DIA. ELECTRICAL CONDUIT
SD	1"-DIA. SCH. 40 PVC STORMWATER LINE

AS-BUILT

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/14
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CAD FILE: 01-169_2013ASBUILT_C104

SHEET C-104
UTILITY TRENCH DETAILS

REGION:

NOT TO SCALE

NO.	DATE	DESCRIPTION
1	01/13	AS-BUILT

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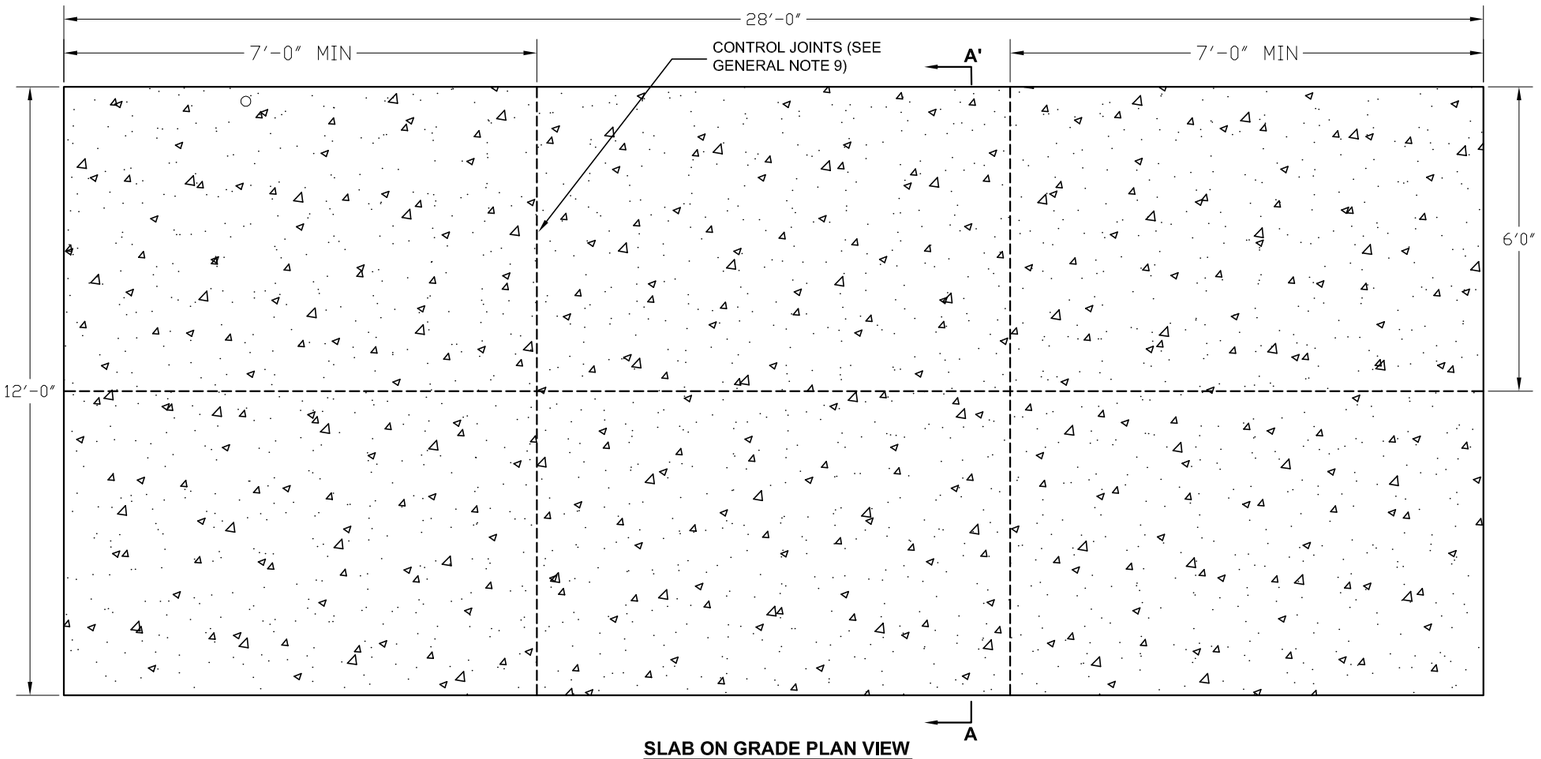
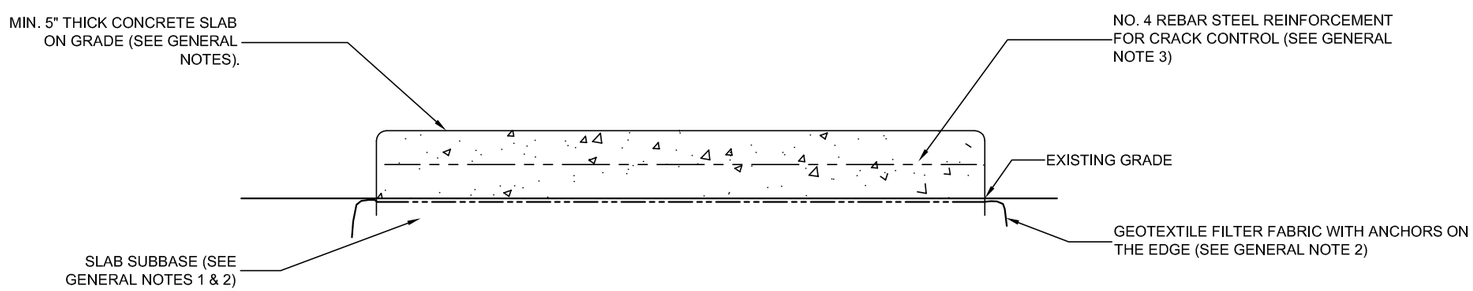


SLAB ON GRADE PLAN VIEW
(NOT TO SCALE)



SLAB ON GRADE SECTION DETAIL A-A'
(NOT TO SCALE)

GENERAL NOTES:

1. COMPACTED THE NATIVE SOILS IN THE DESIGNATED PAD LOCATION AND PRODUCED AN UNYIELDING SURFACE.
2. PLACED GEOTEXTILE FILTER FABRIC OVER THE COMPACTED SUBBASE AND ANCHORED EDGES AS SHOWN.
3. NO. 4 REBAR WAS LOCATED AT THE MID-DEPTH OF THE SLAB WAS PLACED 24 INCHES ON CENTER IN BOTH DIRECTIONS. THE REBAR WAS SUPPORTED THROUGHOUT THE SLAB AREA TO ENSURE PROPER POSITION.
4. THE CONTRACTOR USED TYPE II PORTLAND CEMENT MIX USING SOUND, WELL GRADED AGGREGATE. THE CONCRETE HAD COMPRESSIVE STRENGTH OF 4,230 POUNDS PER SQUARE INCH AT 28 DAYS. THE CONTRACTOR SUBMITTED THE MIX DESIGN TO SOUNDEARTH FOR APPROVAL PRIOR TO PLACEMENT.
5. THE SLUMP OF THE CONCRETE AT THE TIME OF THE POUR WAS 4 TO 6 INCHES. CONTRACTOR VERIFIED SLUMP PRIOR TO POUR.
6. THE CORNERS OF THE SLAB WERE FINISHED WITH A ROUNDED CHAMFER.
7. A LIGHT BROOM FINISH WAS APPLIED TO THE FINAL LEVEL SURFACE OF THE CONCRETE SLAB.
8. CONTROL JOINTS WERE INSTALLED IN THE LOCATIONS SHOW ON THE DRAWING. THE JOINTS WERE SAW CUT FOLLOWING INITIAL HARDENING (4 TO 12 HOURS FOLLOWING FINAL FINISH). THE JOINTS WERE FILLED WITH A FLEXIBLE JOINT COMPOUND.

AS-BUILT

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PROJECT NUMBER: 0440-002
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SHEET C-105
CONCRETE SLAB ON GRADE

REGION:

NOT TO SCALE

NO.	DATE	DESCRIPTION
1	2/7/13	AS-BUILT

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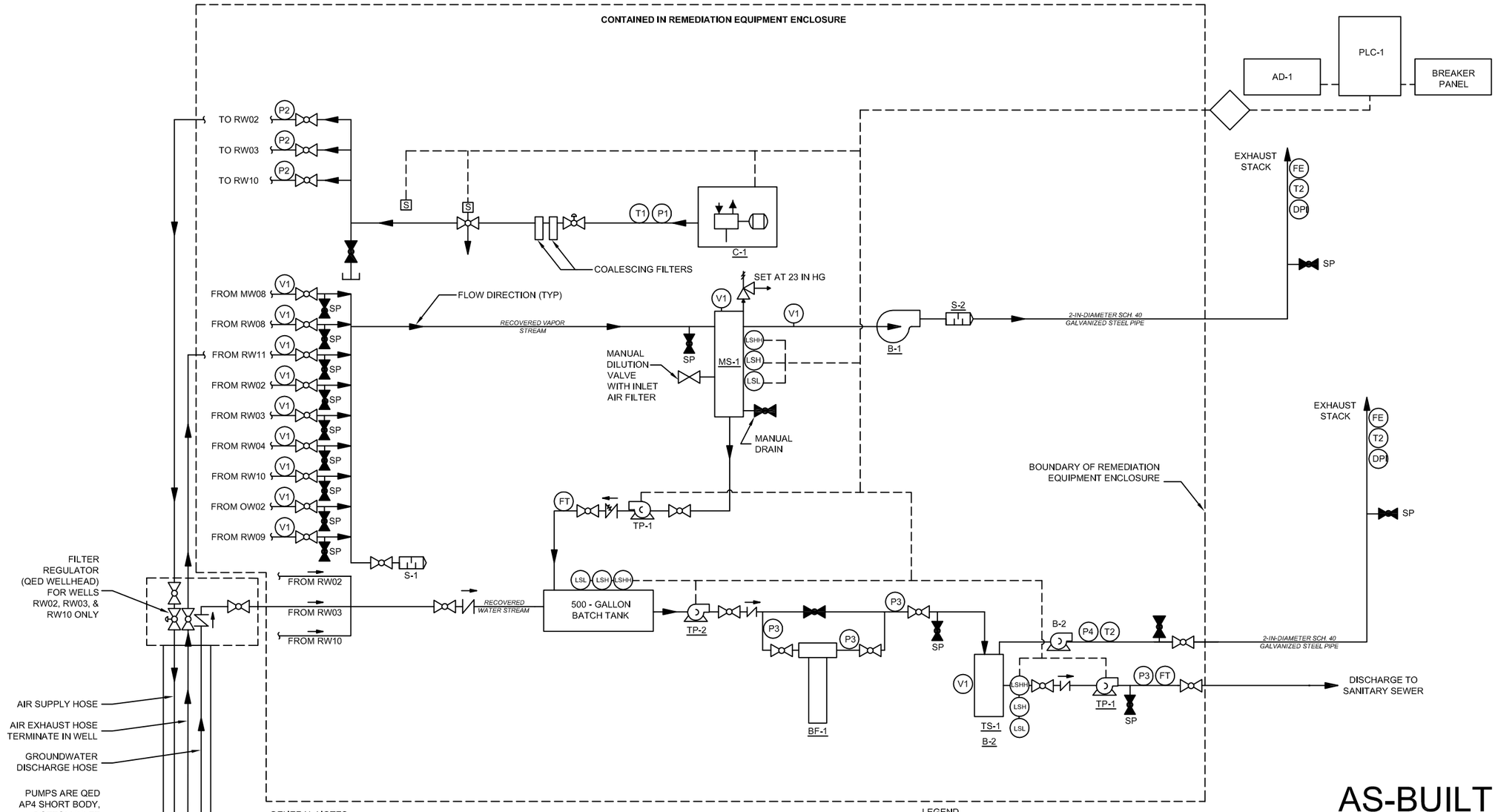

AS-BUILT

GENERAL NOTES

1. AIR COMPRESSOR, MOISTURE SEPARATOR, VACUUM BLOWER, INLET & OUTLET SILENCERS, INLET FILTER, TRAY STRIPPER AND BLOWER, AND BATCH TANK WAS A TURN KEY SYSTEM MOUNTED AND HOUSED WITHIN IN A REMEDIATION EQUIPMENT ENCLOSURE.

2. THE CONTROL PANELS LOCATED OUTSIDE OF THE REMEDIATION EQUIPMENT ENCLOSURE.

3. METER BOX LOCATED ON BACK OF BUILDING.

4. REMEDIATION EQUIPMENT ENCLOSURE EQUIPPED WITH SOUND REDUCTION EQUIPMENT AND MATERIALS AND VENTILATION (AIR MOVEMENT FANS).

LEGEND

V	VACUUM INDICATOR	DPI	DIFFERENTIAL PRESSURE INDICATOR
T	TEMPERATURE INDICATOR		NORMALLY OPEN BALL VALVE
P	PRESSURE INDICATOR		NORMALLY CLOSED BALL VALVE
SP	SAMPLE PORT		CHECK VALVE
LSH	LEVEL SWITCH HIGH		SPRING LOADED CHECK VALVE
LSHH	LEVEL SWITCH HIGH HIGH		GATE VALVE
LSL	LEVEL SWITCH LOW	S	SOLENOID OPERATED VALVE
FT	FLOW TOTALIZER		FILTER REGULATOR
FE	FLOW ELEMENT		VACUUM BLOWER
			CENTRIFUGAL PUMP
			RECIPROCATING AIR COMPRESSOR
			VACUUM RELIEF VALVE
			SILENCER

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

SHEET M-100
PIPING AND INSTRUMENTATION DIAGRAM

REGION:

DATE: 05/09/2013
DRAWN BY: JQC
CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_M100

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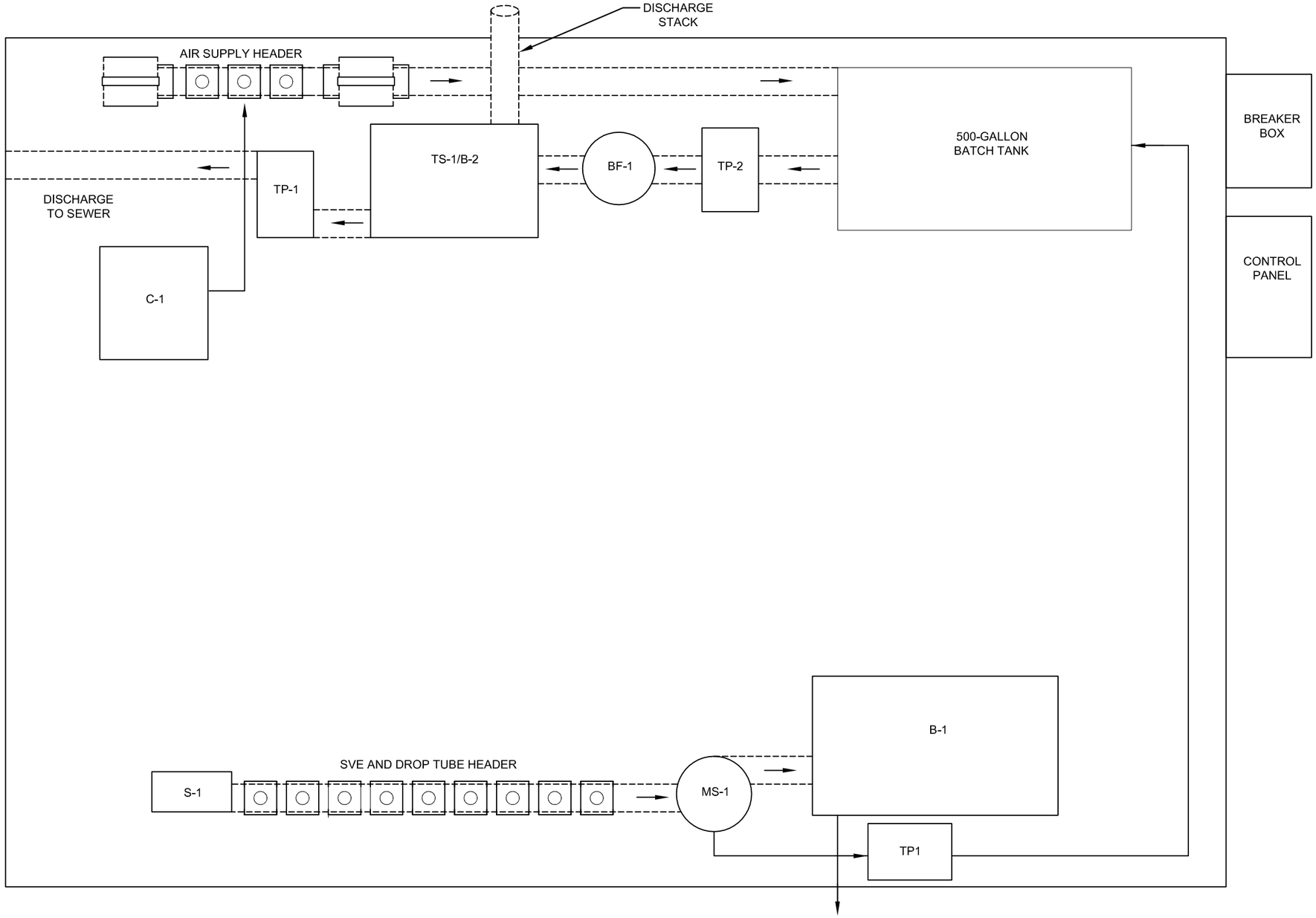

GENERAL NOTES:

1. CONTRACTOR POSITIONED PIPING ALONG OUTER WALLS OF ENCLOSURE TO THE EXTENT PRACTICAL TO AVOID TRIP HAZARDS.
2. CIVIL CONTRACTOR INSTALLED NEW ELECTRICAL SERVICE FOR REMEDIATION SYSTEM. CONTRACTOR IS RESPONSIBLE FOR RUNNING POWER SUPPLY FROM NEW SERVICE TO THE REMEDIATION EQUIPMENT ENCLOSURE.
3. BELOW-GRADE SVE PIPING WAS SLOPED A MINIMUM OF ½% FROM THE WELLS TO THE REMEDIATION ENCLOSURE OR END OF THE HORIZONTAL SVE PIPE RUN. THE SVE PIPING WAS A MINIMUM OF 12 INCHES BELOW GRADE AT THE ENCLOSURE.
4. CONTRACTOR MAINTAINED A 3-FOOT CLEARANCE SURROUNDING THE FRONT OF ALL CONTROL PANELS AND BREAKER BOXES.
5. FAN CONTROLLED BY TEMPERATURE SWITCH, WITH A MINIMUM OF TWO BAFFLES.
6. SEE SHEET M-102 FOR MANIFOLD HEADER DETAILS.

AS-BUILT

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SHEET M-101
PROPOSED REMEDIATION
ENCLOSURE LAYOUT

REGION:

NOT TO SCALE

1/27/13	AS-BUILT	

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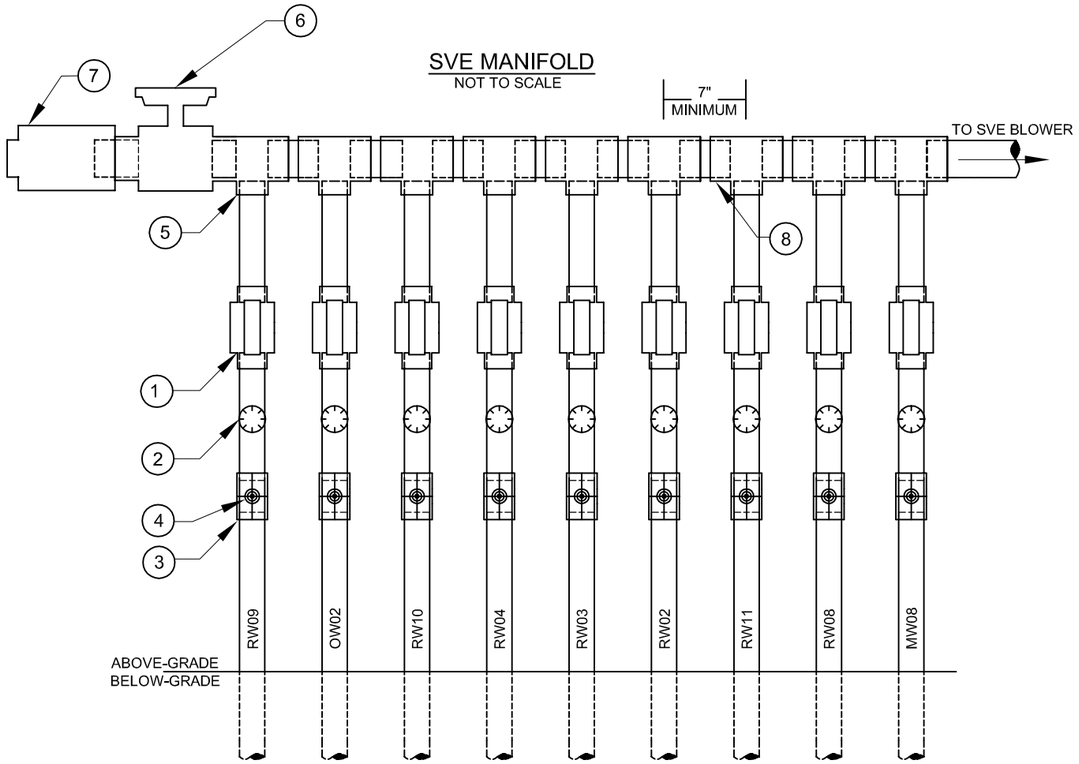
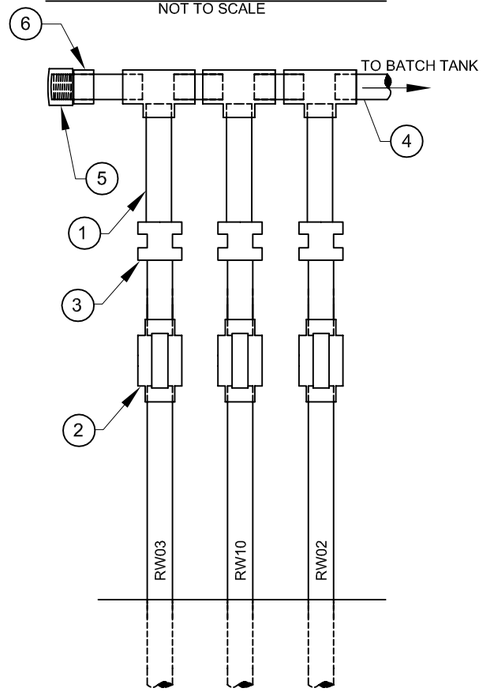
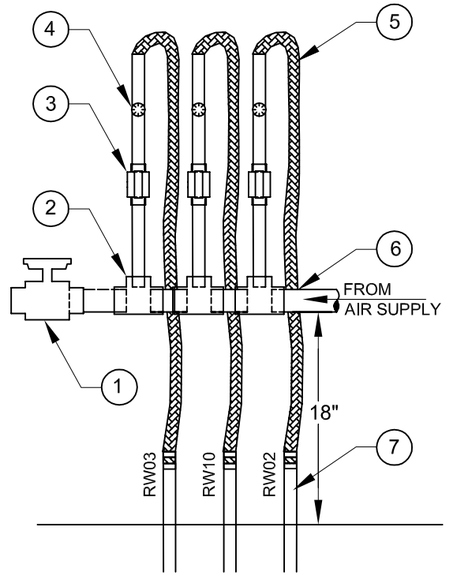
SVE MANIFOLD
NOT TO SCALE



WATER DISCHARGE MANIFOLD
NOT TO SCALE



AIR SUPPLY MANIFOLD
NOT TO SCALE



VACUUM MANIFOLD LEGEND
1. 2-INCH-DIAMETER, PVC TRUE UNION 2000 STANDARD BALL VALVE (SPEARS PART NO. 3639-020).
2. VACUUM GAUGE, CENTER BACK MOUNT, RANGE 0-30 INCHES OF MERCURY.
3. SCHEDULE 80 PVC REDUCING TEE 2"x2"x$\frac{1}{2}$" (SPEARS PART NO. 801-247C).
4. SCHEDULE 80 PVC LAB VALVE, $\frac{3}{8}$" VALVE OPENING, THREADED (SPEARS PART NO. 1521-003) (NOT SHOWN ON MANIFOLD SCHEMATIC).
5. SCHEDULE 80 PVC REDUCING TEE 3"x3"x2" (SPEARS PART NO. 801-338C).
6. 3-INCH-DIAMETER, BRASS GATE VALVE.
7. SOLBERG INLET FILTER (2 1/2-INCH MNPT OUT, 195 MAX CFU) (GRAINGER PART NO. 3TLA6).
8. 3-INCH-DIAMETER, SCHEDULE 80 PVC MAIN SUCTION HEADER.

WATER DISCHARGE LEGEND
1. 1-INCH-DIAMETER, SCHEDULE 80 PVC.
2. 1-INCH-DIAMETER, PVC TRUE UNION STANDARD BALL VALVE (SPEARS PART NO. 3639-010).
3. TRUE UNION 2000 STANDARD CHECK VALVE.
4. 1-INCH-DIAMETER, SCHEDULE 80 PVC WATER DISCHARGE LINE HEADER.
5. 1-INCH-DIAMETER, SCHEDULE 80 PVC THREADED CAP (FNPT).
6. 1-INCH-DIAMETER, SCHEDULE 80 PVC MALE ADAPTER (SOCXMNPT).

AIR SUPPLY MANIFOLD LEGEND
1. 1"-DIAMETER BRASS BALL VALVE.
2. GALVANIZED TEE 1"x1"x1".
3. 1" BRASS BALL VALVE.
4. PRESSURE GAUGE, CENTER BACK MOUNT, RANGE 0-100 PSI.
5. 1"-INSIDE DIAMETER AIR HOSE (RATED TO 200 PSI) TO CONNECT. FROM PIPE OUTLET TO INDIVIDUAL AIR SUPPLY LINE STUB-UPS.
6. 1"-DIAMETER GALVANIZED PIPE MAIN AS HEADER.
7. 1"-DIAMETER GALVANIZED PIPE.

AS-BUILT

NOTE: ALL MANIFOLDS WERE SUPPORTED WITH STEEL UNISTRUTS. ROUTE PIPING ALONG WALLS AND/OR FLOOR OF REMEDIATION ENCLOSURE TO AVOID ANY TRIP HAZARDS.

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/2014
DRAWN BY: BLR/JQC
CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_M102

SHEET M-102
MANIFOLD DETAILS

REGION:

NOT TO SCALE

NO.	DATE	DESCRIPTION
1	1/22/13	AS-BUILT

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EQUIPMENT, INSTRUMENTATION, AND WELL SCHEDULES

TOC HOLDINGS CO. FACILITY NO. 01-169

(REFER TO SHEET M-100 FOR P&ID)

EQUIPMENT SCHEDULE

- **AD-1 - AUTO DIALER TELEMETRY**
  PROVIDE AND INSTALL A SENSAPHONE MODEL 400 AUTODIALER IN THE CONTROL PANEL.
- **B1 -VACUUM BLOWER**
  BUSCH MINK 1322 AV, CAPABLE OF 200 CFM AND 25 INCHES OF MERCURY, 9 HP, 208 V, 3-PHASE.
- **B-2 -TRAY STRIPPER BLOWER**
  ROTRON REGENERATIVE BLOWER, 3 HP 230 VAC, 3 PHASE; EXISTING BLOWER TO BE REUSED.
- **BF-1 - BAG FILTER**
  KRYSTIL KLEAR MODEL 88-30 BAG FILTER HOUSING, 100 PSI, WELDED STEEL; PRESSURE GAUGE ON INLET AND OUTLET OF HOUSING; SAMPLE PORT ON INLET AND OUTLET OF HOUSING OR APPROVED EQUIVALENT.
- **C-1 AIR COMPRESSOR**
  INGERSOLL-RAND RECIPROCATING COMPRESSOR, 5 HP, MAXIMUM PRESSURE IS 135 PSI, 230 VOLT, 21.5 AMP, 1-PHASE OR APPROVED EQUIVALENT.
- **MS-1 - MOISTURE SEPARATOR**
  EXISTING MS TO BE REUSED IF POSSIBLE; REFER TO BID SPECIFICATIONS.
- **S-1 - PARTICULATE FILTER AND SILENCER**
  SOLBERG; F-231P-250; OR APPROVED EQUIVALENT
- **S-2 - OUTLET SILENCER**
  OUTLET SILENCER TO BE COMPATIBLE WITH BUSCH MINK 1322 AV
- **TP-1 & TP-2 - TRANSFER PUMPS**
  TP-1 - MOYNO 34401
  TP-2 - DAYTON BOOSTER PUMP, MULTI-STAGE, ¾ HP, 208 V, 3-PHASE OR APPROVED EQUIVALENT
- **PLC-1 - CONTROLS AND PROCESS LOGIC CONTROLLER**
  PLC SHALL BE A DIRECT LOGIC MODEL 205 PLC.
- **TS-1 - STAINLESS STEEL TRAY STRIPPER**
  EXISTING 4-TRAY STAINLESS STEEL TRAY STRIPPER.

INSTRUMENTATION SCHEDULE

P1 - PRESSURE INDICATOR; RANGE AND UNITS: 0-200 PSI
V1 - VACUUM INDICATOR; RANGE AND UNITS: 0 TO 30 INCHES OF MERCURY
T1 - TEMPERATURE INDICATOR; RANGE AND UNITS: 0-250°F
FE - FLOW ELEMENT; DWYER DS-300-2 FOR 2-INCH-DIAMETER SCHEDULE 40 GALVANIZED PIPE
DPI - DIFFERENTIAL PRESSURE INDICATOR - DWYER 2010 MAGNEHELIC®: RANGE AND UNITS: 0-10 AND 0-50 IOW
T2 - TEMPERATURE INDICATOR; RANGE AND UNITS: 0-150°F
P2 - PRESSURE INDICATOR; RANGE AND UNITS: 0-100 PSI
P3 - PRESSURE INDICATOR; RANGE AND UNITS: 0-30 PSI
P4 - PRESSURE INDICATOR; RANGE AND UNITS: 0-50 IOW
FT - FLOW TOTALIZER

WELL AND PUMP OR DROP TUBE SCHEDULE

WELL ID	DIAMETER INCHES	INLET TOTAL DEPTH FT. BELOW TOC	WELL PUMP*
RW02	4	17.5	QED; AP4
RW03	4	15.0	QED; AP 4
RW04	4	NA	NONE
RW08	4	NA	NONE
RW09	4	12.0	DROP TUBE
RW10	4	24.0	QED; AP4
RW11	4	24.0	DROP TUBE
OW02	2	9.0	DROP TUBE
MW08	2	NA	NONE

ABBREVIATIONS

HP = HORSEPOWER
IOW = INCHES OF WATER
P&ID = PIPING AND INSTRUMENTATION DIAGRAM
PSI = POUNDS PER SQUARE INCH
PSIG = POUNDS PER SQUARE INCH GAUGE
TOC = TOP OF CASING
V = VOLTS

AS-BUILT

PROJECT NAME: TOC HOLDINGS CO. FACILITY 01-169
PROJECT NUMBER: 0440-002
STREET ADDRESS: 851 NORTH BROADWAY
CITY, STATE: EVERETT, WASHINGTON

DATE: 01/21/2014
DRAWN BY: BLR/JQC
CHECKED BY: SES/TWM
CAD FILE: 01-169_2013ASBUILT_M103

SHEET M-103
EQUIPMENT, INSTRUMENTATION, AND WELL SCHEDULES

REGION:

NOT TO SCALE

BY	DATE	DESCRIPTION
1	1/21/13	AS-BUILT

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1/22/2014
P:\0440 TOC HOLDINGS CO\01-169 EVERETT - 851 BROADWAY\TECHNICAL\CAD\ENGINEERING FIGURES\2013 AS-BUILT\01-169_2013ASBUILT_M103.DWG

APPENDIX B

BORING LOGS FOR SYSTEM WELLS

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/20/2006
Surface Conditions: Asphalt
Well Location N/S: 21' North of NW corner of building
Well Location E/W: 44' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/20/2006

BORING LOG | B15 RW02

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 7.5 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0						Asphalt		**Asphalt.**	
						FILL		**Damp, silty gravelly SAND, brown, no hydrocarbon odor.**	
		13 15 17	33	0.0		FILL		**Damp, dense, gravelly, silty SAND, brown, no hydrocarbon odor.**	
5		7 8 18	33	0.0	B-15-05	FILL		**Moist, medium dense, silty SAND, tan, no hydrocarbon odor.**	
		7 8 12	33	0.0	B-15-09	FILL		**Wet, medium dense, silty SAND, some gravel, brown, no hydrocarbon odor.**	
10		50/6	33	0.0	B-15-10	FILL		**Same as above, moist, very dense, weak hydrocarbon odor.**	
		50/6		0.0		ML		**Damp, hard, sandy SILT, olive, no hydrocarbon odor.**	
		50/6	33	0.0		ML		**Same as above.**	
15		50/4	33	0.0		ML		**Dry to damp, hard, sandy SILT, greenish tan, no hydrocarbon odor.**	

Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	8 to 18	feet bgs
Sampler Type:	-		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	--	lbs	**Filter Pack Used:**	#2/12 Sand	
Total Boring Depth:	19	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	18.5	feet bgs	**Annular Seal:**	Bentonite Chips	
State Well ID No.:	--		**Monument Type:**	Flush Mount	

Notes/Comments:

SoundEarth Strategies

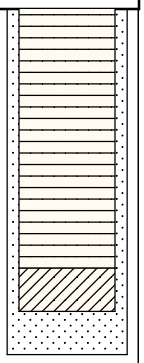
Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/20/2006
Surface Conditions: Asphalt
Well Location N/S: 21' North of NW corner of building
Well Location E/W: 44' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/20/2006

BORING LOG | B15 RW02

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 7.5 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15	X	50/6	33	210	B-15-16.5	SM		**Damp, very dense, silty SAND, tan, moderate hydrocarbon odor.**	
	X	50/6	33	181		SM		**Same as above.**	
	X	50/6	33	181		SM		**Same as above.**	
20								**Boring terminated at 19 feet below ground surface (bgs) and completed as four-inch-diameter recovery well RW02.**	
25									
30									



Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	8 to 18	feet bgs
Sampler Type:	-		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	--	lbs	**Filter Pack Used:**	#2/12 Sand	
Total Boring Depth:	19	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	18.5	feet bgs	**Annular Seal:**	Bentonite Chips	
State Well ID No.:	--		**Monument Type:**	Flush Mount	

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/20/2006
Surface Conditions: Asphalt
Well Location N/S: 2' South of NW corner of building
Well Location E/W: 32' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/20/2006

BORING LOG | B16 RW03

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 9.5 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description
0		10 12 10	100	0.0		FILL		**Asphalt** **Damp, medium dense, silty SAND, some gravel, tan, no hydrocarbon odor.**
		50/6	33	0.0		FILL		**Same as above, very dense.**
		50/6	33	0.0		FILL		**Same as above.**
5		50/6	33	0.0	B-16-05	FILL		**Same as above.**
		50/6	33	0.0		FILL		**Same as above.**
		50/6	33	0.0		FILL		**Same as above.**
		50/6	33	0.0	B-16-10	FILL		**Wet, very dense, silty SAND, some rounded gravel, tan, no hydrocarbon odor.**
10		50/6	33	0.0		FILL		**Same as above.**
		50/6	33	0.0		FILL		**Same as above.**
		50/6 12	50	0.0		FILL		**Same as above.**
15								

Well Construction Detail

Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4	inches
Drilling Equipment:	Hollow Setm Auger		**Well Screened Interval:**	8 to 15	feet bgs
Sampler Type:	--		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	--	lbs	**Filter Pack Used:**	#2/12 Sand	
Total Boring Depth:	16	feet bgs	**Surface Seal:**	Cement	
Total Well Depth:	15.5	feet bgs	**Annular Seal:**	Bentonite Chip	
State Well ID No.:	--		**Monument Type:**	Flush Mount	

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/20/2006
Surface Conditions: Asphalt
Well Location N/S: 2' South of NW corner of building
Well Location E/W: 32' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/20/2006

BORING LOG | B16 RW03

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 9.5 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15	X	12 50/6	50	0.0		ML		**Damp, hard, SILT, greenish gray, no hydrocarbon odor.**	
								Boring terminated at 16 feet below ground surface (bgs) and completed as four-inch-diameter recovery well RW03.	
20									
25									
30									

Drilling Co./Driller: Cascade
Drilling Equipment: Hollow Setm Auger
Sampler Type: --
Hammer Type/Weight: -- lbs
Total Boring Depth: 16 feet bgs
Total Well Depth: 15.5 feet bgs
State Well ID No.: --

Well/Auger Diameter: 4 inches
Well Screened Interval: 8 to 15 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: #2/12 Sand
Surface Seal: Cement
Annular Seal: Bentonite Chip
Monument Type: Flush Mount

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/21/2006
Surface Conditions: Asphalt
Well Location N/S: 14.5' South of NW corner of building
Well Location E/W: 49.5' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/21/2006

BORING LOG | B19 RW04

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 7 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0								**Asphalt.**	
		10 10 10				**FILL**		**Damp, medium dense, silty gravelly SAND, tan, no hydrocarbon odor.**	
		12 19 16		0.0				**Dense.**	
5		12 18 17							
		18 20 30		0.0				**Moist to wet, very dense.**	
		50/6						**Moist.**	
		50/6				**OL**		**Damp, hard, organic SILT, brownish black, very faint hydrocarbon odor.**	
10		50/6		830	B-19-10	**OL**		**Same as above, moist, moderate hydrocarbon odor.**	
		50/6							
		50/6				**OL**		**Same as above, no hydrocarbon odor.**	
		50/6				**OL**		**Same as above, very faint hydrocarbon odor.**	
15									

Drilling Co./Driller: Cascade
Drilling Equipment: Hollow Stem Auger
Sampler Type: --
Hammer Type/Weight: -- lbs
Total Boring Depth: 18 feet bgs
Total Well Depth: 17.5 feet bgs
State Well ID No.: --

Well/Auger Diameter: 4 inches
Well Screened Interval: 7 to 17 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: #2/12 Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips
Monument Type: Flush Mount

Notes/Comments:
Notes

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: TJL
Date Started: 3/21/2006
Surface Conditions: Asphalt
Well Location N/S: 14.5' South of NW corner of building
Well Location E/W: 49.5' West of NW corner of building
Reviewed by: PJK/RKB
Date Completed: 3/21/2006

BORING LOG | B19 RW04

Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling 7 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15		50/6				ML		**Damp to moist, hard, sandy SILT, green, very faint hydrocarbon odor.**	
		50/6		0.0		SM		**Damp, very dense, silty SAND, green, no hydrocarbon odor.**	
		50/6				SM		**Same as above.**	
								Boring terminated at 18 feet below ground surface (bgs) and completed as four-inch-diameter recovery well RW04.	
20									
25									
30									

Drilling Co./Driller: Cascade
Drilling Equipment: Hollow Stem Auger
Sampler Type: --
Hammer Type/Weight: -- lbs
Total Boring Depth: 18 feet bgs
Total Well Depth: 17.5 feet bgs
State Well ID No.: --

Well/Auger Diameter: 4 inches
Well Screened Interval: 7 to 17 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: #2/12 Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips
Monument Type: Flush Mount

Notes/Comments:
Notes

SoundEarth Strategies

Project:	TOC Holdings Co. Facility No. 01-169
Project Number:	0440-002
Logged by:	TJL
Date Started:	3/21/2006
Surface Conditions:	Asphalt
Well Location N/S:	22.9' North of SW corner of building
Well Location E/W:	46' West of SW corner of building
Reviewed by:	PJK/RKB
Date Completed:	3/21/2006

BORING LOG | B20 OW02

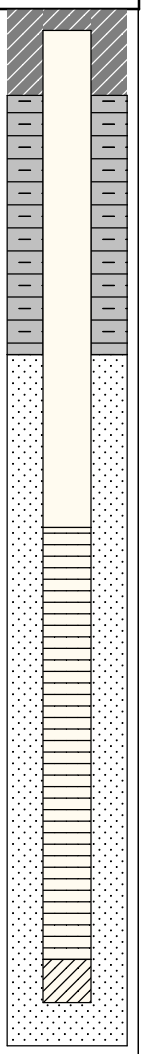
Site Address: 851 North Broadway, Everett, Washington

Water Depth At Time of Drilling: NE feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description
0				0.0				**Asphalt.**
								Logged from soil cuttings: Damp, silty gravelly SAND, black, no hydrocarbon odor.
								Logged from soil cuttings: Same as above, bluish gray.
5		7 6 12	100	24.3		FILL		**Damp, medium dense, silty gravelly SAND, bluish-gray, very faint hydrocarbon odor.**
10				0.0		FILL		**Damp to moist, silty gravelly SAND, bluish gray, no hydrocarbon odor.**
								Boring terminated at 12 feet below ground surface (bgs) and completed as two-inch-diameter observation well OW02.
15								

Well Construction Detail



Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	Hollow Stem Auger		**Well Screened Interval:**	6 to 11	feet bgs
Sampler Type:	--		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	--	lbs	**Filter Pack Used:**	#2/12 Sand	
Total Boring Depth:	12	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	12	feet bgs	**Annular Seal:**	Bentonite Chips	
State Well ID No.:	--		**Monument Type:**	Flush Mount	

Notes/Comments:

NE = not encountered

SoundEarth Strategies

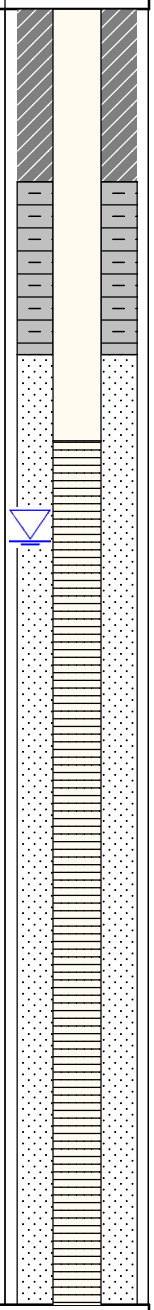
Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: CCC
Date Started: 11/16/10
Surface Conditions: Asphalt
Well Location N/S: 46' S of NW corner of building
Well Location E/W: 14' W of NW corner of building
Reviewed by: JAC
Date Completed: 11/16/10

BORING LOG | B27 MW08

Site Address: 851 Broadway, Everett, Washington

Water Depth At Time of Drilling 6 feet bgs
Water Depth After Completion 22.33 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description
0						Asphalt		**Asphalt (2.5 inches).**
								Hand cleared to 3 feet below ground surface (bgs). Damp, silty SAND, with gravel and cobbles, brown grading to gray, no hydrocarbon odor (Fill).
5		3 4 5	100	0.0		SP		**Wet, loose, gravelly fine to medium SAND, some silt, dark gray, no hydrocarbon odor (15-65-20) (Fill).**
		5 5 7	100	0.0	B27-7.5	SM		**Damp to moist, medium dense, silty SAND, with gravel, silt-rich inclusions, and wood fragments, brown with gray, no hydrocarbon odor (Fill).**
10		4 5 9	100	0.0	B27-10	ML		**Damp, stiff, SILT, trace fine sand, gray with brown oxidation, no hydrocarbon odor (95-5-0).**
		9 11 17	100	0.0	B27-12.5	ML		**Same as above, very stiff SILT, no sand, dark brown with gray.**
15								



Drilling Co./Driller: Cascade/David
Drilling Equipment: HSA
Sampler Type: D&M Split Spoon
Hammer Type/Weight: 300 lbs
Total Boring Depth: 30.5 feet bgs
Total Well Depth: 25 feet bgs
State Well ID No.: --

Well/Auger Diameter: 2 inches
Well Screened Interval: 5 feet bgs
Screen Slot Size: 25 inches
Filter Pack Used: 2/12 Sand
Surface Seal: Cement
Annular Seal: Bentonite
Monument Type: Flush Mount

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: CCC
Date Started: 11/16/10
Surface Conditions: Asphalt
Well Location N/S: 46' S of NW corner of building
Well Location E/W: 14' W of NW corner of building
Reviewed by: JAC
Date Completed: 11/16/10

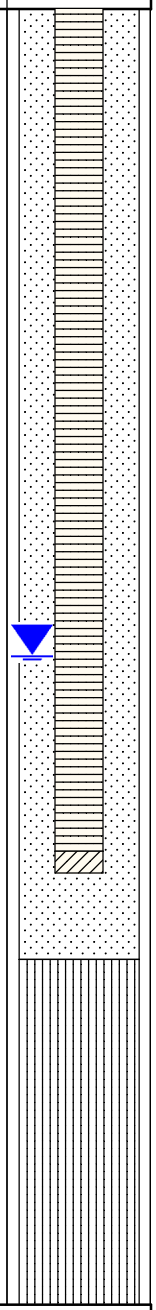
BORING LOG | B27 MW08

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling 6 feet bgs
Water Depth After Completion 22.33 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description
15		10 14 14	100	778	B27-15	ML		**Moist, very stiff, fine sandy SILT to SILT, with strong partings, gray with oxidation, strong hydrocarbon odor.**
		13 50/6	100	168	B27-17.5	SM		**Damp to moist, very dense, silty fine SAND, with silt rich inclusions, moderate hydrocarbon odor (40-60-10).**
20		50/6	100	67	B27-20	SM		**Damp, very dense, silty, fine SAND, trace to some gravel, moderate hydrocarbon odor (35-60-5).**
		50/6	100	68	B27-22.5	SM		**Same as above, faint hydrocarbon odor.**
25		50/6	100	22.7	B27-25	SM		**Same as above, faint hydrocarbon odor.**
		50/6	100	0.0	B27-27.5	SM		**Damp, very dense, silty fine SAND, some gravel, faint hydrocarbon odor (20-70-10).**
30								

Well Construction Detail



Drilling Co./Driller:	Cascade/David		**Well/Auger Diameter:**	2	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	5	feet bgs
Sampler Type:	D&M Split Spoon		**Screen Slot Size:**	25	inches
Hammer Type/Weight:	300	lbs	**Filter Pack Used:**	2/12 Sand	
Total Boring Depth:	30.5	feet bgs	**Surface Seal:**	Cement	
Total Well Depth:	25	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	--		**Monument Type:**	Flush Mount	

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: CCC
Date Started: 11/16/10
Surface Conditions: Asphalt
Well Location N/S: 46' S of NW corner of building
Well Location E/W: 14' W of NW corner of building
Reviewed by: JAC
Date Completed: 11/16/10

BORING LOG | B27 MW08

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling 6 feet bgs
Water Depth After Completion 22.33 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
30		50/6	100	0.0	B27-30	SM		**Same as above, very faint hydrocarbon odor.**	
								Boring terminated at 30.5' bgs and completed as MW08 as shown in well construction detail.	
35									
40									
45									

Drilling Co./Driller: Cascade/David
Drilling Equipment: HSA
Sampler Type: D&M Split Spoon
Hammer Type/Weight: 300 lbs
Total Boring Depth: 30.5 feet bgs
Total Well Depth: 25 feet bgs
State Well ID No.: --

Well/Auger Diameter: 2 inches
Well Screened Interval: 5 feet bgs
Screen Slot Size: 25 inches
Filter Pack Used: 2/12 Sand
Surface Seal: Cement
Annular Seal: Bentonite
Monument Type: Flush Mount

Notes/Comments:

SoundEarth Strategies

Project:	TOC Holdings Co. Facility No. 01-169
Project Number:	0440-002
Logged by:	RAH
Date Started:	06/14/2011
Surface Conditions:	Asphalt
Well Location N/S:	36.6' S of NW corner of building
Well Location E/W:	14' W of NW corner of building
Reviewed by:	DNM
Date Completed:	06/14/2011

BORING LOG | B31 RW08

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs

Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0								**Asphalt.**	
5		1 1 2	100	0.3	B31-05	**SM**		**Moist, loose, silty SAND, with trace gravel, dark brown, no hydrocarbon odor (30-65-5) (Fill).**	
10		5 6 5	100	0.2	B31-09	**ML**		**Damp, loose SILT, with sand, wood waste and brick fragments, dark brown, no hydrocarbon odor (40-60-0) (Fill).**	
15		6 12 17	100	0.2	B31-12.5	**ML**		**Moist, loose SILT, with sand and brick fragments, dark brown, no hydrocarbon odor (40-60-0) (Fill).**	
						SM		**Damp, dense silty SAND, with native tan gravel, light brown to gray (40-55-5).**	

Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	5 to 30	feet bgs
Sampler Type:	Split Spoon		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20 Silicon Sand	
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHA010		**Monument Type:**	Flush mount	

Notes/Comments:
NE = not encountered

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/14/2011
Surface Conditions: Asphalt
Well Location N/S: 36.6' S of NW corner of building
Well Location E/W: 14' W of NW corner of building
Reviewed by: DNM
Date Completed: 06/14/2011

BORING LOG | B31 RW08

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15		3 4 6	100	37	B31.15	SM		**Damp, loose, silty fine SAND, with trace gravel, light brown with gray streaks, moderate hydrocarbon odor (30-65-5).**	
20		17 22 34	100	85.9	B31.20	SM		**Damp, dense, silty fine SAND, with trace gravel, grayish brown, moderate hydrocarbon odor (25-70-5).**	
25		50/6	33	35.7	B31.25	SM		**Damp, very dense, silty fine SAND, with trace gravel, grayish brown, slight hydrocarbon odor (25-70-5).**	
		50/5	33	91.8	B31-27.5	SM		**Damp, very dense, silty fine SAND, with trace gravel, grayish brown, no hydrocarbon odor (25-70-5).**	
30									

						Notes/Comments:
Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4	inches	NE = not encountered
Drilling Equipment:	HSA		**Well Screened Interval:**	5 to 30	feet bgs	
Sampler Type:	Split Spoon		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20 Silicon Sand		
Total Boring Depth:	31.5	feet bgs	**Surface Seal:**	Concrete		
Total Well Depth:	30	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BHA010		**Monument Type:**	Flush mount		

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/14/2011
Surface Conditions: Asphalt
Well Location N/S: 36.6' S of NW corner of building
Well Location E/W: 14' W of NW corner of building
Reviewed by: DNM
Date Completed: 06/14/2011

BORING LOG | B31 RW08

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
30		50/6	33	28.2	B31-30	SM		**Damp, very dense, silty SAND, with gravel, grayish brown, slight hydrocarbon odor (25-70-5).**	
								Boring terminated at 31.5' bgs, screened from 5 to 30 feet and completed as recovery well RW08.	
35									
40									
45									

Drilling Co./Driller: Cascade
Drilling Equipment: HSA
Sampler Type: Split Spoon
Hammer Type/Weight: 140 lbs
Total Boring Depth: 31.5 feet bgs
Total Well Depth: 30 feet bgs
State Well ID No.: BHA010

Well/Auger Diameter: 4 inches
Well Screened Interval: 5 to 30 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: 10/20 Silicon Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Monument Type: Flush mount

Notes/Comments:
NE = not encountered

SoundEarth Strategies

Project:	TOC Holdings Co. Facility No. 01-169
Project Number:	0440-002
Logged by:	RAH
Date Started:	06/14/2011
Surface Conditions:	Asphalt
Well Location N/S:	5.5' S of NW corner of building
Well Location E/W:	19.3' E of NW corner of building
Reviewed by:	DNM
Date Completed:	06/14/2011

BORING LOG | B32 RW11

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs

Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0								**Asphalt.**	
5		3 2 1	100	0.0	B32-05	SM		**Damp, loose, silty SAND, with gravel, dark brown, no hydrocarbon odor (30-60-10).**	
		2 4 6	100	0.0		ML		**Damp, loose, SILT, with fine sand, wood waste and brick fragments, dark brown, mottled with local green-gray and brown areas, no hydrocarbon odor (40-60-0).**	
10		5 7 13		0.7	B32-10	ML		**Moist, loose, SILT, with fine sand, wood waste and brick fragments, dark brown, moderate hydrocarbon odor (40-60-0).**	
		12 16 24		9.5	B32-12.5	ML		**Damp, dense, SILT with fine sand, trace gravel, light brown with gray streaks, no hydrocarbon odor (35-60-5).**	
15									

Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4" / 6.25"	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	5 to 25	feet bgs
Sampler Type:	Split Spoon		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20 Silica Sand	
Total Boring Depth:	25.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	25	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHA011		**Monument Type:**	Flush mount	

Notes/Comments:
NE = not encountered

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/14/2011
Surface Conditions: Asphalt
Well Location N/S: 5.5' S of NW corner of building
Well Location E/W: 19.3' E of NW corner of building
Reviewed by: DNM
Date Completed: 06/14/2011

BORING LOG | B32 RW11

Site Address: 851 Broadway, Everett, Washington

Water Depth At Time of Drilling: NE feet bgs
Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15		50/5	33	57.8	B32-15	ML		**Damp, very dense, SILT, with sand, trace gravel, light brown with gray streaks, slight hydrocarbon odor (35-60-5).**	
20		50/6	33	31.4	B32-20	SM		**Damp, very dense, silty SAND, with gravel, grayish brown, slight hydrocarbon odor (25-65-10).**	
25		50/6	33	2.4	B32-25	SM		**Damp, very dense, silty SAND, with gravel, grayish brown, no hydrocarbon odor (25-65-10).**	
								Boring terminated at 25.5 feet, screened from 5 to 25 feet, and completed as recovery well RW11.	
30									

Drilling Co./Driller: Cascade
Drilling Equipment: HSA
Sampler Type: Split Spoon
Hammer Type/Weight: 140 lbs
Total Boring Depth: 25.5 feet bgs
Total Well Depth: 25 feet bgs
State Well ID No.: BHA011

Well/Auger Diameter: 4" / 6.25" inches
Well Screened Interval: 5 to 25 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: 10/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Monument Type: Flush mount

Notes/Comments:
NE = not encountered

SoundEarth Strategies

Project:	TOC Holdings Co. Facility No. 01-169
Project Number:	0440-002
Logged by:	RAH
Date Started:	06/14/2011
Surface Conditions:	Asphalt
Well Location N/S:	64.1' S of NW corner of building
Well Location E/W:	46.8' W of NW corner of building
Reviewed by:	DNM
Date Completed:	06/14/2011

BORING LOG | B33 RW10

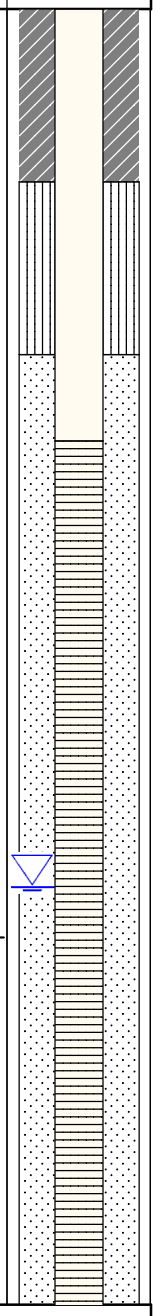
Site Address: 851 Broadway, Everett, Washington

Water Depth At Time of Drilling: 10 feet bgs

Water Depth After Completion: -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description
0								**Asphalt.**
5		6 6 7	100	0.2	B33-05	SP		**Damp, loose, fine to medium SAND, with gravel, brown, no hydrocarbon odor (10-70-20).**
		5 3 2	100	0.4	B33-07.5	SP		**Moist, loose, fine to medium SAND, with gravel brown, no hydrocarbon odor (10-70-20).**
10		3 2 2	100	2.6	B33-10	SP		**Wet, loose, fine to medium SAND, with gravel, brown, no hydrocarbon odor (10-70-20).**
						ML		**Damp, loose, SILT, with wood waste, black, no hydrocarbon odor (40-60-0).**
		4 5 7	100	2.2	B33-12.5	ML		**Damp, loose, SILT, with fine sand, gray with brown streaks, no hydrocarbon odor (50-50-0).**
15								

Well Construction Detail



Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4" / 6.25"	inches
Drilling Equipment:	HSA		**Well Screened Interval:**	5 to 25	feet bgs
Sampler Type:	Split Spoon		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20 Sand	
Total Boring Depth:	25.5	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	25	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BHA012		**Monument Type:**	Flush mount	

Notes/Comments:

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/14/2011
Surface Conditions: Asphalt
Well Location N/S: 64.1' S of NW corner of building
Well Location E/W: 46.8' W of NW corner of building
Reviewed by: DNM
Date Completed: 06/14/2011

BORING LOG | B33 RW10

Site Address: 851 Broadway, Everett, Washington

Water Depth At Time of Drilling 10 feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15		5 8 9	100	8.8	B33-15	ML		**Damp, loose, silty fine SAND, gray with brown streaks, no hydrocarbon odor (40-60-0).**	
		17 50/6	100	296	B33-17.5	SM		**Damp, very dense, silty SAND, with gravel, gray, strong hydrocarbon odor (30-50-20).**	
20		50/5	0	--				**No recovery.**	
		50/6	33	26.6	B33-22.5	SM		**Damp, very dense, silty SAND, gray, slight hydrocarbon odor (30-70-0).**	
25		50/5	33	10.8	B33-25	SM		**Damp, very dense, silty SAND, gray, slight hydrocarbon odor.**	
								Boring terminated at 25.5 feet, screened from 5 to 25 feet, and completed as recovery well RW10.	
30									

Drilling Co./Driller:	Cascade		**Well/Auger Diameter:**	4" / 6.25"	inches	**Notes/Comments:**
Drilling Equipment:	HSA		**Well Screened Interval:**	5 to 25	feet bgs	
Sampler Type:	Split Spoon		**Screen Slot Size:**	0.010	inches	
Hammer Type/Weight:	140	lbs	**Filter Pack Used:**	10/20 Sand		
Total Boring Depth:	25.5	feet bgs	**Surface Seal:**	Concrete		
Total Well Depth:	25	feet bgs	**Annular Seal:**	Bentonite		
State Well ID No.:	BHA012		**Monument Type:**	Flush mount		

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/15/2011
Surface Conditions: Asphalt
Well Location N/S: 85.5' S of NW corner of building
Well Location E/W: 31.3' W of NW corner of building
Reviewed by: DNM
Date Completed: 06/15/2011

BORING LOG | B34 RW09

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
0								**Asphalt.**	
5		3 2 1	100	4.8	B34-05	ML		**Damp, loose, SILT, with sand and wood waste, gray, slight hydrocarbon odor (40-60-0).**	
		2 6 6	100	0.8	B34-07.5	ML		**Damp, loose, SILT, with sand, with wood waste and brick fragments, no hydrocarbon odor (40-60-0).**	
10		7 7 10	0					**No recovery.**	
		5 7 9	20	0.1	B34-12.5	ML		**Damp, loose SILT, with sand, large pieces of wood in sample limits recovery, gray, no hydrocarbon odor (40-60-0).**	
15									

Drilling Co./Driller: Cascade/David
Drilling Equipment: HSA
Sampler Type: Split Spoon
Hammer Type/Weight: 140 lbs
Total Boring Depth: 16.5 feet bgs
Total Well Depth: 15 feet bgs
State Well ID No.: --

Well/Auger Diameter: 4" / 6.25" inches
Well Screened Interval: 5 to 15 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: 10/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Monument Type: Flush mount

Notes/Comments:
NE = not encountered

SoundEarth Strategies

Project: TOC Holdings Co. Facility No. 01-169
Project Number: 0440-002
Logged by: RAH
Date Started: 06/15/2011
Surface Conditions: Asphalt
Well Location N/S: 85.5' S of NW corner of building
Well Location E/W: 31.3' W of NW corner of building
Reviewed by: DNM
Date Completed: 06/15/2011

BORING LOG | B34 RW09

Site Address: 851 Broadway
Everett, Washington

Water Depth At Time of Drilling NE feet bgs
Water Depth After Completion -- feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppmv)	Sample ID	USCS Class	Graphic	Lithologic Description	Well Construction Detail
15		7 9 10	100	0.3	B34-15	**ML**		**Damp, dense, SILT, with sand, brown with gray streaks, no hydrocarbon odors (40-60-0) (Native).**	
								Boring terminated at 16.5 feet, screened from 5 to 15 feet, and completed as recovery well RW09.	
20									
25									
30									

Drilling Co./Driller: Cascade/David
Drilling Equipment: HSA
Sampler Type: Split Spoon
Hammer Type/Weight: 140 lbs
Total Boring Depth: 16.5 feet bgs
Total Well Depth: 15 feet bgs
State Well ID No.: --

Well/Auger Diameter: 4" / 6.25" inches
Well Screened Interval: 5 to 15 feet bgs
Screen Slot Size: 0.010 inches
Filter Pack Used: 10/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Monument Type: Flush mount

Notes/Comments:
NE = not encountered

APPENDIX C
PLC LADDER LOGIC

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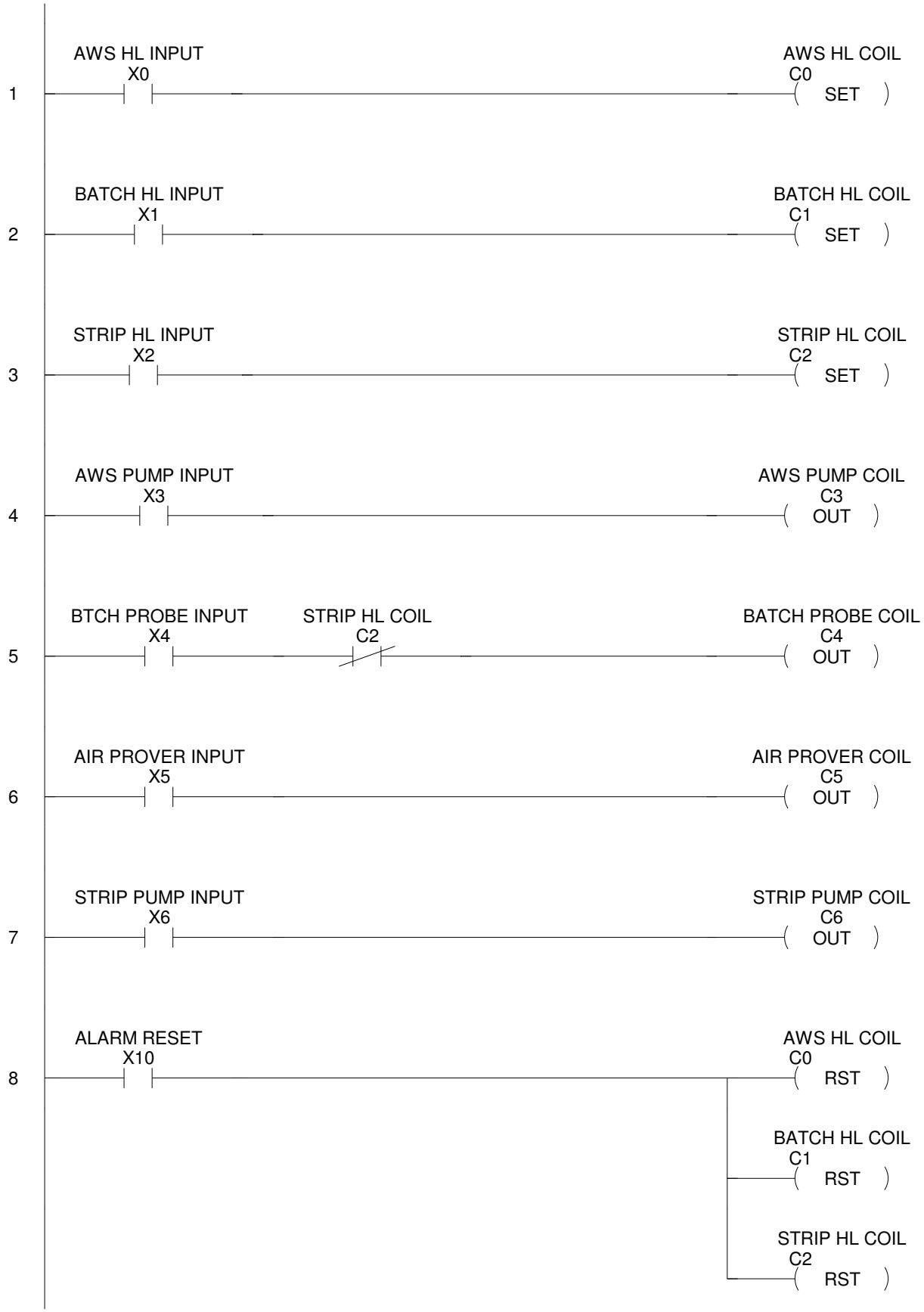
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AWS HL COIL
C0
SET
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BATCH HL INPUT
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C1
SET
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STRIP HL INPUT
X2
STRIP HL COIL
C2
SET
4
AWS PUMP INPUT
X3
AWS PUMP COIL
C3
OUT
5
BTCH PROBE INPUT
X4
STRIP HL COIL
C2
BATCH PROBE COIL
C4
OUT
6
AIR PROVER INPUT
X5
AIR PROVER COIL
C5
OUT
7
STRIP PUMP INPUT
X6
STRIP PUMP COIL
C6
OUT
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ALARM RESET
X10
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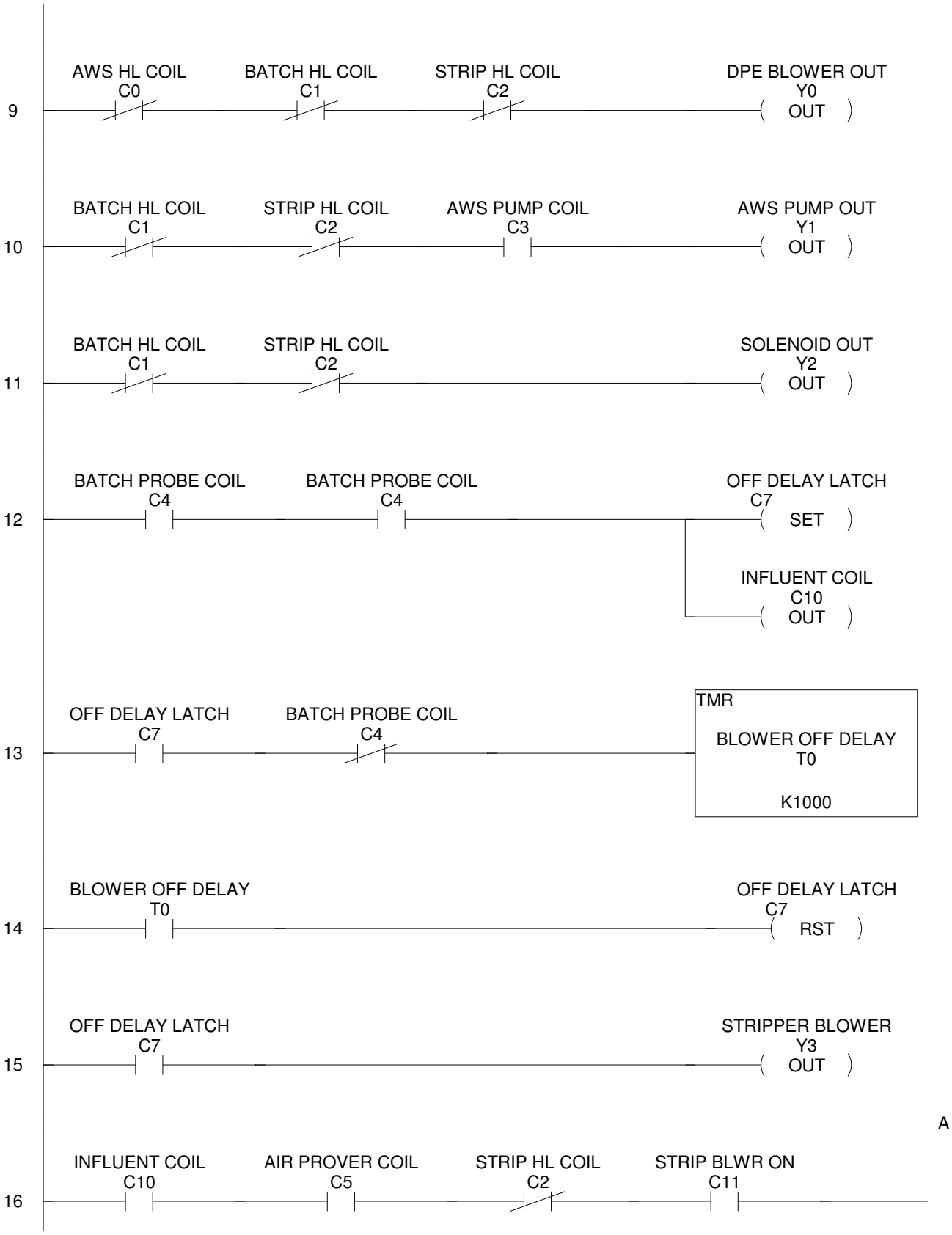
BATCH HL COIL
C1
RST
STRIP HL COIL
C2
RST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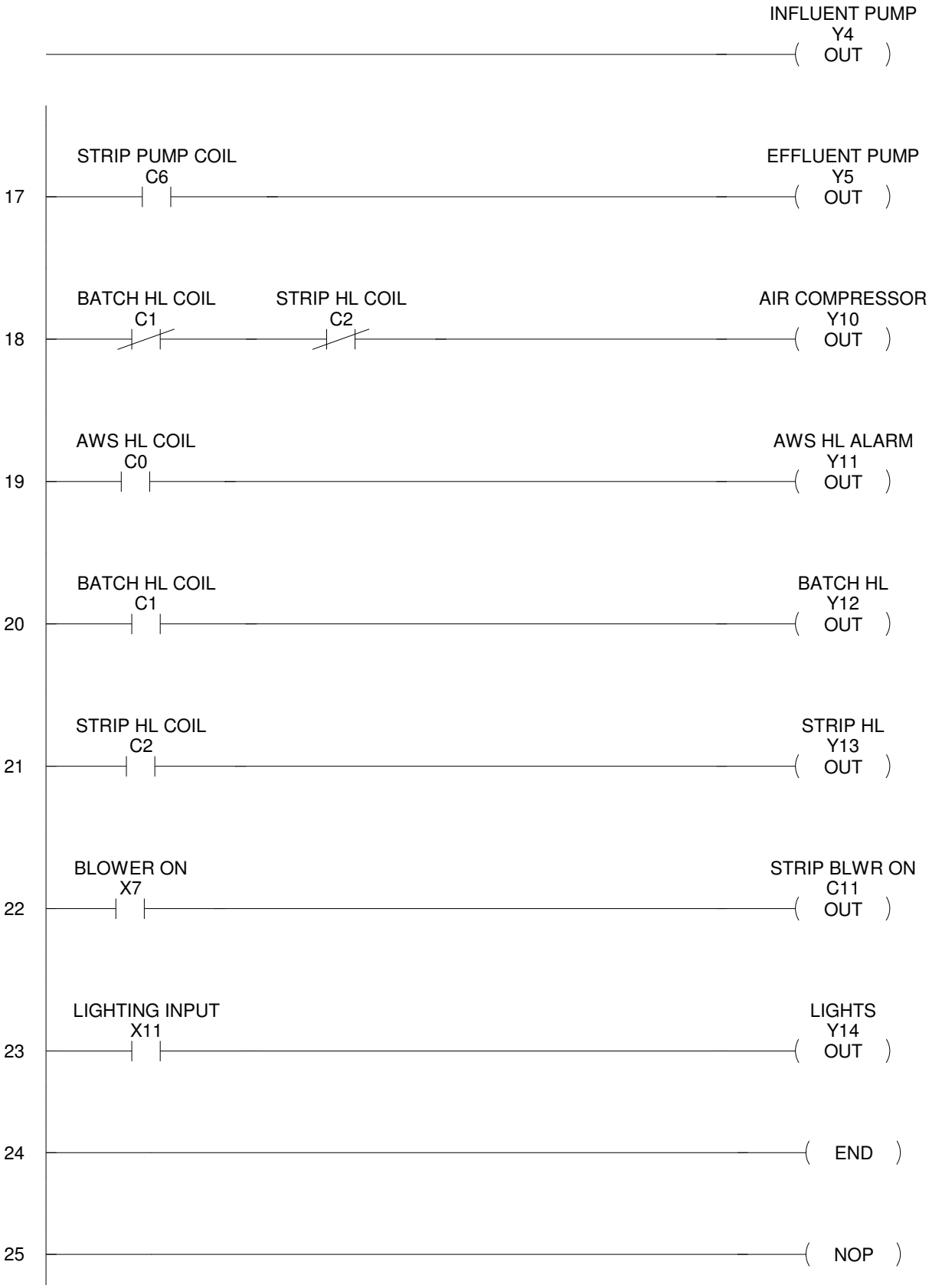
AWS HL COIL
C0
BATCH HL COIL
C1
STRIP HL COIL
C2
DPE BLOWER OUT
Y0
OUT
10
BATCH HL COIL
C1
STRIP HL COIL
C2
AWS PUMP COIL
C3
AWS PUMP OUT
Y1
OUT
11
BATCH HL COIL
C1
STRIP HL COIL
C2
SOLENOID OUT
Y2
OUT
12
BATCH PROBE COIL
C4
BATCH PROBE COIL
C4
OFF DELAY LATCH
C7
SET
INFLUENT COIL
C10
OUT
13
OFF DELAY LATCH
C7
BATCH PROBE COIL
C4
TMR
BLOWER OFF DELAY
T0
K1000
14
BLOWER OFF DELAY
T0
OFF DELAY LATCH
C7
RST
15
OFF DELAY LATCH
C7
STRIPPER BLOWER
Y3
OUT
A
16
INFLUENT COIL
C10
AIR PROVER COIL
C5
STRIP HL COIL
C2
STRIP BLWR ON
C11

A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Y4
OUT
17
STRIP PUMP COIL
C6
EFFLUENT PUMP
Y5
OUT
18
BATCH HL COIL
C1
STRIP HL COIL
C2
AIR COMPRESSOR
Y10
OUT
19
AWS HL COIL
C0
AWS HL ALARM
Y11
OUT
20
BATCH HL COIL
C1
BATCH HL
Y12
OUT
21
STRIP HL COIL
C2
STRIP HL
Y13
OUT
22
BLOWER ON
X7
STRIP BLWR ON
C11
OUT
23
LIGHTING INPUT
X11
LIGHTS
Y14
OUT
24
END
25
NOP

APPENDIX D
DAILY FIELD REPORTS

SoundEarth Strategies

FIELD REPORT

2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOC / 01-169		0440-002-13	6/8/12
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
Everett, Broadway		Site O&M	E.Marks/A.Elliott
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
Sun/Overcast ~55°	— —	1100 onsite to 1520 offsite	E.Marks/A. Elliott

11⁰⁰: E.Marks and A.Elliott on-site. System on and running.

11¹⁰: Take system parameters.

EAM installing sample ports (x12)

11⁴⁵: Added bleed valve to top of bag filter housing

11⁵⁵: Going to adjust DVACs in vaults to approx 3 inHg using values.

12⁰⁰: RW09 DVAC ~0.5 inHg. Valve 100% open. ½" plug. (S)
DW02 DVAC ~1½ inHg. " " ¼" plug (S) on side of casing
RW10 DVAC 1 inHg. Reg pressure 46 psi, Pump cycle 944 gal. 2 ports - ¾" and ⅜". 100% open.
RW04 DVAC - 3 inHg, 100% open, ¼" valve w/ DD (SVE)
RW11 DVAC - <1 inHg, 100% open, ½" valve (S)
MW08 DVAC - 3 inHg, 100% open, ½" (SVE)
RW08 DVAC 2½ inHg, " " , ½" (SVE)
RW03 Reg pres 50 psi, cycle 37.63, DVAC 1 inHg, ½" 100%
RW02 Reg pres 49 psi, cycle 2.18, DVAC 1 inHg, ½", 100%.

12³⁰: DVACs are low site-wide. Calling TGO.

Begin clearing water in lines. Do not let any legs increase >20 inHg, blower cavitates.

Pumping wells have lots of water in legs, trying to clear - as well as SVE legs.

Having trouble getting RW10 to vac above 7 inHg at manifold (while other legs are closed).

Other legs max at ~20 inHg with some bleed air.

Attachments:

13^{10}: EAM calling TGO, no response. DPE blower at filter still at 4.5 in Hg.
EAM spoke to TGO. Going to continue to clear water from lines to get the KOT to cycle. About 2" of water away from HL switch.

14^{00}: Still trying to get KOT to cycle, about 1-1½" away.

14^{30}: Cycled KOT tank. Totalizer at 856 gal. Discharge totalizer at 3100. Depating legs vacuums at 2-5 psi.
Look like hinges settled on the right-side door of the conex. Will not close correctly.
Part of conex lock broken, attempted to make temporary fix with JB weld.
Took photo of conex conditions, used further JB weld on hinge to temporarily secure.
Door is closed. Lock in place.

15^{20}: E. Marks and A. Elliott off-site.

AE
1520
6/8/12

SoundEarth Strategies

O&M Field Data Sheet
TOC Holdings Co. Facility No. 01-169
851 N. Broadway, Everett, WA

Date: 6/8/12
Personnel: ADE / EAM
Reason for Visit: Site O&M

SYSTEM DESCRIPTION

SVE Equipment
Busch Mink 1322 AV, 9 hp, 208 VAC, 3Ø.
Moisture water separator H2K model VLS-82
Transfer pump 1 is Gould NPE stainless steel.

Water Discharge
Downwell pumps are pneuamtic, QED, short body, bottom loading, 1/3 hp, 230 VAC, 1Ø, motor
500-gallon HDPE tank
Trasnfer pump 2 is Dayton booster pump, multi-stage 3/4 HP, 208 VA, 3Ø.
Krystil Klear model 88-30 bag filter housing, 100 psi, welded steel; uses 200 micron size #2 filter bags
Water flow totalizer pre-tray stripper is AMCO C-700
Tray stripper is H2Oil TS150
Tray stripper blower is a EN656M72XL Rotron regenerative blower DR656, 3 hp, 230 VAC, 3ø, TEFC motor
Ingersoll-Rand reciprocating compressor, 5 hp, 135 PSI, 230 Volt, 21.5 AMP, 1Ø
Exhaust stack: 2-inch SCH 40 galvanized (ID = 1.939 inches)

No pre - post filter on DPE

Just below OFF

Site Phone #: XXX-XXX-XXXX
Site Power: 230 vac, 3-phase service

EQUIPMENT CONDITIONS

Operating System	Status Upon Arrival (on/off)	Hour Meter[2] (hours)	Blower Pressure (in. H_2O)	Pre-KOT Vacuum (in. H_2O)	Post-KOT Vacuum (in. H_2O)	KOT Level (% Full)	Batch Tank Level (% Full)	Bleed Air (% Open)	Any Leaks? (yes/no)	Status Upon Departure (on/off)	Heat Trace (on/off)
SVE SYSTEM	ON	23.9	4.5	2.8	4.0	55		1/2	N		NM
TRAY STRIPPER	ON	6.3	9.0				35	0	N		NM
PNEUMATIC PUMPS	ON								N		

DPE — DPE mbg

TS Effluent pump 8.0 psi

compressor (psi - 157) reg 75 psi temp 75 F°

SVE MANIFOLD PARAMETERS

Extraction Line	Vacuum (in. H_2O)	VOCs (RRU/ppm)
MW08	2.5	NM
RW08	3.5	
RW11	2.0	
RW02	5.0	
RW03	4.0	
RW04	3.0	
RW10	2.0	
OW02	2.0	
RW09	2.5	

psi

60
60
60

EXTRACTION WELL INFORMATION

Extraction Line	Depth to Pump/Drop Tube Inlet (ft)	Vacuum at Wellhead (in. H_2O)	Dynamic Depth to Water (ft)	Pump Condition (good/poor)	Adjustments
MW08		3	NM		ALL LEGS 100% OPEN IN VAULTS
RW08		2.5			
RW11	24.0	<1			
RW02	17.5	1		NM	
RW03	15.0	1		NM	
RW04		3			
RW10	24.0	1		NM	
OW02	9.0	1.5			
RW09	12.0	<1			

VAPOR DISCHARGE	DischargeStack DS-300 Flow Meters: Static Pressure (in. H_2O)	Delt P (in. H_2O)	Stack Temp. (°F)	Flow Rate (scfm)	Stack Sample Port Parameters: VOCs (RRU/ppm)	O_2 (%)	CO_2 (ppm)	Blower Filters: Pressure Drop (in. H_2O)	Filter Replacement (Y/N)
SVE	>2	>2	189	0.0	NM				
TRAY STRIPPER	9.5	6.9	90	0.0					

PROCESS WATER DATA: Location	Total H_2O Flow (gal)	Flow Rate (gpm)
KOT	767	10
Influent/TS[1]	3164	10

TRANSFER PUMP BACK PRESSURE: Location	Pressure (psi)
TP for Batch Tank	5
TP for KOT	

BAG FILTER CONDITION: Location	Pressure (psi)	Change Out
Pre-filter	0	
Post-filter	0	N

Motor Amperage (amps)	SVE	TS Blower
Line 1	29.93	6.55
Line 2	29.28	6.45
Line 3	29.34	6.64

DPE

VAPOR SAMPLE COLLECTION INFORMATION: Vapor Sample Location	Sample ID	Date	Time
SVE Stack	NM		
TS Stack			

WATER DISCHARGE SAMPLE COLLECTION INFORMATION: Water Sample Location	Sample ID	Date	Time
Pre TS	NM		
Post TS			

NOTES:
System/Site Observation/Comments:

Maintenance Actions/Samples Taken:

Materials/Equipment Needed for Next Visit:

9 6.9

9.5 5

SoundEarth Strategies

FIELD REPORT

2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TCC HOLDINGS #01-169		0440-001	4/23/2012
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
851 N. BROADWAY, EVERETT, WA		SYSTEM INSTALL	T. OESTER
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
CLEAR/SUNNY	N/A	0750 onsite to ____ offsite	TGO, SES, & AEL CREW

0750: ARRIVE ON SITE.

0807: AEL CREW ARRIVES ON SITE. (CORY + MIKE)

0815: SUZY ~~R~~ STUMPF (SOUNDEARTH) ON SITE.

0830 H+S MEETING

0845: S. STUMPF OFF SITE. DISCUSSED PLAN OF ACTION W/ AEL:

- CORY & MIKE WILL STUB MANIFOLD PIPING UP AND POUR CONCRETE SLABS MON-WED
- AEL CREW & MOUNTAIN TERRACE WILL COME ON THURS/FRI TO COMPLETE WELLHEADS AND REMOVE TRASH/SUPPLIES.

AEL BEGINS LAYOUT FOR PAD (12' x 28').

0945: PAD LAID OUT. AEL BEGIN EXCAVATING TO BRING WATER + AIR LINES UP ON LEFT (AS LOOKING AT BOX) SIDE.

1130: AEL LAYING OUT MANIFOLDS, ~~FOUND~~ TAKING INVENTORY OF PARTS ON SITE AND MAKING SHOPPING LIST.

1200: CANNOT LOCATE 2½" POWER CONDUIT FROM BUILDING. AEL DIGGING BACK TO TRY AND FIND. E. MARKO (SES) AND AARON (AEL) BOTH REMEMBER IT BEING HIGHER IN THE TRENCH.

1215: UNABLE TO LOCATE 2½" CONDUIT. WILL LOOK BACK @ PICTURES.

1230: LOCATED MISSING CONDUIT UNDER SVE PIPING. AEL OFF SITE TO PICK UP PARTS.

1240: TGO OFFSITE. RETURN TOMORROW 0700.

Attachments: H+S BRIEFING LOG

SoundEarth Strategies

FIELD REPORT

2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOL HOLDINGS # 01-169		0440-002	4/24/2012
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
491 N BROADWAY, EVERETT, WA		SYSTEM INSTALL	T. OESTER
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
OVERCAST	N/A	0655 onsite to 1600 offsite	

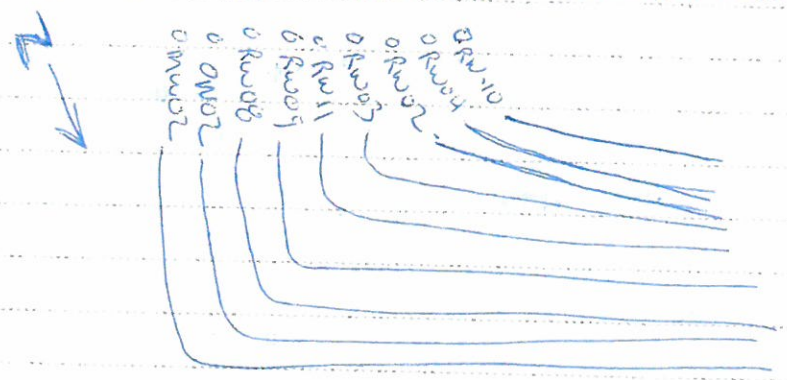
0655: TGO ARRIVE ON SITE.
0715: AEL ARRIVES ON SITE (CORY & MIKE)
0720 CONDUCT H+S MEETING.
0730: BURIED GALV. PIPES WERE NOT THREADED BY PREVIOUS AEL CREW. WILL HAVE TO THREAD EACH LINE (ALREADY PARTIALLY BURIED) IN THE TRENCH.
0750 SEVERAL AS LINES FULL OF WATER DUE TO NOT BEING SECURED IN VAULT.
NOTE: PARTS PICKUP: ~ STICKS OF 10' 1" PVC CONDUIT (11), 2 1/2" PVC CONDUIT 90° ELBS (2), 1" PVC COND. COUPLERS (14), 1" SWEEP PVC CONDUIT 90° ELBS (18), 1" GALV. CAPS (9), 1" GALV 90° ELBS (9),
0815: BEGIN THREADING 1" GALV. AS LINES (IN TRENCH)
0900: FINISHED THREADING GALV. BEHIND BUILDING SIGNAL MANIFOLD ON RIGHT SIDE OF LAWN.
0945: FINISHED STUBBING SIGNAL MANIFOLD. BEGIN PVC/PHONE
NOTE: EVAL KIT FILLED UP ~ 0715. NO CARS EARLIER AOS. TO WORK AREA.
1015: AEL OFF SITE TO PICK UP 1" SCH 80 PVC WATER FITTINGS FROM MOUNTLAKE TERRACE SITE.
NOTE: TALK W/ E MARKS (SOUNDEARTH) ABOUT LAYOUT OF IRRIGATION LINES. PROVIDED SKETCH (BASED ON MEMORY, FIELD NOTES + PHOTOGRAPHS) OF LINES AS THEY WERE ORIGINALLY. WILL RESTORE AS PRACTICABLE.
1135 AEL BACK ON SITE.
1150: START BUILDING AIR SUPPLY MANIFOLD.

Attachments: H+S BRIEFING LOG.

Client: TOC HOUSTON
Site Name/Number: _____

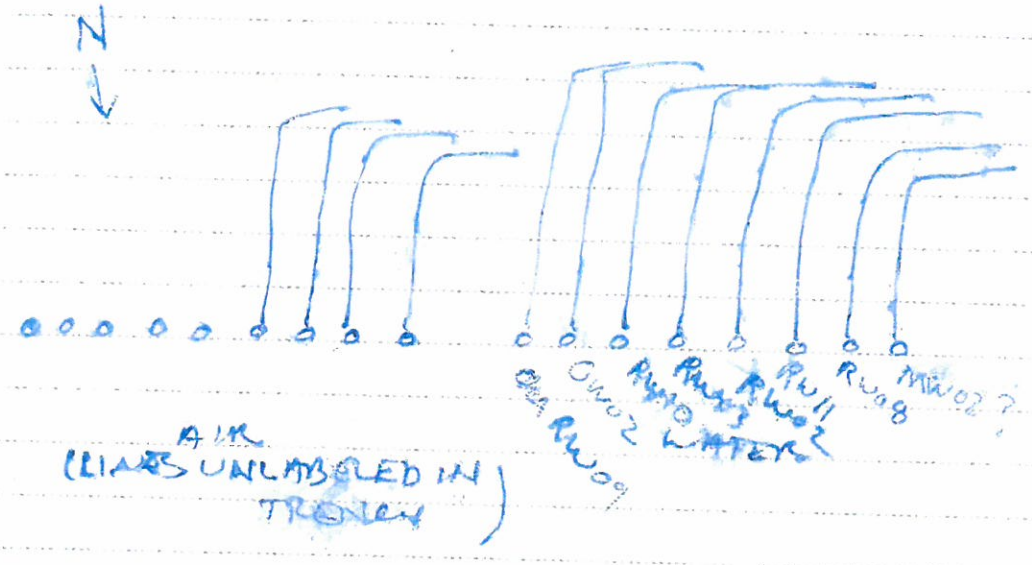
Project No.: 01-169
Date: 4/24/12
Page 2 of 7

SKETCH OF SIGNAL COMPANY MANIFOLD:



1410: STILL WORKING ON AIR MANIFOLD. SIMULTANEOUSLY PLUMBING WATER.

WATER/AIR SKETCH:



1415: BY LAST 4 WATER LINES WILL BE HARD 90°S, B/C NEXT IS 8 SHORT

1600: TGO OFFSITE. ACE IS FINISHING UP WATER & AIR

4/24/12

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P: (206) 306-1900 F: (206) 306-1907

FIELD REPORT

Prepared by: SES	Client / Project Title: TOC 01-169	Project Number: 01-169	Page 1 of 3
Weather: Raining, 50's	Location: Everett	Time of Arrival/Departure: 0815 to 1545	Date: 4/25/12
	Mileage:		Purpose of Visit: System Install
			Permit: NA

0815 - SES arrived on site. Cory + helper stubbing up SVE manifold
Want to check w/ TWM about pressure testing last section of pipe. TGO/SES visually inspected piping connections.

0915 Call w/ TGO - TWM wants air supply + water discharge pressure tested. Cory said may not be done in time to pour Thursday
Also discussed irrigation system w/ TGO/EAM.
Reviewed irrigation layout w/ Cory + AEC made parts list.

1045 AEC completed stubbing up SVE lines (see sketch with labeled piping - to be field confirmed)
AEC off site to get piping supplies for pressure testing + irrigation system.
SES off site - went to Providence Med Office EE using lot to off load the conex. They rent the space from Everett Comm. College

1145 Call w/ David Walker
- Said TGO told crew yesterday they didn't have to pressure test. I clarified and said it was a miscommunication and we are pressure testing the lines - per spec
- David said he would follow up w/ Everett CC RE access to lot K for off loading conex w/ crane.

1315 AEC back on site

1400 Manifold for water discharge manifold. Let glue cure/dry and make sure all air valves are on + shut in vaults.

1410 RWIO has leak on pipe leading to stub up, losing a

Attachments: Sketch

Distribution:

TOC 01-169

Project No.
Page 2 of 3

4/25/12 SES

1414 Soapy water. Cut and replaced.

1426 Applied 40 psi to all 9 lines and it held pressure for 10 minutes. Passed test. (1436)

1438 Start testing air supply manifold (1 line @ a time)

Line # (see sketch)	Time		
1	1438-1443	5 min	passed
2	1445-1450	"	passed
3	1450-1455	"	passed
4	1455-1500	"	passed
5	1500-1505	"	passed
6	1505-1510	"	passed
7	1510-1515	"	passed
8	1515-1520	"	passed
9	1520-1525	"	passed

Decreased time to hold pressure from 10 to 5 min (TWM approved) inspected all the new joints/fittings @ compound w/ soapy water.

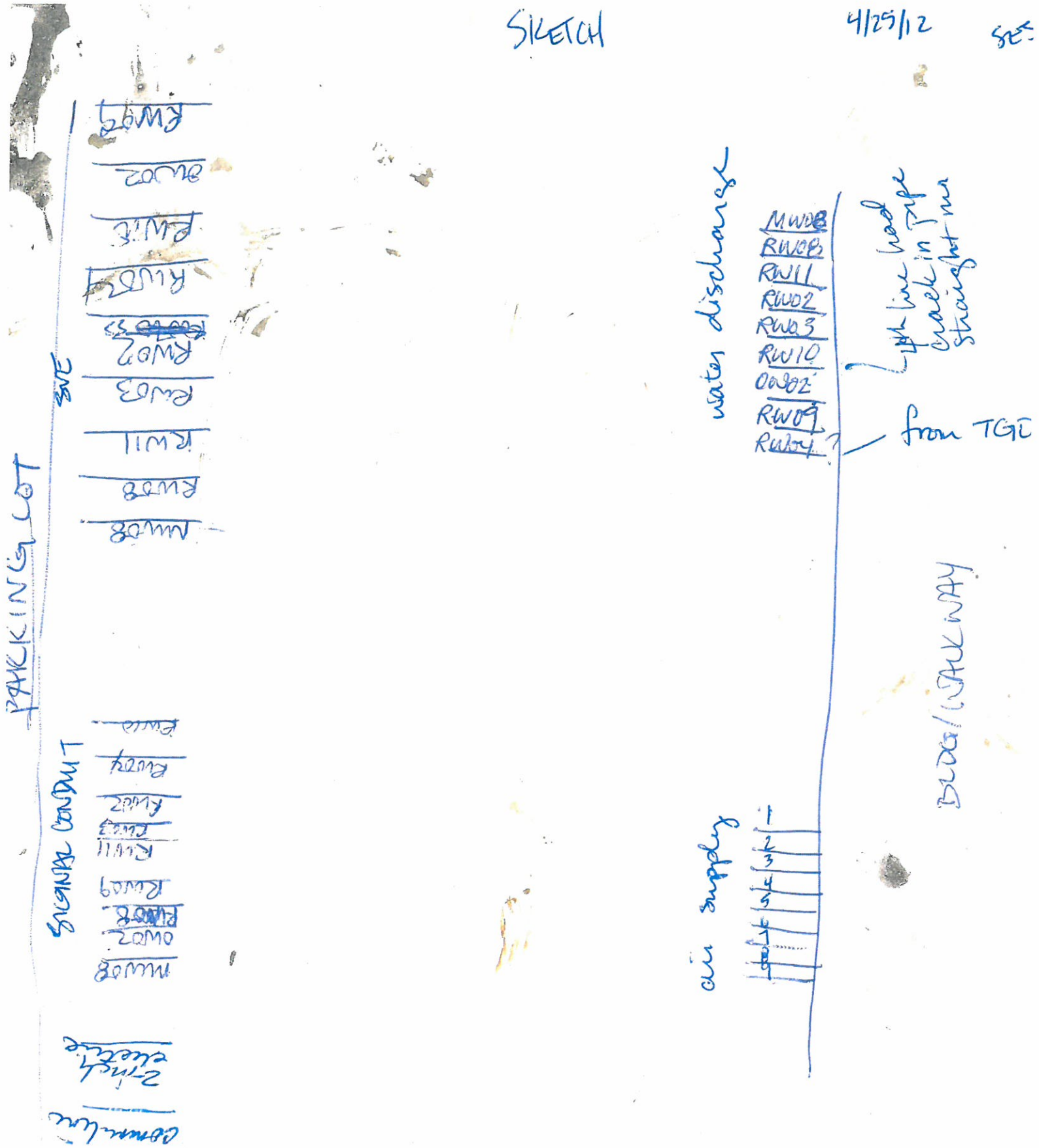
1505 working on reducer fittings for side sewer discharge

1525 Done pressure testing
AEC cleaning up site.
Will repair irrigation system tomorrow and back fill the pad area and form for concrete pour on Friday.

1545 SES + AEC off site.

4/25/12

SKETCH 4/25/12 SEE



SoundEarth Strategies 2811 Fairview Avenue East, Suite 2000 Seattle, Washington 98102 P: (206) 306-1900 F: (206) 306-1907	**FIELD REPORT**	Project Number: 0440-002	Page 1 of 2
	Client / Project Title: TOC 01-169		Date: 4/26/12
	Location: Everett	Time of Arrival/Departure: 0830 to 1500	Purpose of Visit: System Install
Prepared by: SES	Weather: 50's, raining	Mileage:	Permit:

0830 SES arrived on site. Cory and helper on site dumping a load of rock. They have all the piping to repair irrigation system. No evidence @ green irrigation box that corner sprinkler head (≡) runs back to box. Will stub up & cap in case needed in future.

0845 AEC off site for another load of pea gravel. They did not want to use native soil for backfill since it won't compact well.

~~0900 Michael is repairing irrigation piping.~~ »

0930 AEC back on site w/ second load of gravel

1000 Cory off site for third load of gravel.
Michael is repairing irrigation piping. Explored which way all pipe runs out of irrigation box (see photos). Portion broke while repairing, cut further back towds the irrigation box to repair.

1100 Cory back on site w/ third load of gravel.

1130 Cory off site to take load of dirt to cemex. He will grab a load of 5/8" for the top layer.
Michael will continue with repairs to irrigation piping.

1215 Cory on site with 5/8" rock

1245 Grading pad area.

1300 Cory off site w/ load of dirt to cemex

1400 Cory back on site
Michael done with repairs to irrigation line.

1430 loaded up trailer w/ trash for dump run.

Totals
Imported 3 loads pea gravel - 14 tons
Imported 1 load 1"1/4" rock base - 4.33 tons
Exported 2 loads dirt to cemex - 12.5 tons
Exported 1 load trash and debris

1500 AEC off site w/ load of trash will be back to form the pad

14" 4.33 tons (3 lds) 4 tons

12.5 tons

Attachments: well heads

Distribution: MWB box
electrician

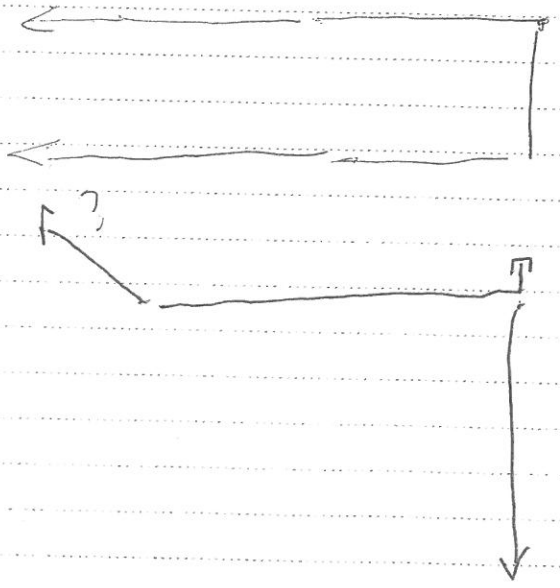
4/26/12
SES

in preparation for the concrete pour.
REC will do all the rebar tomorrow am.
Concrete scheduled for 8 AM.
Schedule w/ Cory for next week:
M vault connections
T " "
W conex delivered
R electrician scheduled

ACTION ITEMS
- WELL VAULTS
  - PIPING / CONNECTION FITTINGS / gauges
  - PUMPS
  - DROP TUBES
- CLEAR LINES OF ANY WATER
- VERIFY PIPE LABELING AT MANIFOLD
- CLEAN UP LANDSCAPE AREA
  - REPLANT + STAKE TREES
  - REMOVE TRASH / EXCESS PIPING
- Concrete slab
  - REBAR PLACEMENT

- ELECTRICIAN
- PHONE LINE / INTERNET

IRRIGATION SYSTEM



Location EVERETT, WA Date 4/27/12

Project / Client TDC # 01-164

SYSTEM INSTALLATION.

0700: TGO and AEC CREW ARRIVE ON SITE. BEGIN BUILDING FORM FOR CONCRETE PAD.

0745: FORM LEVELED AND STAKED. LAYING DOWN GEOTEXTILE.

0800: BEGIN REBAR INSTALL. CONFIRM CONCRETE MIX W/ CORY: 5000PSI NON CHLORIDE W/ AIR.

0830: DONE W/ REBAR. BEGIN REMOVING EXTRA PIPE + FITTINGS AND RE-STAKING DOWNED TREES.

0840: GARBAGE TRUCK SHOWS UP TO PICK UP TRASH. AEC MOVES TRUCKS TO ALLOW ACCESS, BUT TRUCK LEAVES WHEN WAVED AT TO BACK UP.

0900: CONCRETE ARRIVES.

0918: POURING CONCRETE GARBAGE GETS PICKED UP.

0945: PAD POURED - AEC FLOATING AND TROWELING.

0955 CONCRETE TRUCK OFF SITE.

1015 ARCHIE (AEC) OFFSITE. BEGIN APPLYING BROOM FINISH.

Location EVERETT, WA Date 4/27/12

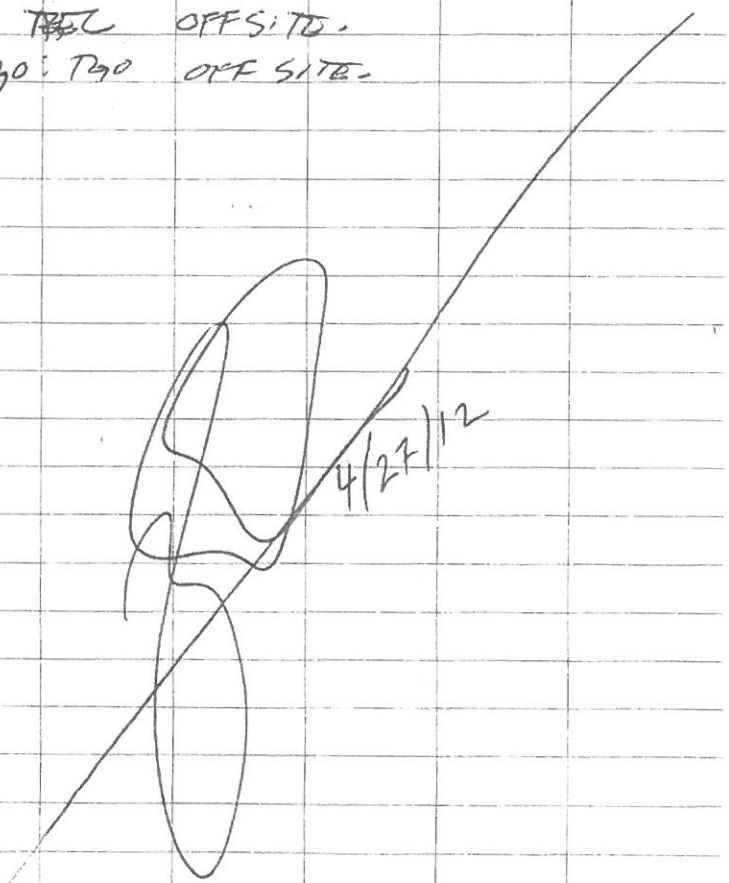
Project / Client TDC # 01-164

SYSTEM INSTALLATION

1035: FINISHED W/ PAD. CLEANING UP AND FENCING.

1115: WENT OVER WELLHEAD DETAILS AND PARTS W/ AEC. CREW NEXT WEEK MICHAEL & BOB. TREC OFFSITE.

1130: TGO OFF SITE.



Location Everett 01-182 Date 27 April 2012

Project / Client GW Sampling

Larry Hamba

Weather: Overcast w/ some breaks, 50s, winds 0- 2-5 knots

Field Crew: Larry Hamba

Activities: Collect gw sample from mw20 and mw21.

1150 Arrive on site.

1200 Calibrate quanta. #3.

1236 Begin purging mw21.

1256 Collect gw sample from mw21. Sample number (MW21-20120427)

1358 Begin purging mw20.

1426 Collect gw sample from mw20. Sample number (mw20-20120427)

Location Everett 01-169 Date 30 April 2012

Project / Client System Installation

Larry Hamba

Weather: Overcast, misty, 40-50s, winds 0-5 knots

Activities: Larry Hamba, Tyler Oester AEC (Michael & Bob)

0805 Arrive on site.

0815 Tyler arrives on site. Review scheduled work for today and walk site.

0845 Tyler departs for office.

0905 AEC arrives on site. Have health and safety meeting and discuss work for today

1000 Begin saw cutting remediation pad. Saw cut is 1½" deep.

1100 Complete saw-cutting pad. Sprayed out ~~cuts~~ cuts with hose, then sweep excess water away with broom followed by wet vacuuming out. Running a heat gun along crack to dry out remaining water and using a self-leveling Sika flex sc Sealant to fill cut.

1300 Complete filling saw cut and working on area around pad. Dug out and reconnected sprinkler head on the East end of the

Location Everett 01-169 Date 30 April 2012

Project / Client Photo Log - System installation

Lmy NL

Installation Photo-Log.

Photo #	Loc ID	Comments
1	West end Pad	Asphalt at pad end sunk down.
2	Rem. Pad	Beginning saw cutting pad 1½" cut. w/water for dust control/cooling blade.
3	Sealant	Sealant used to fill saw cuts

Location Everett 01-169 Date 30 April 2012

Project / Client System Install

Lmy NL

pad. Michael working on manifold piping

RW02 - TD TO mark = 17.43
(black mark on casing.

RW03 - TD = 15.95

RW10 - TD = 23.95

1354 Talk to Tyler and Suzy about location in well for the pumps going into RW02, RW03 and RW10. They said to set pump 6" from the bottom of the wells.

1530 Complete cutting drain pipes in the bottom of 9 vaults flush with the bottom of the vaults.

1600 Depart site for office

SoundEarth Strategies

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Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

FIELD REPORT

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOC Everett 169			5-1-12
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
		System Install	LMK
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
50 and drizzling		0720 onsite to ____ offsite	LMK

0720 LMK arrive on site.

0730 Jamison from Pacific Crest arrives to look at site

0740 AEC (Robert and Mike) onsite.

0800 Pull vaults to determine parts needs. OW02 is determined to be 2" and not 4" well head as labeled on C104.

0815 Call TED + SES to verify that drop tubes need to be 3/4" and not 1".

0845 Jamison off site

0850 TED and mike discuss that all piping/tubing w/ shingles needs to be 3/4".

0920 AEC off site to Ferguson

1220 AEC back on site. All materials ordered. All except casings will be in tomorrow.

1235 Verify that all valves can be ~~adjusted~~ turned in each vault

1300 Add 90° elbow to air line in RW11.

1315 Ground truth all vaults except RW08, which had a car on top. All pipes on skid labeled.

1505 Clean up.

1520 ~~LMK~~ AEC set up caution tape for Crane.

1525 LMK offsite

Attachments:

SoundEarth Strategies
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

FIELD REPORT

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOC Everett 169			5-3-12
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
		System Install	LMK
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
52s and drizzling		0830 onsite to ___ offsite	LMK

0830 LMK onsite. AEC already onsite. (Michael & Bob)
0900 AEC opens wells vaults
0905 Jamison from Pacific Electric onsite. Discuss that conex already has electrical conduit for wells. Says he will discuss w/ office tomorrow.
0920 MW08 & RW08 install complete.
0940 RW04 complete except for gage on top.
0945 Add 90° to MW11
0950 Complete hose for conex box.
1000 Drill 5/8" holes for conex bolts.
1015 Clean up site
1200 AEC offsite
1345 Jamison offsite
1350 LMK offsite.

TOC Everett 169. System Install 5-22-12
AEC Personnel - Aaron + Brian LMK
0730 LMK onsite. AEC already on site. RW02 open. On air hose
AEC decides to use coupler that comes w/ air hose since they can't unscrew bushing in vault and not brass
0815 ~~Install~~ lk motor so it hangs 6" from bottom of well. measure
0845 Install pump into well vault
0910 3/4" water hose does not appear to fit and so AEC goes to Grainger to pick up new hose.

Attachments:

0915 AEC offsite

0935 AEC on site. Purchased new barbs instead of new nose.

0950 RW02 install complete.

0955 Open RW03

1005 Water discharge line will need to be 90'd and therefore AEC will use PVC elbow and checkvalve instead of brass.

1030 Measure depth of well and note that it is about 15 feet deep w/ about 5 feet of water. LMK discussed w/ Suzy that submersible pump is OK.

1130 RW03 complete

1200 Open RW10.

1230 Measure depth. Approx 24' w/ 14' feet of water. Bend air pipe to install fittings

1330 RW10 Install complete

1340 Cut off and replace air hoses at Conex to ones that are rated to 250 psi

Client: TOC
Site Name/Number: 01-169
Project No.: 01.169
Date: 5-23-12

0650 EAM onsite, Site walk review drawings
0730 Corey onsite (AEC)
0735 AEC onsite, H&S meeting, setup
0745 - EAM cont. in Stinger lengths with SOS RW09 = 10.8'
RW11 = 23' OW02 = 8'; OW02 has 18" screen, others have 12"
- Power not hooked up yet
0805 AEC offsite for parts Return @ 0820
0820 start RW11 wellhead
0835 Corey back onsite, leaves again at 0840
0935 Corey back onsite for 10 min
0935 Install stinger in RW11 at 0.7' off bottom for a total length of 23'4"
1000 Put sample port on RW04 all fittings tight
1005 start install on RW09
1030 drop tube set at 15' long, raised 2.55' from bottom of casing total length set at 11.3' from TOC
Still need Valve for SVE
1045 start OW02 drop tube
1055 AEC offsite for parts. EAM take lunch
1140 AEC back onsite, Install OW02 wellhead and drop tube
1230 OW02 done, drop tube set 1.7' off bottom of well
TD = 9.75'
1230 Install brass gate valve in RW09
1245 clean up site
1255 AEC offsite. EAM site walk and close up site
1300 EAM OFFSITE

SoundEarth Strategies

FIELD REPORT

2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOC #01-169		0440-002	6/1/2012
Site Address:		**Purpose of Visit/Task #:**	**Field Report Prepared by:**
951 N. BROADWAY EVERETT, WA		INSTALL PROGRESS	T. OESTER / A. ELLIOT
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
60's	NO	1460 onsite to 1500 offsite	T. OESTER / A. ELLIOT

1400: AAE + TRO ON SITE.

1410: LOCATE ON/OFF BREAKER @ METER BOX. HAVE POWER TO BOX. AAE GOING THROUGH SYSTEM P&ID TO VERIFY. NO INSTALL BINDER ON SITE TO GO THROUGH CHECKLISTS.

AER LIST:

1) BEAUTY BARK AROUND PAD
2) STAKE OR MOVE TREE @ NE CORNER OF PAD
3) REMOVE CATCH BASIN SOCK FILTER
4) REMOVE CONES + BARRICADE
5) PARKING BOLLARDS
6) VACUUM GAUGES @ WELLHEADS.

1430: EQUIPMENT CORRESPONDS on P&ID. NOTHING MISSING TO ALL TRO/AAE ASSESSING WELLHEADS.

SOUNDEARTH LIST:

1) SITE PH. NUMBER
2) LOCK FOR METER ON/OFF
3) REMOVE DRUMS, EXTRA KIT,
4) LABEL MAKER - LABEL MANIFOLD, ETC.

DRUM INVENTORY: #01 55 gal PURGE WATER
#02 35 gal SOIL CUTTINGS
#04 35 gal " "
#03 55 gal PURGE WATER
(1) UNLABELED 55 gal - ½ full - feels like purge water

Attachments:

LEAVE SITE. 6/1/12

10-10-11

0648 ERAm onsite
moderate rain, lows 50's
- dots. to walk

0655 Talk with subway and 7-11

0700 AEC onsite
- prep for day

0710 HFS Tailgate

0715 start setup for trench digging.

0745 start excavating trench at compound to compensate for Rise in terrain
- lay rock on trench bottom after excavation

0850 Alan OFFSITE to dump dirt

0845 Fill up excavator with gas

0855 continue excavating around Power/Fiber optics line.
very slow excavating

0940 Alan back onsite
- Aaron use crushed Rock to build a bridge for excavator across trench.

10-10-11

0950 begin excavating trench to OWO2

0955 asphalt near OWO2 from second layer not fully cut. bring out ~~band~~ saw to finish cutting

1005 resume excavating

1020 OWO2 TOC from Top of monument = 0.49 feet
Top of monument to grade = 0.08'

1025 remove monument

1040 Alan OFFSITE to dump dirt.

1040 TOC = 1.78'
Δ = 1.37'

1045 need drainpipe fittings and pipe.

1050 Mark to Aaron offsite for Parts

1120 Mark and Aaron back onsite
- unload pipe and fittings

1130 Alan back onsite

1130 AEC take lunch

1155 AEC moving excavated dirt to trailer for disposal

10-10-11

1205 Alan OFFSITE to dump dirt

- Continue laying rock base

1210 Tamp rock around Rwo2

1215 Prep for Setting Vault RWO2

1220 Set Vault RWO2

1235 LRN onsite to drop off equip.

1240 LRN OFFSITE

1250 Remove Rockbridge

1300 Alan Back Onsite
- load trailer with dirt

1310 Alan OFFSITE w/dirt

1310 clear around RW09

1330 RW09 TOC to Ground Surface
= 0.34' BGS
Post monument removal
= 1.25' BGS
Δ = 0.91"

1345 Clear area for vault

1350 Prep for Vault

1357 LRN onsite to drop off pump

1400 LRN OFFSITE

1400 Alan back onsite
- SET Vault RW09

10-10-11

1425 Check Asphalt heights for SVE lines

1500 AEC Start drop pipe
- EAM on Conference Call

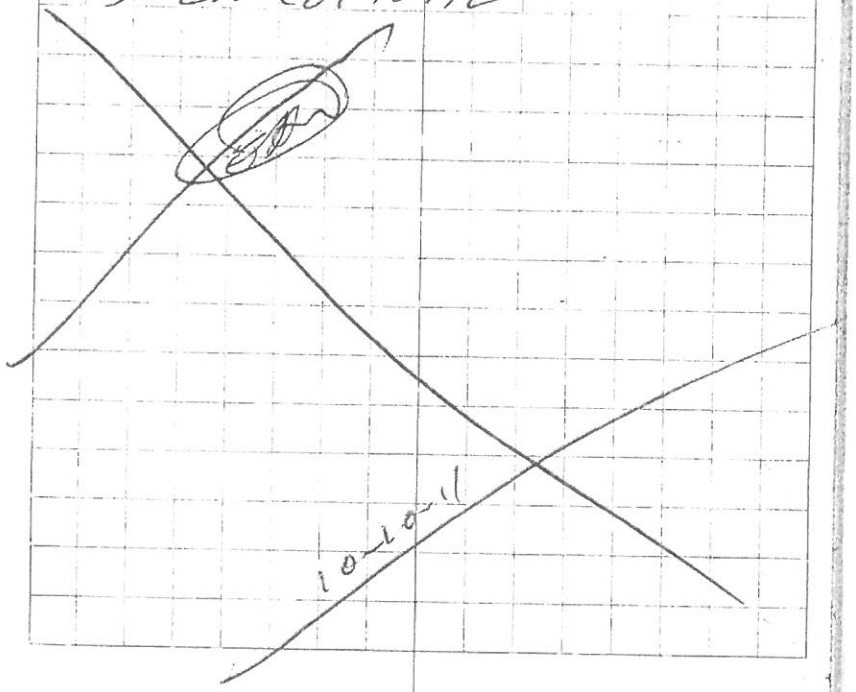
1525 AEC still on drop pipe
- Mark offsite for paths
- EAM back

1530 AEC clean up

1540 EAM do site walk

1540 AEC OFFSITE

1545 EAM OFFSITE

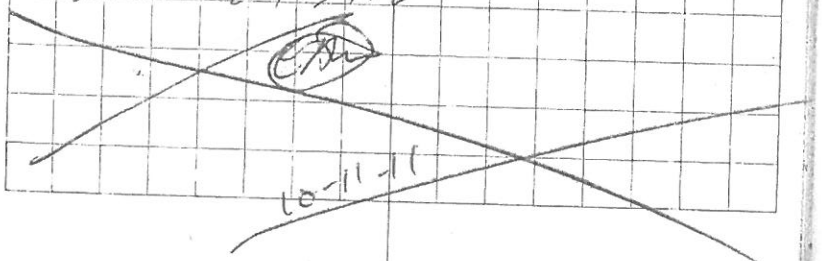


10-11-11

0658 EAm on site; AEC already on site
low 50's. Heavy clouds
0700 do site walk
- AEC set up for day
0715 H+S meeting
0720 Setup for Airpipe
0735 start piping and spreading bed of rock.
0740 Electricians on site
0810 Electricians and mark OFFSITE for pipe and fittings for electrical line
- continue Airpiping
0905 Electrician and mark on site with conduit, unload
0910 start laying conduit.
- continue Airpipe
0920 layout connex location
0920 drill hole and install drain to catch bags
0925 start disassembling fence and equipment storage
000 lay Airpipe and conduit
1040 electrician OFFSITE for more conduit.

10-11-11

1105 Electrician back on site; unload and lay conduit
1125 AEC OFFSITE for lunch
1155 AEC back on site; start piping AS
1305 AS piping continues
1307 Inspector on site
1310 Inspector OFFSITE
1335 mark OFFSITE for Parts
- continue AS piping
1430 begin burying electrical conduit
1445 continue AS piping
1505 Mark back on site
1530 EAm OFFSITE for sidewalk permit
1600 EAm back on site
1615 Shut down and clean up
1630 AEC OFFSITE
EAm does sitewalk
1635 EAm OFFSITE



10-12-11

0652 AEC and EAm onsite
- EAm site walk
- AEC prep for day
0705 H&S meeting
0715 lay crushed rock over electrical.
- continue AS piping
0740 Truck is a little shy of 45° try to find 22° dump for Galv. does not exist call TGO confirm bonding of pipe.
0750 Bond pipe to turn
0755 Mark offsite for parts
0755 Aaron and Alan bend and install AS Pipes
0845 Asphalt guy onsite
0950 Mark onsite
0855 Asphalt guy OFFSITE
0915 Guy from Frontier onsite for 7-11 signal issue unrelated - do install.
1105 Electician onsite with Hotbox
1115 Electician OFF SITE
1120 install test manifold
1145 START pressure testing

10-12-11

1155 AEC break for lunch
1205 EAm ~~break~~ for lunch
~~1215 AEC~~
1215 AEC back from lunch
- EAm back from lunch
- START Setup for Pressure Test #2
1230 dump truck w/ crushed rock ~~for~~ onsite
1240 dump truck OFFSITE
- check vaults for closed valves
- label Pipes (AS)
1245 ~~Start pressure test~~
1310 AS lines done; take off manifold and cap.
1320 Begin backfill over AS
1350 start prep for SVE and H_2O lines
1400 start piping SVE and H_2O
1430 SES onsite to check progress
1505 SES OFFSITE
1530 mark back onsite left to get parts while talking with SES.

10-12-11

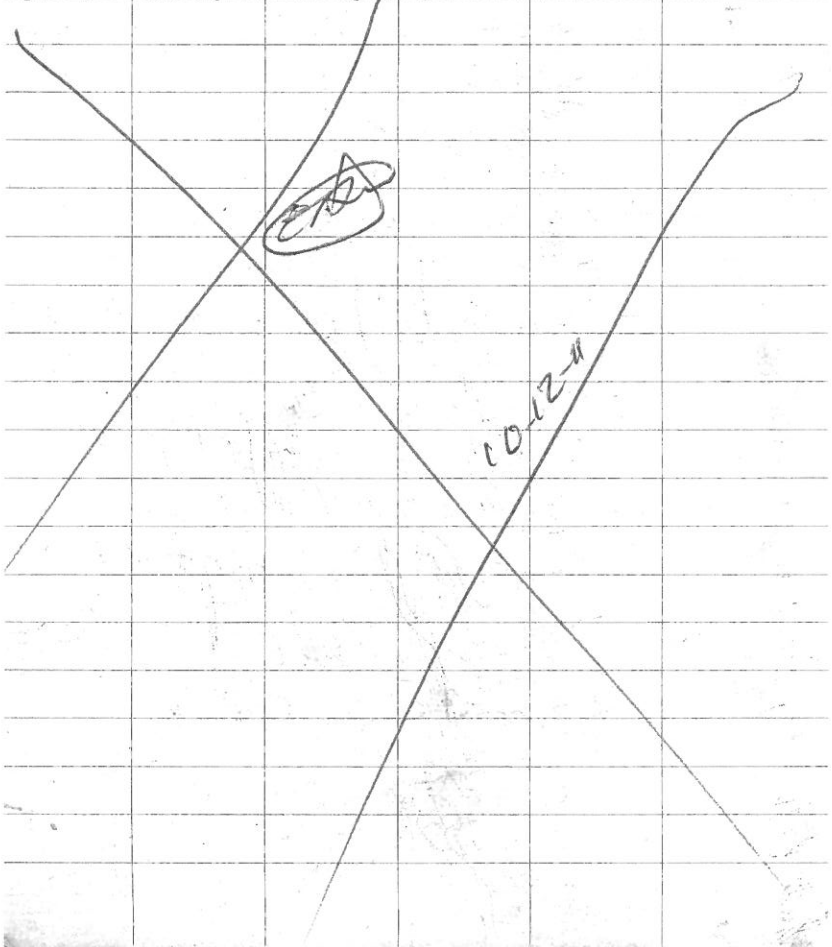
1530 continue SVE and H_2O Piping

1630 clean up site

1640 AEC OFFSITE

~~1645~~ EAm dos. Ze walk

1645 EAm OFFSITE



10-13-11

0650	EAm on site
0655	AEC on site
0650	EAm dos. Ze walk
	weather: Clear Skies and Low 40's
0700	H&S meeting
0705	Prep for and begin piping SVE and water
0755	dig out corner for more space for H_2O/SVE line
0805	resume piping
0845	lay rock on ASpipe to bring up to desired grade
0905	dump truck delivering load of rock arrives. and drops load
0915	dump truck OFFSITE
0945	mark OFFSITE
0915	grading and spacing of SVE pipe and laying SVE pipe
1000	call TGO about grading with SVE
1020	decide to run with pipe as it lies with ½" per 4 feet over 12' ~~against~~ slaping as a belly.
1030	continue SVE Piping; decision made by AEC to come back next week to Finish all Piping

10-13-11

and Trenching to conveyo
location and Stub up. TCO
to follow up with AEC
on schedule

1035 talk with tenents
- start bending PVC lines
and laying out

1120 Talk with tenents about
revised schedule.

1145 AEC OFFSITE for lunch

1210 PSCAA inspector shows up looking
for old system; told system removed

1220 AEC back onsite
begin bending and laying
SVE and H2O lines

1310 SVE and H2O piping cont.

1325 Mark OFFSITE for plants

1345 steel plate to span trench
arrives; unload and place

1350 Mark Back onsite

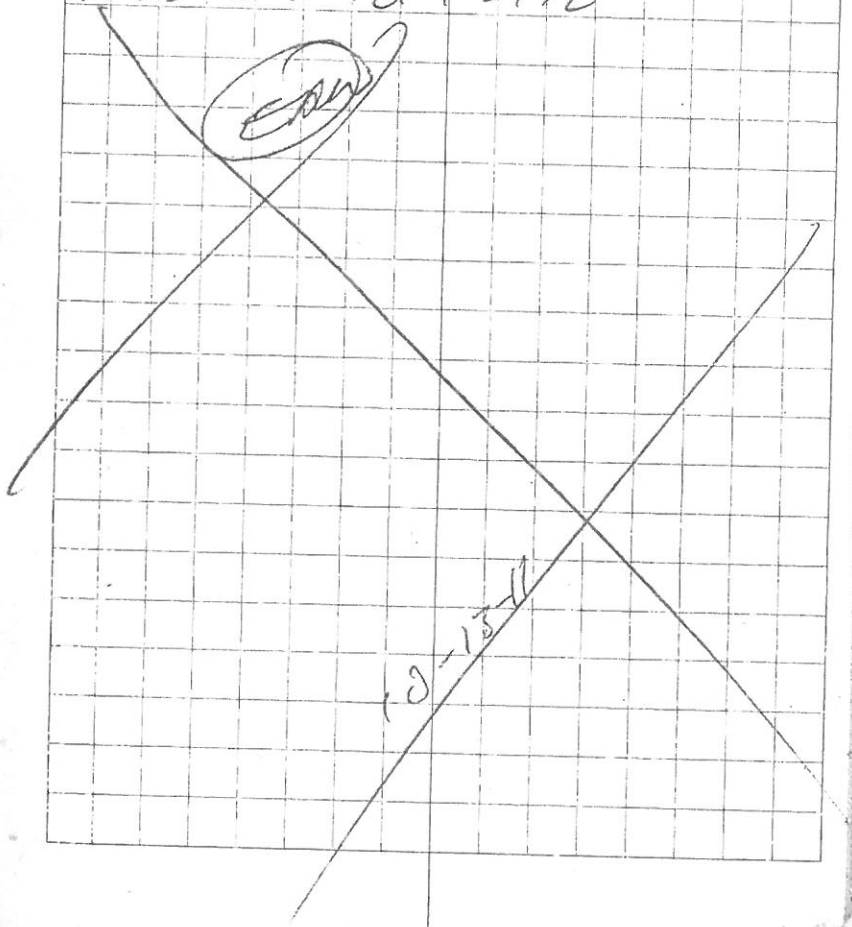
1400 EAm go to mtg; AEC
work on SVE/H2O

1450 mark off site for parts
Aaron prep for pressure test
Alan grout holes in vault

1515 Mark back on site

10-13-11

1530 Start Pressure testing
1540 Set up for test 2
1610 Test #2 - Pass
1620 Clean up site
1630 AEC OFFSITE
EAm does the walk
1635 EAm OFFSITE



10-14-11

0650 EAM on site
0651 Alan on site
0655 United Tool on site
0656 AEC on site
0705 United offsite
0650 Eam does safety talk
0705 HT Meeting
0710 AEC start disassembling old remediation equip.
0715 Prep for pressure test
0718 weather: low 50's; overcast
0725 move LGAC ~~and VGAC~~ out of the way
Then move vapor GAC
0810 Start cutting old skid in half
0750 Pressure test
0805 Set up for ~~pressure test~~
0835 layout utility trenching
0840 Pres. TEST
0845 move first half of old skid
0900 move second half
0910 clean up site
0915 Saw cutter on site
- Finish layouts
0930 Start backfill

10-14-11

0940 Start saw cutting
1005 finish saw cutting
1010 adjust piping as backfill continues
1020 saw cutter OFFSITE
1035 Compaction on main trench line
1100 call TGO about sewer ~~plan~~ Eam placement and requirements. Get inspectors phone # and speak with him on reg's. Inspector says we can use buildings cleanout as a discharge point w/ their additional cleanouts.
- backfill and compaction of main trench cont.
1140 prep for and move old skid into trailer
1200 start cleaning up site and securing load on trailer
1225 AEC OFFSITE
Eam - Eam done work and talk to all choices
1235 EAM offsite

10-14-11

10-14-2011

0653 Ehrn on site
- close walk
- weather: mostly cloudy, some breaks, mid 40's

0654 speak with mark (HEC) running late from pick ups. They are in North Seattle.

0700 Ehrn talk w. TG 7-11 and subway.

0730 AEC on site

0740 Clouds broke skies mostly clear

0740 H&S meeting

0745 start backfilling

0748 dump truck ons. te

0805 TGO called to say Seewers will have a forklift dropped off this morning and pick up all GAC units around noon

0845 begin removing asphalt

0850 remove plants and move aside for replanting

0900 remove curb at end of asphalt

10-14-2011

0915 Talk with TGO will not pressure test final segment (~25'). If needed will pres. test connect and dig. will inspect joints very closely. Mark OFFSITE.

0915 begin grading Connex location

0935 Horte on site delivering Fork lift

0940 Horte OFFSITE, called TGO Forklift probably too small

0945 hit sprinkler pipe while grading Connex location. will cap and/or repair after grading. Water was off prior to digging

0950 Dump truck OFFSITE
- Test F. lift, will not work

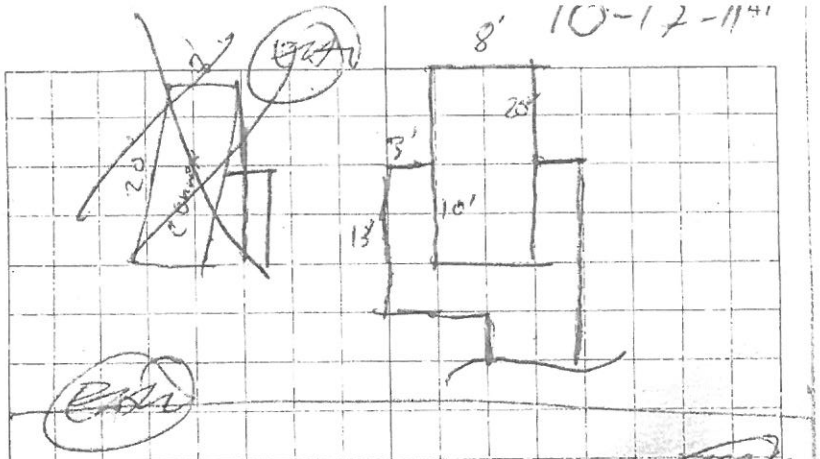
0955 Check grades need a little more depth

1015 Mark back on site with supplies

1020 start grouting bottoms of vaults

10-17-11

1035 Mark OFFSITE for Pipe
1100 Dumptruck onsite resume excavating hill for conex grading.
- continue cementing vault bottoms
1140 Dumptruck OFFSITE
1150 Mark onsite
1152 AEC break for lunch
1215 AEC back onsite
1215 - start cementing vault bottoms
- start excavating sewer line
- layout conex area
1240 Dumptruck onsite with crushed Rock
1305 dumptruck OFFSITE with dirt
1310 layout conex and trenching
1320 call TGO to confirm trenching will go around the front half but not all the way around to the electrical panel. (see sketch)



10-12-11

1330 Found backhoe ~~bucket~~ boom from previous excavation
1345 water line previously broken and capped. also found metal pipe
1355 start saw cutting cement around Powerfeed. Still trenching
1415 Dumptruck onsite with rock
1430 truck for GAC onsite
1455 Dumptruck OFFSITE to dump dirt.
1455 start backfilling main trench
1455 mark OFFSITE for gas for sand.
1525 mark back onsite
1520 Trucker dropping box out of the way so GAC's can be loaded on bed

10-17-11

1545 Hoxtz onsite with Front loader
1550 Start compacting rock/backfill
1550 Start removing GAC units
1550 Hoxtz OFFSITE
1620 Trucker strapping down GAC units and OFFSITE
1625 Clean up Site
1635 AEC OFFSITE
1640 EAM OFFSITE

10-17-11

INCH

"Rite in the Rain®"
ALL-WEATHER WRITING PAPER

Name Ethan Marks

Address

~~Client~~ Phone TOC

Project 01-169 Install

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CONTENTS

10-18-11

0655 Cathy onsite. dos, Te walk
0656 AEC onsite
0705 MTS meeting
0715 - start saw cutting for power supply
- begin digging out sewer line
0725 weather mid 40's, clear skies
0730 mark OFFSITE for fuses
0735 start excavating power trench while clearing around sewer clear out
0740 excavate around clear out
0740 electrician onsite
0745 electrician offsite to get backhoe
0755 Start backfilling vault trenches and main trench
0800 electrician onsite
0810 2nd electrician onsite
mark back onsite with saw.
0815 finish sawing power trench
- discuss electrical layout
0830 backfill and compaction of main trench and vault trenches continue

10-18-11

0945 Mark offsite for equipment
0945 Start prepping for sewer tie in
1000 Dump truck onsite
1005 Start loading truck with dirt for thermal desorption
1005 Mark back onsite
1015 Saw cuts per Electricians request
1025 dig power trench
1053 Hit power line and broke conduit. DidNOT break any wires. line was ~20" deep.
1110 Dump truck OFFSITE Finished digging
1115 Use front loader to move trench plate.
1120 Clean up trenches and prep for all piping
1135 beg. in Galv piping
1140 AEC takes lunch
1205 Continue Piping
1225 plate rental truck onsite; load plate
1230 plate Rental truck OFFSITE

10-18+11

1253 PUD checking out something on street does not have to do with us.

1310 mark OFFSITE

1310 clean up East end of trench to lay Pipe

1315 thread pipe

1320 die broken; mark getting another one while OFFSITE

1330 ~~start~~ EOM grade rock in trench to 3" below grade

1400 Randy Allen, Cdr sewer inspect. onsite. Sewer not done yet showed him what was being put in and where. will have him come back tomorrow when sewer is installed.

1405 inspector OFFSITE

1425 mark onsite

1435 start piping in galv. Pipe

1445 start Fitting sewer pipe

1505 clean up site and stockpile rock at East end of Trench.

1535 AEC OFFSITE; EOM do Stewalk

1540 EOM OFFSITE

10-18-11

1253 PUD checking out something on street does not have to do with us.
1310 mark OFFSITE
1310 clean up East end of trench to lay pipe
1315 thread pipe
1320 die broken; mark getting another one while OFFSITE
1330 ~~start~~ grade rock in trench to 3" below grade
1400 Randy Allen, City sewer inspect. onsite. Sewer not done yet showed him what was being put in and where. will have him come by tomorrow when sewer is installed.
1405 inspector OFFSITE
1425 mark onsite
1425 start piping in galv. Pipe
1445 Start Fitting sewer pipe
1505 clean up site and stockpile rock at East end of Trench.
1535 AEC OFFSITE; EAM do Site walk
1540 EAM OFFSITE

10-19-11

0651 EAM onsite; do Site walk.
0652 AEC onsite
weather: partially cloudy high 40's-low 50's
0705 H&S meeting
0710 Prep Pipe and glue fittings
0730 grade trench and compact
0730 lay out conduit for electrician
0735 mark OFFSITE for pipes and tools
0735 electrician onsite
0740 electrician runs conduit
0810 electrician fixes conduit
0820 electrician runs Power supply pipe.
0820 grading cont. Pipe layer cont.
0815 mark back onsite
0830 pavers show up.
0935 load up last of old equipment
0845 ~~0845~~ Electrical inspector onsite

10-19-11

0850 Inspector OFFSITE
0850 Electrician OFFSITE for phone line supplies
0850 Start backfilling over AS and electrical
0845 Pavers check compaction
0850 Pavers prep sides of Trench
0900 Start PVC piping for SVE and H_2O
0920 Electrician onsite
0935 piping finished, label and Prep pipe bed
0940 Start saw cutting broken corners for asphalting
0945 Electrician OFFSITE
0945 Start filling electrical trench
0950 Asphalt dumptruck on site Start Asphalting
0955 Stard backfill on main trond
1005 Pipe slope is good start backfill.
1020 Compact trenches. Asphalt Cont.
1025 Install sewer line

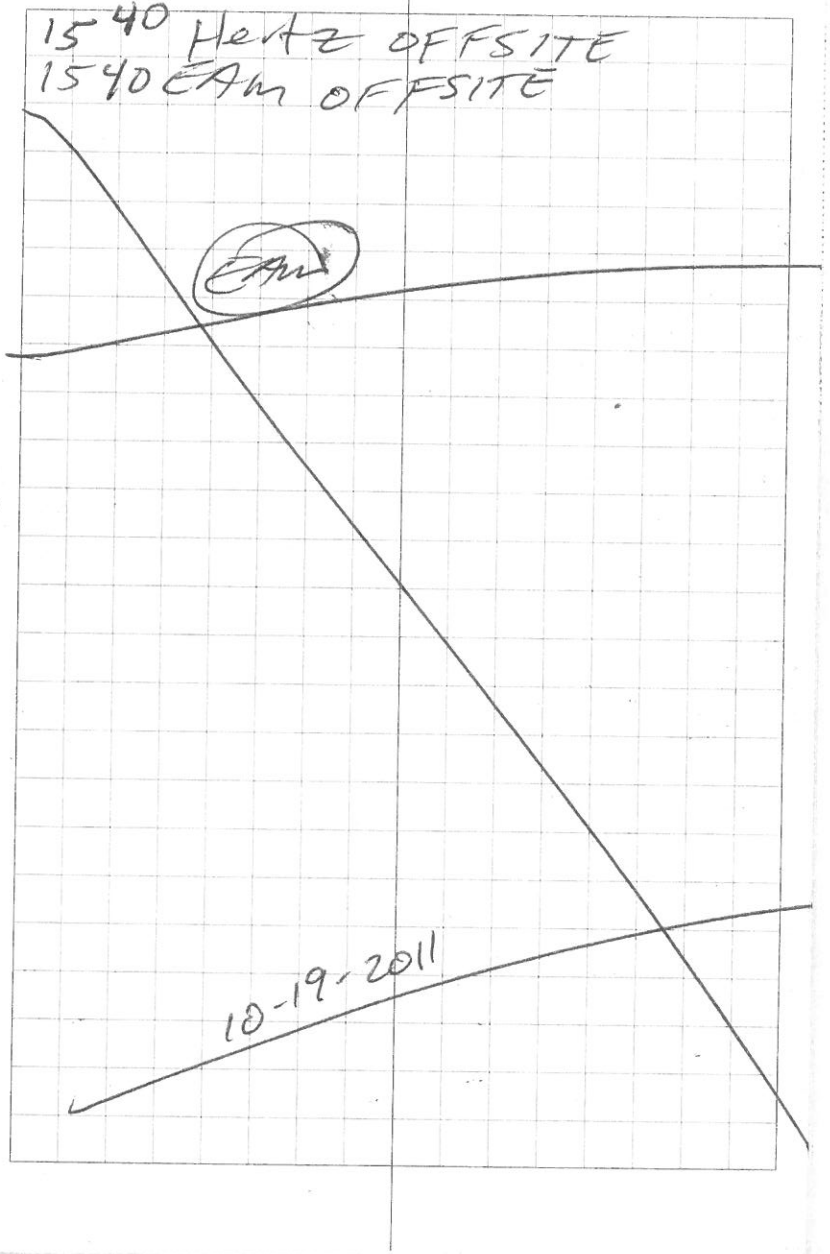
10-19-11

1035 lay Sewer on etal. & tape over all lines.
1040 start backfilling over tape.
1048 Sewer inspector onsite inspects and buys OFF sewer.
1051 Inspector OFFSITE, Resume backfill and compaction
1110 Asphalt guys start laying North half of lot.
1130 Backfill continues
1210 AEC takes lunch Asphalt guys take lunch
1230 AEC back
1230 Asphalt truck back with Asphalt.
1235 Finish compaction and lay out Asphalt (Diamond)
1230 AEC replant trees and bushes.
1250 AEC move all remaining Parts back to convey area, and pack up tools
1330 Mark OFFSITE for Parts; Paving Dumptruck OFFSITE for more

10-19-2011

1330 Asphalt. (continued from last page)
1330 paving continues with remaining Asphalt. Also sealing new Asphalt.
1340 Asphalt Truck back onsite
1350 Asphalt truck OFFSITE
1400 Asphalt truck on site
1355 Mark onsite
1410 Asphalt done, start sealing remaining seams
1410 EAm talk to tenants and tell them they can use the lot starting early on the morning of 10-20-11.
1410 AEC continuing to clean up site and move all parts and equipment to truck or connex location.
1425 Start putting up Fence
1450 Asphalt Guys all offsite
1500 AEC OFFSITE
1500 EAm do final sitewalk.
1515 Talk with tenants about gates, and future actions.
1530 Hertz onsite to pick up Front loader.

10-19-2011



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CONTENTS

PAGE	REFERENCE	DATE

weather: 50's light Rain
0710 EAM onsite; Corey + Z (AEC) already onsite. EAM checking with Corey
0715 EAM Take pre construction Pictures.
0720 AEC truck delayed, Corey/AEC offsite to Lowe's for supplies - Corey says locate should be here 8-830
0725 EAM Review bid spec
0740 BAJ onsite walk site
0750 AEC back onsite
0800 AEC beg in marking paint.
0805 BAJ OFFSITE
0805 Backhoe onsite
0835 TGO onsite
0855 Private locate onsite Start locate
0905 TGO OFFSITE
0940 Toilet dropped off
0950 Saw cutter truck onsite

1000 Start saw cutting, continue to mark out trenches + locate still in progress
1020 Talk to 7-11 manager about deliverys on Tuesdays, one around noon - Afternoon.
1030 AEC Truck onsite with Vaults
1050 H&S meeting late due to personel arriving late.
1055 Fencing arrives onsite
1115 Install Storm water Socks
1145 Finish Saw cutting. Clean up and pack up
1145 unload vaults from trailor
1200 Fencing up Start Packing up Remaining Fence
1210 Fence Guy and saw cutter OFF SITE
1215 Cory OFFSITE AEC breaks for lunch
1240 AEC back onsite START Removing asphault
1248 hydralics on thumb portion of excavator malfunctions.

9-26-11

1248 begin troubleshooting Not working Call into rental facility

1255 called TGO about the hydraulic problem on the earthmover. Will have to stop work for the day. Also verified that drainage pipes will be installed.

1300 START closing down site and cleaning up.

1330 day called OFF for lack of replacement Equipment

1335 AEC OFFSITE

1340 EAM OFFSITE for lock and Chain

1410 onsite to chain up fence

1415 EAM OFFSITE

EAM

9-27-11

0645 EAM onsite
- Speak with Subway employee had moved fence so ~~Hayden~~ EAM had keyed access was maintained

0650 did site walk

0655 weather: high 50's/low 60's mostly cloudy, some breaks in clouds

0700 excavator was replaced last night no one onsite

0700 AEC onsite.

0710 H&S meeting

0715 Start removal of asphalt around RW11 where removal was started yesterday

0740 Bob (AEC) Offsite with first load of Asphalt, continue Asphalt removal, trench to RW02. green tinged fill found around RW02 and RW03 [PIC]. No odor

0800 clouds breaking up

0830 found more tinged fill at RW04.

0830 cloud Cover mostly dissapated

9-27-11

0855 Finish asphalt removal
0855 Bob back onsite with truck and Trailer.
0900 during Asphault removal found 2 sets of dead lines [PIC]
0903 begin trenching by RW11
0907 found grey discolored soil. check w/PID
Cal. gas to PID 100 ppm reading at 96-99 ppm
0 ppm reading at 1.3 ppm reading from sample by RW11
1.3 ppm ~~+.4 ppm~~ Sample rest in the 1.3 ppm range same as ambient air.
0935 AEC decides to stockpile and reuse dirt
1030 big cloud soiled in digging out Trench to RW02
1037 found steel pipe by RW02 [PIC] Poss. by product line old
1045 Bob onsite from dumping asphault, fill Trailer with remaining asphault.
1050 start cutting off monument for RW11

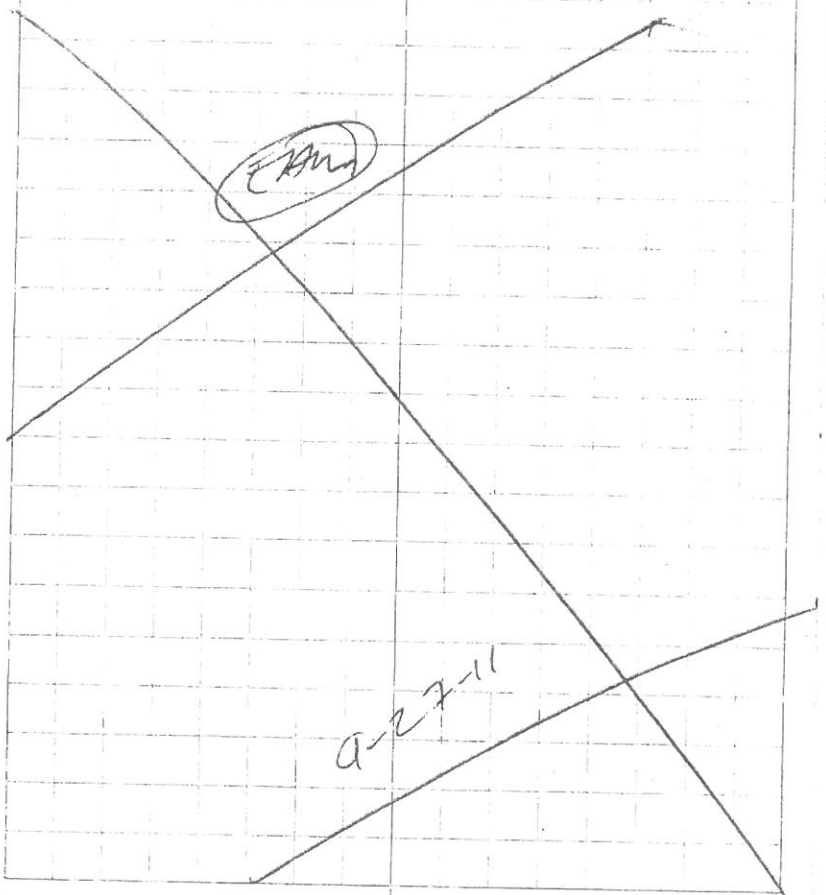
RW11 .37 to Top of monument
.32 Ground surface to top of monument. NET TOC at .05 BGS
1107 monument removed
TOC 1.67 Feet BGS
START Excavating around RW11
1120 Core onsite
1135 Truck w/piping arrives
1150 Truck offSite
1155 break for lunch
1220 begin removal RW02
1220 core offsite
1240 load up last of asphalt
1300 Vaults measure 30"x30"x24" 24" deep might be too shallow for QED Pumpheads. Call TGO
1320 (EAM) got a TOC of -1.72 check height of QED PSSV ranges from 14-16" adding height for Fernco and Concrete and there is not much clearance est. 3-4 inches. EAM offsite

1320 Continue trenching main trench back to RW08/MW09

9-27-11

1355 EAM back onsite. Bob and AEC truck returned from dumping asphalt.
1410 place vault for RW02 to check clearance.
1425 - Hand clearing around wells RW08 and MW08
- break out concrete bottom from RW02
MW08 TOC to Top of monument .38'
To BGS .05 all measured to west side of trench
RW08 TOC To top of monument .33'
To west wall of Trench .65
from monument .05'
1435 Bob OFFSITE for parts
1500 cut off monuments for RW08/MW08
1510 Excavate around RW08/MW08 move onto RW03
1530 Trailer battery died at dumpsite.
1535 cover stock piles and clean up site. unable to move pipe inside compound without lift straps in truck

1605 AEC OFFSITE
EAM to Lowes Ao- parts.
1635 EAm onsite to lockup site.
1650 EAm OFFSITE



9-28-11

0645 EHAm onsite
Weather: high 40's/low 50's
Heavy Fog.

0695 ~~EHAm~~ onsite walk
0701 AEC onsite
0705 HSE meeting
0710 set up for day
0720 Pull RW 03 vault and clear
0745 Bob offSITE for lunch and supplies
0750 Start Prep for drainline and Setting RW02 vault and well head.
0905 Start layout and installation of RW02 Drainline Vault and wellhead.
- Excavation OF RW03 continues
0815 Tamp bottom of Trenches
0830 lay drain pipe
0845 Check Vault for RW02 and cut down well to 2'~2'6" BGS
Removed 0.75 Feet
0915 Start Prepping for RW11
0930 Bob back onsite

9-28-11

0940 Start clearing MW08/RW08 for Setting Vaults.
0945 begin Setting RW11 Vault
1010 Finish RW11 Start RW03 Vault Prep
1030 Start Setting Vault RW03 remove 0.98' Stub.
1055 Asphault contractor onsite takes measurements
1105 Asphault contractor OFFSITE
1120 clear MW08/RW08 trench
1130 check water line material and location
1140 AEC OFFSITE for lunch and parts
1250 AEC back onsite Tamp trench bottoms, lay drain pipe to MW08 and RW08 and prep for Vault placement
1320 Place and set MW08 vault
1340 Prep for Vault RW09
1350 Set vault for RW09
1400 Excavate Manhole
1510 Excavate RW04 Trench
1515 Use Sump Pump to dewater RW04 Vault in order to remove

9-28-~~0~~11

1520 grout old System lines closed where they had to be removed from Vaults and trenches. As well As Vault carryholes

1530 prep for Vault RW04

Vault installation

1550 Remove old RW04 Vault

1555 Finish Excavating RW04 Trench

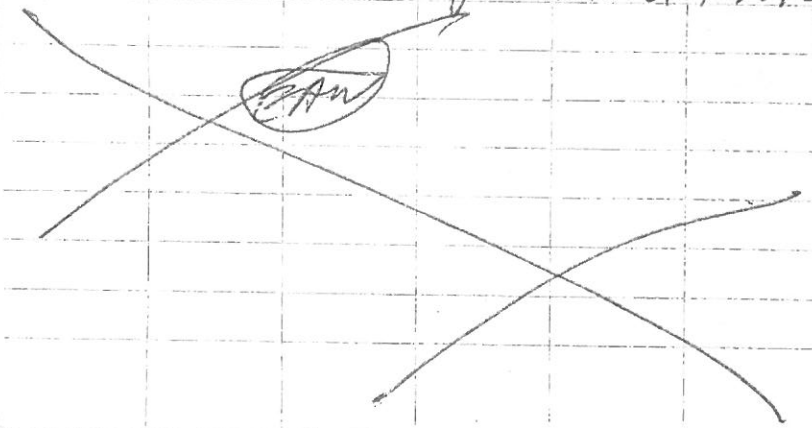
1610 lay drain pipe

1635 clean up site, move pipe to a test more protected area out of the flow of backing up cars.

1650 clean up site

1700 AEC OFFSITE

1701 EAm lockup and OFFSITE



9-29-11

0652 EAm ons. Te

0653 LMK ons. Te

0655 Dos. Te mail c

0700 AEC ons. Te

0710 Sta. t Setting RW04

0740 Irrigation line goes directly towards RW10, if it goes straight out it would be cut off by well.

0755 start Trenching to RW10

0750 Bob OFFSITE for parts

0820 Bob back on. Te

Trenching continues

0830 RW10 0.19' below west wall of trench

Remove RW10 monument

0840 beginning prep for Vault

0850 Start Tamping trench

0910 prep fo. Vault

0910 Set drain pipe

0920 Set Vault RW10

0950 break Knockouts and clean up site

1000 Label all Set Vaults

1010 cut down RW04 Stub

Δ = 0.70'

9-29-11

1030 Questions about height available to compound. Walk proposed trench

1050 Call TGO decide to get elevation measurements

1120 Start checking Survey Points
AT Fence 3.25'
at Trench Turn +16"
at Fence at Current compound from Turn +22

1140 Call TGO: Final decision water and SVE must be at least 18" below ground surface, Airline can be higher than 18". SVE must be sloped to compound, All other lines do not have to be sloped to compound and may have low spots.

1145 AEC break for lunch

1210 Start sorting galv fittings Prep for galv. pipe work

1215 Test hose pressure in back ~~78~~ 85 psi

9-29-11

1225 Bob OFFSITE for Pipe

1230 Electricians onsite

1240 Electricians OFFSITE for parts

1240 Start cutting galv. pipe

1308 Bob back onsite

305 - Start Cutting 4" Stub sections - continue galv. pipe

1400 Electricians onsite with Conduit

1420 Conduit OK to enter at lower knockout via Jim milne (PCE), because it is a low voltage Signal wire.

1435 Asphalt contractor onsite

1450 Asphalt contractor OFFSITE - Conduit and Pipe install continue

1540 Start Packing up / Cleaning up

1550 Electricians OFFSITE, LMK OFFSITE

1609 AEC OFFSITE

1610 EAM ~~of~~ locking and OFFSITE

EAM

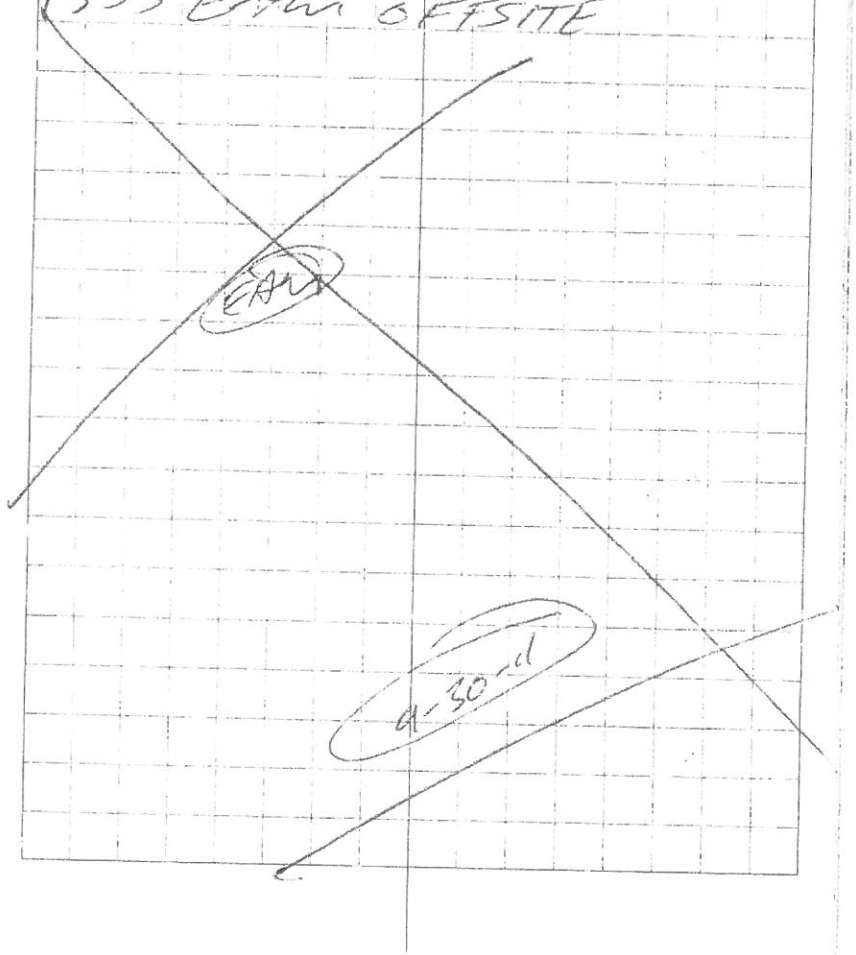
9-29-11

9-30-11

0650 EAM on site.
dos, tailgate talk
Pre site pictures
Weather: mostly clear, low
~~A709 EAM~~ 50's
0709 AEC on site
0730 H&S meeting
0735 Start Galv. piping
0750 Mark offsite for parts
0835 mark back onsite; still
Piping galv.; start building Pressure test
~~0925 EAM start prep~~ manifold
0925 Start prep for pressure test
0943 mark offsite for tools
0945 install manifold and caps
1000 Pressurize lines for test
See Pressure test sheet
1028 TGO onsite
1055 TGO OFFSITE
1100 Pack up pressure test supplies
1125 break for lunch
1150 back to work start
backfill.
1240 glue Stubs and tees for site
Continue backfill

9-30-11

1310 Clean up large waste
to haul away, and clean
up site ~~Ex Pipe yard EAM~~
1340 AEC OFFSITE for day
-EAM lock up compound
and dos, tailgate
1355 ~~EAM~~ OFFSITE



10-3-11

0650 EAM onsite; Dark & late walk weather: mid 50's; Heavy cloud cover, raining earlier but stopped around arrival time

0700 Stop in and check in with J-11 and subway managers.

0755 AEC onsite; Begin Setup for day

0820 Start building SVE lines

0830 ~~Start~~ build parts list for AS and SVE lines and track down parts

0915 AEC OFFSITE for parts

1020 Levi (AEC) onsite

1028 AEC back onsite.

1030 H&S Tailgate

1035 unload vault from trailor

1045 Start building AS valve to wellhead. start building wellheads (RW02)

1120 Start piping RW11 to monitor hood

1145 Break for lunch

1230 AEC Back Onsite

Continue piping SVE

10-3-11

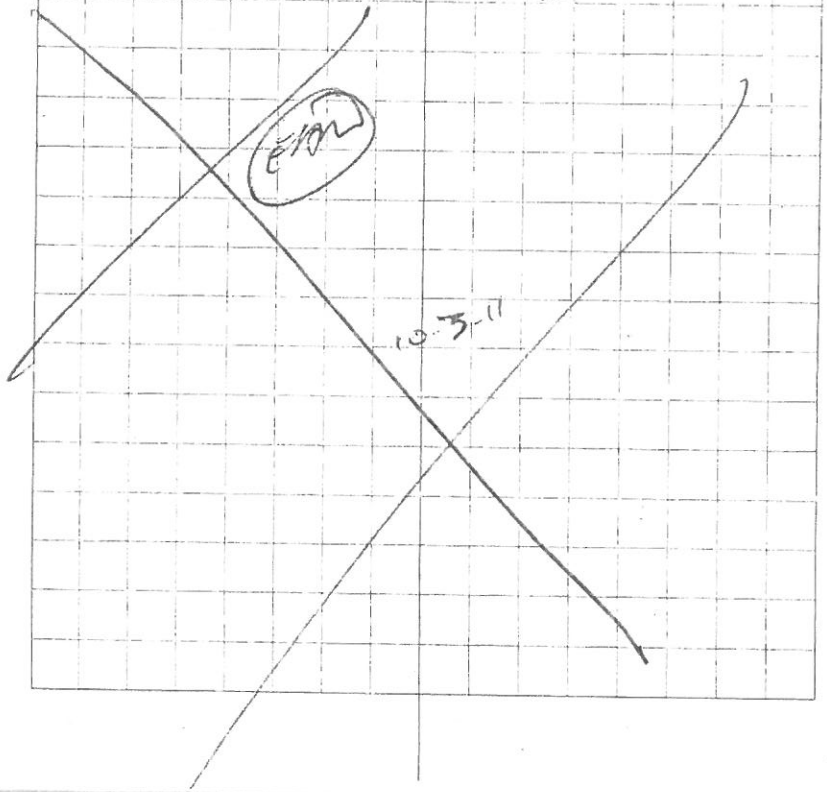
1425 Assess where water lines go and build parts list for H_2O pressure test manifold.

1445 Clean up site

1500 AEC OFFSITE; EAM check SVE pipe grade and depth. Mark places that need work.

1520 EAM close down site

1535 EAM OFFSITE



10-4-11

0648 Ed onsite
Do site walk
0653 AEC onsite
0700 H&S meeting.
0705 Start building SVE pressure test manifold
0710 start installing water line
0720 Mark offsite for parts
0800 walk trench line and layout for thursday
Fence move
0825 Mark back onsite
Prep for pressure testing
0840 fill SVE lines w/water and Pressure test. See test form.
0935 walk offsite for parts
1010 mark back onsite
1140 AEC offsite for lunch and grout
1230 Levi back onsite
1250 AEC back onsite
-Start grouting and back filling
-layout pipes for spacing

10-4-11

1640 Talked with TGO about conex layout
- SVE/AS on right facing Conner
- Water recovery/sensors left facing connex
- delivery 6 weeks
- all lines rise outside and couple in to connex

1650 go over connex plans w/AEC (mark)
- will cap and bury lines at the end of the asphalt and place final lines after connex is placed.

1650 foil tape laid down on trenches continue back fill

1720 Final layer of gravel and rock in trenches.

1730 Levi offsite for crushed rock

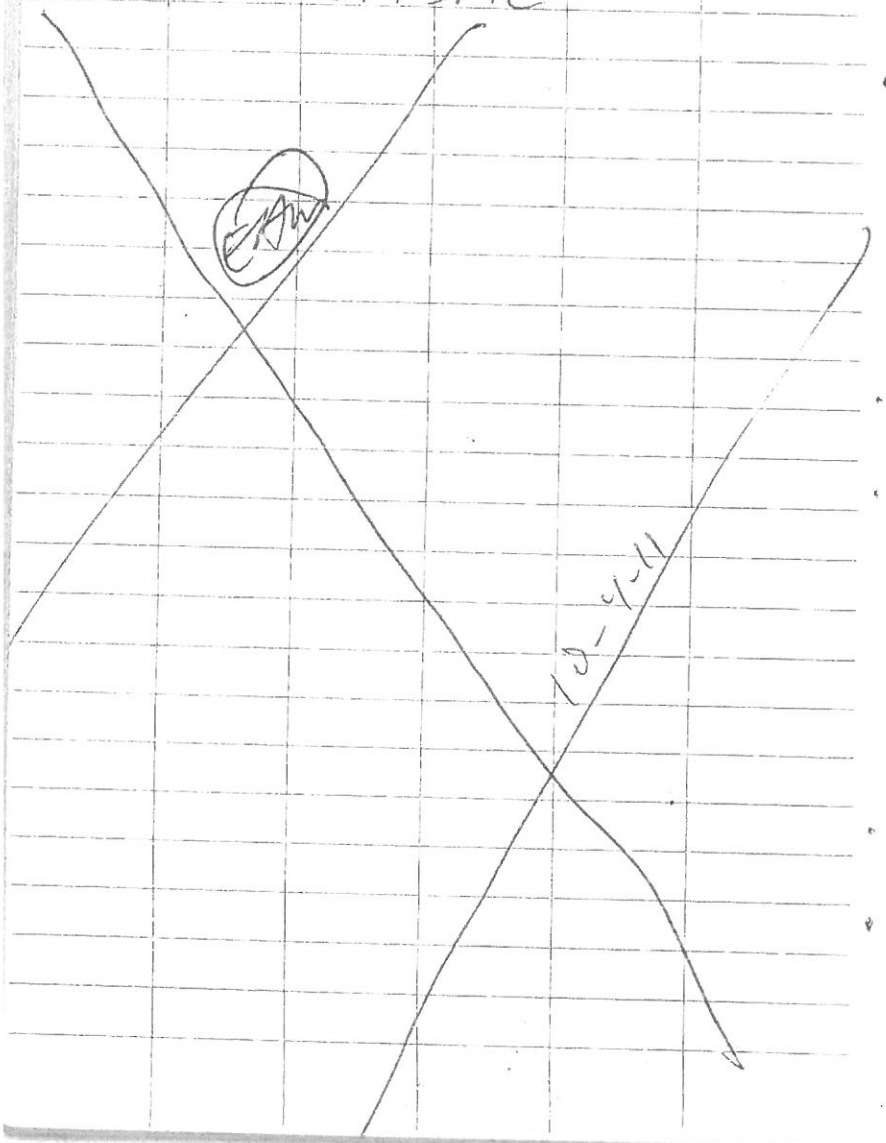
1805 Rock quary closed
Clean up site

1815 Speak with 7-11 manager on Trash bin location and pick up

1630 AEC OFFSITE

1635 Talk with Subway on dumpster moving fencing and equipment

1645 EAM OFFSITE



10-05-11

0710 EAM onsite / discuss w/ crew

0715 AEC onsite

0720 repair garden hose and set up for clay and clean up site for asphalting

0745 Levi onsite with crushed Rock

0750 HES

0755 spread crushed rock and compact

0835 begin loading & hauling for disposal

0850 Levi OFFsite for dirt disposal
- clean up pavement

0940 weather: mid 50's light to moderate drizzle.

0955 Levi back onsite
- Load excess dirt into trailer to haul off

1010 Levi OFFsite to dump dirt

1015 Asphalt paver ONsite

1020 Saw cut bra[illegible] corners

1030 mix tar and prep

1100 start paving

1110 begin moving fence

10-5-11

1140 AEC takes lunch

1200 digout water issue 50.1 and repave (AEC)

1210 Asphalt truck offsite for more Asphalt,

1230 Asphalt truck back onsite

1240 AEC (minimum) OFFSITE Mark and EAm remain onsite with Asphalt crew

1325 ~~Asphalt truck offsite for~~ more Asphalt

1330 Asphalt back onsite start moving dirt

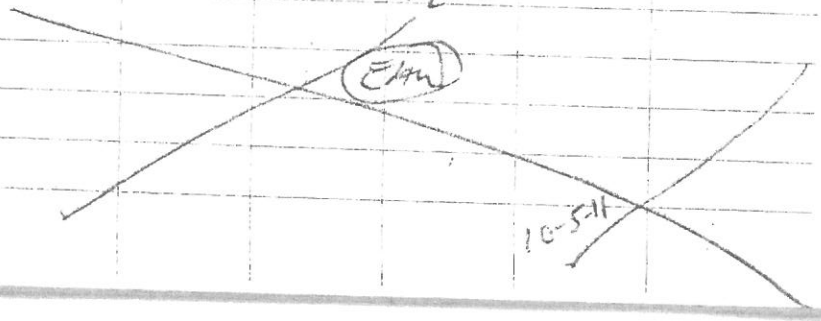
1350 AEC movement

1400 AEC clean up site + Asphalting continues

1430 Asphalt finish; clean up

1500 AEC OFFSITE EAm onsite walk

1502 EAm OFFSITE



10-5-11

1140 AEC takes Lunch
1230 dispatch waterjet 50.1 and Surface (AEC)
1210 Asphalt truck offsite for more Asphalt,
1230 Asphalt truck back onsite
1240 AEC (equipment) OFFSITE Mark and EAM remain onsite with Asphalt crew
1325 ~~Asphalt truck offsite for~~ more Asphalt
1330 Arrow board onsite, start moving dirt
1510 AEC move fence
1400 AEC clean up site
- Asphalting continues
1430 Asphalt done, clean up
1500 AEC OFFSITE
EAM onsite walk
1502 EAM OFFSITE

(EAM)

10-5-11

10-6-11

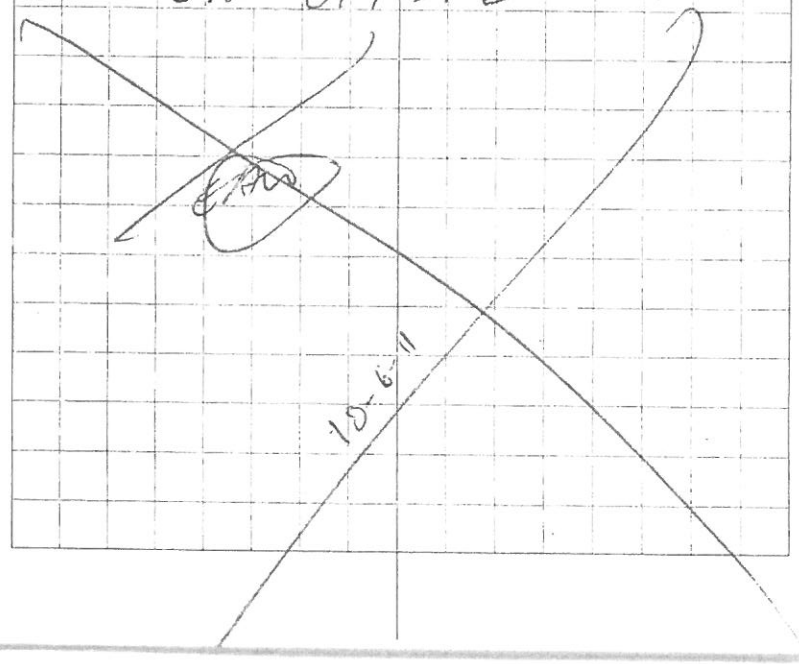
0618 EAM onsite
dozite walk
0620 AEC onsite begin moving fence and equipment
0635 EAM OFFSITE
0655 EAM onsite
Saw cutter onsite
0700 mark out saw lines
0705 saw cut
0755 saw cutter Pack up
0750 AEC move remaining dirt for disposal
0810 move dumpsters out front for 7-11 and subway due to access
0805 Levi OFFSITE to dump dirt
0805 begin asphalt removal, in back by compound; all clay underneath, will need to dispose
0820 move supplies out of the way
0830 remove asphalt
0835 Saw cutter OFFSITE
0840 dump truck not available until 12:30; Finish Fence setup
0905 Levi back onsite

10-6-11

0905 H&S meeting
0910 remove Asphalt
0925 Levi OFFSITE to dump Asphalt
1030 Levi back onsite
- Continue removing asphalt
1050 Levi OFFSITE to dump Asphalt
1135 dump truck onsite
- Start Trenching back by equipment storage compound.
1200 lots of garbage in native soil T.C, brick, rebar, candy wrapper, etc.
1240 Dump truck OFFSITE to dispose of dirt.
1245 Break for lunch
1310 start Trenching
1350 found grey dirt, no odor previously found est. 9"-11" thick slab of asphalt
1525 dump truck onsite
1435 dumptruck offsite
- Continue Trenching

10-6-11

1450 Levi OFFSITE to unload dirt and pick up gravel/crushed rock
- Clean up site
1510 dig out drain pipe trench
1555 Levi onsite with crushed rock
1600 dump rock.
1610 unhitch trailor and clean up site
1615 AEC OFFSITE
- EAM do site walk
1620 EAM OFFSITE



10-7-11

0650	EMC onsite
0655	Anderson onsite -
0655	EMC site walk
0700	HS mtg
0710	Placing crushed rock
0711	United Toilet onsite
0720	move porta potty
0726	United Toilet off site
0724	AEC placing crushed rock
0740	Dump truck on site
0809	Asphalt removal - changed tasks to avoid fiber optics on ac fixing
0820	dirt removal
0843	Truck full and leaves site
0847	AEC moves trailer
0850	AEC backfills trench with dirt pile
0857	move trailer back
0902	remove asphalt
0925	asphalt removal complete stopped
0945	Begin digging again
0951	Dump truck back
0954	Dump truck drops off rock

0955	Begin filling truck w/ asphalt
1015	Full dump truck leaves site
1018	Begin filling in trench w/ dirt & rock to give excavator stable ground for trench digging
1029	begin asphalt digging. Place asphalt in trench as bridge
1040	Finish asphalt
1044	fill in trench w/ rock
1051	Begin digging and regrade trench
1056	Stop work while wait for dump truck
1112	Dump truck back on site and dumps more rock
1114	Begin filling dump truck w/ dirt / asphalt
1150	Dump truck full and leaves site
1155	Begin filling trench w/ rock
1200	finish work & leave site

SoundEarth Strategies

FIELD REPORT

2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102
P: (206) 306-1900 F: (206) 306-1907

Client & Site Name/Number:		SoundEarth Project Number:	Date:
TOC 101-169		0440-002-13	6/11/12
Site Address:		**Purpose of Visit/Task #:** #125	**Field Report Prepared by:**
851 N. Broadway		System Start-up O&M	A. Elliott
Temp/Weather:	**Permit Required to Work:**	**Time of Arrival/Departure (2400):**	**Personnel Onsite:**
Sun 60's	— —	1125 onsite to 1310 offsite	A. Elliott

1125: A. Elliott on-site to check system parameters, operation status after start-up previous week. The door to the conex has settled / gotten worse. Top hinge rests on the metal bar below it. Had to pry door open with wrench. Metal latch still broken from last visit (6/8).

Begin taking parameters. Temp in conex is very warm ~ 85° from DPE blower. Fan set at 80°, running. Took parameters, system running well. No water seen in lines.

Prepare to take DVACs in wells.

Small changes from previous visit, vacuums slightly better.

1235: Called TSO regarding site activities, including door issue. Used a level to check the conex / concrete pad, the pad tilts slightly towards to the left, very likely causing the door hinge issue. Took photos.

1305: Upon leaving site AEC pulled up to address asphalt settling around vaults and place bollard in front of conex. Also proposed taking off sheet metal in front of the conex fan to improve ventilation. Toured the conex together, A. Elliott called off site to address issue at DI-309 site.

1310: A. Elliott off-site

AE

Attachments:

SoundEarth Strategies

O&M Field Data Sheet
TOC Holdings Co. Facility No. 01-169
851 N. Broadway, Everett, WA

Date: 6/11/12
Personnel: A. Flatt
Reason for Visit: System O&M

SYSTEM DESCRIPTION

SVE Equipment
Busch Mink 1322 AV, 9 hp, 208 VAC, 3Ø.
Moisture water separator H2K model VLS-82
Transfer pump 1 is Gould NPE stainless steel.
Water Discharge
Downwell pumps are pneuamtic, QED, short body, bottom loading, 1/3 hp, 230 VAC, 1Ø, motor
500-gallon HDPE tank
Trasnfer pump 2 is Dayton booster pump, multi-stage 3/4 HP, 208 VA, 3Ø.
Krystil Klear model 88-30 bag filter housing, 100 psi, welded steel; uses 200 micron size #2 filter bags
Water flow totalizer pre-tray stripper is AMCO C-700
Tray stripper is H2Oil TS150
Tray stripper blower is a EN656M72XL Rotron regenerative blower DR656, 3 hp, 230 VAC, 3Ø, TEFC motor
Ingersoll-Rand reciprocating compressor, 5 hp, 135 PSI, 230 Volt, 21.5 AMP, 1Ø
Exhaust stack: 2-inch SCH 40 galvanized (ID = 1.939 inches)

Site Phone #: XXX-XXX-XXXX
Site Power: 230 vac, 3-phase service

EQUIPMENT CONDITIONS

Operating System	Status Upon Arrival (on/off)	Hour Meter[2] (hours)	Blower Pressure (in. ~~H_2O~~)	Pre-KOT Vacuum (in. H_2O)	Post-KOT Vacuum (in. H_2O)	KOT Level (% Full)	Batch Tank Level (% Full)	Bleed Air (% Open)	Any Leaks? (yes/no)	Status Upon Departure (on/off)	Heat Trace (on/off)
SVE SYSTEM	On	96.2		2.5	4.0	0		10	NO	ON	
TRAY STRIPPER	On	8.1	4.5				6" above OFF	0	↓	OF	NM
PNEUMATIC PUMPS	On								↓	ON	

Compressor: 150 psi; temp: 104

SVE MANIFOLD PARAMETERS

Extraction Line	Vacuum (in. H_2O)	VOCs (RRU/ppm)
MW08	2.9	NM
RW08	3.5	
RW11	2.0	
RW02	5.0	
RW03	3.5	
RW04	3.0	
RW10	2.0	
OW02	2.0	
RW09	3.0	

EXTRACTION WELL INFORMATION

Extraction Line	Depth to Pump/Drop Tube Inlet (ft)	Vacuum at Wellhead (in. ~~H_2O~~)	Dynamic Depth to Water (ft)	Pump Condition (good/poor)	Adjustments: Press Reg	Adjustments: Cycle	
MW08		3.0					
RW08		3.5					
RW11	24.0	<2			Some water in stinger line		
RW02	17.5	4.0			44	218	
RW03	15.0				45	310	
RW04		2.5					
RW10	24.0	2.0			42.5	1071	
OW02	9.0	<2			Trying to cycle water, might be tiny		
RW09	12.0	2.5			Stinger cycling some water		

VAPOR DISCHARGE	DischargeStack DS-300 Flow Meters: Static Pressure (in. H_2O)	Delt P (in. H_2O)	Stack Temp (^oF)	Flow Rate (scfm)	Stack Sample Port Parameters: VOCs (RRU/ppm)	O_2 (%)	CO_2 (ppm)	Blower Filters: Pressure Drop (in. H_2O)	Filter Replacement (Y/N)
SVE	>2	>2	204	0.0	NM →			1.5	N
TRAY STRIPPER	~~>2~~ Redo	7.5	106	0.0	NM →			NM	N

TS Vacuum 9 inH2O

PROCESS WATER DATA: Location	Total H_2O Flow (gal)	Flow Rate (gpm)
KOT	8556	9
Influent/TS[1]	4323	9

TRANSFER PUMP BACK PRESSURE: Location	Pressure (psi)
TP for Batch Tank	8.5
TP for KOT	8.0

BAG FILTER CONDITION: Location	Pressure (psi)	Change Out
Pre-filter	0	N
Post-filter	0	

Motor Amperage (amps)	SVE	TS Blower
Line 1	NM →	
Line 2	NM →	
Line 3	NM →	

VAPOR SAMPLE COLLECTION INFORMATION: Vapor Sample Location	Sample ID	Date	Time
SVE Stack	NM		
TS Stack			

WATER DISCHARGE SAMPLE COLLECTION INFORMATION: Water Sample Location	Sample ID	Date	Time
Pre TS			
Post TS	NM		

AS lines at 60 psi
Temp: 94

NOTES:
System/Site Observation/Comments:

Maintenance Actions/Samples Taken:

Materials/Equipment Needed for Next Visit:

9
7.5
2.5
5

APPENDIX E

SYSTEM INSTALLATION CHECKLISTS

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:9/26/11 – 6/7/12

1.0 Site Controls

Requirement	**Assessment**
1. Contractor shall have a public and private utility locate performed prior to beginning ANY excavation activities.	☒ Yes ☐ No (Describe Deficiency) Locate marks painted and documented
2. Contractor to provide the following during excavation activities: - traffic cones; - barricades; - flagging; - hazardous warning tape (as needed) to restrict public access and secure open excavations.	☒ Yes ☐ No (Describe Deficiency) Traffic control on-site daily. Fencing placed around open trenches.
3. Contractor shall maintain a neat and well-kept site during and at the end of each day's construction activities. All equipment and materials shall be properly stowed and secured, trash shall be removed from site daily, and the site secured from public access during and at the close of each day.	☒ Yes ☐ No (Describe Deficiency)
4. Contractor shall secure and protect remediation compound area post-installation if it is impracticable to install fencing prior to the installation of the remediation skid.	☒ Yes ☐ No (Describe Deficiency) Remediation equipment enclosed in connex

Comments:

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**: 9/26/11, 10/6/11 and 10/18/11

2.0 Asphalt/Concrete Removal

Requirement	Assessment
1. Contractor shall saw-cut all asphalt/concrete prior to beginning trenching activities.	☒ Yes ☐ No (Describe Deficiency) Contractor onsite on 9/26/11, 10/6/11 and 10/18/11
2. Contractor shall haul all demolished asphalt/concrete off the Property for recycle or disposal.	☒ Yes ☐ No (Describe Deficiency) Taken off site for disposal

Comments:

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**: 9/26/13- 4/26/12

3.0 Excavation, Backfill, and Compaction

Requirement	**Assessment**
1. All pipe and hose has been inspected for cuts, scratches, gouges, or split ends upon delivery and prior to installation.	☒ Yes ☐ No (Describe Deficiency)
2. All pipe and hose is being stored according to manufacturer's recommendations and the ends of all pipe and hose is capped/sealed to prevent foreign materials from entry.	☒ Yes ☐ No (Describe Deficiency) Piping sealed with end caps or tape, threads were de-burred before assembly and foreign materials removed to the extent possible prior to pressure testing.
3. Trench bottom shall be continuous, free of rocks, and relatively smooth. If necessary, pad trench bottom with a minimum of 4-inches tamped earth or sand below pipe.	☒ Yes ☐ No (Describe Deficiency)
4. Contractor to follow manufacturer's recommendations for pipe solvent connections and cure times.	☒ Yes ☐ No (Describe Deficiency)
5. Contractor to follow manufacturer's recommendations for snaking of buried piping to compensate for thermal expansion/contraction.	☒ Yes ☐ No (Describe Deficiency)
6. All piping shall slope a minimum of ½ % (6"/100') towards each wellhead from the minimum cover depth of 18 inches at the remediation compound.	☒ Yes ☐ No (Describe Deficiency) Due to site topography there were small bellies in the SVE piping of the main trench south of the building.
7. SVE and/or air supply piping is located at least one pipe diameter off of the bottom of the trench and one pipe diameter exists between all pipes laterally.	☒ Yes ☐ No (Describe Deficiency)
8. Surround pipes with 6 to 8-inches of suitable backfill free of rocks with a particle size of ½-inch or	☒ Yes ☐ No (Describe Deficiency)
9. Backfill shall be placed in 6 to 8-inches lifts and compacted by hand or with a mechanical tamper. A 12-inch loose lift shall be placed above the pipe prior to beginning compaction. Large or sharp rocks, frozen clods, and other debris greater than 3 inches in diameter shall be removed. Rolling equipment or heavy tamper shall only be used to consolidate the final backfill.	☒ Yes ☐ No (Describe Deficiency)
10. Backfill compaction shall meet 95% standard proctor and an unyielding surface on the final lift shall be provided prior to paving.	☒ Yes ☐ No (Describe Deficiency) Note: no proctor test performed, native soil not used for backfill, backfill

	was imported.
11. A minimum of 18-inches cover exists between the top of the trench piping and the top of the pavement	☒ Yes ☐ No (Describe Deficiency) Due to site topography there are sections of the piping in the main trench, south of the building that have less than 18 inches of cover.
12. Metallic warning tape shall be buried directly above the system piping	☒ Yes ☐ No (Describe Deficiency)
Comments:	

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:9/27/11-10/10/11

4.0 Well Vaults

Requirement	**Assessment**
1. Contractor shall remove existing well monuments on prior to installing new well vaults. During removal, the Contractor shall protect existing remediation wells from damage.	☒ Yes ☐ No (Describe Deficiency)
2. Contractor shall install vaults in accordance with manufacturer's recommendations and guidelines. Backfill compaction shall be 95% standard proctor per ASTM Standard D698. An unyielding surface on the final lift of the backfill shall be provided prior to paving.	☒ Yes ☐ No (Describe Deficiency)
3. Contractor shall seal piping penetrations through vault wall and floor with non-shrink grout.	☒ Yes ☐ No (Describe Deficiency)
4. Contractor shall install a 1-inch PVC drain line from all vaults to a storm drain.	☒ Yes ☐ No (Describe Deficiency)
5. Contractor shall avoid penetrating or damaging the existing wells seal or annular seal when installing well vaults.	☒ Yes ☐ No (Describe Deficiency)
6. Contractor shall install vaults at the same elevation at the existing surrounding (or planned) asphalt. No vault shall extend higher in elevation that the surrounding asphalt.	☒ Yes ☐ No (Describe Deficiency)
Comments:	

Installed Equipment	**Assessment**
1. Vaults shall be thirty (30) inches wide (interior) by thirty (30) inches long (interior) by thirty (30) inches deep (excluding top and cover) and equipped with an H-20 rated cover and associated locking and hinged door.	☒ Yes ☐ No (Describe Deficiency) 30"x30"x30" vaults are not made. Contractor used 30"x30"x24" vaults
Comments:	

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:9/28/11 - 4/25/12

5.0 Piping

Requirement	**Assessment**
1. Contractor shall install pipes for each vault at the elevation required to maintain a minimum pipe slope of ½ % (6"/100') towards each wellhead from the minimum cover depth of 18 inches at the remediation compound.	☒ Yes ☐ No (Describe Deficiency) Lines were checked in the trench prior to back fill. Due to site topography there are small bellies in the piping of the main trench south of the building.
2. Contractor shall use long sweep 90's for all subsurface trenching.	☒ Yes ☐ No (Describe Deficiency)
3. Contractor shall snake both air and water lines to each remediation vault at the time of construction.	☒ Yes ☐ No (Describe Deficiency)
4. Contractor shall provide a minimum of 5 feet of each air and water lines within each vault.	☒ Yes ☐ No (Describe Deficiency)
5. Contractor shall pressure test air supply pipe and SVE pipe prior to backfill. **For the non-PVC hose:** A test pressure of 100 psig shall be maintained for at least 10 minutes. **For the PVC vacuum piping:** A test pressure of 20 psig shall be maintained for at least 10 minutes.	☒ Yes ☐ No (Describe Deficiency) See pressure testing sheet. All pipes pressure tested and passed prior to backfill
6. Contractor has provided documentation verifying results of pressure test prior to backfill.	☒ Yes ☐ No (Describe Deficiency) See pressure testing sheet. All pipes pressure tested and passed prior to backfill

Comments:

Installed Equipment	**Assessment**
1. PVC vacuum piping conforms to Construction Drawings and is appropriately sized – schedule 40 and/or schedule 80.	☒ Yes ☐ No (Describe Deficiency) Schedule 80 PVC pipe used for below ground install.
2. Non-PVC hose conforms to Construction Drawings and is appropriately sized.	☒ Yes ☐ No (Describe Deficiency)

Comments:

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:10/5/11, 10/19/11, 4/26/12-5/3/12

6.0 Property Restoration

Requirement	Assessment
1. Contractor shall replace the asphalt/concrete removed during trenching and well vault installation. New pavement shall match the previous asphalt/concrete and shall be located on top of the final, unyielding soil layer.	☒ Yes ☐ No (Describe Deficiency)
2. Contractor shall seal the joints between the new and existing pavement.	☒ Yes ☐ No (Describe Deficiency)

Comments:

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:5/2/12

7.0 Remediation Compound

Requirement	Assessment
1. Contractor shall provide a six (6) foot high chain link fence with privacy slats around the remediation compound. Contractor shall incorporate gates as shown on the Construction Drawings.	☒ Yes ☐ No (Describe Deficiency)
2. Contractor shall position piping along the fence to the extent practical to prevent trip hazards.	☒ Yes ☐ No (Describe Deficiency)
3. Contractor shall hire a qualified electrician to install new electrical service for the remediation system.	☒ Yes ☐ No (Describe Deficiency)
4. Contractor's electrician shall install a phone line to the remediation compound.	☒ Yes ☐ No (Describe Deficiency)
5. Contractor's electrician shall maintain a minimum three (3) foot clearance surrounding the front of all control panels and breaker boxes.	☒ Yes ☐ No (Describe Deficiency)
6. Contractor shall provide a weather-rated exterior light fixture and switch within the compound.	☒ Yes ☐ No (Describe Deficiency)
7. Contractor shall install six (6) inch parking bollards in the location shown on the Construction Drawings. Bollards shall extend three (3) feet above and two (2) feet below finished grade. Bollards shall be painted traffic yellow and be filled with concrete.	☒ Yes ☐ No (Describe Deficiency)
8. Contractor to support manifold piping with steel unistrut bolted to the concrete.	☒ Yes ☐ No (Describe Deficiency)
9. Contractor shall install all gauges and manifold instrumentation in accordance with the Construction Drawings and the manufacturer's recommended guidelines. See Construction Drawing M-102 to QA instrumentation installation.	☒ Yes ☐ No (Describe Deficiency)
10. For the air and water manifold (Construction Drawing M-103), Contractor to supply and additional twenty (20) feet of each type of line per well. Contractor to coil lines and hang on the fence behind each stub-up to keep the lines off the ground.	☒ Yes ☐ No (Describe Deficiency)

Comments:	

System Installation QC Checklist

TOC Holdings Co. Facility No. 01-169
851 North Broadway, Everett, Washington

SES Work Order No.: 0440-002-11	**Field Staff: E. Marks**	**Date**:5/2/12

8.0 Remediation Equipment

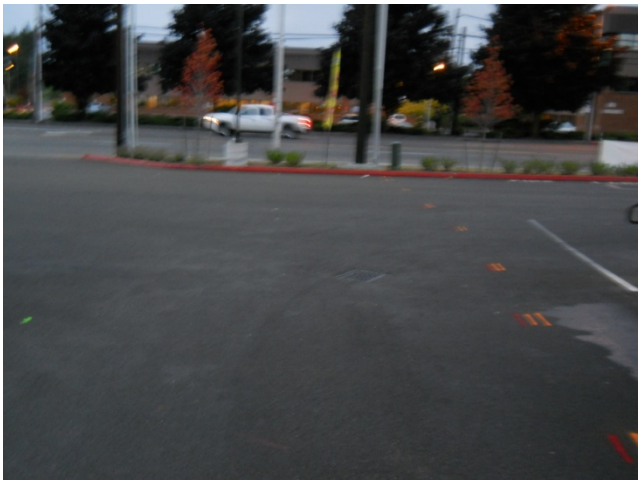
Requirement	**Assessment**
1. SVE blower shall be mounted on a mild steel base and have UL-listed controls and include a hand/off/auto (HOA) switch, motor starter, hour meter and thermal overload protection.	☒ Yes ☐ No (Describe Deficiency)
2. Verify the instrumentation on the skid against Construction Drawings M-100, M-101 and M-104.	☒ Yes ☐ No (Describe Deficiency)
3. Verify the moisture separator is equipped with a high-high level sensor. Activation of the level sensor shall cause a high level shutdown, which shall trigger the safe shutdown of the remedial system.	☒ Yes ☐ No (Describe Deficiency)
4. Verify the control panel was received with replacement fuses and a utility outlet.	☒ Yes ☐ No (Describe Deficiency)
5. Verify the electrical wiring diagram/process schematic is laminated and attached to the inside of the control panel door.	☒ Yes ☐ No (Describe Deficiency)
6. Verify the sound enclosure adheres to the requirements in the remediation system equipment RFB.	☒ Yes ☐ No (Describe Deficiency)
7. Verify the equipment manufacturer has provided three (3) copies of an Operation and Maintenance Manual for all equipment and controls installed. Manual shall include information such as startup and shut down procedures, general maintenance requirements, recommended inspection frequencies and replacement parts.	☒ Yes ☐ No (Describe Deficiency)

Comments:

Installed Equipment	**Assessment**
1. T-1: Poly Tank www.plastic-mart.com, Part No. 6327VERT Dimensions: 36-inch diameter x 53-inch tall with 8-inch lid and 2-inch female threaded bulkhead fitting.	☒ Yes ☐ No (Describe Deficiency)
2. MS-1: Moisture Separator No make specified- provide with a 2-inch	☒ Yes ☐ No (Describe Deficiency)

minimum manual dilution valve with silencer, vacuum relief as specified, level switch high-high, and manual drain valve.	
3. VCV: Vapor Control Valve Provided by Falmouth Industries with CATOX-1.	☒ Yes ☐ No (Describe Deficiency)
4. F-1: Inlet Filter Solberg Part No. CSL-335P-400 or approved equivalent.	☒ Yes ☐ No (Describe Deficiency)
5. B-1: SVE Blower Design flow rate at blower inlet: 400 ACFM @ -150 inches of water column vacuum. Sutorbilt Legend 5MP, design speed 2,600 RPM, to be powered with a 3-phase, 240-volt motor and variable frequency drive. Sound enclosure shall incorporate a thermostatically controlled cooling fan.	☒ Yes ☐ No (Describe Deficiency)
6. CATOX-1: Catalytic Oxidizer Falco 300 Oxidizer provided by Falmouth Industries and wired for 3-phase, 240-volt power.	☒ Yes ☐ No (Describe Deficiency)
7. PLC-1: Controls and Process Logic Controller Direct Logic Model No. 205PLC Refer to Construction Drawing M-104 for logic programming.	☒ Yes ☐ No (Describe Deficiency)
8. AD-1: Autodialer (Telemetry) Sensaphone Model No. 400	☒ Yes ☐ No (Describe Deficiency)
Comments:	

APPENDIX F
PROPERTY PHOTOGRAPHS



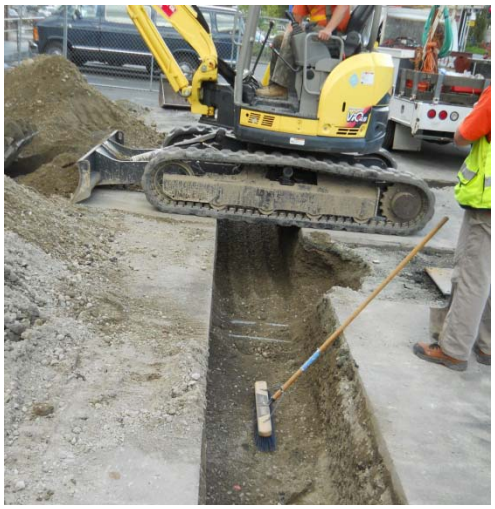
Photograph 1. Pre-construction south side of parking lot.

Photograph 2. Pre-construction north side of parking lot.

Photograph 3. MW08 and RW08 saw cut.

Photograph 4. Site controls on north side of parking lot.

Photograph 5. Trenching near MW08 and RW08.



Photograph 6. Piping encountered from the previous system.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

Photograph 7. Showing vault drain line from RW01 to RW03.

Photograph 8. MW08 and RW08 vaults and drain line.

Photograph 9. Air delivery lines and electrical conduit in main trench at RW04 branch.

Photograph 10. SVE and water lines in main trench at RW04 branch (view looking north).

Photograph 11. Placement and compaction of back fill with warning tape exposed.

Photograph 12. MW08 and RW08 asphalt restoration.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

Photograph 13. South side of lot open trench with vaults placed.

Photograph 14. Drain line penetration into storm drain.

Photograph 15. Air delivery lines and electrical signal lines in south side of the parking lot (view looking north).

Photograph 16. Water and SVE lines in main trench.

Photograph 17. Utilities encountered at compound location.

Photograph 18. Sewer connection.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

Photograph 19. Electrical feed.

Photograph 20. SVE, water, and electrical feed.

Photograph 21. Sewer tie in location, backfill, and warning tape.

Photograph 22. Asphalt restoration for southern half of parking lot.

Photograph 23. Piping layout under remediation system concrete pad.

Photograph 24. Remediation system compound pad.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

Photograph 25. Placement of the connex box.

Photograph 26. Connections from sub grade to above ground piping for SVE.

Photograph 27. Connections from sub grade to above ground piping for air, water, and sewer.

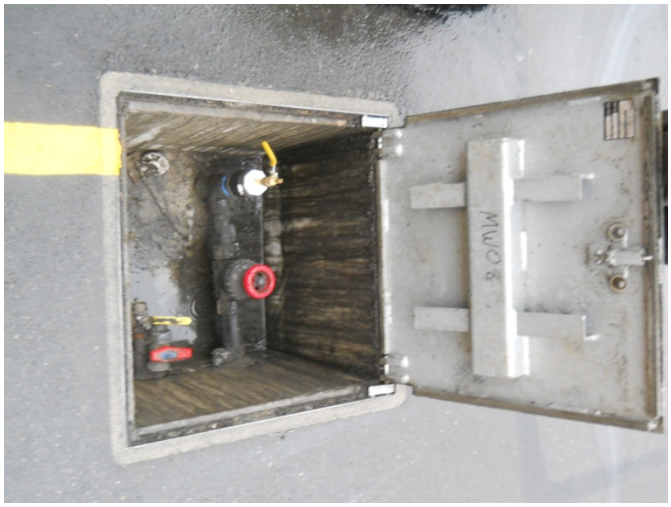
Photograph 28. Completed wellhead for OW02.

Photograph 29. Completed wellhead for RW09.

Photograph 30. Completed wellhead for RW11.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

Photograph 31. Completed wellhead for RW08.



Photograph 32. Completed wellhead for MW08.

Photograph 33. Completed wellhead for RW04.

Photograph 34. Completed wellhead for RW02.

Photograph 35. Completed wellhead for RW03.

Photograph 36. Completed wellhead for RW10.

SoundEarth Strategies	Project No.: 0440-002 Date: 5/1/13 Drawn By: EAM Chk By: TGO/SES File ID: 01-169_AsbuiltPhotolog	**PROJECT PHOTOGRAPHS** TOC Holdings Co. Facility No. 01-169 851 North Broadway Everett, Washington

APPENDIX G

PRESSURE TEST FORMS

Appendix G
Pressure Test Results
TOC Holdings Co. Facility No. 01-169
851 North Broadway
Everett, Washington

Date	Line ID	Segment Tested	Pipe Material (Galv. or PVC)	Test Type (Pressure or Vacuum)	Test Media (Air or Water)	Test Pressure (psi)	Test Start Time	Test Termination Time	Duration of Test (minutes)	Test Results (Pass or Fail)	Comments
04/30/11	AS	MW08, RW08, RW11 from vault penetration to main trench line at RW10 junction	Galvanized	Pressure	Air	100	10:07	10:17	10	Pass	98 PSI at end of test
04/30/11	AS	RW10, RW04, RW03, RW02 from vault penetration to main trench line at RW10 junction	Galvanized	Pressure	Air	100	10:49	10:59	10	Pass	99 PSI at end of test
10/04/11	SVE	MW08, RW08, RW11 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	30	8:44	8:54	10	Pass	30 PSI at end of test
10/04/11	SVE	RW04, RW03, RW02 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	41	9:33	9:43	10	Pass	41 PSI at end of test
10/04/11	Water Line	MW08, RW08, RW11 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	40	10:21	10:26	5	Fail	38 PSI at end of test, stopped test early
10/04/11	Water Line	MW08, RW08, RW11 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	40	10:35	10:45	10	Pass	40 PSI at end of test
10/04/11	Water Line	RW03, RW04 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	40	10:56	11:06	10	Pass	40 PSI at end of test
10/04/11	Water Line	RW10 from vault penetration to main trench line at RW10 junction	PVC	Pressure	Water	40	11:18	11:28	10	Pass	40 PSI at end of test
10/12/11	AS	RW10, RW04, RW09, OW02 vaults to compound location	Galvanized	Pressure	Air	100	11:53	12:03	10	Pass	99 PSI at end of test
10/12/11	AS	RW08, MW08, RW02, RW03 MW08 vaults to compound location	Galvanized	Pressure	Air	100	13:00	13:10	10	Pass	100 PSI at end of test
10/13/11	SVE	RW08, MW08, RW02, RW03 MW08 vaults to compound location	PVC	Pressure	Water	40	15:31	15:41	10	Pass	40 PSI at end of test
10/13/11	Water Line	RW08, MW08, RW02, RW03 MW08 vaults to compound location	PVC	Pressure	Water	40	16:11	16:21	10	Pass	40 PSI at end of test
10/14/11	SVE	RW10, RW04, RW09, OW02 vaults to compound location	PVC	Pressure	Water	40	7:54	8:04	10	Pass	40 PSI at end of test
10/14/11	Water Line	RW10, RW04, RW09, OW02 vaults to compound location	PVC	Pressure	Water	40	8:56	9:06	10	Pass	40 PSI at end of test

NOTES:

-- = no data available

AS = air supply

Galv. = galvanized

psi = pounds per square inch

PVC = polyvinyl chloride

SVE = soil vapor extraction

APPENDIX H
PSCAA CALCULATIONS AND EVALUATION

SoundEarth Strategies

Appendix H
Annual Emission Estimate Summary
TOC Holdings Co. Facility No. 01-169
851 North Broadway
Everett, Washington

Compound	Air Stripping		SVE			Total	
	Effluent Concentration[1] (mg/m^3)	Annual Emission Rate[2] (lb/year)	Initial Effluent Concentration[3] (mg/m^3)	Concentration Decay Constant[4] ($year^{-1}$)	Annual Emission Rate[5] (lb/year)	Annual Emission Rate (lb/year)	PSCAA Permit Thresholds[6] (lb/year)
GRPH	75	344	1,841	-4.0	46	389	
Benzene	0.5	2.3	12	-5.7	0.04	2	15
Toluene	3.6	16.4	40	-0.9	106	122	
Ethylbenzene	0.7	3.0	7	-1.7	4.1	7	
Total Xylenes	30	136	37	-1.1	63	199	
Total Toxic Air Contaminants						720	1,000

NOTES:

[1]Concentrations from QED air stripping model using average groundwater concentrations from the last year, water flow rate of 5 gpm and air flow rate of 140 scfm.

[2]Annual Emission rate (lb/year) = effluent concentration (mg/m^3) x flow rate (scfm) x conversion (0.0328 lb-m^3-min/mg-ft^3-year).

[3]Initial effluent concentrations are the average of samples collected from MW08, RW06 and RW03 during SVE pilot test.

[4]Concentration decay constant calculated using data from the first year of previous system operation; decay constant, k ($year^{-1}$) = natural log (C_t/C_o)/t.

[5]Annual emissions rate (lb) =[(initial concentration/decay rate) x exponential(decay rate x 1 year)](mg-year/m^3) x flow rate (ft^3/min) x conversion (0.0328 lb-m^3-min/mg-ft^3-year).

[6]PSCAA Regulation 1 Section 6.03c.94.

Co = Initial Concentration

Ct = Concentration at time t

ft^3 = cubic feet

gpm = gallons per minute

GRPH = gasoline-range petroleum hydrocarbons

lb = pound

lb/year = pounds per year

m^3 = cubic meters

mg = milligrams

mg/m^3 = milligrams per cubic meter

min - minute

PSCAA = Puget Sound Clean Air Agency

scfm = standard cubic feet per minute

SVE = soil vapor extraction

t = time (1 year)

APPENDIX I

CITY OF EVERETT INDUSTRIAL PRETREATMENT DISCHARGE PERMIT

January 14, 2014

Sound Environmental Strategies
2811 Fairview Ave East, Suite 2000
Seattle, Washington 98102

Subject: **Discharge Authorization #214-14**
851 North Broadway
Valid from January 14, 2014 to January 13, 2019

Dear Mr. Oester:

Sound Environmental Strategies, on behalf of TOC Holdings is authorized to discharge Groundwater Remediation wastewater to the sanitary sewer system. This authorization is based on the information you provided in your request for renewal. The fee for this authorization is $1000, for which you will be invoiced.

This Discharge Authorization is contingent on the following conditions:

1) You must comply with the general use and discharge requirements of the Industrial Pretreatment Ordinance #3070-08 as amended (attached), as well as any applicable Federal and State regulations.

2) City of Everett personnel may take samples of the effluent for analysis and may inspect your site to verify compliance.

3) Flow rate of discharge will not cause the sewer to back up. A log shall be kept with daily discharge volumes noted.

4) The wastewater shall be discharged at the facility located at 851 North Broadway, Everett, WA.

5) The wastewater shall be sampled once per calendar quarter for Pb, total Oil and Grease, Flashpoint and BTEX.

6) A quarterly report shall be sent with the total volume of water discharged to:

Gene Bennett
Industrial Waste Inspector
City of Everett
3200 Cedar Street
Everett, WA 98201

At that time you may be billed for the industrial surcharge of $0.19 per thousand gallons of flow.

Please contact Gene Bennett at 425/257-8249 if you have any questions.

Sincerely,

Jeff Kerwin
Pretreatment Program Manager

Attachment: General Permit Provisions
Pretreatment Ordinance

c: Doug Knutson DOE
Chron File (1)
IPT File (1)
OTL Chron (1)

UTILITIES PERMIT

CITY OF EVERETT PERMIT SERVICES

3200 CEDAR STREET
EVERETT, WA 98201
(425) 257-8810

PERMIT NUMBER U1110-004	DATE:
JOB ADDRESS 851 N BROADWAY	LEGAL DESCR:
DESCRIPTION SEWER ALT FOR SOIL & GROUNDWATER REMEDIATION	APN: 29051700200700
OWNER TOC HOLDINGS CO 2737 W COMMODORE WAY SEATTLE WA 98199 PHONE 2062852400	TENANT CONTRACTOR OWNER PHONE

WATER SERVICE

SERVICE SIZE	SERVICE TYPE	FRONTAGE	NO. OF UNITS	SERVICE ORDER NO.	APPLICATION NO.

REMARKS:

NOTE: A water backflow prevention and/or consultation is required regarding cross connection control for irrigation services and services 1" or larger. Call Tim Markham at (425) 257-8833.

PLEASE CALL (425) 257-8862 TWO TO THREE WEEKS PRIOR TO WANTING WATER SERVICE INSTALLED

SEWER SERVICE

SEWER PERMIT NO.	PERMIT TYPE ALTERATION	LID NO.

REMARKS:

1. Connect side sewer per City Standard #'s 601, 602, 604
2. Ground water remediation wastewater to the sanitary sewer per discharge authorization #214-08 (Notes/approval per BS)

INSPECTED BY: Randy Allen DATE: 10-19-11

Notify the Public Works Inspector (425) 257-8810 24 hours in advance to schedule an inspection.

It is the applicant's responsibility to insure adequate protection against sewer backflow if the structure is located in the combined sanitary/storm sewer system.

FEES

Sewer Utility Fee	30.00
TOTAL FEES	**$30.00**

Permits expire if work is not commenced within 180 days or ceases for more than 180 days.

PERMIT NUMBER U1110-004

Applicant Copy