Report

Engineering Report
General Semiconductor, Inc.
Sherburne, NY Remediation
NYSDEC Site #709010

February 1999

ENGINEERING REPORT

GENERAL SEMICONDUCTOR, INC.

SHERBURNE, NEW YORK REMEDIATION

NYSDEC SITE #709010

Prepared for

GENERAL SEMICONDUCTOR, INC.

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February 1999

Project No. 41587ZA

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CHAPTER 1

INTRODUCTION

1.1 ORGANIZATION AND PURPOSE

This purpose of this report is to document the remedial construction activities that have taken place at the former General Semiconductor, Inc. (GSI) site in Sherburne, NY. Since the Record of Decision (ROD) was signed for the site, three major construction projects have taken place at the site, resulting in the implementation of four separate systems for remediation of soil and groundwater impacted by contamination subsequent to previous industrial activities that took place at the site. The report has been prepared to document that the construction activities were conducted in accordance with New York State Department of Environmental Conservation (NYSDEC)-approved construction plans and specifications, and, if necessary, what changes occurred during construction and why the changes were approved. This report is prepared to comply with Section XII of the Order on Consent between the NYSDEC and General Instrument Corporation (now GSI).

1.2 SITE LOCATION

The General Instrument site is located in the Village of Sherburne, Chenango County, NY, approximately 28 miles south of Utica (see Figure 1-1). The former manufacturing operations took place on a 5.5-acre property located just west of Route 12, bounded on the north, east, and south by residential and commercial properties, and on the west by railroad tracks (see Figure 1-2). West of the railroad tracks is property owned by the Howards and used for agricultural purposes (called the West Field). Contaminants at the site were found in the soil adjacent to the west side of the former plating building, located in the northwest corner of the site. A plume of contaminated groundwater extends from the identified area of impacted soil into the West Field.

1.3 SITE HISTORY

Manufacturing at this site began in 1947 and continued until 1983. Three separate concerns operated the site during this time: (1) Technical Appliance Corporation of America, or TACO (1947-1962); (2) Jerrold Electronic Corporation (1962-1968); and (3) General Instrument Corporation (1968-

1983). Antennas were manufactured at the plant from 1947 to 1968. After GIC purchased the plant in 1968, antennas and other electronic components were designed and manufactured at the site. Chemical processes associated with these plant operations included painting, degreasing, plating, and etching. GIC sold the property to Kenyon Press in 1989. Under the sale agreement, GIC assumed all responsibility for the inactive hazardous waste site characterization and remediation. In 1997, General Semiconductor, Inc. assumed GIC's responsibilities for the site as part of the agreement under which GIC split into three separate companies.

Following a RCRA closure of the facility which indicated the presence of hazardous waste in soil and groundwater at the site, the site was listed as a Class 2 site on the New York State Registry of Inactive Hazardous Waste Sites. GIC and NYSDEC signed a consent order in 1989 that required GIC to conduct a remedial investigation/feasibility study (RI/FS) and implement remedial design and remedial actions at the site. The RI/FS was completed in September 1994, and the NYSDEC signed the ROD in 1995. The ROD documents the reasoning behind the Department's selection of an appropriate remedy for the site contamination. Construction of three remedial systems took place at the site between 1995 and 1998.

1.4 SITE REMEDIAL ACTIONS

As discussed in the ROD for the site, the chosen remedial actions included the use of soil vapor extraction for remediation of unsaturated soils located adjacent to the former plating building, and an on-site groundwater recovery and treatment system for recovery of free phase petroleum product (fuel oil) and treatment of VOCs contained in the groundwater removed during free product recovery. Off-site remedial actions selected included landfarming for remediation of petroleum-impacted soil in the West Field, and installation of an in situ permeable wall of granular iron for treatment of the chlorinated solvent plume migrating west from the site toward the Chenango River.

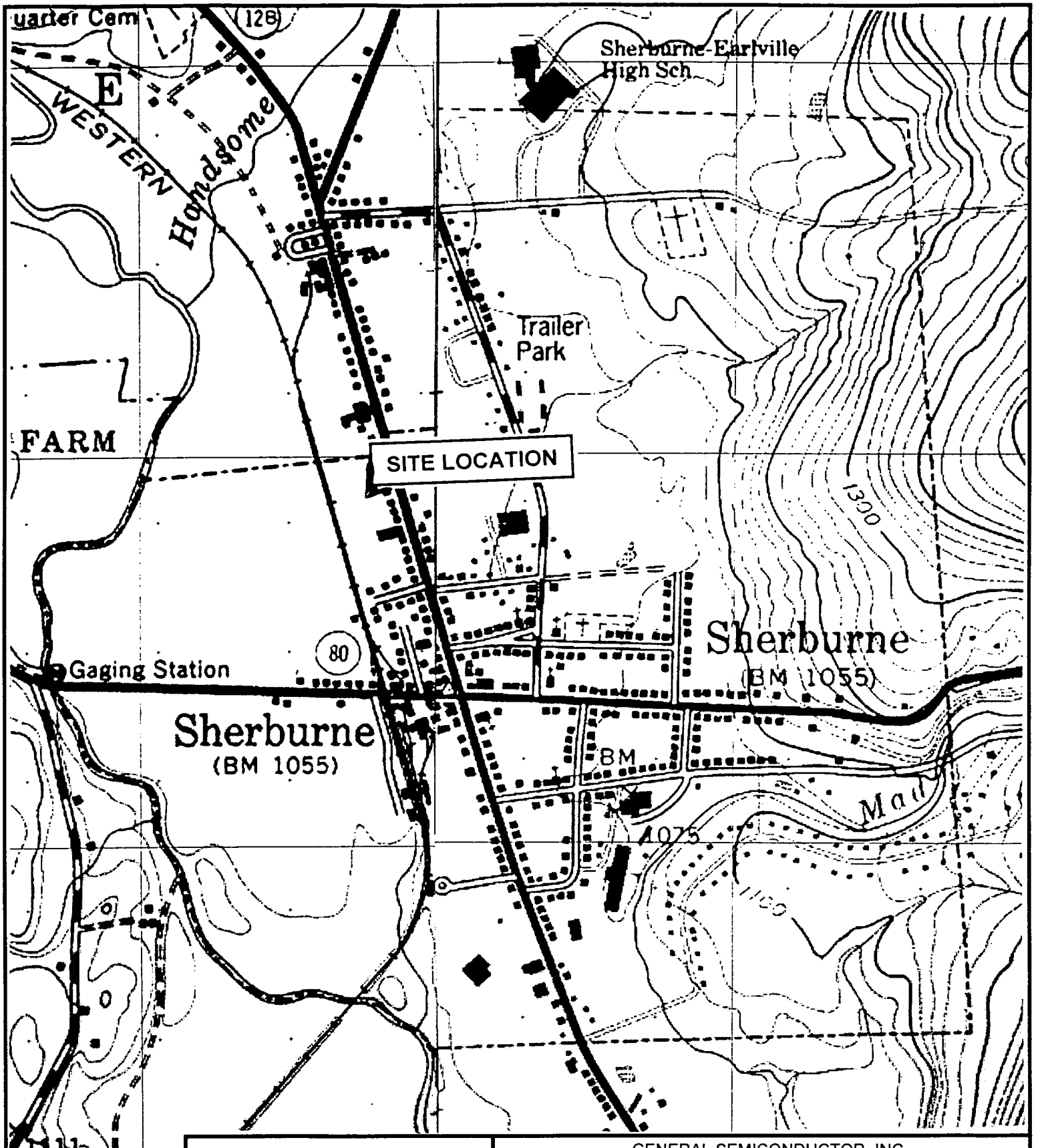

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FIGURE 1-1
SITE LOCATION

HOWARD FARM (WEST FIELD)

WILCOX PROPERTY

SOUTH FIELD

MAIN BUILDING

PLATING BUILDING

BARN

GREEN HOUSE

SPINELLA PROPERTY

KELLY PROPERTY

TACO STREET

N.Y.S. ROUTE 12

0 100' 200'

SCALE

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FIGURE 1-2
SITE MAP

CHAPTER 2

INSTALLATION OF PETROLEUM PRODUCT INTERCEPTION/COLLECTION SYSTEM

2.1 INTRODUCTION

During the summer of 1995, free-phase petroleum product that had previously been confined to the area in the vicinity of the northwest corner of the main building on the Kenyon Press property mobilized and was detected in piezometers located upgradient of the pilot-scale, in situ treatment system. Because of concern that the free-phase petroleum could interfere with the performance of the treatment system, a plan for installation of a horizontal, passive, petroleum interceptor was proposed. The proposed interceptor system would be installed in a location hydraulically upgradient of the piezometers. The proposal was submitted to NYSDEC on August 4, 1995. Following a conference call in which the proposal was discussed with NYSDEC, the concept was approved by NYSDEC on August 5. The following sections describe the design and installation of the petroleum product interception/collection system. Appendix A contains copies of the proposal and the letter containing the response from NYSDEC.

2.2 INTERCEPTION/COLLECTION SYSTEM DESIGN

The proposed interceptor system was designed to be composed of two slotted, 18-inch diameter sections of corrugated polyethylene culvert pipe, as illustrated in Figure 2-1. Because the water table was expected to fluctuate over a range of elevations at the site, the culvert pipe sections would be placed at two different elevations (illustrated in Figure 2-2), thereby allowing interception of floating free-product over a 3-foot fluctuation in water table elevations. The system would be configured with two piezometers to allow monitoring of groundwater elevations in the interceptor pipe sections. Recovery of the product would then be accomplished with a sorbent boom placed in the length of pipe that is intercepting the water table on a given day.

2.3 INSTALLATION

Installation of the interception/collection system began on August 9, 1995. Prior to commencement of any work at the site, depth-to-water measurements were taken in the eight pilot test upgradient piezometers and monitoring well MW-17 so that the depth of groundwater could be estimated. The groundwater elevation ranged from 7.98 to 9.51 feet below the measuring points. Based on these measurements, it was decided that the deeper of the two pipe sections would need to be placed at a depth greater than 7 feet below grade in order to intercept the groundwater surface.

A backhoe was used to excavate a wide trench with sloping sides. Then a trench box was used to allow excavation below the elevation of the water table and placement of the piping without the sides of the trench collapsing. Excavated soils were segregated into separate clean and impacted piles. The petroleum-impacted soils were staged on, and covered with, poly sheeting for eventual placement in the landfarm cell.

Instead of slotted, corrugated polyethylene culvert piping, slotted, smooth polyethylene piping was delivered to the site. As a result, 18-inch, 45° connectors were required for each length of horizontal piping for the ends to be brought to grade. Prior to placement of each length of piping, a rope was placed inside of the piping to allow placement of sorbent booms in the length of the piping once the installation was complete. The first length of piping was placed with the top of the piping on the end of the interceptor closest to the railroad tracks at an elevation of approximately 76.5 inches below grade. The top of the pipe in the center of the interceptor was placed at approximately at 80.5 inches below grade, and the top of the pipe at the elbow located at the other end of the interceptor was placed at approximately 70.5 inches below grade.

The shallower pipe was placed with the top of the pipe at each end of the trench at an elevation approximately 59 inches below the ground surface. In the middle of the shallower interceptor, the top of the pipe was placed at approximately 62 inches below the ground surface. The total length of horizontal piping was measured at 80 feet. One piezometer was installed for monitoring the water table elevation over time. The piezometer was configured from a section of the same 18-inch diameter polyethylene piping.

Once the interceptor pipes and piezometer were placed, the excavation was backfilled with clean gravel to a depth corresponding to the interface between the subsurface sand and gravel layer and

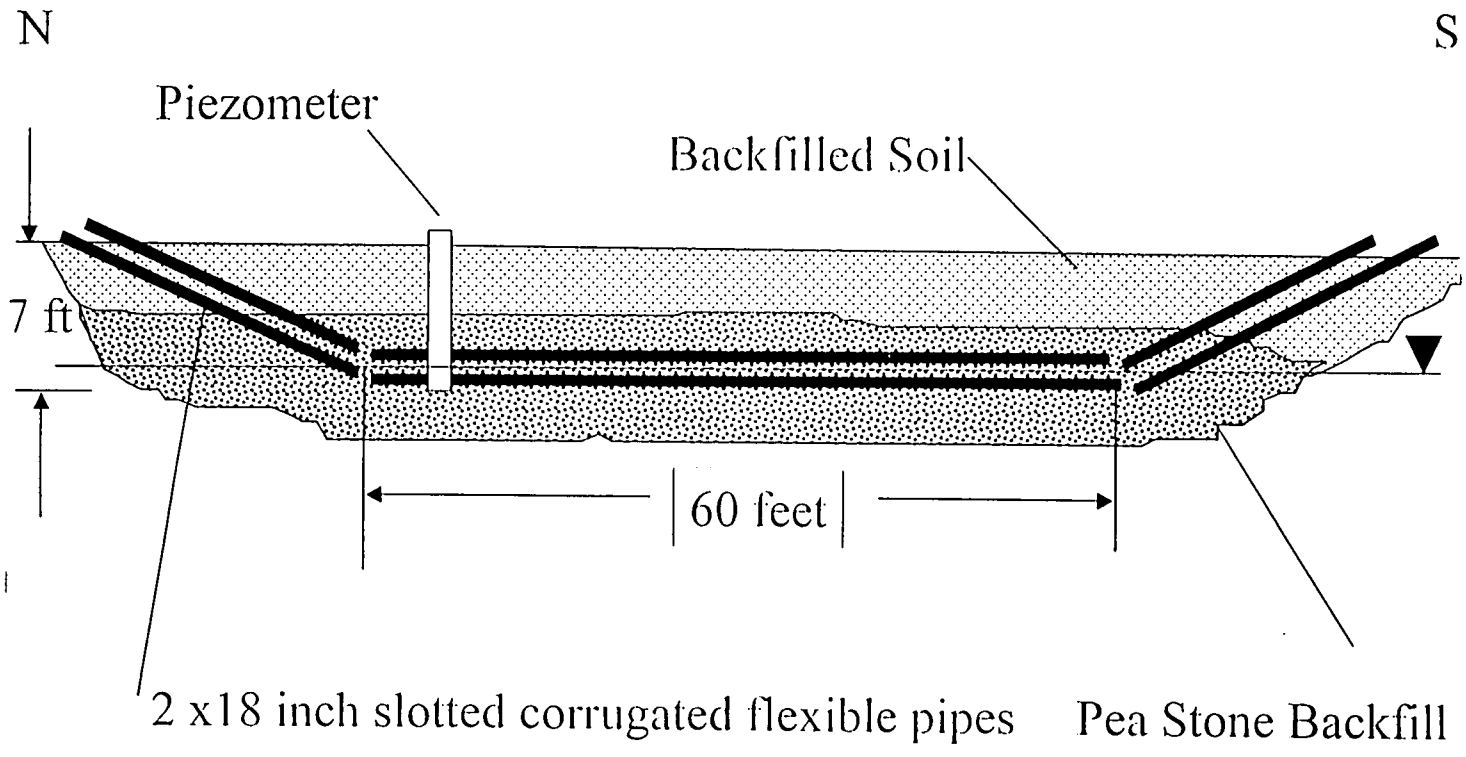
the overlying silty topsoil. The remaining portion of the trench was backfilled with the stockpiled clean topsoil. The ends of the interception piping and the top of the piezometer were all secured with caps.

A sorbent boom was placed in the upper interceptor on August 11. Because the water table was below the elevation of the upper interceptor, a sorbent boom needed to be installed in the lower interceptor as well. The rope was not able to pull the sorbent boom through the lower length of the interceptor, so a plumber's snake was obtained and used to feed the boom into the lower interceptor pipe. The boom was in place and the system began collecting free-phase product on August 15.

2.4 CHANGES FROM APPROVED DESIGN

There were two changes from the original proposal. Instead of corrugated piping, smooth piping was delivered to the site. Because corrugated piping is flexible, the original plan called for flexing the piping in the trench to form gradual elbows on the ends of each length of placed horizontal piping. However, the smooth piping delivered to the site was also very rigid. Therefore, 45° connectors were used to form the elbows.

The second change was in the depth at which the two interceptor pipes were placed. Because groundwater elevations measured in each of the piezometer/monitoring wells located near the interception trench on the day of the installation indicated the groundwater was deeper than 7 feet below grade, the collection trench was placed deeper than planned.



Pipes appear to be vertically separated for clarity. They will be laid to overlap slightly as shown in transverse cross-section.

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FIGURE 2-1
SECTION VIEW INTERCEPTION TRENCH

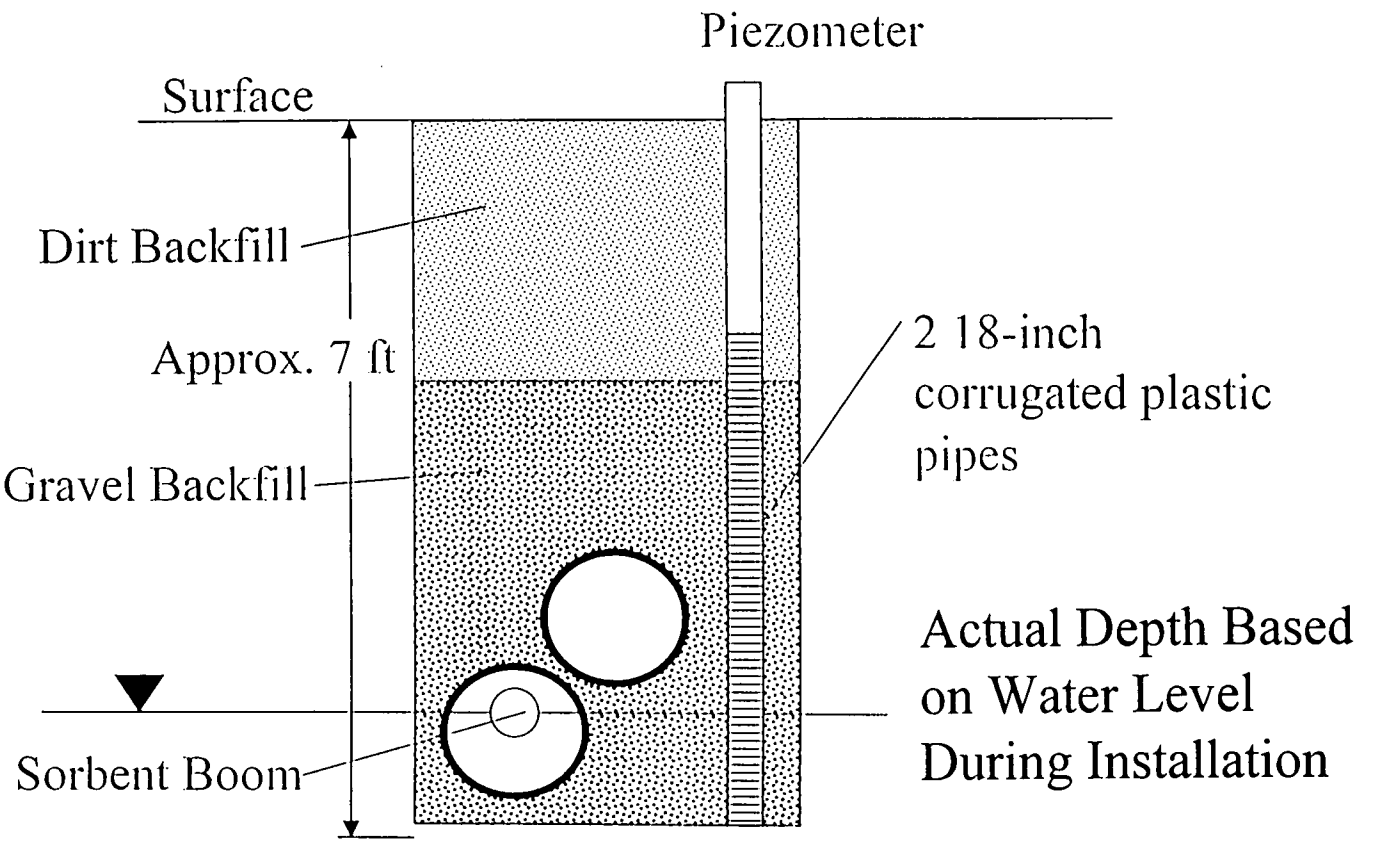

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FIGURE 2-2
INTERCEPTION TRENCH X-SECTION

CHAPTER 3

CONSTRUCTION OF ON-SITE REMEDIAL SYSTEMS (SOIL VAPOR EXTRACTION AND "PUMP-AND-TREAT" SYSTEMS)

3.1 PRECONSTRUCTION ACTIVITIES

Following receipt of NYSDEC approval of construction plans and specifications, invitations to bid, including the contract documents, were sent to a list of preselected qualified bidders. A mandatory pre-bid meeting took place on August 14, 1995 at the project site. At that time the project was explained to the contractors and instructions were provided about the bidding forms. Bids were received on August 28, 1995, and the project was awarded following review of bids, including contract issues.

The preconstruction meeting took place on October 16, 1995 at the project site. In attendance were representatives from Stearns & Wheler, LLC; S&W Services; GIC; the site owner (Ray Kenyon); the contractor (Longwood Environmental); NYSDEC; and the local electric power utility. At the meeting the following details were discussed:

1. Submission of list of subcontractors, list of products, Schedule of Values, and project schedule with estimated start date of October 23, 1995.

2. Designation of personnel representing the parties in the contract, the NYSDEC, and the Engineer.

3. Procedures and processing of field decisions, submittals, substitutions, applications for payment, proposal requests, change orders, and contract closeout procedures.

4. Scheduling, including scheduling activities of testing laboratory and utility.

5. Requirements of the regulatory agency.

3.2 CONSTRUCTION ACTIVITIES

Construction activities began during the week of October 23, 1995. The initial activities included removal of the existing west wall inside the former plating building, removal of the fencing that surrounded the existing shed, and removal of the aboveground storage tank (AST) supports in the concrete containment dike for the former fuel oil AST. The cement debris from the concrete tank saddles was pulled out using a backhoe and transported for off-site disposal on November 6, 1995.

A. **Monitoring Well Decommissioning**. Monitoring wells were installed at the site as part of the RI/FS process. Long-term monitoring using all wells was not required. Therefore, a plan for decommissioning unnecessary monitoring wells was proposed and approved by NYSDEC. Figure 2-1 shows a site plan with the locations of wells that were decommissioned.

On October 26, the drilling contractor mobilized to the site. Decommissioning began on the west side of the railroad tracks on the Howard property. The decommissioning procedure began with punching out the bottom of the monitoring well being decommissioned. Grout, consisting of a slurry of Portland cement/bentonite, was pumped down into the well using a 1-inch tremie pipe placed near the bottom of the well. When the slurry mix rose to the surface, the well riser was pulled out. Any observable hole remaining after the well was pulled was filled with the grout. The surface was then covered to match surrounding conditions. Well decommissioning was completed on October 27 on the Kenyon property. Monitoring wells that were decommissioned using this procedure included MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-9, MW-10, MW-12, MW-13, MW-15, and MW-16. Waste materials resulting from decommissioning were disposed off site as non-hazardous materials.

B. **Installation of Vacuum Monitoring Points**. On October 27, six exterior vacuum monitoring points (VM-1 through VM-6) were installed at a depth of 4 feet. The monitoring points were finished with flush-mounted well covers. All were installed in the locations shown on the construction plans except for VM-2. During the installation of VM-2, groundwater was encountered at a depth of 1.5 feet below the ground surface. The cause of the unexpected water appeared to be an anomaly of a low permeability layer that resulted in water being perched at the shallow depth. As a result, the equipment was moved 10 feet east toward the building and another attempt was made at installing VM-2. This time the monitoring point was installed at the 4-foot depth, as shown in the detail on the plans.

The interior vacuum monitoring points (VM-7, 8, and 9) were installed between October 30 and November 2, 1995. To install the interior monitoring points, the concrete slab floor was core drilled. Once the core drilling was completed, a hand auger was used to drill through the underlying material to a depth of 5 feet. Groundwater was present at a depth of 3 feet 6 inches below the slab surface in VM-7, so the monitoring point was placed at the groundwater surface. Plans were modified so that only 12 inches of pea stone were placed around the point, and then bentonite from 1 foot to 2 feet 6 inches below the surface of the slab. Groundwater was not encountered during the installation of VM-8 and VM-9. These monitoring points were placed at an elevation 4 feet below the slab surface, as shown on the construction plans.

Finally one additional exterior vacuum monitoring point (VM-10) was installed near RW-1 on November 2, following completion of installation of the 6-inch recovery well. The additional monitoring point was installed near the original planned location of VM-2. The reason for the additional monitoring point was that the Engineer decided that VM-2 would not likely be able to monitor the effectiveness of vapor extraction well SVE-3, as VM-2 had been moved too far from the location shown on the construction plans. Groundwater was again encountered at approximately 1.5 feet below grade. The monitoring point was installed as designed (in the water); however, a drainage hole was drilled in the bottom to facilitate water draining when the pump-and-treat system started.

C. **Installation of Recovery Well and Observation Piezometer**. On October 30, the drilling contractor installed a 2-inch diameter stainless steel piezometer to a depth of 18 feet adjacent to Well MW-18. The well is constructed with a 15-foot stainless steel well screen with a 0.02-inch slot size. The well was completed with a flush-mounted cover.

The 6-inch groundwater recovery well was installed on November 2, 1995. It was constructed with a 10-foot stainless steel well screen (0.020-inch slot size) and a 2-foot sump below the well screen as indicated on the approved plans. The sump was made of a 2 foot length of 6-inch diameter stainless steel well riser with a plug at the bottom. Following the completion of the well, the drilling contractor began developing the new recovery well, the new observation piezometer, and the existing monitoring well MW-18. Well development consisted of alternately mechanically surging (using a surge block) and then pumping from the well. Surging and pumping continued until the water being pumped out was visibly clear. Development of the wells was completed on November 3. Approximately 150 gallons of silt, petroleum product, and water were recovered during development of MW-18. During development, it was observed that the water cleaned up quicker for RW-1, with only four surge cycles being required.

On December 7, Imhoff cone tests were performed on RW-1 and MW-18 to verify the wells had been developed sufficiently. To perform the testing, each well was purged at a rate of approximately 7 gpm. During the testing, 440 gallons of water were extracted from RW-1, and 350 gallons were extracted from MW-18. Testing undertaken during the purging indicated acceptable sand content had been achieved.

The piezometer was also developed during the same time period. Development consisted of first surging the well using a mechanical surge block, followed by purging with a bailer. Then a pump was used to remove water (approximately 300 gallons) from the piezometer. Testing was not undertaken to verify acceptable development. Field notes indicated that the purge water recovered from PZ-1 was not completely clear.

D. **Trench Installation for SVE Wells and Groundwater Piping**. On November 3, the areas for the trenches were clearly marked on the site by the contractor in anticipation of beginning excavation of the trench. Trenching began on November 6 for the groundwater recovery piping, free product recovery piping, and electrical conduits. All excavated soil was placed adjacent to the trench and covered with plastic sheeting. PID readings were taken by the contractor for the purposes of health and safety monitoring. PID readings greater than 5 ppm were recorded in the breathing zone in the trenches, so air purifying respirators were used by the workers located in the trenches and immediately adjacent to the trenches. PID readings were at background outside of the trenches, so workers located farther from the trench were not required to use respirators.

The electrical conduit used in the trenches consisted of prethreaded, 1-inch, rigid galvanized steel conduit.

A 12-inch thick concrete slab was encountered near MW-18. The contractor used a jackhammer to break up the slab and remove it in order to be able to install piping sloped back to the well, as required by the plans. The location of the water line entry to the equipment building was moved north approximately 19 inches due to a concrete footer that was encountered outside the loading dock door. It was decided to move the pipe chase accordingly. Once excavation of the trench was completed, 2 to 3 inches of sand was placed in the bottom of the trench to serve as bedding for the piping. Piping was placed inside the trench and slightly bent to make the 90° turn into the building without the use of fittings. Once piping was placed in the trench, it was first tested for leaks and then covered with 2 to 3 inches of sand. Native soil was used to backfill the trenches to grade above the sand.

Excavation of the SVE trenches began on November 7. The trenches were excavated to a depth of 3 feet, as indicated on the plans. During excavation of these trenches, PID readings did not indicate VOCs in the breathing zone, so respirators were not required. The SVE piping (4-inch diameter, Schedule 80 PVC) was placed in the bottom of the excavation and covered with pea stone to a minimum depth of 9 inches. A geocushion layer was placed on top of the pea stone. At places where the SVE trench crossed the groundwater recovery trench, a bentonite seal was installed to prevent short-circuiting of the SVE system. Native soil was placed above the geocushion layer and compacted to a final depth of 6 inches below grade. A 4-foot wide, 6-inch deep trench was then excavated with centerline placed over the vacuum extraction well. This allowed placement of a 4-foot wide length of 60 mil HDPE membrane on top of the compacted native soil to prevent excessive storm recharge into the SVE trenches. Geofabric was placed on top of the 60 mil HDPE membrane and the trench was backfilled to grade with bank run gravel (approximately 6 inches).

The contractor also installed a 4-inch, slotted, Schedule 80 PVC, vapor extraction well in the bottom of the AST containment area. Wooden 2x4s were installed around the top of the AST secondary containment structure in preparation for securing the cover that would be placed over the soil filled in the dike for aboveground SVE treatment. When backfill of the trenches was completed, remaining native soil was placed in the aboveground containment area. As not all of the soil from the trenches fit into the diked aboveground area, there was a small soil pile remaining adjacent to the fence at the end of the installation of the vapor extraction wells.

E. **Additional Construction Activities.** Work on the building began at the same time as the outdoor activities. The southern wall of the General Instrument room located in the former plating building was demolished during the first week of construction activities. Construction of a new interior wall for an enlarged equipment room was begun October 30. During the same week, a temporary power source was installed and a new man-door was installed for access to the equipment room. The remainder of the original window area was closed out with pressure-treated lumber.

Between November 13 and December 1, the pipe chase was constructed around the groundwater recovery lines. Stairs and a landing were constructed for access to the building through the new man-door. The small existing storage shed was moved to its final location, adjacent to the new stairs. Access manways were installed around wells RW-1 and MW-18. Finally, the local electric power utility installed transformers and 3-phase electric service to the contractor-installed weatherhead.

Between December 18 and February 22, the only work completed at the site was installation of the electrical work. During February, an electrical inspection was performed at the site. Between March 12 and 22, the interior framed partition wall in the equipment room (ER 102) was installed and electrical conduit was installed.

The pump and treat system equipment was delivered to the site on March 29, 1996 (air stripper skid, four bag filters, equalization tank, transfer pump, one liquid phase carbon adsorber, two vapor phase carbon adsorbers, flow meters and pressure gauges, fittings, and air inlet filter for air stripper blower). On April 1, the contractor installed the groundwater pumps and the treatment system. Installation of piping, interior electrical hookup, and mounting of control panel continued between April 1 and 5. By April 5, 90 percent of the interior electrical hookup had been completed. By April 19, all piping and electrical work was completed for the pump-and-treat system. The heater had been installed in the pipe chase and construction of the SVE manifold was completed. Inlet water lines were completed to the interior of the building.

On April 23, the SVE skid was delivered to the site. The remaining liquid phase carbon adsorber for the pump-and-treat system and the vapor phase carbon adsorbers for the SVE system were delivered to the site on April 24. Rain caps (PVC "T" fittings) were installed on the SVE system stack and the air stripper stack. Installation of both systems was completed by May 16.

3.3 EQUIPMENT TESTING

A. **Underground Water Lines**. The underground lines from the groundwater recovery wells were tested on November 7, 1995 prior to backfill of the trenches. The testing consisted of using a compressor to charge the lines between the pitless adapters at the recovery wells and the pipe chase location at the building with 90 psi (approximate) air. The pressure was maintained for one hour. During the hour, test air pressure was monitored with a pressure gauge. No pressure loss was indicated during the test, so the lines were buried.

B. **Pump-and-Treat System Piping**. On May 16, 1996, the pump-and-treat system was pressure tested using transfer pump TP-1. The test was performed by filling the piping and carbon units with clean water, capping the 1-1/2-inch drain line where it meets the 4-inch drain, and pressurizing the closed system to approximately 40 psi. Similar to the underground pipe testing procedure, the pressure was monitored for one hour. Some piping leaks were noted in the piping at the plastic-to-

metal connections. The piping connections were fixed and the pump-and-treat system was retested on May 20. No leaks were noted.

C. **SVE System Piping and Air Stripper Air Discharge Lines.** Testing of the air lines included spraying each joint and fitting with a soap and water solution, followed by operation of the blowers with ambient (clean) air. During the test, the joints and fittings were observed for the appearance of bubbles appearing, indicating the presence of leaks. The SVE system was tested on May 20, 1996, and no leaks were noted.

3.4 FINAL INSPECTIONS

In accordance with the plans and specifications, the electrical installation was inspected by a representative of the New York Board of Fire Underwriters, who found the electrical installation to be in compliance with the National Electrical Code. The inspection certificate is included in Appendix B.

3.5 MANUFACTURER'S TRAINING

The equipment supplier representative visited the site on May 21, 1996 for the purposes of training the operators on proper operation of both the pump-and-treat and SVE systems. On May 26, 1996, the equipment was determined to be ready for startup. Photos of the installed equipment are located in Appendix C.

3.6 CHANGES FROM THE APPROVED PLANS AND SPECIFICATIONS

A. **Blower Size.** During the bidding phase of the project, the size of the soil vapor extraction blower was changed from 30 HP to 40 HP in an addendum. However, further discussions took place between the equipment supplier and one of Stearns & Wheler's engineers, which resulted in the size of the blower reverting back to the original motor size (30 HP). All contractors were notified to disregard the addendum, and the SVE system delivered to the site included a 30 HP blower.

B. **Panel Mounting.** The contractor had asked if marine-grade plywood was acceptable for mounting the equipment control panel instead of aluminum. This was acceptable to the electrical engineer. The contractor requested approval to mount the control panels on the building instead of

constructing a free-standing mount. The reason given was that the contractor did not want to construct the supports to below the frost line. The electrical engineer again gave approval.

C. **Flanged Connections Instead of Unions.** The air stripper was approved with flanged fittings in the piping instead of unions before and after the transfer pump TP-2, as shown on the construction plans. The equipment supplier said that if unions were to be used, the size of the skid for the stripper system would have to be increased. It was decided that the flanged fittings would allow ease of access to the pump for servicing similar to unions, as there was available headroom for pulling the pump. Because this would allow assembly on a smaller size skid, the change was approved on the shop drawings.

D. **Surge Protection.** The contractor's submittal for the control panel and telemonitoring system showed surge protection for the telephone lines, but no surge protection for the power lines and fault-sense lines. Although the specifications required surge protection for telephone lines, fault-sense lines, and power lines, the equipment supplier said that their equipment package could not be configured that way. A compromise was reached whereby the contractor provided surge protection after the transformer prior to the control panel. It was decided that this surge protection, combined with the standard protection in the telemonitoring system for the phone lines, would be the best protection for the controls for both treatment systems, without incurring additional charges for the owner.

E. **Groundwater Flow Meter.** The contractor requested a change to use a 1-inch flow meter instead of the 1-1/2- and 1-1/4-inch meters specified. Because the flow range for the smaller meter was in the same operating range expected for each portion of the pump-and-treat system, the smaller meters were approved. The contractor was notified however, that he would be required to supply the reducing fittings for installing the 1-inch meter in 1-1/2 and 1-1/4-inch lines. The contractor was also notified to obtain installation instructions from the manufacturer to assure the meters would be installed correctly with the addition of the reducing fittings. The final inspection noted correct installation of the 1-inch meters.

F. **SVE Piping.** The SVE skid was piped with 6-inch piping for the extracted soil vapor instead of 4-inch piping. This was because the skid configured with the 4-inch piping had too high a pressure drop when shop tested. Shop testing of the reconfigured skid (6-inch piping) resulted in an acceptable pressure drop.

G. **Alarm Call Grouping**. The specifications required the telemonitoring system to be able to be programmed for the dialer to call different phone numbers, depending on the type of alarm. The equipment supplier's standard system did not have this feature. Upon discussing this further with the system operator, it was determined that although the call grouping feature is useful, most of the time, the same person would need to be notified when alarm occurred. Therefore, we would not make use of the alarm call grouping feature, and the alternate was acceptable.

H. **Installation of Telemonitoring System**. The specifications required the telemonitoring system to be installed adjacent to the SVE/pump-and-treat system control panel. The equipment supplier provided the telemonitoring system installed in the control panel for the two treatment systems.

I. **Record Drawings**. Record drawings are contained in Appendix D.

3.7 ADDITION OF CHEMICAL FEED SYSTEM AND SEQUESTERING AGENT

The groundwater recovery and treatment system was started up in August 1996. Following two months' operation of the pump-and-treat system, it was apparent that the high dissolved solids concentration of the groundwater (hardness) was resulting in excessive scale formation in the air stripper. As scale built up in the stripper, accumulations would be transported with the water and result in a buildup in the bag filters located downstream of the stripper. As carbonate solids accumulated in the filters, the filters would become plugged and the entire groundwater treatment system would shut down. System shutdowns occurred seven times in the first month of operation, five times the second month of operation, and three times between October 8 and 15, 1998.

To reduce the formation of calcium and magnesium salt/scale in the equalization tank and air stripper, a temporary chemical feed system for addition of sequestering agent was installed between October 14 and 15, 1996. The system consisted of a small metering pump for addition of Jaegger Products JP-7 sequestering agent to the equalization tank prior to the air stripper.

Following the addition of JP-7 to the groundwater prior to treatment in the air stripper, system shutdowns caused by buildup of inorganic scale decreased in frequency. Because of the apparent success with the addition of JP-7, a permanent chemical feed system was installed on December 3 and 4, 1996. The system consisted of a Milton Roy Series Z14 metering pump capable of pumping 0.012 to 0.75 liters/hour of liquid at a maximum injection pressure of 150 psi. The pump was

configured to deliver JP-7 directly from a drum to the equalization tank. Appendix E contains catalog cuts of the equipment, information on the Jaegger Products sequestering agent, and an installation sketch.

3.8 INSTALLATION OF TEST PITS AND ADDITIONAL CULVERT WELLS

Following approximately three months of operation, the groundwater and petroleum product pumps installed in recovery well MW-18 ceased operating. Both pumps were removed for repairs during October 1996 (8 days) and again in November 1996 (28 days). The presence of free product continued to be monitored during this time period, and accumulations were recovered manually with a bailer. Monitoring data indicated that the free product layer, while somewhat persistent, appeared to be only 0.1 foot in thickness. Following the second set of repairs, the groundwater recovery pump was reinstalled in Well MW-18; however, the petroleum product pump was not reinstalled, as the manufacturer indicated that the pump would likely fail again attempting to recover such a small oil layer.

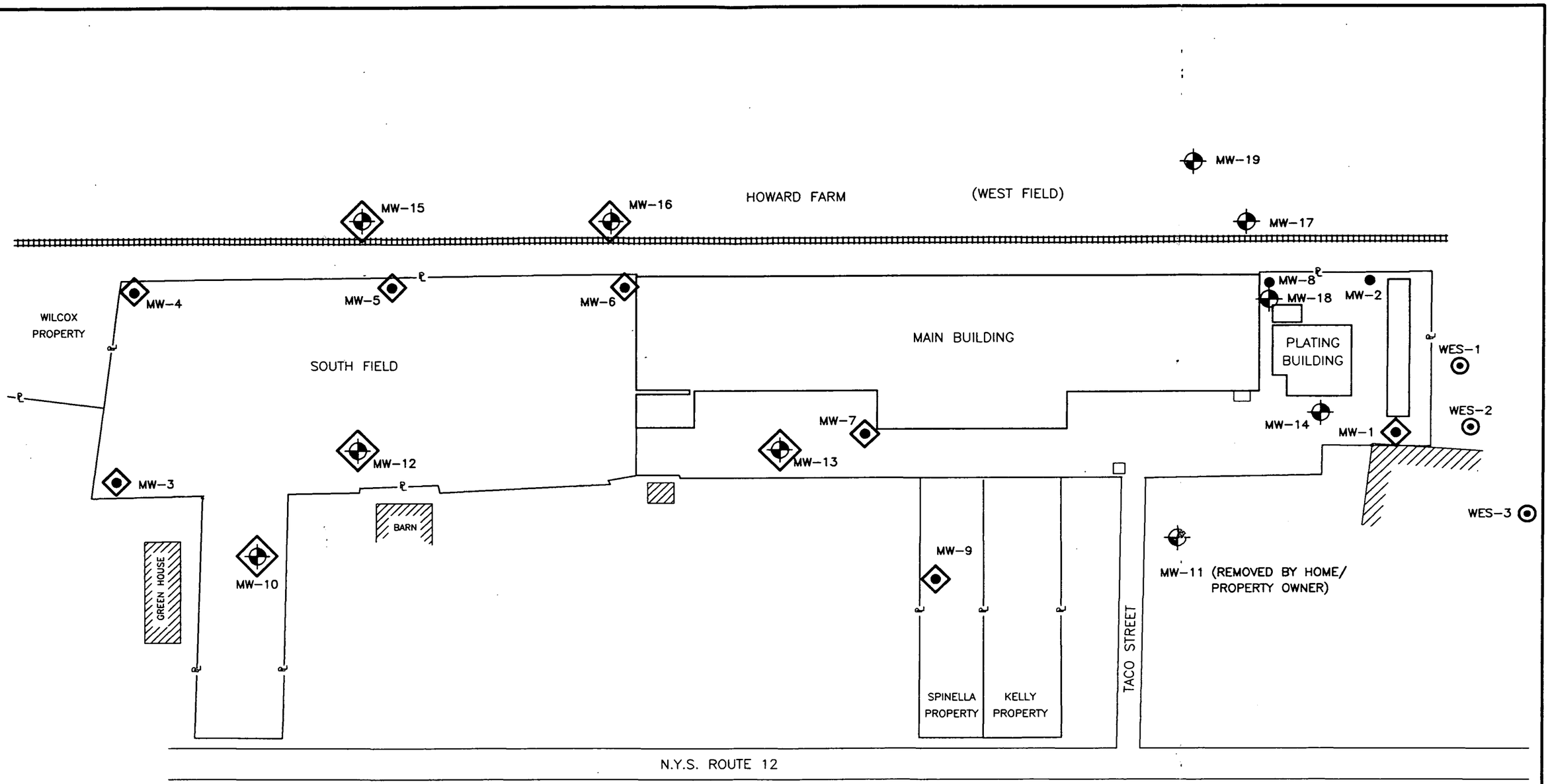
Following eight months of groundwater depression with the recovery pump combined with manual product recovery, a thin but apparently persistent layer of free product remained in the vicinity of MW-8 and MW-18. Excavation of a test pit was proposed so that the extent of the remaining free product could be assessed. The proposal included recovery of free product using a skimmer, sorbent pads, and sorbent booms while the excavated area was open. If observations indicated that either the product layer had been reduced to a sheen or development of a product layer had become too slow for effective manual product removal, two 12-inch diameter culvert wells would be installed adjacent to recovery well MW-18 and monitoring well MW-8, and the remainder of the excavated area would be backfilled with No. 2 gravel. Appendix F contains the original proposal, NYSDEC comments, and clarifications.

The test pit was excavated on August 25, 1997. Groundwater was encountered at approximately 5 to 6 feet below grade, and the test pit was excavated a minimum of 1 foot below the elevation of the groundwater. A brown, foamy, emulsified layer of petroleum was encountered on the water table surface; however, the thickness was not measurable with an interface probe. A drum-vac and trash-pump were used to recover oily water from the excavated area on August 26 and 27. Approximately 525 gallons were recovered and placed in bulk containers on site. Sorbent pads were used to remove the oil layer from the water in the containers, and the water was subsequently treated through the groundwater treatment system. Sorbent pads and booms were used to recover any further petroleum

product that migrated into the excavated area. All used pads and booms were stored on site in drums pending disposal.

Two 12-inch diameter culvert wells were installed and the excavation was backfilled with No. 2 gravel on August 29. Following project completion, product thickness in all culvert wells and monitoring/groundwater recovery wells was monitored on a weekly basis for three weeks.

Appendix E also includes the status report sent to NYSDEC following the three weeks of monitoring.



Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS
CAZENOVIA, NEW YORK
DATE: 2/99 JOB NO.: 41587ZA

GENERAL SEMICONDUCTOR INC.
SHERBURNE, NEW YORK
CONSTRUCTION DOCUMENTATION REPORT

FIGURE 3-1
LOCATIONS OF DECOMMISSIONED WELLS

CHAPTER 4

LANDFARM CELL CONSTRUCTION

4.1 PRECONSTRUCTION ACTIVITIES

Following receipt of NYSDEC approval of construction plans and specifications, the contract documents were sent to a list of preselected qualified bidders on July 26, 1996. A mandatory pre-bid meeting took place at the site on August 7, 1996. At that time, the project was explained to the contractors and the instructions were provided about the bidding forms. Bids were received on August 14, 1996, and the project was awarded shortly thereafter.

A preconstruction meeting took place at the site on September 9, 1996, with representatives from GIC, Stearns & Wheler, S&W Services, NYSDEC, and the contractor in attendance. The property owner, Jack Howard, also attended the preconstruction meeting (Appendix G contains the attendance list from the preconstruction meeting). At the meeting, the following details were discussed:

1. The contractor was to provide a work schedule within five days of the award of the bid. After work began on the project, updates to the schedule would be required on a weekly basis.

2. A contractor's work plan was to be provided within 10 days of the award of the bid.

3. Shop submittals were only required for the cover material. The submittal was to be provided in the format specified.

4. General Instrument must approve of the waste disposal method and facility for both hazardous and non-hazardous wastes generated during construction.

5. Stearns & Wheler would collect all confirmatory samples.

6. The right-of-way for the railroad is 33 feet. No excavation could be done within 33 feet of the center of the railroad tracks, and no equipment was to be staged on the right-of-way.

7. Decontamination water and water generated during dewatering would be collected, drummed, and transported to the on-site treatment system located on Kenyon Press property for treatment in the air stripper/carbon treatment system.

8. The contractor would be responsible for measuring all materials excavated. Verification would be by the construction manager's on-site field representative.

9. The contractor would be responsible for providing end caps for the pipe stick-ups on the passive collection recovery trench. Also, the contractor would be required to call UFPO prior to commencing any excavation.

10. S&W Services would arrange for fencing to be placed around the landfarm cell following completion of construction.

The contractor's work plan was received on September 10, 1996. The plan was reviewed by both Stearns & Wheler and NYSDEC. Comments were provided to S&W Services on September 13, 1996. Clarifications were received from the contractor on September 13 concerning outstanding issues, and further clarifications were provided the NYSDEC on September 15. Verbal approval of the work plan was obtained from the NYSDEC by S&W Services on September 15, 1996. Appendix H contains the work plan and associated correspondence.

4.2 MOBILIZATION AND SITE PREPARATION ACTIVITIES

The contractor arrived on the site on September 16, 1996. The landfarm cell perimeter was staked out following discussions with the property owner. Stakes were placed every 20 feet along the perimeter. The elevation of each stake was surveyed. Mobilization of the first equipment to the site (bulldozer) took place on September 17.

4.3 LANDFARM CELL CONSTRUCTION

Construction of the landfarm cell began on September 17, 1996. A bulldozer was used to excavate the landfarm cell. Clean soil was stockpiled on site for use as backfill material in areas where impacted soil would be removed. Following excavation, elevations were resurveyed at each of the stakes to verify the cell depth was in agreement with the construction plans. When the center of the cell had been excavated to the proper depth, an excavator was used to complete the excavation of

the sides of the cell to the same depth. Following completion of excavation of the sides of the cell, between 3 and 6 inches of manure was placed in the bottom of the cell to act as a "biobarrier" between the clean soil base of the cell and the contaminated soil to be placed in the cell. The cell was completed on September 24.

4.4 EXCAVATION OF CONTAMINATED SOIL AND PLACEMENT IN CELL

Excavation in the area of the impacted soil began September 25, 1996. The first activity included removal of the clean soil that overlies the petroleum-impacted soil. The top 3.5 feet was excavated and stockpiled separately for use as backfill material. As part of this initial work, piezometers located within the impacted area were removed. Excavation of the clean upper layer of soil was completed on September 27. Petroleum-impacted soil generated from installation of the initial passive fuel oil recovery system was moved from its staging area to the landfarm cell and covered with 6 mil polyethylene sheeting.

On September 28, the contractor mobilized a payloader to the site. Between September 28 and October 2, petroleum-impacted soils located above the elevation of the groundwater were excavated and placed in the landfarm cell. A decon pad, consisting of a layer of poly sheeting pitched to one end for collection of free liquids, was constructed in the former soil staging area. Excavation of soils located below the elevation of the groundwater (to a depth of approximately 6 feet) was begun on October 2, 1996, at which point the first two confirmatory samples were collected from the southern and northern sides of the excavation. Excavation of the saturated soil continued on October 3 and the final four confirmatory samples were collected. Also on October 3, the previous petroleum product interceptor trench was removed as part of the excavation activities.

On October 8, following receipt of confirmatory sample analytical results indicating that the end points had been reached in the north and south directions, backfill operations commenced. The daily field report for October 8 (see Appendix I) includes a figure indicating the extent of the area excavated. The extent of the impacted soil in this area was approximately from 2 to 6.2 feet below grade. Backfill continued on October 9. The area surrounding the landfarm cell was graded. Operations ceased until October 15 due to rain. On October 15, the corrugated piping for the new petroleum product interceptor trench was delivered to the site. The petroleum product interceptor trench was replaced on October 16 and 17 using 18-inch corrugated, polyethylene culvert pipe. Once the passive collector was installed, the contractor transferred the remainder of the impacted soil to

the landfarm cell and final grading of the cell was done. When grading was completed, the landfarm cell was covered. Section 4.6 contains information on the cover material.

4.5 SAMPLING AND ANALYSIS

Procedures for collecting endpoint samples were defined in a letter to the NYSDEC (see Appendix J). In accordance with the procedures described in the letter, a combination of visual and field screening techniques was used to determine when the excavation had removed the petroleum-impacted soil in the north and south directions. At that time, samples would be collected from the northern and southern sides of the excavation at a distance of 6 to 12 inches above the groundwater elevation. As discussed in a previous section of this report, confirmatory, or endpoint, samples were collected on October 2 and 3. Table 3-1 summarizes the results of the sampling. Copies of the laboratory analytical results can be found in Appendix J.

4.6 COVER MATERIAL

A submittal was received from the contractor for the cover material on September 23, 1996. The submittal included catalog information on the material specified in the contract documents (Griffolyn TX-1200). However, the submittal did not include quality control and warranty information, so it was returned to the contractor with a request for the additional information. A revised submittal was received on October 10 and approved. Appendix H contains the approved submittals for the cover material.

4.7 WASTEWATER HANDLING

All decontamination water was collected, drummed, and eventually treated through the on-site groundwater treatment system. On October 7, 1996, approximately 2,000 gallons of oil and water that had collected in the excavation was removed with a vacuum truck. The following day, the liquid was transferred from the vacuum truck to storage tanks located on the Howard property (West Field). The petroleum product was decanted from the tanks into the drums. The drummed oil was then shipped to the ENSCO facility in Arkansas for disposal via incineration. The water from the tank was transferred to a vacuum truck and transported to the DuPont facility in New Jersey for treatment and disposal.

4.8 FENCE

In order to protect the cover material from damage caused by trespassers on snowmobiles and all-terrain vehicles, the finished cell was surrounded by a fence. The fence consisted of metal fence posts with orange tape being used to connect the posts. The tape was intended to provide a visual barrier in order to discourage traffic from passing over the cover, and at the same time be able to give way in case of poor visibility. If someone accidentally hit the fence, it was intended to break and not cause injury.

4.8 CHANGES FROM APPROVED PLANS AND SPECIFICATIONS

There were no significant changes from the approved plans and specifications. A copy of the contractor's survey is included in Appendix K.

TABLE 4-1

CONFIRMATORY SOIL SAMPLE RESULTS

GIC Sherburne - Landfarm Cell Construction

Contaminant Contaminant (µg/Kg)		October 2 Samples		October 3 Samples			
	Clean-up Goal	North Sample	South Sample	Sample "C"	Sample "D"	Sample "E"	Sample "F"
Benzene	60	< 5	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	5,500	< 5	< 5	< 5	< 5	< 5	< 5
Isopropylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
4-Isopropyltoluene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
Naphthalene	13,000	< 5	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
Toluene	1,500	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	100 *	< 5	< 5	< 5	< 5	< 5	< 5
o-Xylene	1,200	< 5	< 5	< 5	< 5	< 5	< 5
m-Xylene	1,200	< 5	< 5	< 5	< 5	< 5	< 5
p-Xylene	1,200	< 5	< 5	< 5	< 5	< 5	< 5

Note:

Clean-up goals listed are from NYSDEC DHWR TAGM HWR-94-4046, with the exception of * which are from NYSDEC STARS Memo #1.

CHAPTER 5

INSTALLATION OF FULL-SCALE IN SITU GROUNDWATER TREATMENT SYSTEM

5.1 PRECONSTRUCTION ACTIVITIES

Following receipt of NYSDEC approval of construction plans and specifications, the contract documents were sent to a list of pre-selected qualified bidders on July 18, 1997. A mandatory pre-bid meeting took place at the site on August 11, 1997. At that time, the project was explained to the contractors and the instructions were provided regarding the bidding forms. Bids were received on August 18, 1997, and the contract was finalized on October 23, 1997.

Between October 1 and November 5, site preparation activities were begun at the site. Because much of this work would not affect the actual performance of the treatment system, site preparation activities began prior to the preconstruction meeting. Said preconstruction meeting took place in Cazenovia, NY on November 5, 1997, with representatives from Stearns & Wheler, S&W Services, NYSDEC, the contractor, and local subcontractor in attendance. The property owner, Jack Howard, also attended the preconstruction meeting (refer to Appendix L for the attendance list from the preconstruction meeting). At the meeting, the following details were discussed:

1. The first item of discussion was the construction schedule provided by Horizontal Technologies (HTI). Plans were made for one progress meeting to be held at the site during the construction activities (anticipated date of November 20). The purpose of the meeting would be to allow the NYSDEC to send visitors and be updated on the technology.

2. Shop submittals would be provided by S&W Services for the HASP, contractor's work plan, QA/QC plan, geotextiles, and erosion control plan. The iron submittal previously provided had been approved.

3. HTI had contracted with Adsit Septic & Excavation for site work. Parratt-Wolff would install monitoring wells and piezometers, and Pinnacle Construction had removed the sheet piling from the pilot scale funnel-and-gate system.

4. No substitutions were planned.

5. Mobilization issues were discussed, including site access, phone, security and housekeeping, and work trailer.

6. Final items discussed included construction photographs and QA/QC testing.

A copy of the meeting minutes from the preconstruction meeting is also included in Appendix L.

5.2 MOBILIZATION AND SITE PREPARATION ACTIVITIES

Sheet piling from the pilot-scale funnel-and-gate system was removed between October 3 and 6, 1997. As part of this activity, the monitoring wells associated with the pilot project (U-1, U-2, U-3, FE-1, FE-2, FE-3, D-1, D-2, D-3, D-4, D-5, and D-6) were filled with sand and cut off below grade. The concrete collars from the wells were removed for off-site disposal. The sheet piling was first cut apart with a torch, pulled out, and then decontaminated using a pressure washer. Water from the decontamination activities was discharged directly into the granular iron reactive portion of the pilot-scale funnel-and-gate system.

On October 29, 1997, site clearing and construction of the access road began. Activities included clearing brush from hedgerows to allow excavation of the bench. Portions of the hedgerow near railroad tracks were also cleared. The access road was installed directly from Route 80 to the work area. The first part of the road, extending from Route 80 to the turn adjacent to the river, was constructed with 2 feet of gravel placed on a non-woven separation geotextile (Carthage Mills FX-120HS; refer to Appendix M for the geotextile shop submittal). However, the remainder of the road (from the turn adjacent to the river to the turnaround at the work area) was constructed by excavating a portion of the existing soil and filling with up to 3 feet of gravel. The final road was compacted with a roller. The change in construction of the final section of the road was done to accommodate the property owner and also the weight of the trenching equipment. The access road was completed on November 7, 1997. Final measurement of completed roadway was conducted on December 8, 1997. The length of useable road, including turnaround area and parking areas, was measured to be 3,251 feet.

A trailer was delivered on November 10, and a portable sanitary facility was delivered on November 11, 1997 in anticipation of a November 17 start date for trenching. The trenching

equipment was mobilized to the site during the week of December 1, 1997. Between December 5 and 9, 1997, the components of the continuous trencher were assembled at the site, and the bench was excavated for the shorter pass of the in situ iron wall.

5.3 GRANULAR IRON DELIVERY AND STORAGE

The submittal for the granular iron was received on October 1, 1997 and approved on October 2, 1997 (a copy of the approved submittal is included in Appendix M. Delivery of the granular iron began on October 27, 1997 and continued until November 13, 1997. The iron was primarily ordered in bulk, with additional iron in bags ordered to provide a measure of safety. To prevent weather from promoting the formation of rust on the surface of the iron prior to its being placed in the ground, the iron was stored in a barn located in Sherburne adjacent to the Kenyon Press property.

5.4 BENCH EXCAVATION

Excavation of the bench for the shorter pass of the iron wall began on December 8, 1997. Prior to beginning the excavation, the contractor requested that the shorter iron wall (120-foot wall) be moved an additional 5 feet from the longer wall, as he was concerned that the equipment might need the additional separation. This was agreed to by all parties present, on the condition that there still be no excavation on the railroad right-of-way.

The bench was excavated to 3 feet below grade in accordance with the plans and specifications. All soil removed from the bench was stockpiled on the eastern side of the bench and covered for later use as backfill material. However, a small amount of apparent petroleum-impacted soil was encountered during excavation of the bench. This soil was left in the bench, to be handled with the spoils from the trenching activity.

Excavation of the bench for the longer iron wall section was begun on December 13, 1996. Prior to beginning, the contractor requested a change in depth of the longer bench to a 2-foot depth instead of the 3-foot depth shown on the construction plans. The change was requested because the trenching equipment appeared to be having trouble placing iron to the elevation of the top of the bench. Instead, the iron wall appeared to be only to within 1 foot of the base of the bench. It was believed that if the bench was excavated to a shallower depth, the iron would then end up being placed to the proper depth. However, as the clean soil from the bench excavation was to be used for capping the trenching spoils, there was initial concern that there would not be enough clean soil for

placement of a minimum 2-foot thick cap. Further analysis indicated that the shallower depth bench would still provide approximately enough clean topsoil for backfill material, so the change was accepted by all parties.

During excavation of the southern end of the bench, the contractor again encountered a small amount of discolored soil approximately 1 foot below grade. This soil was removed from the bench and staged on poly sheeting adjacent to the landfarm cell, west of the work area. Once all the visually impacted soil was removed and staged, the pile was covered. Because monitoring equipment was not available at the site on that day, the contractor elected to use visual appearance as an indicator of the extent of contaminated soil. All clean soil removed from the bench was staged on the eastern side of the bench and covered.

5.5 TRENCHING AND PLACEMENT OF GRANULAR IRON

Installation of the 120-foot wall section (shorter wall) was begun on December 10, 1997. The trenching operations began at the southern end of the line of installation. The trencher was backed into the bench and trenching began at the estimated southern end of the shorter wall. The cutting chain was used to excavate the native material and thereby lower the trench box until a depth of 18 feet below the bench grade was reached. A laser was used to monitor the depth of the trench box and excavator. Once the correct depth was reached, the trencher continued to move forward while placing iron into the trench excavated by the cutting chain on the excavator portion of the equipment. The laser allowed continuous measurement of the depth of trenching during the remainder of the operation, as discussed in the contractor's work plan (see Appendix M). As a means of estimating the volume of iron placed in the excavation the backhoe bucket volume (40 cubic feet) was estimated. The number of backhoe buckets of iron added were then counted for every 10 feet of trench installed. A second check on volume of iron involved counting the number of truckloads (approximately 243 cubic feet per truckload) of iron brought to the site during the trenching operations.

Approximately 50 feet of iron wall was installed prior to a conveyor belt failure that forced operations to be stopped for the day. The final section of the shorter wall (approximately 70 feet) was installed on December 11.

Trenching operations for the longer (370 feet long) iron wall section began on December 15; however, equipment malfunctions caused the attempt to be aborted. The longer wall section was

installed on December 16 and 17. Appendix N presents a summary of field/construction monitoring conducted by EnviroMetal Technologies, Inc. personnel during installation of both the short and long sections of the iron wall.

Following installation of both iron wall sections, the contractor used a backhoe to excavate the sediments/trenching spoils in order to verify the height of the iron "wall" placed by the trenching equipment. This excavation determined that the iron did not consistently reach the design height. It was assumed this was probably due to the saturated nature of the sediments. As a result, the backhoe was used to fill in the top 2 feet of the iron wall after the trenching operations were completed. The field summary in Appendix N also describes this additional backfill procedure.

At the completion of the iron wall installation, it was noted that 742 tons of bulk granular iron had been expended. Assuming an average bulk unit weight of 170 to 180 lb/ft^3 (per specification Section 02220), the 742 tons of iron represented 99 percent to 93.5 percent, respectively, of the estimated amount of iron required to fill a 1-foot wide by 18-foot deep trench for a total linear foot length of 490 feet (370 feet plus 120 feet). This value differs somewhat from the volume of iron estimated in Tables 1 and 2 of Appendix N. The difference is assumed to be due to the additional iron placed in the wall with the backhoe, which is included in the 742 tons of bulk iron, but not in the volume estimates in Appendix N.

5.6 BACKFILL AND COMPACTION TESTING

Following completion of the placement of the additional granular iron with a backhoe, backfill operations began with the leveling of the trenching spoils in the bench. Once the spoil material was leveled, a separation geotextile was placed on top of the spoils. Although not included in the original design plans and specifications, it was decided that a separation geotextile would be used to bridge the spoils due to the high moisture content of the spoils and the presence of standing water in the bench area.

The first lift of soil was placed on December 19, 1997. Because so much water was present in the bench, the backfill contractor used 3 feet of soil for the first lift instead of the 12-inch lift specified in the contract documents. In-place compaction testing was undertaken following placement and compaction of the first lift. Testing indicated the compaction achieved was only 80 to 87 percent of maximum. Because it appeared further compaction was not possible due to the moisture content of the soil, compaction tests were undertaken in a portion of the West Field that had not been

disturbed by construction. It was agreed by the engineer, construction manager, and field representative that if the backfill compaction was in same range as that of undisturbed soil, then additional compaction by the contractor was not required. Compaction tests on undisturbed soil showed an average of 71 percent, so further compaction was not requested on the first lift.

The second lift (12 inches) of backfill was also placed and compacted on December 19. Compaction tests on this second lift indicated results ranging from 75 to 86 percent of maximum. Because this was greater than that of the undisturbed farmland, further compaction was not requested.

The third and final lift (also 12 inches) was placed on December 23. The contractor also adjusted the grade to promote runoff. Compaction test results indicated poor compaction results (54 to 73 percent of maximum), mainly due to excessive moisture content of the soil. It was decided to require the contractor to bring the larger excavator back to the site and use it to run over the soil a few more times in an attempt to get better compaction. Then, if unacceptable settling occurred as a result of the inability to achieve specified compaction requirements, the contractor would be required to provide additional grading in the spring. At the time of this report, no unacceptable settling has been noted in the area of the in situ treatment system.

Compaction test results are included in Appendix O.

5.7 INSTALLATION OF MONITORING WELLS

Monitoring Wells MW-22, MW-23, MW-24, MW-25, MW-26, MW-27, and MW-28 were installed in January 1998. The locations of the monitoring wells were determined based on the assumed location of the iron wall, as indicated by wooden stakes that had been placed at the ends of the 370-foot long iron wall by a construction field representative prior to backfill of the bench. The well locations along the wall in the north and south direction were measured using a survey level and transit. Stakes were then placed approximately 5 feet east and west of the assumed location of the iron wall to mark the placement of each of the wells. The 5-foot distance upgradient or downgradient of the wall was in accordance with the construction plans.

Each monitoring well was installed to a total depth of 20 feet below grade, and was constructed of 16-feet of 2-inch diameter, Schedule 40 PVC with a 0.01-inch slot screen. Approximately 6 feet of 2-inch diameter, Schedule 40 PVC riser was used for completion of each well. Each well was finished with above-grade piping and a locking cap. Appendix P contains an "as-built" diagram

provided by the drilling contractor for the monitoring wells. It should be noted that well logs were not prepared by the contractor for each monitoring well following the installation, as all wells were installed in accordance with the detail on the construction plans. The elevations of the top of the PVC risers were surveyed following installation of the wells; however, actual locations of the wells with respect to site features were not surveyed at that time. During the same mobilization, the well screens for the pressure transducer piezometers were also installed. Temporary risers extending aboveground were installed with these well screens. It was decided that the pressure transducers would not be installed in the well screens until spring when the ground was no longer frozen.

During the fall of 1998 there was concern that some of the upgradient monitoring wells may not have been placed in the proper locations, as analytical data from the quarterly groundwater sampling rounds were showing high pH results in samples collected from upgradient wells MW-26, MW-27, and MW-28. In response to this concern, a metal detector was used to determine the location of the iron wall with respect to the monitoring wells. Both the 370-foot long iron wall and the 120-foot long iron wall were located with the metal detector. The extent of each wall was marked with stakes in the vicinity of the monitoring wells. Once the iron walls had been located with the metal detector it was apparent that Monitoring Well MW-28 had been installed within the granular iron zone of the 120-foot long iron wall, Well MW-27 had been installed in the interface between the iron and the native sand and gravel on the downgradient side of the 370-foot long iron wall, and Well MW-26 had been installed downgradient of the 370-foot long iron wall.

On November 19, 1998 two additional monitoring wells (MW-29 and MW-30) were installed as replacements for MW-26 and MW-27. It was determined that piezometer P-8, installed for water level monitoring during the pilot-scale funnel-and-gate system field test, could be used as a replacement for MW-28. To provide additional groundwater elevation monitoring points, two piezometers, P-10 and P-11, were also installed upgradient and downgradient, respectively, of the 370-foot long iron wall between Monitoring Wells MW-29 and MW-30 on the upgradient side of the wall and between MW-23 and MW-24 on the downgradient side of the well. As part of this effort, plans were made to install a third piezometer north of the longer iron wall. However, after discussions with the landowner about its proposed location, it was decided that the additional groundwater elevation monitoring point would not be installed. Well logs for MW-29, MW-30, P-10, and P-11 are included in Appendix P.

In December 1998, the West Field was surveyed. During this survey, the ends of the iron wall were located with a metal detector, and the locations of all monitoring wells (MW designations) and

piezometers (P designations) were surveyed along with the elevation of the top of the PVC casing and the ground. Elevations and locations were also surveyed for monitoring wells on the Kenyon Press property associated with the pump-and-treat system, and the petroleum product interceptor trench (West Field) was also located. The survey map is included as Appendix Q of this report. Table 5-1 summarizes the elevations of all monitoring wells measured as part of this survey.

5.8 INSTALLATION OF PRESSURE TRANSDUCER PIEZOMETERS

The pressure transducer piezometers were installed during the latter part of the spring of 1998. The actual drilling for emplacement of the PVC piezometer well screens and casings was accomplished in January when the monitoring wells were installed. Because the finished length of the iron wall was approximately 20 feet further to the south than originally shown on the construction plans, the locations of several of the piezometers (T-1, T-2, T-4, and T-7) were moved 20 feet further south. The water table was high at the time the drilling was done, so the contractor chose to postpone the actual installation of the pressure transducers, control box, and cables/conduits until the elevation of the groundwater had subsided to allow trenching for the connecting cables to be undertaken.

The trenching and installation was undertaken between May 29 and June 5. The first two transducers (T-3 and T-6) were installed according to the following procedures:

1. The piezometer electrical cable was fed through the conduit toward the control box.

2. The piezometer was placed through the T-fitting and lowered to the bottom of the PVC well.

3. A premeasured amount of sand was added to the PVC well to hold the pressure transducer in place. The amount of sand used was equal to the volume needed to fill the 2-inch PVC well to a depth of 16 inches. The sand used was Granusil® Industrial quartz sand.

4. The fitting was reattached to the PVC riser and glued with "PVC/CPVC P-70 clear primer" and "70S for PVC" glue.

On June 4, piezometers T-1, T-2, T-4, and T-5 were installed, and T-7 was installed on June 5. Because there had been a severe storm, the connecting trenches and excavations around the PVC wells needed to be individually pumped out before the transducers could be installed. The same

procedure for T-3 and T-6 was followed for the installation of each of these piezometers. During the installation of T-5, some sand was inadvertently placed in the PVC well before the pressure transducer was placed in the well. The contractor's measurements indicated that the transducer elevation was not affected by the addition of the sand.

During the trenching for installation of the cable to piezometers T-3 and T-6, a section of the separation geotextile placed on top of the granular iron was torn and the granular iron was exposed. A field order was issued requiring the contractor to replace the geotextile and hand backfill clean topsoil on top of the geotextile to prevent the exposed iron from oxidizing.

The contractor postponed backfill of the excavations until the groundwater elevation had subsided to allow testing of the readings obtained using the control box. In July, an initial survey was undertaken by Parratt-Wolff. The excavations surrounding each piezometer were full of water that day, so prior to surveying the top of the PVC casings (below grade), the water was pumped down until the top of the PVC was exposed. The well caps were removed, the top of the PVC was measured, and the depth to water was measured. These measurements were then used to calibrate the way the control box calculates the elevation of the groundwater from the pressure readings for each transducer. It was noted that day that if the groundwater elevation was above the top of the PVC the water was under pressure in the PVC casing, as the water spurted out of some of the wells when the well caps were removed. If the water is under pressure, it follows that the pressure reading recorded by the piezometer may be inaccurate (it may indicate that the groundwater elevation is higher than the water table actually is).

Stearns & Wheler did a follow-up survey for all the pressure transducers on July 20. The elevations determined by this survey were slightly different than those determined by Parratt-Wolff. Because the elevation of each of the piezometers was surveyed twice on July 20, with agreement between both elevation readings, more confidence is given to the elevations determined on July 20. Appendix P contains survey data from both the Parratt-Wolff survey and the Stearns & Wheler survey. PVC elevations and locations of the transducers could not be surveyed in December 1998 when the site survey was undertaken because the excavated area surrounding each transducer had been backfilled. Table 5-2 presents the elevation data for the transducers.

5.9 CHANGES FROM APPROVED PLANS AND SPECIFICATIONS

Several changes from the approved plans and specifications were required in response to conditions that were not anticipated during design of the full-scale in situ treatment system. Most of these changes were described in the above sections of this chapter. However, the following summarizes the changes and reasons for the changes.

1. The two separate sections of the treatment system -- the longer wall (370 feet long) and the shorter wall (120 feet long) -- were installed with a 10-foot separation instead of the 5-foot design separation. This was done at the request of the trenching contractor. Because the total residence time of the groundwater in the two sections would be unaffected by the distance between the two segments it was agreed by all parties present that it would not affect the ability of the system to achieve overall effluent contaminant concentrations, and the separation was approved. The one stipulation was that this not affect the railroad right-of-way.

2. Because of the problems associated with placement of the iron to the elevation of the bench subgrade during installation of the shorter permeable wall, it was decided to only excavate the bench for the longer wall to a depth of 2 feet below grade. Again, this was agreed to by all parties with the requirement that the trench spoils be covered by a minimum of 2 feet clean soil, as indicated on the approved construction plans.

3. A geotextile was used for separation between the saturated, contaminated trench spoils and the excavated soils from the bench during the backfill operations. Use of the geotextile was recommended because of the contractor's concerns about being able to backfill in 12-inch lifts over the saturated soils. In addition to the use of the separation geotextile, the contractor chose to use 3 feet of soil for the first lift of backfill material.

4. Compaction requirements were not achieved during backfill of the clean soil. Testing completed after the first two lifts indicated compaction was less than the 90 percent specified by the approved plans and specifications, but greater than the undisturbed portions of the site. Testing of the third, and final, lift indicated compaction less than undisturbed portions of the site. However, poor test results can be attributed to the high moisture content (caused by melting snow) of the soil being used as backfill. Therefore, it was decided to allow the contractor the opportunity to remedy the situation, if required, in the spring should unacceptable settlement occur.

5. Because the southern extent of the two wall sections was longer than that shown on the construction plans, the well placement was shifted to the south, as shown on the record drawings (see Appendix Q).

6. The access road was extended from the work area all the way to Route 80. In addition, the materials used for access road construction were changed to accommodate the requirements of the property owner.

7. Monitoring Wells MW-26, MW-27, and MW-28 were not located on the upgradient side of the iron wall. Two additional monitoring wells, MW-29 and MW-30, were installed as replacements for MW-26 and MW-27. It was determined that existing piezometer P-8 could serve as a replacement for MW-28.

8. Two piezometers (P-10 and P-11) were installed as additional groundwater elevation monitoring points.

TABLE 5-1

SUMMARY OF MONITORING WELL ELEVATION DATA

GSI Sherburne Site

Construction Report

West Field Monitoring Wells			Kenyon Press Monitoring Wells		
Monitoring Well ID	December 1998 Data		Monitoring Well ID	December 1998 Data	
	Top of PVC	Ground		Top of PVC	Ground
MW-17	1051.20	1048.1	MW-8	1050.93	1048.8
P-3	1050.72	1048.4	MW-18	1048.25	1048.84
P-8	1051.73	1049.2	RW-1	1047.65	1048.78
P-10	1049.98	1048.0	P-1	1047.77	-
P-11	1049.92	1048.8	MW-2	1050.56	1048.6
MW-22	1051.60	1048.6	C-1	1049.96	1048.1
MW-23	1051.18	1048.2	C-2	1049.55	1047.6
MW-24	10561.43	1048.3	C-3	1048.75	1047.1
MW-25	1051.53	1048.4	C-4	1049.45	1047.5
MW-26	1051.38	1048.4	C-5	1052.10	1048.8
MW-27	1051.41	1048.4	C-6	1052.38	1048.7
MW-28	1051.38	1048.5			
MW-29 (26-R)	1049.72	1047.7			
MW-30 (27R)	1050.25	1048.1			

TABLE 5-2

SUMMARY OF PRESSURE TRANSDUCER ELEVATION DATA

GSI Sherburne Site

Construction Report

Piezometer ID	June/July 1998 Data			
	Top of PVC[1]	Depth to Water[2]	Head above Transducer[2]	Elevation of Transducer[3]
T-1	1045.43	1.24	9.36	1034.8
T-2	1045.86	1.76	9.29	1034.8
T-3	1045.87	1.81	6.93	1037.1
T-4	1045.07	0.9	9.81	1034.4
T-5	1045.59	1.51	9.32	1034.8
T-6	1045.40	1.48	7.19	1036.7
T-7	1045.14	1.25	9.64	1034.3

Notes:

[1] Top of PVC Surveyed on 7/20/98.

[2] Water elevations measured on 7/16/98.

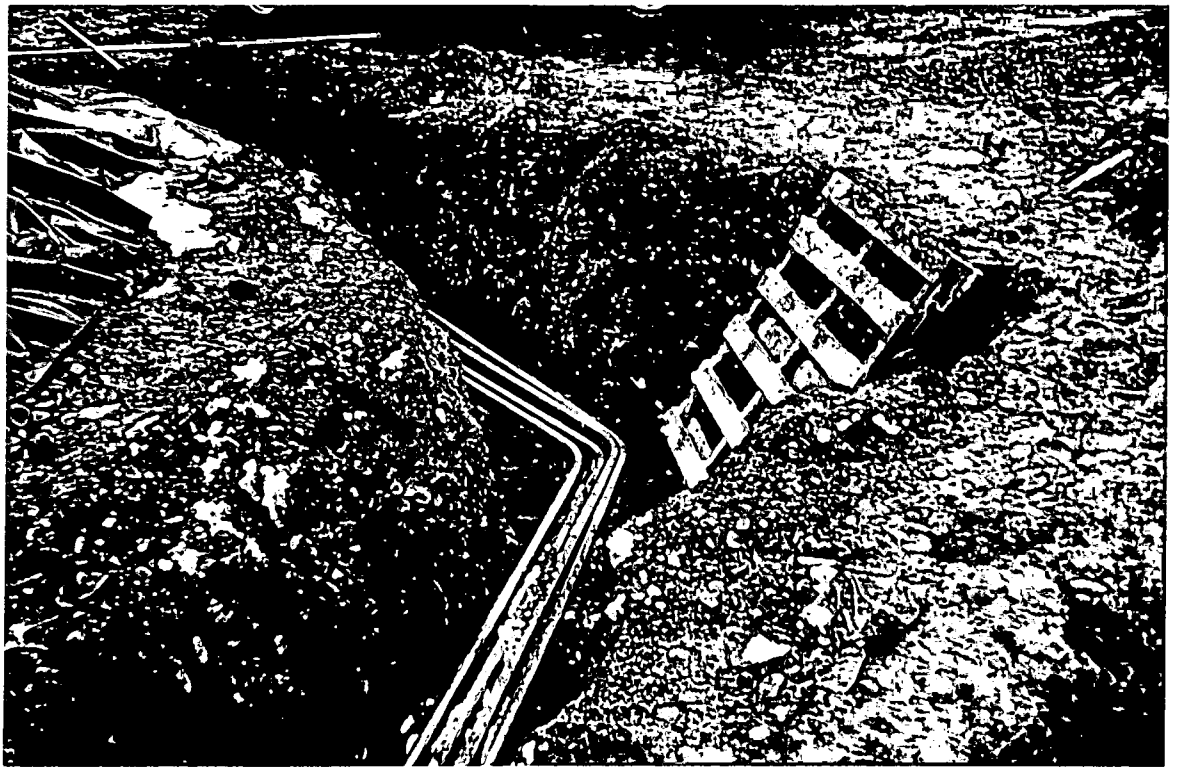
[3] It should be noted that the manufacturer's literature indicates that the elevation of the pressure transducer is only accurate to within +/- 0.1 ft.

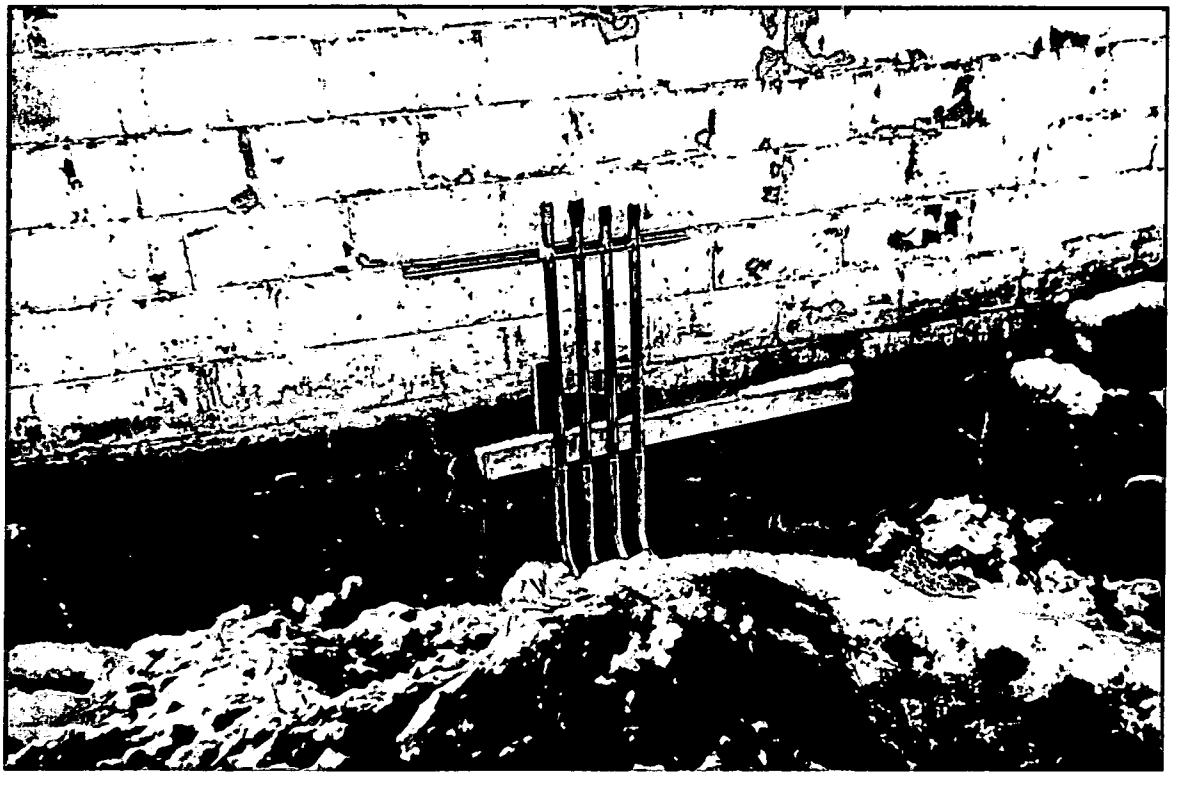
Trenching for Groundwater Recovery Lines

October through November 1995

Installation of Electrical Conduit for Recovery Pumps

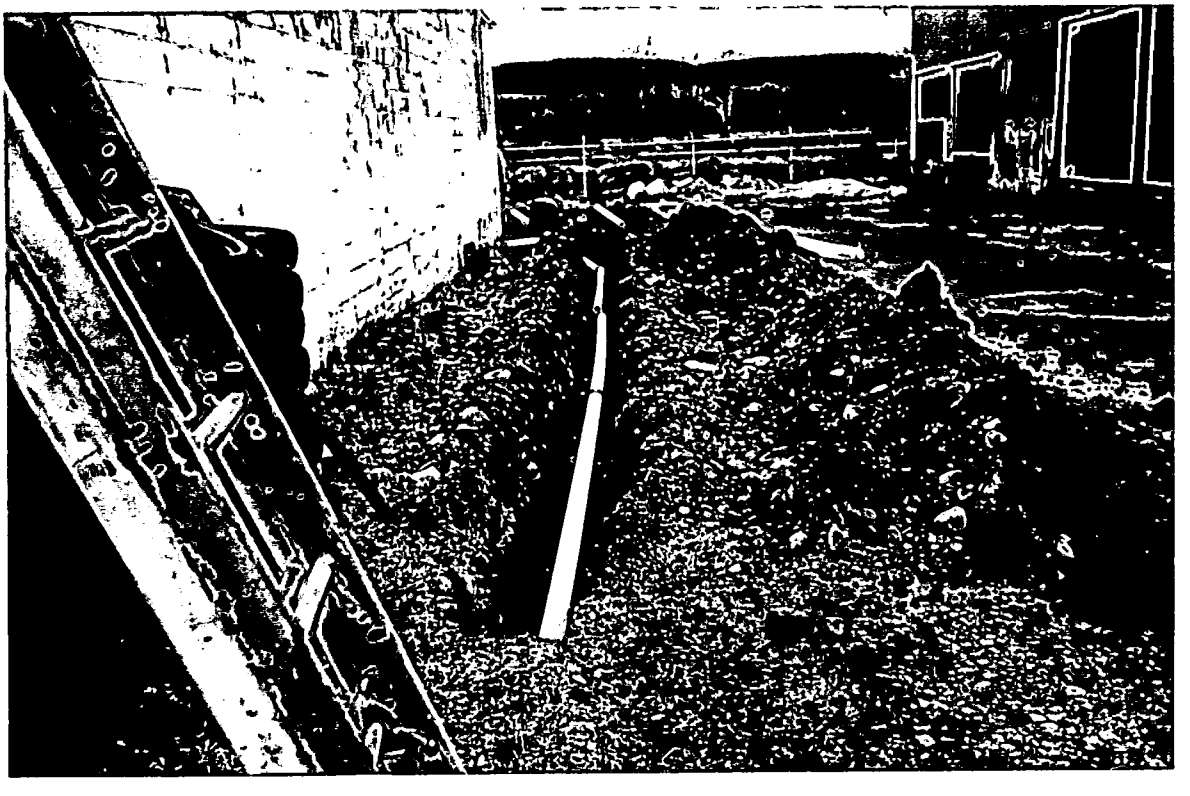
November 1995





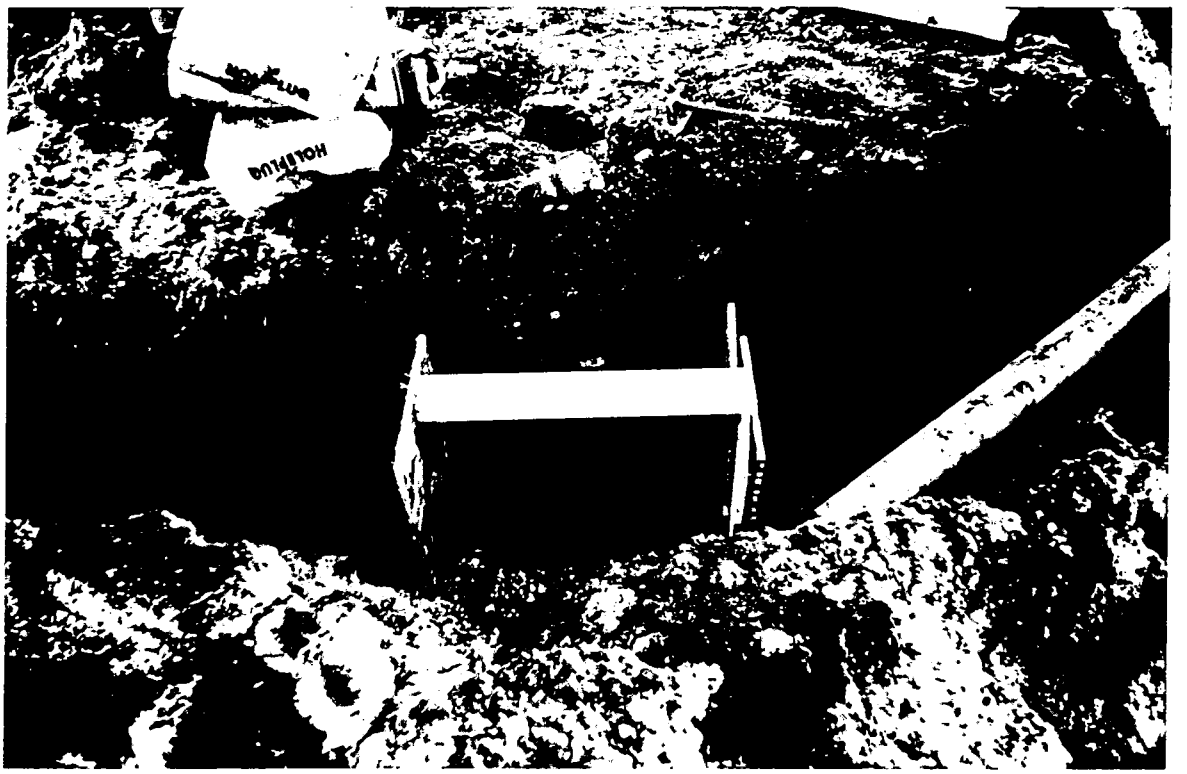
Installation of SVE System Horizontal Extraction Wells

November 1995



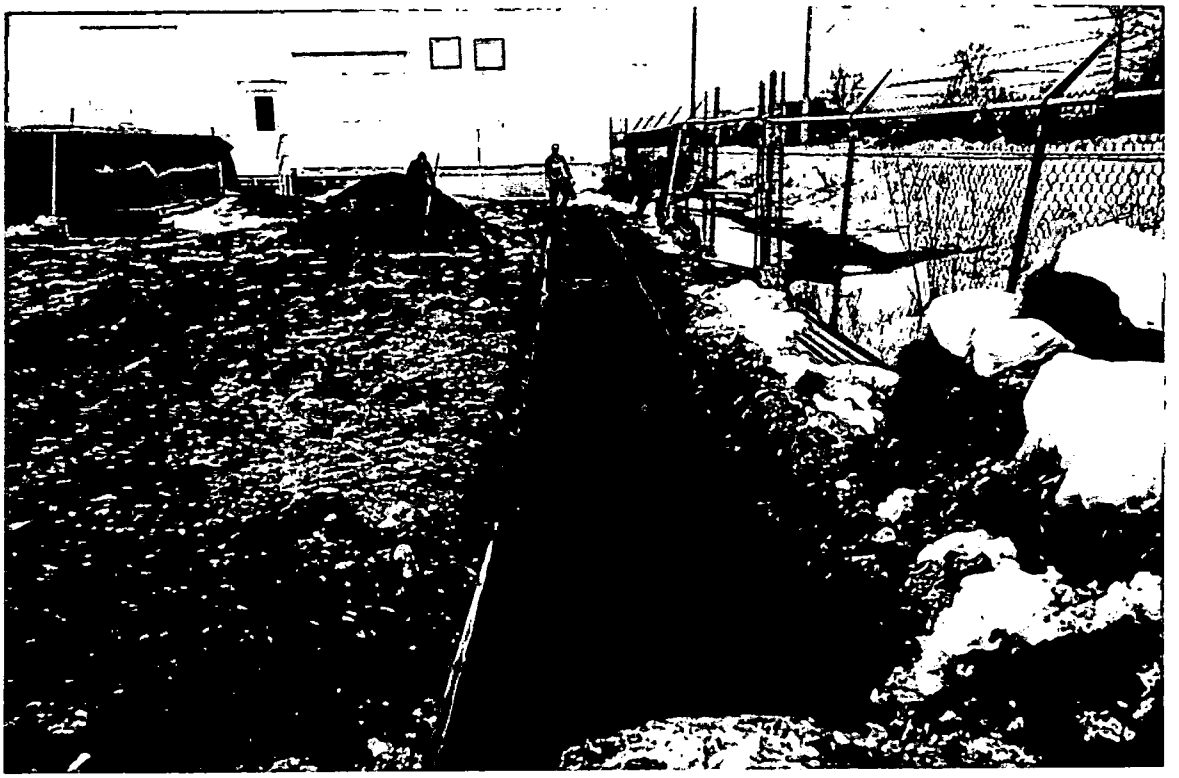
Installation of Bentonite Seals along VE Wells

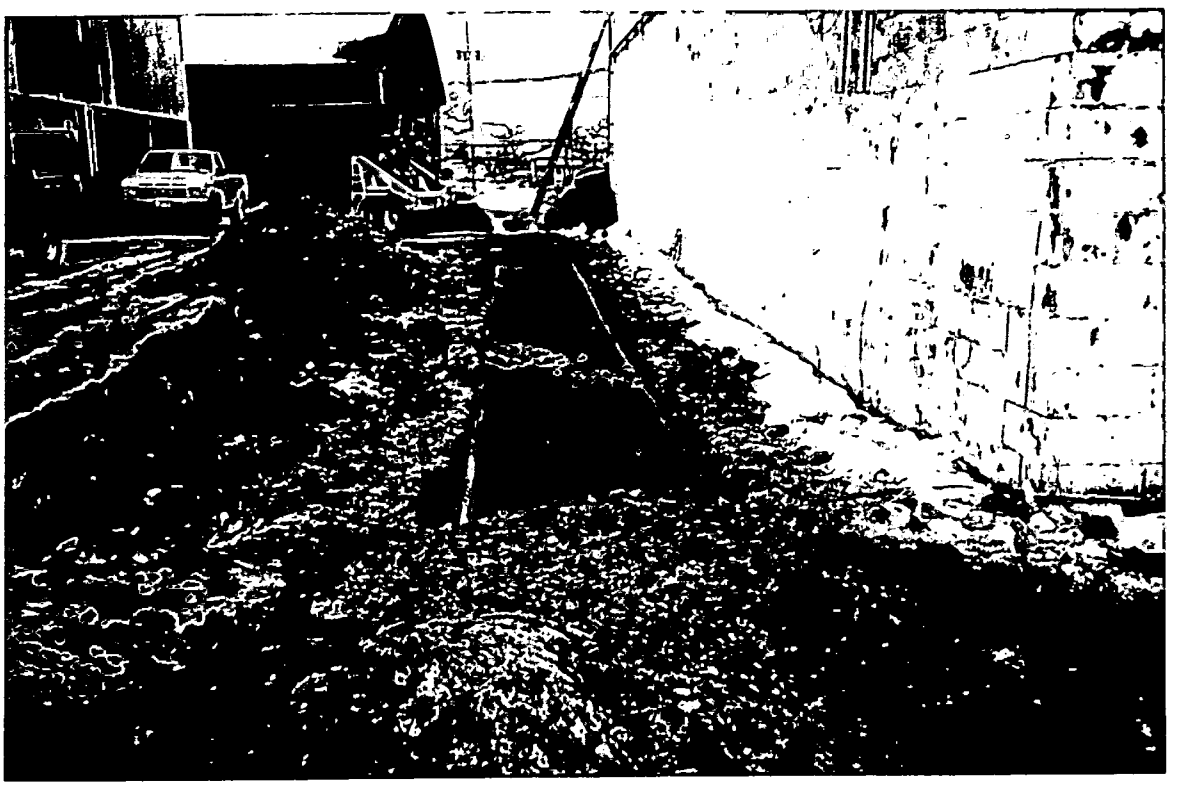
(October – November 1995)



Installation of HDPE Barrier over SVES Horizontal Extraction Wells

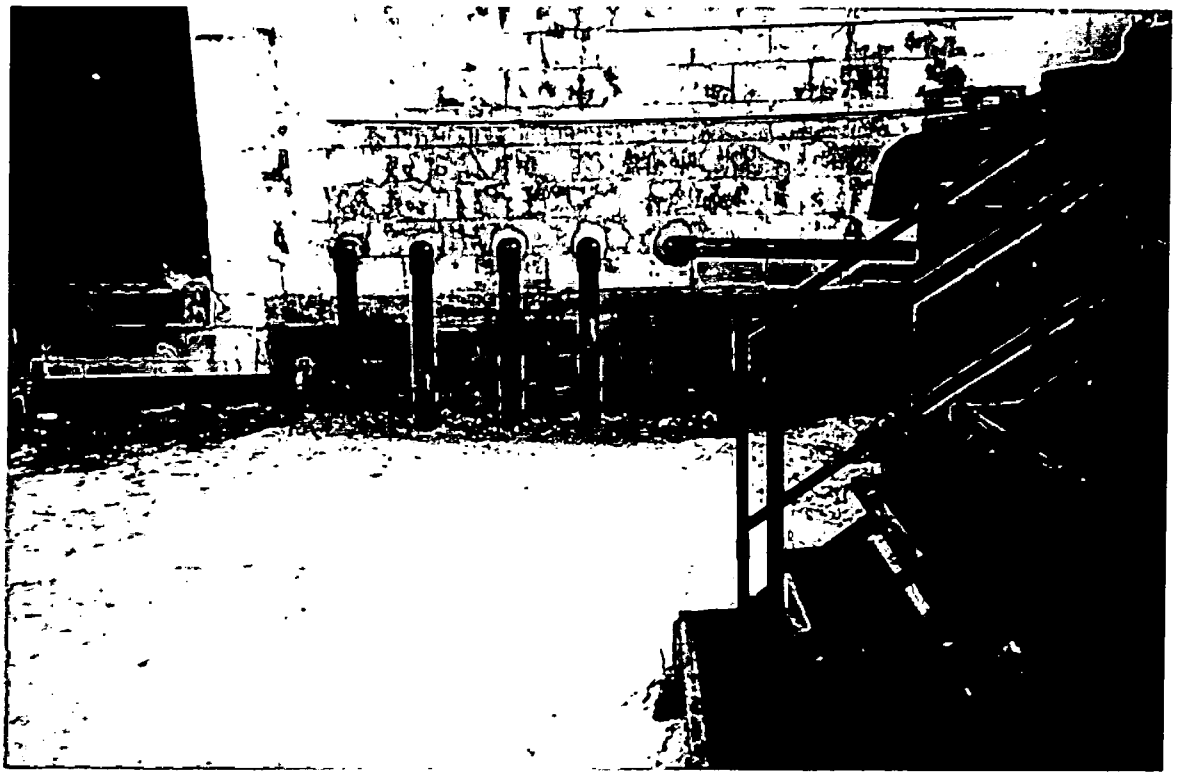
November 1995





SVE System – VE Piping Entrance to Building

(November 1995)

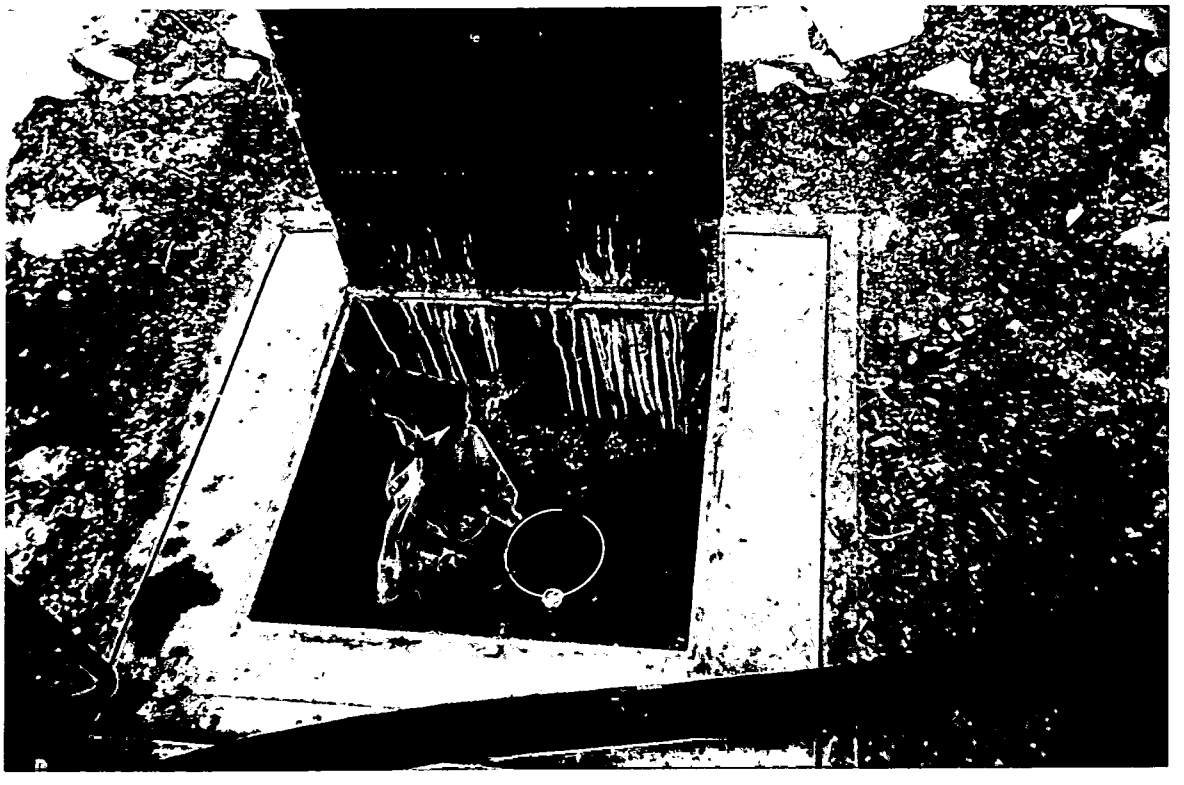


Groundwater Recovery Pipe Chase Enclosure

(November 1995)

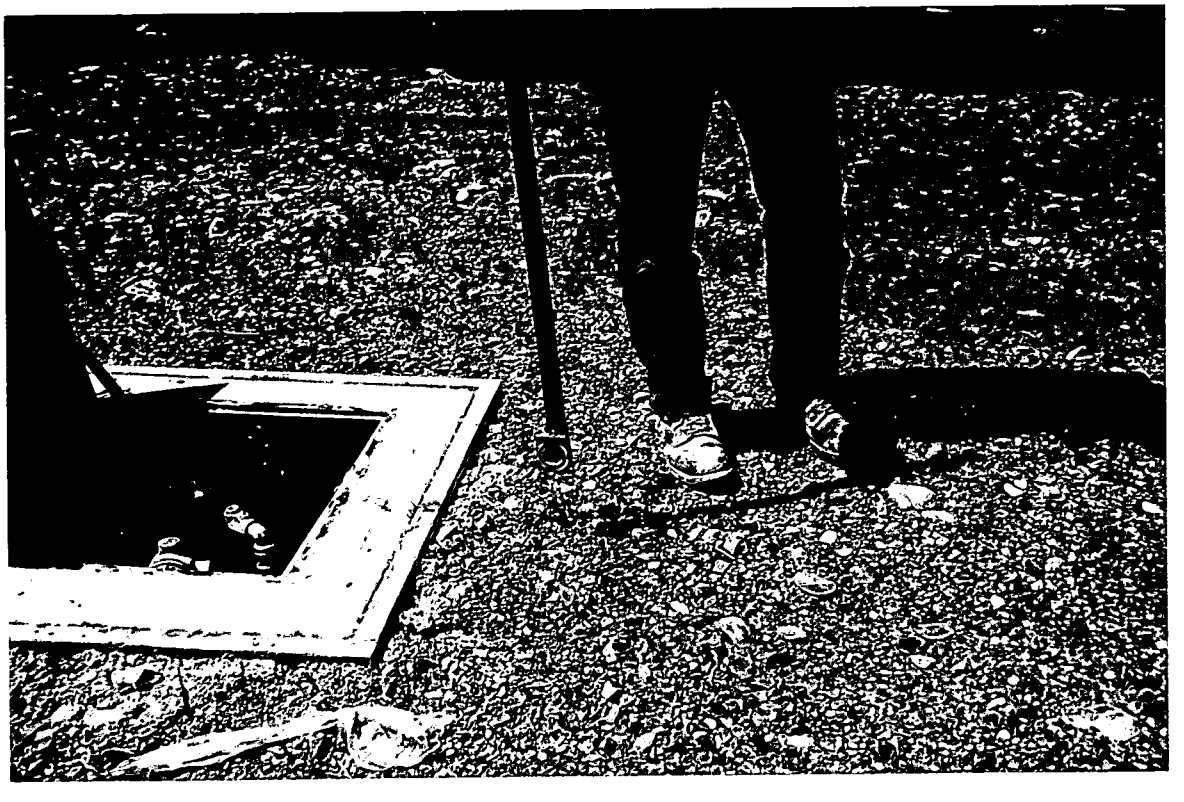
6-inch Recovery Well RW-1

(November 1995)



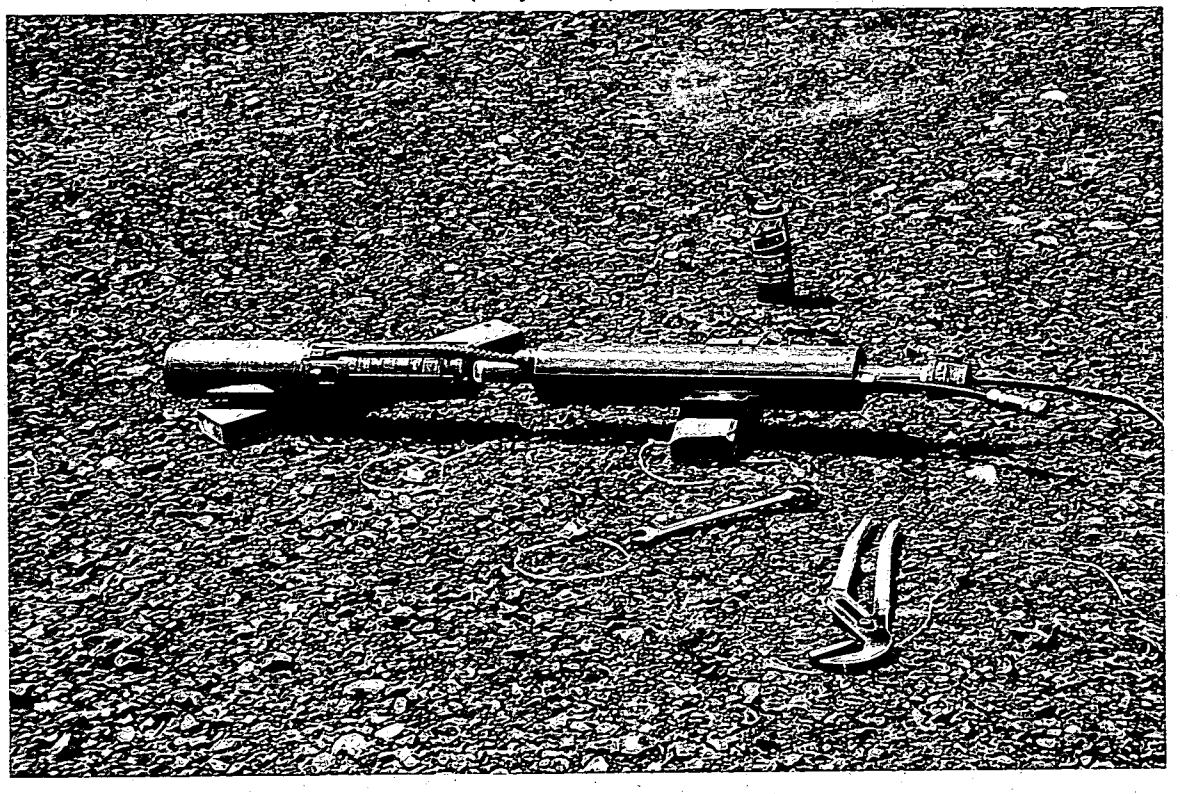
Pitless adapter in 6-inch Groundwater Recovery Well (RW-1)

(May 1996)



Coupled Groundwater and Product Recovery Pumps

(May 1996)

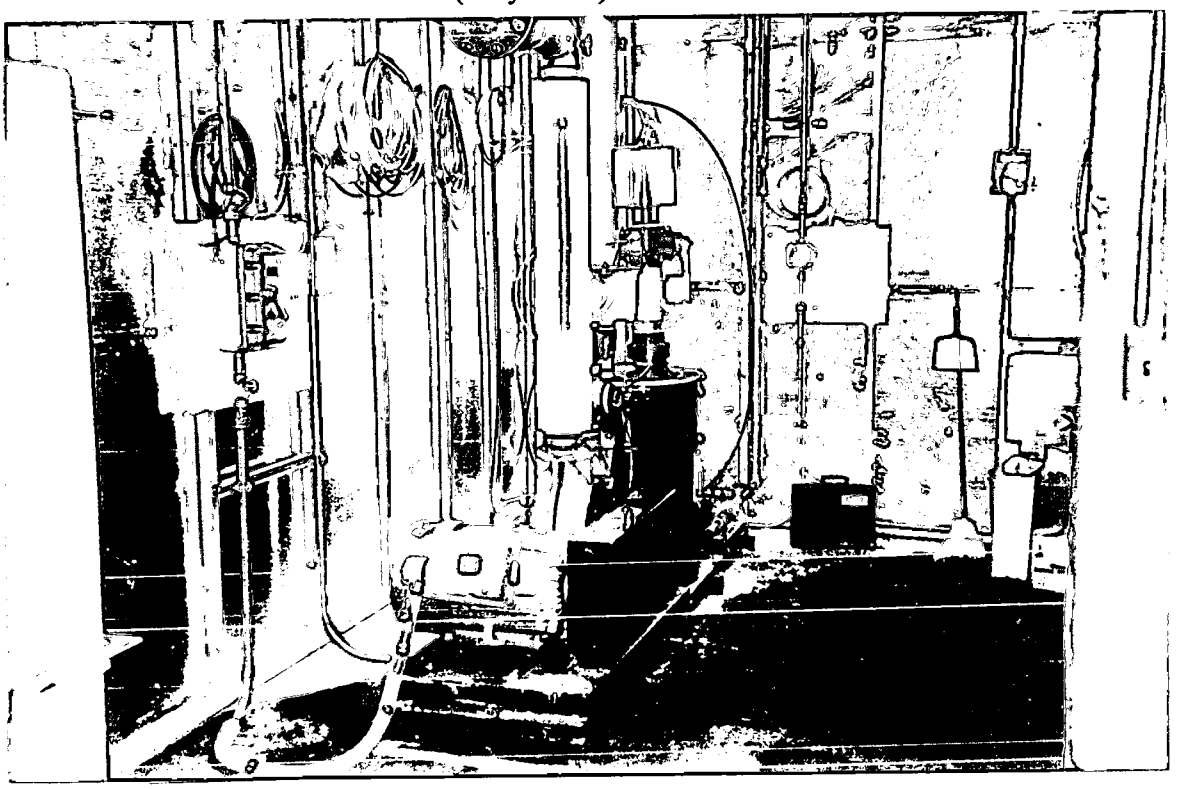


Preparing Groundwater and Product Pumps for Installation in RW-1

(May 1996)

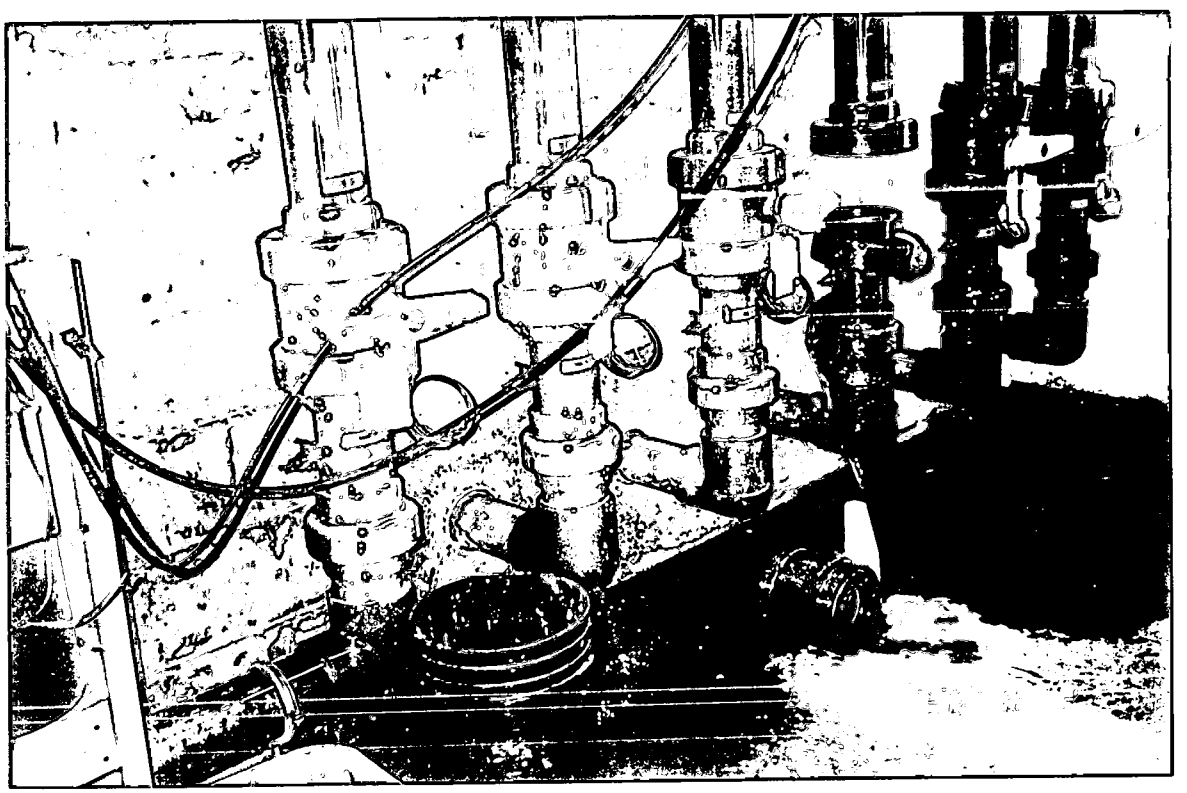
SVE System Skid

(May 1996)



SVE System Wells Inside Building

(May 1996)

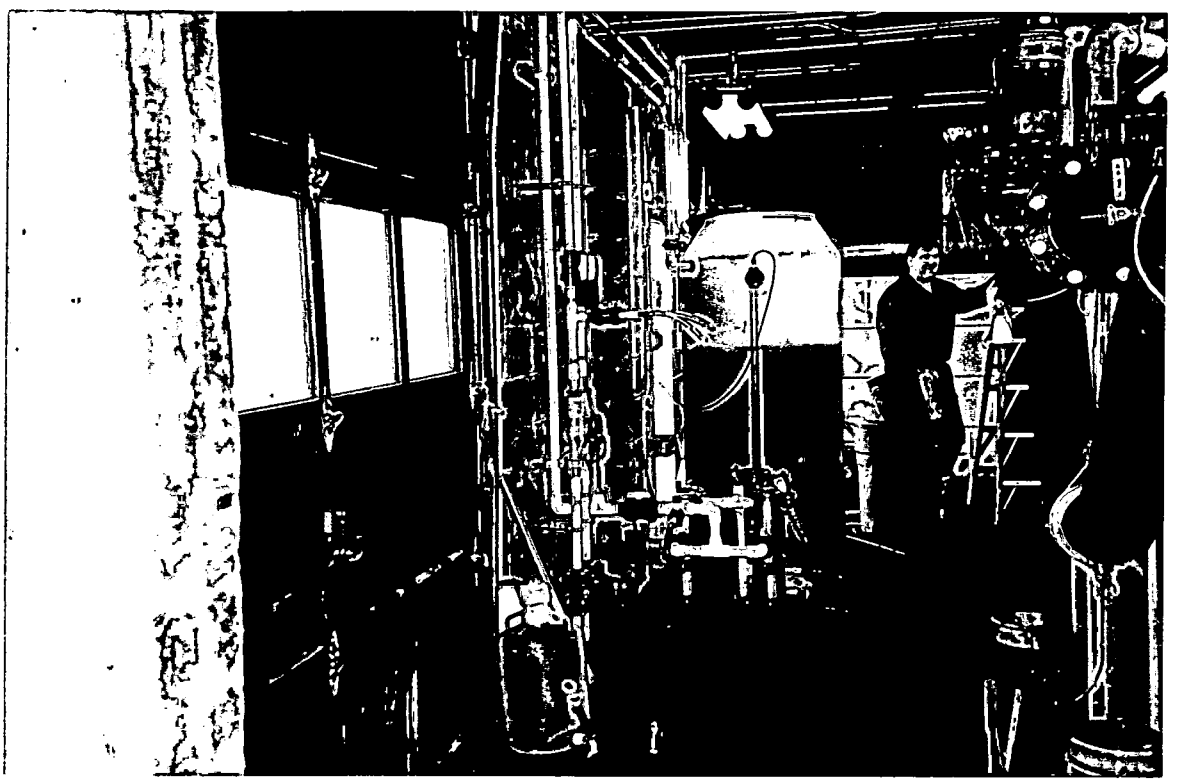


SVE System Carbon Adsorbers

(May 1996)

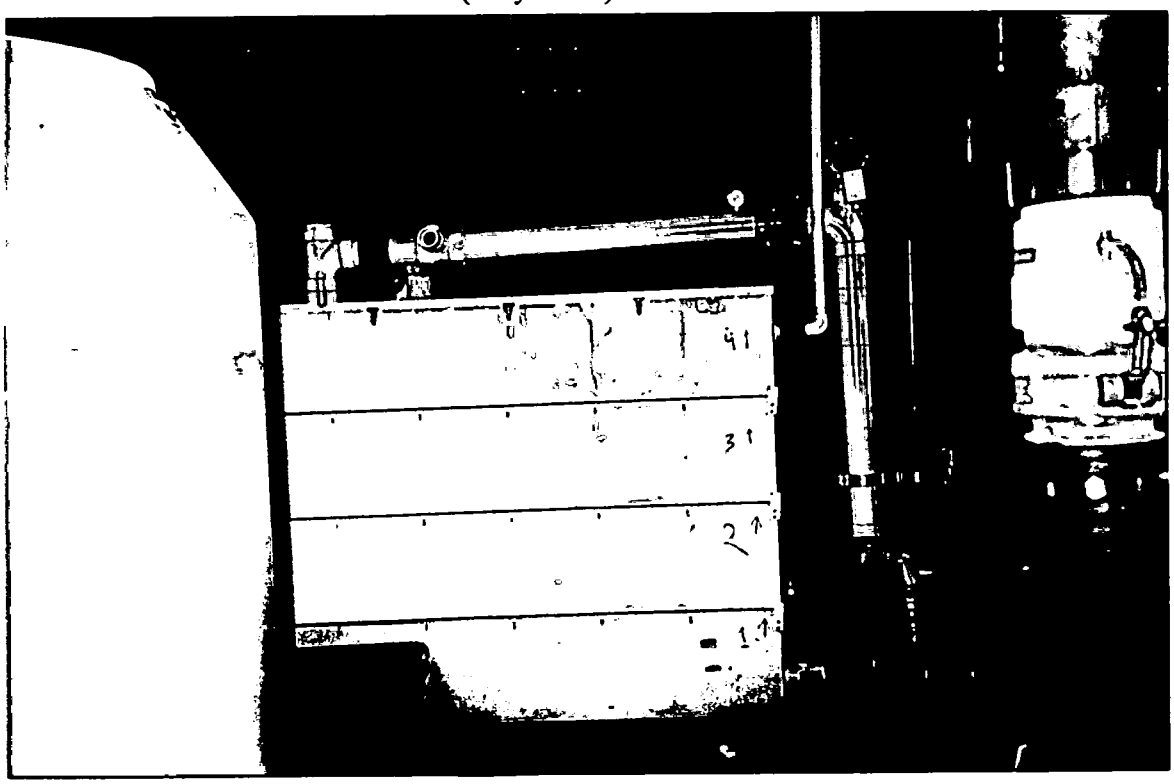
Groundwater Treatment System Equalization Tank and Transfer Pump

(May 1996)



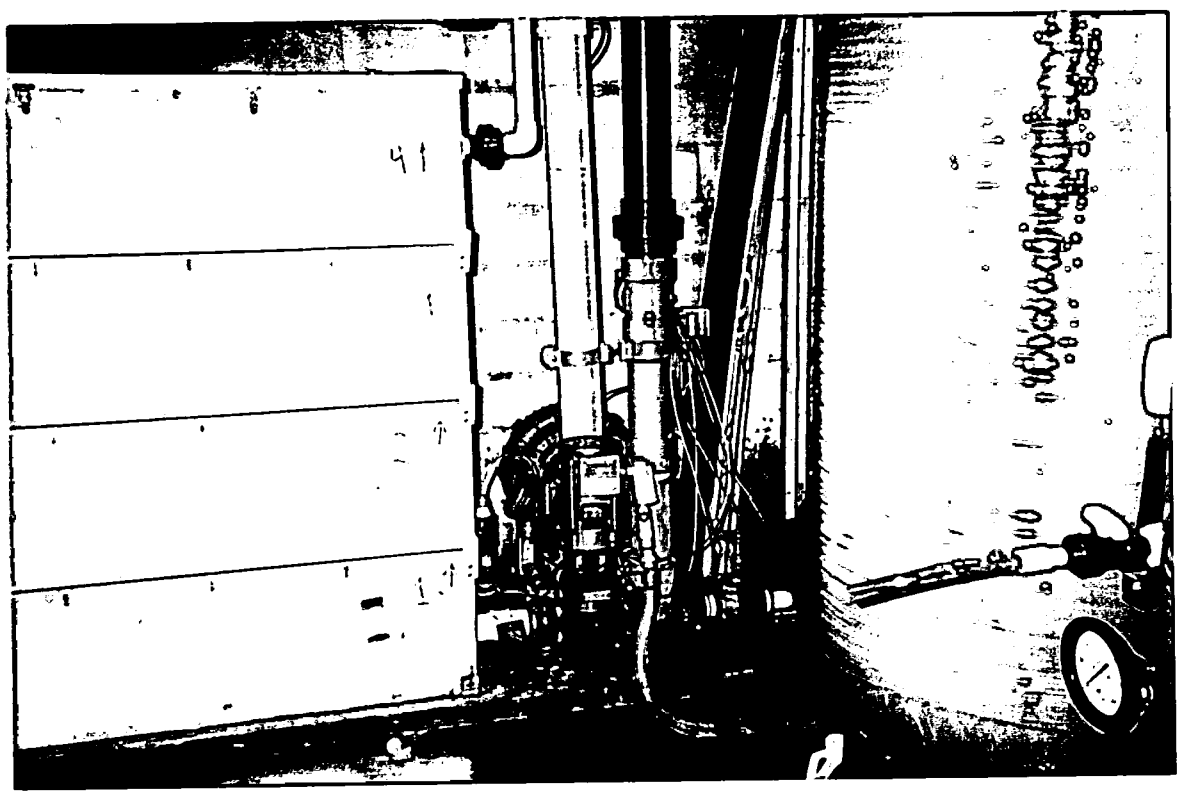
Low Profile Air Stripper and Transfer Pump

(May 1996)

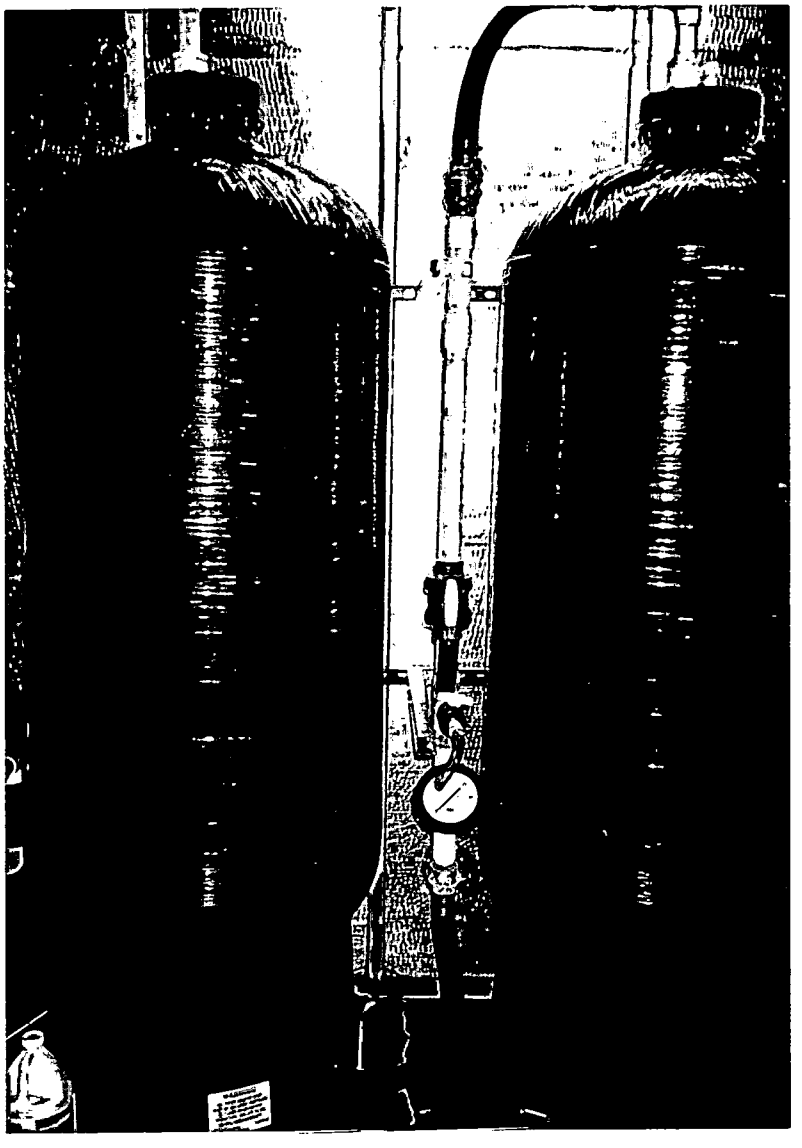


Groundwater Treatment System TP-2 and Liquid Phase GAC Adsorber

(May 1996)



Groundwater Treatment System
Liquid Phase Carbon Adsorbers
(May 1996)

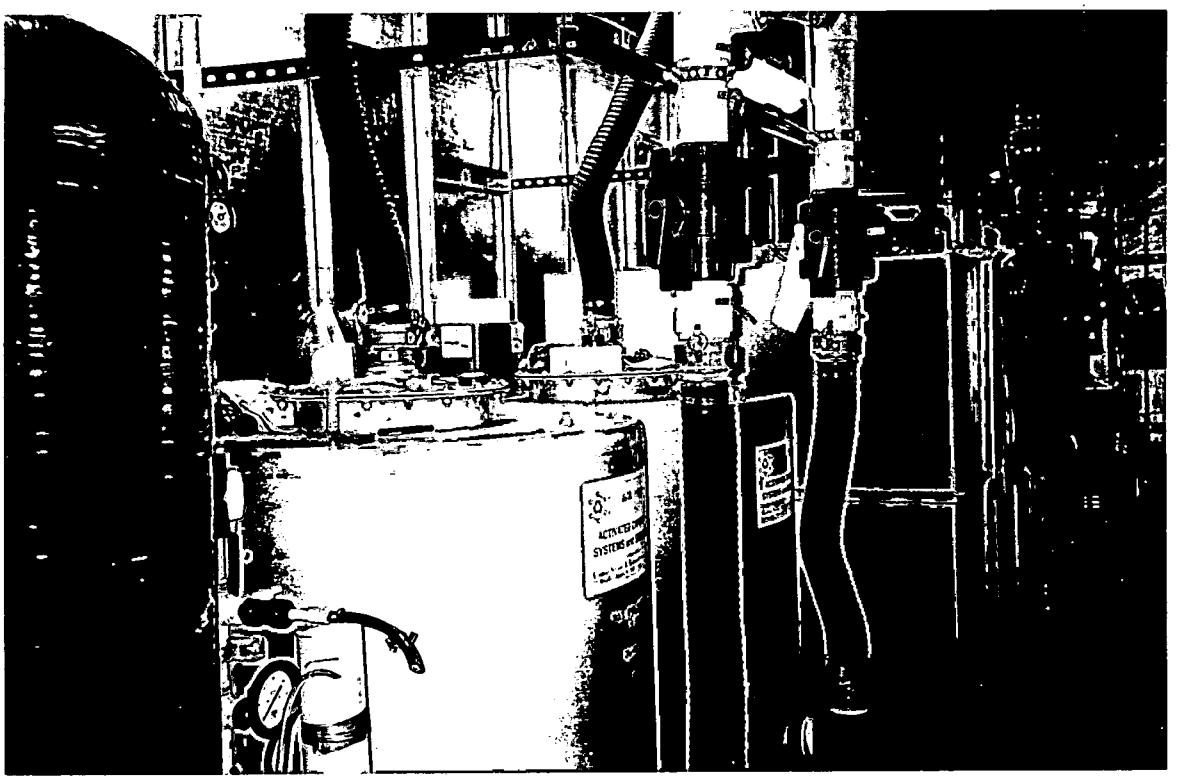


GAC Adsorption Systems

Groundwater Treatment System Vapor Phase Carbon Adsorbers

SVE Carbon Adsorbers

(May 1996)



APPENDIX L

PRECONSTRUCTION MEETING MINUTES – IRON WALL PROJECT

Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

MEETING MINUTES

PRECONSTRUCTION CONFERENCE
CONTINUOUS PERMEABLE REACTION WALL INSTALLATION
GENERAL SEMICONDUCTOR, INC. - SHERBURNE SITE "WEST FIELD"

Wednesday, November 5, 1997 at 9:30 a.m.
S&W No. 41587ZA.9

Attendees:

Stearns & Wheler, LLC
Diane Clark, D.E.
Beth Ann Smith

NYSDEC
Karen Maiurano
David J. Chiusano
John A. May

Jack Howard

S&W Services, Inc.
Greg Myka

Horizontal Technologies, Inc.
Mark Justice

Adsit Septic & Excavation
Robert Adsit

Following introductions of all parties, the first item discussed was the construction schedule previously distributed to all parties by Greg Myka. Greg said the trailer would be on site by November 10. Mark Justice said HTI would mobilize the trencher to the site the end of the week of November 10. Trenching would begin the week of November 17. HTI's goal is the have the project completed before Thanksgiving. It was decided that one progress meeting would be held, primarily for the purpose of updating the NYSDEC on progress, and secondarily for the NYSDEC to send people to the site to view the trenching. A date of November 20 at 10:00 a.m. was selected for the progress meeting. Stearns & Wheler would be prepared to give a presentation for the visitors at that time. The installation of the monitor wells and piezometers will begin in the early part of December.

Preliminary items that were discussed following the schedule include the following:

- **Extra Sets of Documents.** The document repository would be checked to verify construction documents are in place. Dave Chiusano (NYSDEC) and Mark Justice (HTI) also requested they each be sent an extra set of the contract documents.

- **Shop Submittal Schedule.** Greg Myka said he would get the additional submittals out the week of November 10. Included are the HASP, Contractor's Work Plan, QA/QC Plan, Geotextiles, and Erosion Control Plan. The iron submittal had previously been approved.

- **List of Subcontractors.** HTI is doing the trenching, and has contracted with Adsit Septic & Excavation for the site work; Parratt-Wolff will be installing monitoring wells and piezometers; and Pinnacle Construction removed the pilot scale funnel and gate sheetpiling.

- **List of Substitutions.** No substitutions were planned.

Diane Clark said Stearns & Wheler would arrange for control points to be set to allow for placement of southern end of bench and trench. The control points would be in place by mid-week -- November 10.

Mobilization issues discussed included the following:

- **Site Access.** Greg Myka offered to discuss visitor parking with Ray Kenyon. If approved, visitors should park on the Kenyon Press property near the Plating Building as the access road to the West Field will be heavily used by the contractor.

- The trailer and porta-john will be on site by November 10. Dave Chiusano requested the trailer have a space heater.

- **Phone.** S&W Services has a cellular phone that will be available in the trailer. The phone number is (315) 391-4080.

- **Security and Housekeeping.** Temporary fencing will be used around the site in the evening. It was stressed that the site must be left clean.

- **Site Access.** As part of the discussion on site access, Jack Howard mentioned that he was concerned about people driving onto his property fast, missing the turn, and driving into the river. He requested that someone look into what type of barrier could be placed to deter or prevent this happening.

Two issues related to changes in the work that were discussed. First, Greg Myka said that they would not be able to protect MW-19. The representatives from Stearns & Wheler and the NYSDEC said this was all right as the new monitoring wells that would be installed after construction provided sufficient monitoring coverage. If any other changes occur during the course of the project, the NYSDEC should be informed. Similarly, Dave Chiusano said that submittals should go to him with a specific date for review, and he will strive to process them quickly.

QA/QC testing being undertaken primarily refers to compaction testing. Beth Ann Smith explained to Jack Howard that 90% compaction only means the equipment will go over the backfilled material (placed in lifts) a few times. Compaction is important because we are putting more material back in the bench than we took out. Jack's concern was that the soil might be too compacted for farming,

but following Beth Ann's explanation he seemed satisfied. The NYSDEC said they do not need to witness the testing, but will need copies of all test results.

With respect to QA/QC during trenching, Mark Justice said the trencher is equipped with a laser to monitor vertical depth it is digging. He said that monitoring the number of buckets of iron installed is probably the best way to monitor whether enough iron has been placed in the wall.

Photographs were discussed following QA/QC testing. It was noted that General Semiconductor had requested photos not be used with their name for any marketing purposes. Dave Chiusano requested that digital photos (on disc or via e-mail) be provided to him so that he can post construction photos on the NYSDEC intranet. He planned on using the state's digital camera on site.

Miscellaneous issues discussed at the end of the meeting included the following:

- Stearns & Wheler will do air monitoring at the perimeter during construction, but the contractor must do their own breathing zone monitoring as this affects PPE choices for workers.

- It was discussed that a low area of the site probably needs to be filled in prior to the excavation of the bench.

- Dave Chiusano said he would review the analytical results of the landfarm cell soil sampling. If cleanup goals are close to being reached, or have been reached in portions of the cell based on the August sample results, a possible option may be to collect confirmatory samples from those portions of the cell. If concentrations meet cleanup goals, then those portions may be decommissioned so that the soil can be used for filling areas.

- Jack Howard mentioned that he did not like the thoughts of having all the monitoring wells on his property for 20 years if, after five years, only annual sampling was being undertaken. He felt that if he is only getting money for one or two visits per year, it won't be cost effective for him to plow around the wells. He was told the wells along the wall were required in order to monitor long-term performance. However, there may be an opportunity in the future to remove MW-20 and MW-21.

- Dave Chiusano asked what plans were for monitoring following construction. Diane Clark said she preferred to get the initial samples right after the new wells were developed so that quarterly monitoring could be done in December, rather than January or February.

DKC/smp

S&W SERVICES, Inc.

Cazenovia, New York 13035

Attendance

Pre - Construction Meeting

West Field Reactive Iron Wall Installation

Contract No. 3

November 5, 1997

Name	Representing	Telephone #	Fax #
Greg Myka	S&W Services	315-655-4953	315-655-2285
Beth Ann Smith	Stearns & Wheler	315-655-8161	315-655-4180
MARK JUSTICE	HTI	941-956-3544	941-956-2951
[illegible]	ADSIT Septic&Exc	607-674-4554	607-674-2009
Jack Howard	Owner	607-674-9274	SAME
Diane Clark	Stearns & Wheler	315-655-8161	315-655-4180
Karen Hamilton	NYSDEC	518-457-5636	518-457-3972
DAVID J. CHIUSANO	NYSDEC	518-457-7878	518-457-7743
John A. May	NYSDEC	315 426 7551	

APPENDIX N

CONSTRUCTION FIELD MONITORING – IRON WALL PROJECT

enviro**metal**
technologies
inc.

11 May 1998

Diane Clark
Stearns & Wheler, LLC
Environmental Engineers and Scientists
One Remington Park Drive
Cazenovia, New York 13035

Re: Full-Scale *In-Situ* Iron Wall Installation at the Howard Property, Sherburne, New York - 31036.30

Dear Diane:

A full-scale iron wall was installed on the Howard Property site in Sherburne, New York in December 1997, following a successful pilot-scale demonstration of this technology. During construction, EnviroMetal Technology Inc. (ETI) staff were present to provide on-site assistance and document construction activities. This letter provides Stearns & Wheler with ETI's observations and comments on construction.

1.0 INTRODUCTION

The full-scale treatment wall is located on the Howard Farm adjacent to the former General Instrument Corp. (GIC) property, at the site of the pilot-scale system (S&W, 1997). The system consists of two parallel continuous permeable walls orientated in approximately a north-south direction perpendicular to groundwater flow. One wall, 370 ft long, is intended to capture and treat the entire plume. The second wall provides additional residence time in granular iron for degradation of higher VOC concentrations in the core of the plume and is 120 ft in length.

Based on results from the pilot-scale test, a reactive wall thickness of 2 ft is considered sufficient to enable degradation of the VOCs requiring treatment to required effluent criteria.

42 Arrow Road
Guelph, Ontario
Canada N1K 1S6
Tel: (519) 824-0432
Fax: (519) 763-2378

The design assumed a velocity through the system of about 1 ft/day, and used the highest observed VOC concentrations on-site to date in determination of residence time requirements.

To ensure that no groundwater flows beneath the wall, the iron wall was extended a few feet into the clay aquitard. Similarly, to prevent groundwater from overflowing the treatment system the top of the wall was constructed above the expected high water table. The design vertical thickness of the wall was 18 ft, from 3 ft below ground surface (bgs) to 21 ft bgs.

Construction was performed by Horizontal Technologies, Inc. (HTI) using a one pass continuous trencher. The continuous trenching equipment is similar to a large "Ditch Witch". It utilizes a large cutting chain excavator system combined with a trench box and loading hopper. To install the permeable wall, the cutting chain removes the native soil along the trench line. As the trenching machine moves along this line, the granular iron flows through the hopper and trench box into the excavated trench. The trench box wall extend to the width and depth of the trench. The iron used in the treatment wall was obtained by HTI from Connelly-GPM of Chicago, Illinois.

2.0 CONTINUOUS PERMEABLE WALL INSTALLATION

2.1 First Wall (120 ft)

Construction of the 120 ft wall section was initiated on December 10, 1997, beginning at the south end of the line of installation. Granular iron was delivered in bulk to a temporary storage bin on-site, and then added with a backhoe bucket to the hopper of the trencher. The trencher sat in a bench cut about 3 feet bgs. As a means of gauging the volume of iron emplaced in the excavation, the bucket volume (40 ft^3) was estimated, and the number of buckets added to the hopper for a specified length (usually every 10 ft) of travel along the line of installation was monitored. As a second check on the volume emplaced, the number of truckloads of iron (9 yd^3 or 243 ft^3 per truck) brought to the site during trenching operations was also documented.

About 50 ft of trench was completed on December 10, prior to equipment breakdown. Due to concurrent discussions with the site contractor, ETI's bucket count is incomplete for the first 17 ft (Table 1). The last ± 70 ft of the first trench were completed on December 11. Bucket volumes documented during trencher operation are presented in Table 1.

Although inflowing saturated sediments made accurate observations difficult, at least 2 ft of the trench below grade (i.e., from 3 to 5 ft bgs) contained little iron following the pass of the trencher. In places, the upper part of the trench was significantly wider than 1 ft, due to sloughing of the saturated materials. Consequently, on December 12, sediment infilling this upper part of the trench was removed and the trench backfilled with iron to elevation of the bench. The iron volume used to backfill the upper part of the trench is not included in Table 1. Field observations made during the backfilling of the trench to grade with the backhoe include the following:

1. along most of the trench, a distinct "strip" of iron could be exposed with the backhoe about 2 to 3 ft below grade. Due to saturated soils, the width of this strip could not be measured;

2. little to no iron appeared to have been placed to about 5 ft below grade at two locations, a 5 ft section about 15 ft from the north end of the installation, and a 10 ft section adjacent to well MW-19 in the central portion of the trench. These locations were backfilled with iron to a depth of $\pm$ 5 ft using the backhoe;

3. the installation passed through the location of the pilot-scale system. In this area, there appeared to be some movement of the iron laterally into the coarse pea gravel, at least to the depth ($\pm$4 ft) exposed by the backhoe;

4. a slight petroleum sheen was visible on ponded groundwater at the south end of the trench;

5. there appeared to be some solidification of the iron at the back of the boot and hopper of the continuous trencher when it was removed.

As shown in Table 1, there was some variability in the estimated volume of iron added along the line of installation using the continuous trencher. The overall volume estimate is 90% of the design objective. As mentioned previously, a second estimate of emplaced iron was derived from the truckloads of iron brought to the installation. After subtracting the material left in the temporary storage area, there appeared to have been about 62 yd^3 of iron placed in the hopper. This represents 87% of the 1,920 ft^3 which would have been placed in a 16 ft deep, 120 ft long trench by the trencher. We feel the close agreement between these two estimates is somewhat fortuitous, as the method of estimating probably involves inaccuracies of at least 10%.

2.2 Second Wall (370 ft)

After completion of the first wall, the bench was further excavated to the west and extended to allow the trencher to complete the 370 ft long wall. The bench was completed to about 2.5 ft bgs. The second trench was placed parallel to the first wall and set 10 ft to the west (downgradient) of the first.

Trenching began on December 15th, starting at the south end of the wall. However, due to difficulties in freeing the pipe from the back of the trenching boot, trenching was halted. The pipe is used to prevent soil from entering, and iron from leaving, the boot during the time required to get the cutting boom in a vertical position in the ground. The cutting boom was removed from the ground, repaired, the pipe reattached and positioned at the start. Seventeen loads of iron in an excavator bucket (about 510 ft^3) were used during this first attempt.

A successful attempt was made December 16 and 17. As with installation of the first wall, the amount of iron placed in each 10 ft section of the trench was monitored. These results are shown in Table 2. From estimates of the volume of iron placed in the trench, a total of 4,500 ft^3 was installed. This is 74% of the volume expected if the dimensions of the trench were 18 ft deep and 1 ft in thickness along its entire length. However, the installed iron settled below the final depth required as the trencher moved along. Assuming that on average the wall completed by the trencher was 15 ft in height the volume of iron added during trenching would be 86% of the expected volume. Additional iron was added after trenching to bring the iron up to about 3 ft bgs. This additional iron is not included in Table 2.

During installation, trenching was interrupted at 70, 90, 130 and 270 ft. The first three interruptions were for short periods. At 270 ft, trenching was stopped until noon the next day (20 hr) to obtain a replacement conveyor belt. During this time the iron may have compacted and/or slightly cemented in the boot. If this were the case, some time and vibration may have been needed to start the iron flowing again. As can be seen from Table 2, this may have been the situation, as the amount of iron added between 270 and 300 ft was only 50% that expected. Furthermore, after trenching, when iron was placed with the excavator, considerably more iron was added in this section. The iron placed with the trencher in this section was estimated to be about 6 to 8 ft below the desired height.

3.0 SUMMARY

Iron installation in the two permeable walls was completed on 18 December 1997. Estimates of the volume of iron installed with the trencher are about 90% and 74% of the expected volume for the 120 ft and 370 ft walls respectively.

As noted in Tables 1 and 2, there are some sections of both walls where volumetric measurements indicate that less than the design thickness of 100% iron was installed with the trencher. While there are various ways of evaluating the integrity of these sections, this is probably not warranted unless monitoring well data indicate that insufficient degradation is occurring in groundwater passing through these sections of the wall.

Please call us with any questions regarding this report.

Sincerely,

EnviroMetal Technologies Inc.

John Vogan, M.Sc.
Manager

Robert Focht, M.Sc., P.Eng.
Remediation Engineer

Encls.

C:\etl\31000\31036 Installation Letter.doc

REFERENCES:

ETI, 1997. Summary Report – Field Performance of Pilot-Scale Granular Iron In-Situ Treatment System, Sherburne, New York. EnviroMetal Technologies Inc, Guelph, Ontario, Canada. February.

S&W, 1997. Bid Documents for Continuous Permeable Reaction Wall Installation Contract No. 3, Howard Property, Sherburne, NY, General Instrument Corporation. S&W Services, Inc., Cazenovia, New York. May.

Table 1: Amount of Iron Installed in 120 Foot Long Permeable Wall by Continuous Trencher

Distance (ft)[a]	Number of Buckets[b]	Estimated Volume of Iron (ft^3)[c]	Percent of Expected Volume[d]
0 -17	ND[e]	ND	ND
17 - 25	4	120	94
25 - 32	4	120	107
32 – 42	5	150	94
42 – 52	5	150	94
52 – 64	5.5	165	86
64 – 69	1.5[e]	45	56
69 – 75	4	120	125
75 – 85	5	150	94
85 – 95	5	150	94
95 – 106	4.5	135	78
106 – 120	6	180	80
TOTAL	**49.5**	**1,485**	**90**

ND = Not Determined

[a] Distance along wall starting at the south end.

[b] Number of excavator buckets of iron placed in trencher hopper.

[c] Excavator bucket was estimated to be filled to 75% capacity (30 ft^3).

[d] Expected volume assumes 16 ft depth and 1 ft width (or 160 ft^3 per ten linear feet of wall).

[e] Accurate count was not obtained.

Table 2: Amount of Iron Installed in 370 Foot Long Permeable Wall by Continuous Trencher

Distance (ft)[a]	Number of Buckets[b]	Estimated Volume of Iron (ft^3)[c]	Percent of Expected Volume[d]
Start-Up	11	ND	ND
0 -10	5	150	100
10 - 20	5	150	100
20 - 30	3	90	60
30 - 40	6	180	120
40 - 50	3	90	60
50 - 60	5	150	100
60 - 70	4	120	80
70 - 80	4	120	80
80 - 90	6	180	120
90 - 100	7	210	140
100 - 110	3	90	60
110 - 120	3	90	60
120 - 130	2	60	40
130 - 140	3	90	60
140 – 150	4	120	80
150 – 160	6	180	120
160 – 170	5	150	100
170 – 180	7	210	140
Sub-Total	**81**	**2,430**	**90**

ND = Not Determined

[a] Distance along wall starting at the south end.

[b] Number of excavator buckets of iron placed in trencher hopper.

[c] Excavator bucket was estimated to be filled to 75% capacity (30 ft^3).

[d] Expected volume assumes 15 ft depth and 1 ft width (or 150 ft^3 per ten linear feet of wall).

e Accurate count was not obtained.

f Not including sections 200, 360 and 370.

Table 2: Amount of Iron Installed in 370 Foot Long Permeable Wall by Continuous Trencher - Continued

Distance (ft)[a]	Number of Buckets[b]	Estimated Volume of Iron (ft^3)[c]	Percent of Expected Volume[d]
180 - 190	4	120	80
190 - 200	>1[e]	>30	>20
200 - 210	3	90	60
210 - 220	3	90	60
220 - 230	4	120	80
230 - 240	7	210	140
240 - 250			
250 - 260	4	120	80
260 - 270	3	90	60
270 - 280	3	90	60
280 - 290	3	90	60
290 - 300	3	90	60
300 - 310	4	120	80
310 - 320	6	180	120
320 - 330	6	180	120
330 - 340	13	390	260
340 - 350	3	90	60
350 - 360	>1[e]	>30	>20
360 - 370	>1[e]	>30	>20
Sub-Total	**69**	**2,070[f]**	**82[f]**
TOTAL	**150**	**4,500[f]**	**86[f]**

ND = Not Determined

[a] Distance along wall starting at the south end.

[b] Number of excavator buckets of iron placed in trencher hopper.

[c] Excavator bucket was estimated to be filled to 75% capacity (30 ft^3).

[d] Expected volume assumes 15 ft depth and 1 ft width (or 150 ft^3 per ten linear feet of wall).

[e] Accurate count was not obtained.

[f] Not including sections 200, 360 and 370.

parratt wolff inc

RECEIVED
STEARNS & WHELER L.L.C.
MAY 1 1 1998

May 7, 1998

Mr. Greg Myka
S & W Services, Inc.
One Remington Park Drive
Cazenovia, New York 13035

Re: 97265
As-Built Drawings – Piezometers and Monitoring Wells
General Instruments
Sherburne, New York

Dear Mr. Myka:

As requested, enclosed are diagrams showing the details of each piezometer and monitoring well installed for the above project. Please note that a temporary riser pipe extends to two feet above ground service at all piezometer locations. The piezometers will be modified per the contract drawings once the water table falls in the project area.

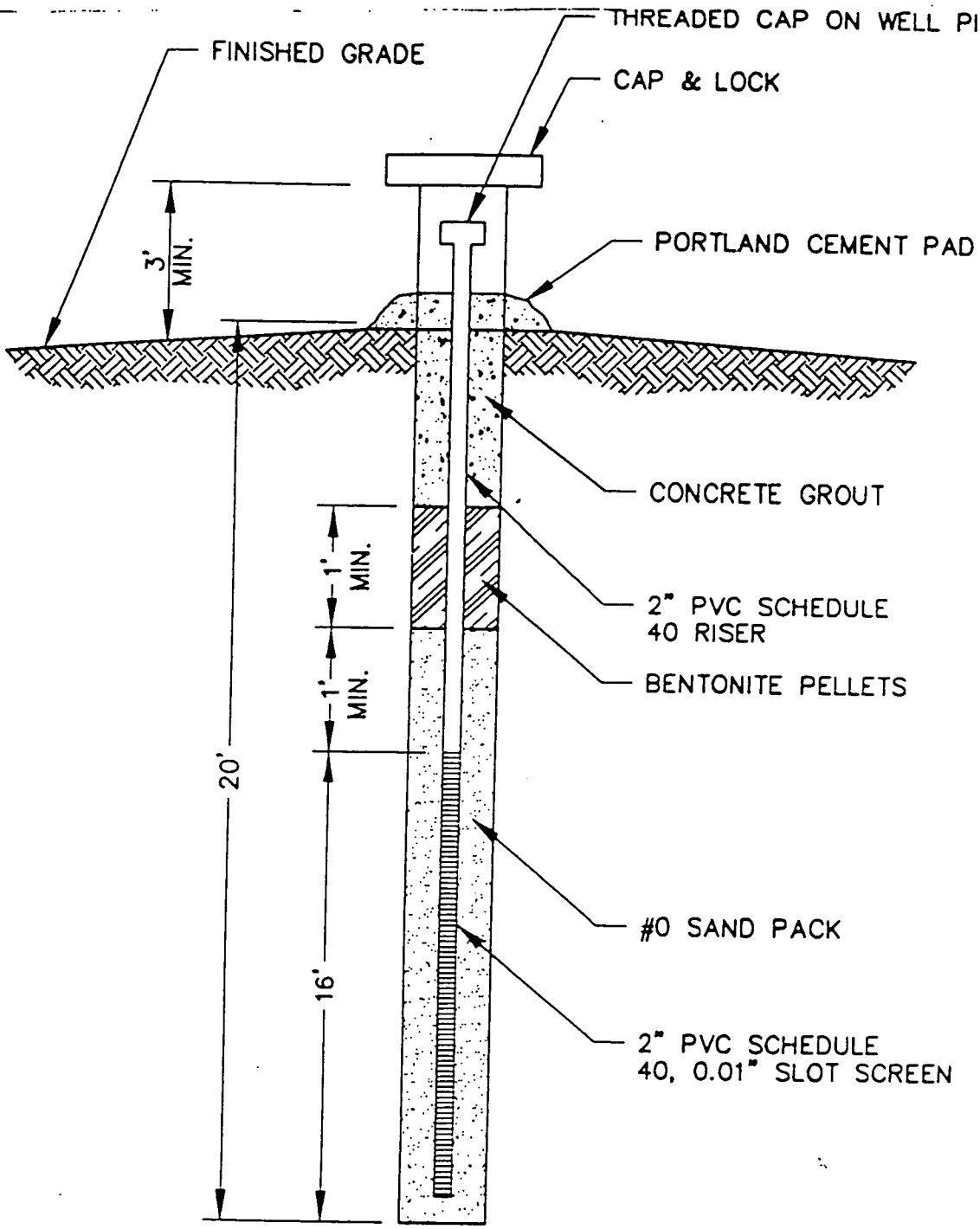
Thank you again for the continued opportunity to work with you on this project.

Very truly yours,

PARRATT-WOLFF, INC.

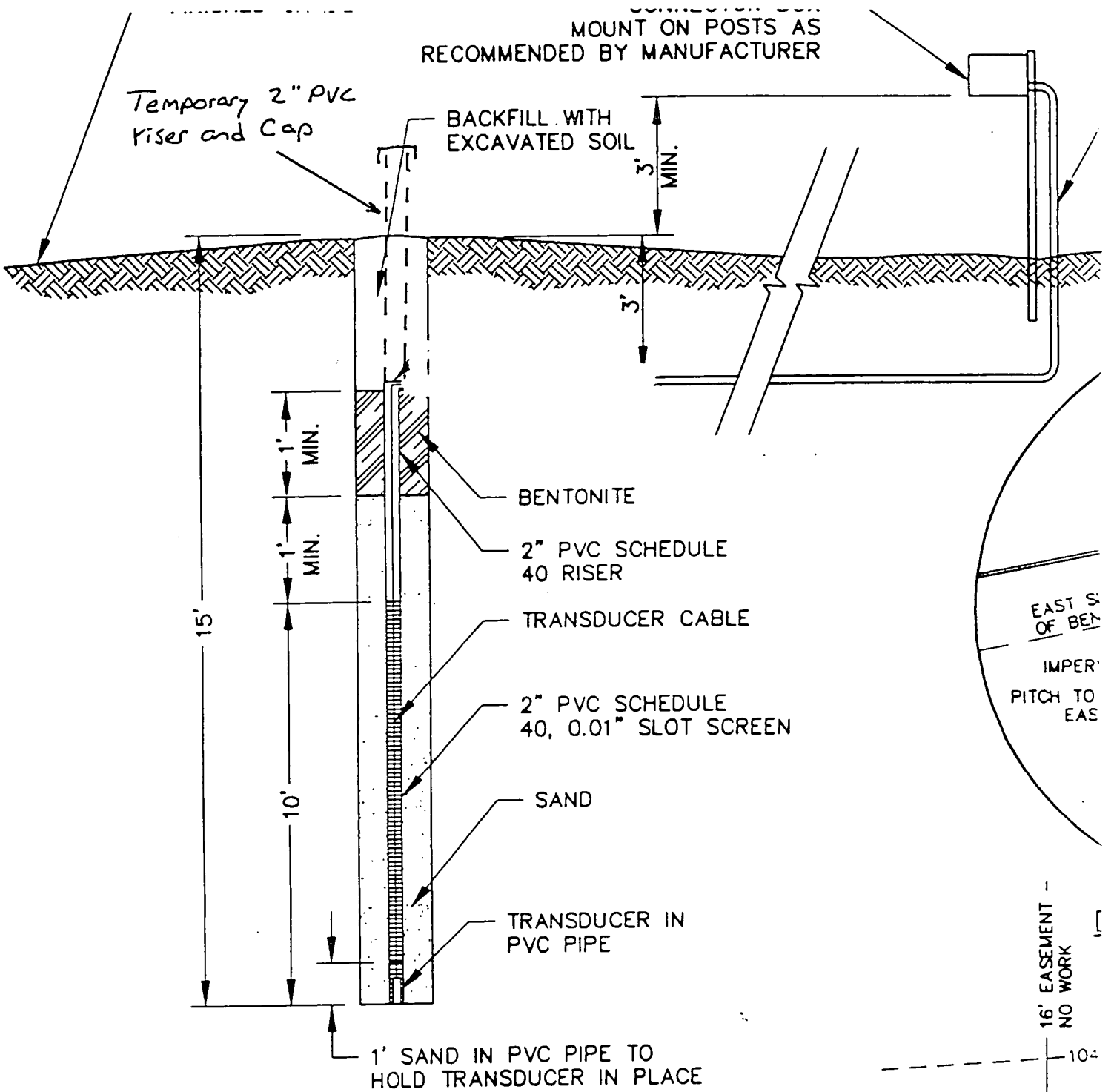
William Morrow
WHM/blo

☐ P.O. Box 56, 5879 Fisher Road, East Syracuse, NY 13057 Telephone 315-437-1429 or 800-782-7260 FAX 315-437-1770
☐ P.O. Box 1029, 501 Millstone Drive, Hillsborough, NC 27278 Telephone 919-644-2814 or 800-627-7920 FAX 919-644-2817



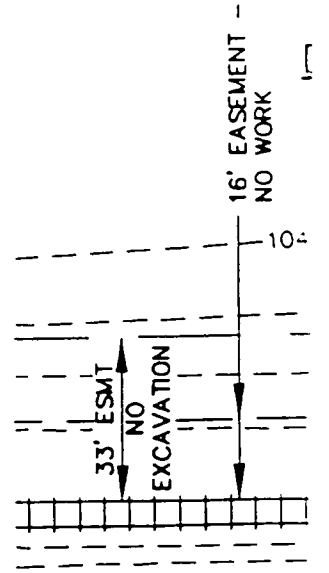
MONITORING WELL DETAIL

NOT TO SCALE



TRANSDUCER PIEZOMETER DETAIL

NOT TO SCALE



Boring/Well ID: 30U

Project Name: General Semiconductor Sherburne
Job No: 41587ZA
Start Date & Time: 11/19/98 1045
Finish Date & Time: 11/19/98 1130
Drilling Co: Parratt-Wolff
Driller: Mark
S&W Inspector: TLH
Drill Rig Type: CME Track
Drilling Method: 4.25" HSA
Weather:

Groundwater Observations

Time:
Casing Depth:
Boring Depth: 15'
Depth to Water:
below surface _____ below meas. pt. _____
Surface Elevation:
Measuring Point Elevation:
Groundwater Elevation:

Depth (ft)	Blow Counts	PID (PPM)	Sample Log	Recovery (ft)	NAPL	Lithology	Sample Log Key: ▼ Depth to Groundwater Sample Description	Depth (ft)	Well Diagram	
1							Moist brown SILT	1		Concrete Pad
2								2		
3								3		Bentonite
4								4		2" ID PVC Riser
5							Moist brown SILT, some coarse gravel ▼	5		
6								6		
7								7		
8							Wet coarse GRAVEL, some silt	8		
9								9		#0 Sand Pack
10								10		
11								11		
12								12		2" ID, .01" PVC Screen
13								13		
14								14		
15								15		
16							Wet coarse GRAVEL	16		
17								17		
18								18		
19								19		
20								20		
21								21		
22								22		
23								23		
24								24		
25								25		
26								26		
27								27		
28								28		
29								29		
30								30		

Boring/Well ID: **P-11**

Project Name: General Semiconductor Sherburne
Job No: 41587ZA
Start Date & Time: 11/18/98 1345
Finish Date & Time: 11/19/98 1430
Drilling Co: Parratt-Wolff
Driller: Mark
S&W Inspector: TLH
Drill Rig Type: CME Track
Drilling Method: 4.25" HSA
Weather:

Groundwater Observations

Time:
Casing Depth:
Boring Depth: 15'
Depth to Water:
below surface _____ below meas. pt. _____
Surface Elevation:
Measuring Point Elevation:
Groundwater Elevation:

Depth (ft)	Blow Counts	PID (PPM)	Sample Log	Recovery (ft)	NAPL	Lithology	Sample Log Key: ▼ Depth to Groundwater Sample Description	Depth (ft)	Well Diagram	
1							Moist brown SILT	1		Concrete Pad
2								2		
3								3		Bentonite
4								4		2" ID PVC
5							▼	5		Riser
6							Wet brown SILT	6		
7								7		
8								8		
9								9		#0 Sand Pack
10								10		
11								11		
12								12		2" ID, .01"
13							Wet brown SILT, some coarse gravel	13		PVC Screen
14								14		
15								15		
16								16		
17								17		
18								18		
19								19		
20								20		
21								21		
22								22		
23								23		
24								24		
25								25		
26								26		
27								27		
28								28		
29								29		
30								30		

Boring/Well ID: **P-10**

Project Name: General Semiconductor Sherburne
Job No: 41587ZA
Start Date & Time: 11/19/98 1145
Finish Date & Time: 11/19/98 1245
Drilling Co: Parratt-Wolff
Driller: Mark
S&W Inspector: TLH
Drill Rig Type: CME Track
Drilling Method: 4.25" HSA
Weather:

Groundwater Observations

Time:
Casing Depth:
Boring Depth: 15'
Depth to Water:
below surface _____ **below meas. pt.** _____
Surface Elevation:
Measuring Point Elevation:
Groundwater Elevation:

Depth (ft)	Blow Counts	PID (PPM)	Sample Log	Recovery (ft)	NAPL	Lithology	Sample Log Key: ▼ Depth to Groundwater Sample Description	Depth (ft)	Well Diagram	
1							Moist brown SILT	1		Concrete Pad
2								2		
3								3		Bentonite
4								4		2" ID PVC
5							▼	5		Riser
6							Wet brown SILT	6		
7								7		
8								8		
9								9		#0 Sand Pack
10								10		
11							Wet coarse GRAVEL	11		
12								12		2" ID, .01"
13								13		PVC Screen
14								14		
15								15		
16								16		
17								17		
18								18		
19								19		
20								20		
21								21		
22								22		
23								23		
24								24		
25								25		
26								26		
27								27		
28								28		
29								29		
30								30		

Boring/Well ID: 30U

Project Name: General Semiconductor Sherburne
Job No: 41587ZA
Start Date & Time: 11/19/98 1045
Finish Date & Time: 11/19/98 1130
Drilling Co: Parratt-Wolff
Driller: Mark
S&W Inspector: TLH
Drill Rig Type: CME Track
Drilling Method: 4.25" HSA
Weather:

Groundwater Observations

Time:
Casing Depth:
Boring Depth: 15'
Depth to Water:
below surface _____ below meas. pt. _____
Surface Elevation:
Measuring Point Elevation:
Groundwater Elevation:

Depth (ft)	Blow Counts	PID (PPM)	Sample Log	Recovery (ft)	NAPL	Lithology	Sample Log Key: ▼ Depth to Groundwater Sample Description	Depth (ft)	Well Diagram	
1							Moist brown SILT	1		Concrete Pad
2								2		
3								3		Bentonite
4								4		2" ID PVC
5							Moist brown SILT, some coarse gravel ▼	5		Riser
6								6		
7								7		
8							Wet coarse GRAVEL, some silt	8		
9								9		#0 Sand Pack
10								10		
11								11		
12								12		2" ID, .01"
13								13		PVC Screen
14								14		
15								15		
16							Wet coarse GRAVEL	16		
17								17		
18								18		
19								19		
20								20		
21								21		
22								22		
23								23		
24								24		
25								25		
26								26		
27								27		
28								28		
29								29		
30								30		

Boring/Well ID:**29 U**

Project Name: General Semiconductor Sherburne
Job No: 41587ZA
Start Date & Time: 11/18/98 1300
Finish Date & Time: 11/19/98 1330
Drilling Co:Parratt-Wolff
Driller: Mark
S&W Inspector: TLH
Drill Rig Type: CME Track
Drilling Method: 4.25" HSA
Weather: _____

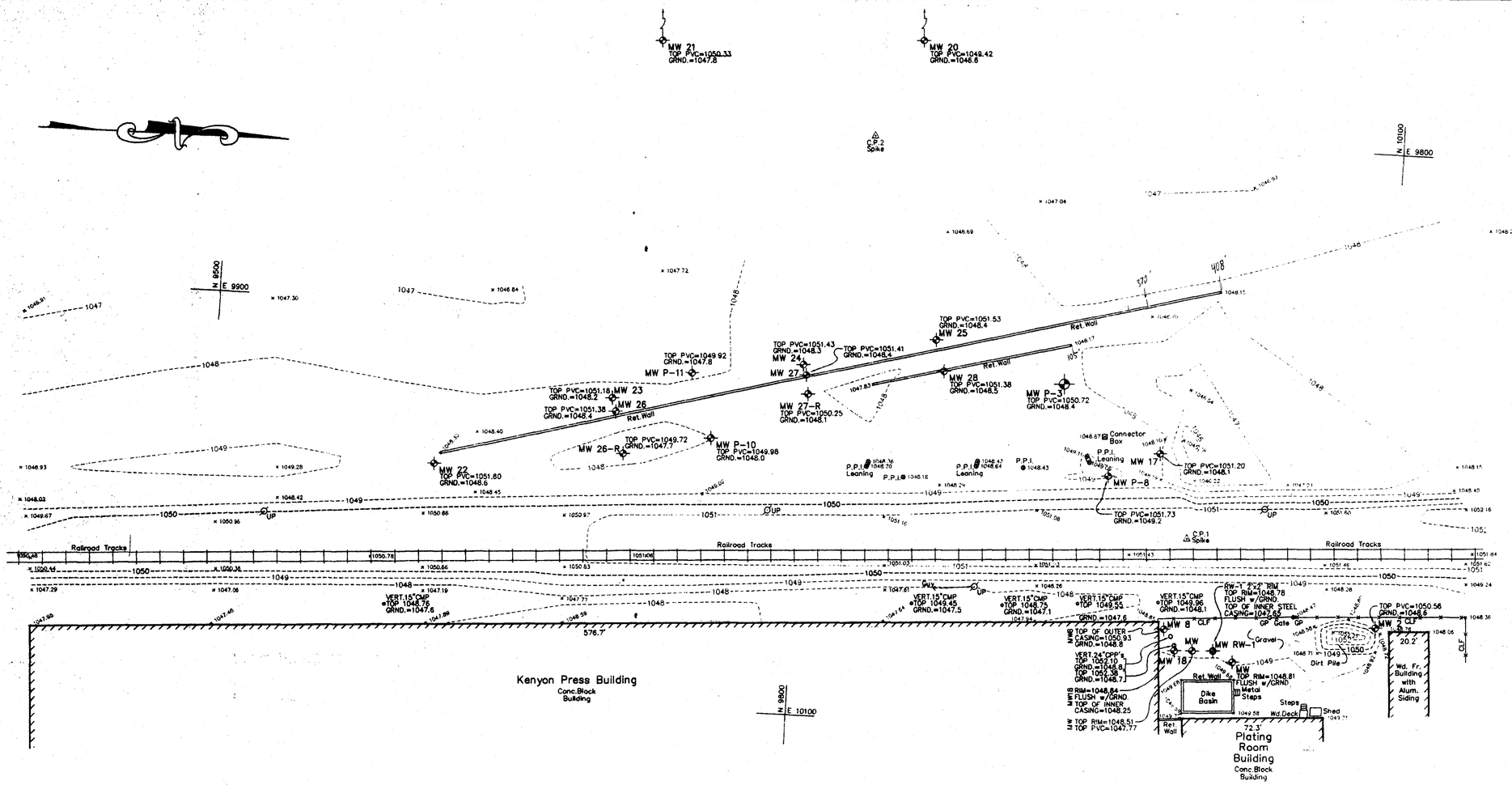
Groundwater Observations

Time: _____
Casing Depth: _____
Boring Depth:15'
Depth to Water: _____
below surface _____ below meas. pt. _____
Surface Elevation: _____
Measuring Point Elevation: _____
Groundwater Elevation: _____

Depth (ft)	Blow Counts	PID (PPM)	Sample Log	Recovery (ft)	NAPL	Lithology	Sample Log Key: ▼ Depth to Groundwater Sample Description	Depth (ft)	Well Diagram	
1								1		Concrete Pad
2							Moist brown SILT	2		
3								3		Bentonite
4								4		2" ID PVC Riser
5							Moist tan SILT ▼	5		
6								6		
7							Wet brown SILT	7		
8								8		
9								9		#0 Sand Pack
10								10		
11								11		
12								12		2" ID, .01" PVC Screen
13								13		
14							Wet brown SILT, some coarse gravel	14		
15								15		
16								16		
17								17		
18								18		
19								19		
20								20		
21								21		
22								22		
23								23		
24								24		
25								25		
26								26		
27								27		
28								28		
29								29		
30								30		

APPENDIX Q

RECORD DRAWINGS/SITE SURVEY – IRON WALL PROJECT



LEGEND		ABBREVIATIONS	
	BUILDING LINE	ALUM.	ALUMINUM
1052	ONE FOOT INTERVAL GROUND CONTOUR	BLK.	BLOCK
+48.86	SPOT ELEVATION	CMP	CORRUGATED METAL PIPE
△C.P. 4	SURVEY CONTROL POINT	Conc.	CONCRETE
CLF	CHAIN LINK FENCE	CPP	CORRUGATED PLASTIC PIPE
⊙GP	GATE POST	Fr.	FRAME
UP	UTILITY POLE	GRND.	GROUND
<------	GUY WIRE & ANCHOR	PVC	POLY-VINYL CHLORIDE
⊕MW 1	MONITORING WELL	Ret.Wall	RETAINING WALL
⊙P.P.I.	PETROLEUM PRODUCT INTERCEPTION SYSTEM	VERT.	VERTICAL
		Wd.	WOOD

NOTES :

1. ELEVATIONS SHOWN ARE BASED ON THE TOP OF PVC CASING AT MONITORING WELL MW 17. Elev. 1051.20
2. HORIZONTAL GRID IS ASSUMED.
3. THE LOCATION OF UNDERGROUND UTILITIES ARE OBTAINED BY FIELD MEASUREMENT WHERE PRACTICABLE, OTHERWISE FROM VARIOUS SOURCES AND ARE APPROXIMATE ONLY. THERE MAY BE OTHERS, THE LOCATIONS OF WHICH ARE UNKNOWN.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

In charge of D.J. REITH
Designed by

Drawn by J.J. WOLOSZYN
Checked by D.J. REITH

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209,SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

STATE OF NEW YORK · DOUGLAS JAY REITH · 049334 · LICENSED LAND SURVEYOR

THE UNDERSIGNED HEREBY CERTIFIES THAT THIS IS A CORRECT MAP MADE FROM AN ACTUAL SURVEY.

DOUGLAS JAY REITH
LICENSED LAND SURVEYOR

CNY LAND SURVEYING
57 CANTON STREET
BALDWINSVILLE, NEW YORK 13027
(315) 635-4614

PART OF GENERAL INSTRUMENT CORP.
VILLAGE OF SHERBURNE
COUNTY OF CHENANGO
STATE OF NEW YORK

DRAWING TITLE

TOPOGRAPHIC SURVEY

Date Issued 12/24/98
Revisions

FILE NO. 98.131
Scale 1" = 30'
Drawing No. 1 OF 1

APPENDIX R

DAILY FIELD REPORTS – IRON WALL PROJECT

S&W Services Daily Field Reports

Daily Field Report

S&W Services, Inc.

Report No._____

Date 11/24/97 Contract No. 7014WCOAST 0100

Job SHERBURNE IRON WALL

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick P Eckhardt

Time arrived on site 300

Time left site 4:30

1. What significant construction work was accomplished today, and where?

UPON ARRIVAL ON SITE I SPOKE WITH JACK HOWARD THE LAND OWNER, HE ASK ME WHEN THE WORK ON SITE WAS GOING TO START I INFORMED HIM IT WOULD BE MONDAY MORNING 12/1/97

I CALLED BOB ADSIT AT HIS OFFICE TO SO HE COULD MEET ME ON SITE TO MEASURE ROADWAY. BOB WAS NOT IN I LEFT HIM A MESSAGE, I ALSO CALL HIM ON HIS CELL PHONE SEVERAL TIMES AND COULD NOT REACH HIM.

I CHECKED JOB TRAILER TO MAKE SURE IT WAS SECURE AND HAD NOT BEEN TAMPERED WITH.

THE ROADWAY TO THE SITE IS FREE FROM SNOW AND STILL IN GOOD SHAPE

I SPOKE WITH CHAD WALKER HE ASK ME TO GO TO SHERBURNE PUMP + TREAT STATION AND CHECK A PUMP FOR HIM I DID THAT FOR HIM IT TOOK 15 MINUTES.

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
SNOW	CLOUDY	35	FROZEN

7. **Who were the visitors that came to the site? List names.**

Name	Representing
JACK HOWARD	LAND OWNER

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☑ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 10/29/97 Contract No. 4158T2A

Job SHERBURNE

Contractor S&W SERVICES

Project Representative PPE

Signature Patrick P Edwards

Time arrived on site 9:30

Time left site 2:00

1. What significant construction work was accomplished today, and where?

UPON ARRIVAL ON SITE I CALLED GGM BECAUSE THE CONTRACTOR WAS NOT ON SITE.

GGM DIRECTED ME TO CALL BOB ADSIT OUR SUBCONTRACTOR'S SUB, HE INFORMED ME THEY LEFT SITE EARLY THIS MORNING BECAUSE OF HEAVY SNOW+RAIN.

MR ADSIT ALSO INFORMED ME THAT HIS MEN WOULD BE ON SITE SOON THE TIME NOW IS 10:00 AM

MR. ADSIT STOPED AT THE SITE AGAIN AT 11:25AM HE INFORMED ME THAT ONE OF HIS MEN WILL BE CUTTING DOWN TREES AND DOING A LITTLE WORK ON THE ROAD TODAY. HE ALSO SAID THEY WOULD BE WORKING 100% ON THE ROAD TOMMORROW 10/30/97.

SCOTT GRAHAM FROM STEARNS+WHELER ARRIVED ON SITE AT 11:35AM. SCOTT + I DROVE OVER TO THE REAR OF THE KENYON PRESS BUILDING AT 12:30 TO OBSERVE TREE REMOVAL AND LEVELING OF GROUND IN THAT AREA.

RICK ADSIT INFORMED SCOTT GRAHAM THAT THIS WOULD BE THE ONLY WORK DONE ON SITE TODAY. SCOTT GRAHAM OF STEARNS & WHELER LEFT SITE AT 1:05 PM

I OBSERVED THAT WORK FOR ANOTHER HOUR AND THEN I LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT/ 1 MAN : 1 BULLDOZER

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	45°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing
SCOTT GRAHAM	STEARNS & WHEELER

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☑ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 10/30/97 Contract No. 41587ZA

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Pelkowski

Time arrived on site 8:30

Time left site 5:00

1. **What significant construction work was accomplished today, and where?**

ADSIT EXCAVATION WAS ON SITE WHEN I ARRIVED THEY START AT 7:00AM, BOB ADSIT TOLD ME BY THE TIME THEY GET ON SITE AND GET STARTED IT WILL BE 7:30AM.

ADSIT EXCAVATION IS CUTTING UP EXISTING ROAD BY REMOVING & TO 20 INCHES OF SOIL USING BULLDOZER.

THEN THEY ARE APPLYING FX 120 HS NON WOVEN FILTRATION/SEPARATION GEOTEXTILE FABRIC TO ROADWAY THEN COVERING WITH 16 INCHES TO 2 FOOT OF GRAVEL

ADSIT EXCAVATION IS REMOVING ALL LARGE ROCKS FROM NEW ROADWAY BY HAND BEFORE ROLLING IT

THERE WAS 34-10 WHEEL DUMP TRUCK LOADS OF GRAVEL DELIVERED TO THE SITE TODAY

LEFT SITE

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT EXCAVATION / 5 MEN : 2 BULL DOZERS : 2 DUMPTRUCKS : 1 ROLLER

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	53°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing
NONE	

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☑ Yes ☐ No

If yes, indicate specific location and description.
PHOTO'S WERE TAKEN OF EXSITING ROADWAY + NEW ROADWAY

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 10/31/97 Contract No. 715872A

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature ~~Patrick~~ Pluhacek

Time arrived on site 7:30

Time left site 4:45

1. What significant construction work was accomplished today, and where?

THE CONTRACTOR IS TOPPING ROADWAY FROM ROUTE 80 INTO FIELD.

CONTRACTOR IS USING GRAVEL AND BUILDING UP THE ROADWAY ANOTHER 10" INCHES INSTEAD OF NUMBER 1+2 STONE AS PER AGREEMENT BETWEEN MR HOWARD THE LAND OWNER AND MR ADSIT THE CONTRACTOR

THE CONTRACTOR IS CUTTING UP EXSITING ROAD WAY BEHIND KENYON PRESS BUILDING HE IS GOING DEEPER IN THIS AREA 12 INCHES TO 24 — INCHES ASPER AGREEMENT BETWEEN MR HOWARD + MR ADSIT

SCOTT GRAHAM FROM STERNS+WHELER ARRIVED ON SITE 7:30 AND HE LEFT SITE 11:15

CONTRACTOR RETURNED TO APPLYING BASE TO REST OF THE ROAD, THEY APPLIED FX 120HS GEOTEXTILE AND THEN COVERED WITH 2 FEET OF GRAVEL THEN LEVELING WITH BULLDOZER

THERE WERE 47 LOADS OF GRAVEL DELIVERED TO THE SITE TODAY 564 YARDS TOTAL

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT EXCAVATION / 4MEN: 2 DUMPTRUCKS 2 BULL DOZER'S

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	55°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing
SCOTT GRAHAM	STEARNS + WHELER

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☒ Yes ☐ No

If yes, indicate specific location and description.

PHOTO'S WERE TAKEN OF THE ROAD TOPPING PROCESS

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 1

Date 10/29/97 Contract No. 7014WCONST0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Edwards

Time arrived on site 9:30

Time left site 2:00

1. **What significant construction work was accomplished today, and where?**

CONTRACTOR WAS NOT ON SITE WHEN I ARRIVED

I CALLED BOB ADSIT FROM ADSIT EXCAVATION HE INFORMED ME THAT THEY WERE ON SITE EARLIER BUT HAD TO STOP WORK BECAUSE OF BAD WEATHER

ADSIT EXCAVATION ARRIVED ON SITE 11:30

CONTRACTOR REMOVE BRUSH FILL ANGLES & LEVELED GROUND BEHIND KENYON PRESS BUILDING

CONTRACTOR WILL BE WORKING ON MAIN ROAD TOMMORROW 10/30/97

LEFT SITE

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT: 1 MAN / 1 DOZER

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	45°	NONE

7. Who were the visitors that came to the site? List names.

Name	Representing
SCOTT GRAHAM	STEARNS & WHEELER

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 2

Date 10/30/97 Contract No. 7014WCONST 0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patricia Pheiffer

Time arrived on site 8:30

Time left site 5:00

1. What significant construction work was accomplished today, and where?

MR JACK HOWARD THE LAND OWNER AND MR BOB ADSIT THE CONTRACTOR AND MYSELF HAD A 30 MINUTE CONVERSATION ABOUT THE WORK TO BE DONE

I GAVE MR HOWARD AND MR ADSIT MY CARD AND PAGER+CELL PHONE NUMBER

WORK HOURS ARE 7:30AM UNTIL 5:00PM

CONTRACTOR IS CUTTING UP ROADWAY BY REMOVING 8 INCHES OF EXISTING SOIL USING BULLDOZER, THEN LAYING DOWN FX120HS GEOTEXTILE THEN COVERING WITH 16 INCHES OF GRAVEL

THERE WAS 34 LOADS OF GRAVEL TRUCKED ON SITE TODAY 408 YARDS TOTAL

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT: 5 MEN / 3 DUMP TRUCKS / 2 BULLDOZERS

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	50°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing
JACK HOWARD	LANDOWNER

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☒ Yes ☐ No

If yes, indicate specific location and description.
PHOTO'S WERE TAKEN OF FABRIC INSTALLATION & NEW ROAD INSTALLATION

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 3

Date 10/3/97 Contract No. 7014WCONST 0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Pohlmeyer

Time arrived on site 7:30

Time left site 4:45

1. What significant construction work was accomplished today, and where?

THERE HAS BEEN A CHANGE IN THE ROAD TOPPING FROM ROUTE 10 TO 150 YARDS DOWN ROADWAYS PER AGREEMENT BETWEEN MR HOWARD & MR AOSIT

CONTRACTOR IS CUTTING UP ROADWAY THEN LAYING DOWN FX 130HS GEOTEXTILE THEN COVERING WITH 2 FEET OF GRAVEL

LEVELING OF GRAVEL IS DONE USING BULLDOZER

CONTRACTOR IS ROLLING BASE BEFORE APPLYING TOPPING

THERE WAS 47 LOADS OF GRAVEL DELIVERED TO THE SITE TODAY.

TOTAL YARDS OF GRAVEL IS 564 YARDS

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

AOSIT: 5 MEN / 3 DUMPTRUCKS / 2 BULLDOZERS

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	45°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing
SCOTT GRAHAM	STEARNS+WHELER

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☑ Yes ☐ No

If yes, indicate specific location and description.
PHOTO'S WERE TAKEN OF THE ROAD TOPPING PROCESS

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 4

Date 11/3/97 Contract No. 7014WCONST 0100

Job SIXERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature ~~Patrick~~ Pchlnacek

Time arrived on site 3:15

Time left site 4:15

1. **What significant construction work was accomplished today, and where?**

CONTRACTOR WAS ON SITE WHEN I ARRIVED

CONTRACTOR HAD TO DO ALOT OF EXCAVATION NEAR ROUTE 80 TO REMOVE 2 FEET OF WATER BEFORE WORKING ON ROADWAY

CONTRACTOR IS INSTALLING 3 FEET OF GRAVEL OFF OF ROUTE 80

CONTRACTOR IS ROLLING BASE BEFORE APPLYING TOPPING

LEFT SITE

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT: 4 MEN / 2 DUMP TRUCKS / 1 BULLDOZER

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	P/CLOUDY	40°	~~DRY~~ HEAVY

7. **Who were the visitors that came to the site? List names.**

Name	Representing
NONE	

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

S&W Services, Inc.

Date 11/4/97 Contract No. 7014WCONST 0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Fleharty

Time arrived on site 12:30

Time left site 1:00

1. What significant construction work was accomplished today, and where?

CONTRACTOR TRIED TO WORK TODAY BUT COULD NOT BECAUSE OF BAD WEATHER

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT — 0 —

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. Where there any damages to property? ☐ Yes ☑ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
HEAVY RAIN	CLOUDY	40	HEAVY

7. Who were the visitors that came to the site? List names.

Name	Representing
NONE	

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☑ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☐ Yes ☑ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 6

Date 11/5/97 Contract No. 7014WCONST 0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Fitzgerald

Time arrived on site 8:00

Time left site 5:15

1. **What significant construction work was accomplished today, and where?**

CONTRACTOR IS APPLYING BASE TO ROADWAY BEHIND KENYON PRESS BUILDING.

THEY ARE NOT APPLYING FX 120 HS UNDERNEATH BASE IN THIS AREA

CONTRACTOR APPLIED TOPPING TO ROADWAY 100 YARDS FROM ROUTE 90

CONTRACTOR IS ROLLING BASE BEFORE TOPPING ROADWAY, ALSO THEY ARE ROLLING ROADWAY AFTER TOPPING.

THERE WAS A TOTAL OF 720 YARDS OF GRAVEL DELIVERED TO THE JOB SITE TODAY

LEFT SITE

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT: 5 MEN / 3 DUMPTRUCKS / 2 BULL DOZERS

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☐ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☐None

5. **Where there any damages to property?** ☐ Yes ☐ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NO RAIN	P/CLOUDY	40	LIGHT

7. **Who were the visitors that came to the site? List names.**

Name	Representing
ILENE HERBOLD	S+W SERVICES
CHAD WALKER	S+W SERVICES

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ ~~No~~ If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☑ ~~No~~

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 7

Date 11/6/97 Contract No. 7014W CONST 0100

Job SITERBURNE

Contractor STW SERVICES

Project Representative PPE

Signature Patrick A Pleasants

Time arrived on site 10:00

Time left site 5:00

1. What significant construction work was accomplished today, and where?

CONTRACTOR IS CUTTING UP ROADWAY 2 FEET DEEP AND DEEPER IN SOME SPOTS USING BULLDOZER

CONTRACTOR IS FINISHING UP INSTALLING BASE TO ROADWAY BEHIND KENYON PRESS BUILDING

CONTRACTOR IS NOT APPLYING FX 120HS GEOTEXTILE IN THIS AREA AS PER AGREEMENT -

CONTRACTOR IS PACKING DOWN BASE WITH ROLLER BEFORE APPLYING TOPPING

THERE WAS A TOTAL OF 732 YARDS OF GRAVEL DELIVERED TO THE JOB SITE TODAY

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT;

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	SUNNY	45°	NONE

7. **Who were the visitors that came to the site? List names.**

Name	Representing

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 8

Date 11/7/97 Contract No. 7014WCONST 0100

Job SHERBURNE

Contractor S+W SERVICES

Project Representative PPE

Signature Peter A Prokurat

Time arrived on site 900

Time left site 430

1. What significant construction work was accomplished today, and where?

CONTRACTOR FINISHED INSTALLING BASE TO ROADWAY

CONTRACTOR FINISHED INSTALLING TOPPING TO ROADWAY

CONTRACTOR INSTALLED 2 TURN AROUND AREAS FOR TRUCKS DELIVERING MATERIALS TO TOP SITE

DEBBIE OGRODZIAK, FRANK IRWIN, BOB ADSIT + MYSELF STAKED OUT WORK AREA

CONTRACTOR IS COMPLETLY FINISHED WITH ROADWAY

THERE WAS A TOTAL OF 37 LOADS OF GRAVEL DELIVERED TO THE SITE TODAY FOR A TOTAL OF 444 YARDS

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. Where there any damages to property? ☐ Yes ☑ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	P/cloudy	45°	NONE

7. Who were the visitors that came to the site? List names.

Name	Representing
DEBBIE OGRYOZIAK	SJW SERVICES
FRANK IRWIN	STEARNS + WHEELER

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☑ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☑ Yes ☐ No

If yes, indicate specific location and description.
PHOTO'S WERE TAKEN OF NEW ROADWAY, WORK AREA

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No. 9

Date 11/10/97 Contract No. 7014 W CONST 0100

Job SHERBORNE

Contractor S+W SERVICES

Project Representative PPE

Signature Patrick Pichnarcik

Time arrived on site 7:10

Time left site 1045

1. What significant construction work was accomplished today, and where?

JOB TRAILOR WAS DELIVERED & SETUP ON SITE

I OBTAINED ALL EMERGENCY PHONE NUMBERS FOR HEALTH & SAFETY PLAN

SPOKE WITH PRODUCTION MANAGER ABOUT PARKING IN THEIR PARKING LOT

SECURED TRAILOR

LEFT SITE

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

PPE

ADSIT: 1 BULLDOZER 1 MAN

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☑ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
NONE	CLOUDY	40	HEAVY

7. **Who were the visitors that came to the site? List names.**

Name	Representing
NONE	

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☑ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

7014

Daily Field Report

S&W Services, Inc.

Report No._____

Date Oct. 3, 1997 Contract No._____

Job Skeet Drive GIC Installation Groundwater Recirculation Well

Contractor Pinnacle Const.

Project Representative CMW Time arrived on site_____

Signature Chad Walter Time left site_____

1. **What significant construction work was accomplished today, and where?**

- a 3 ft. ditch was dug around the perimeter of the pilot test funnel + gate sheeting by Adsit Septic + Excavating.
- The wells were filled with sand.
- Concrete casing and steel guide pipes were pull out with backhoe.
- PVC wells were cut off [redacted] below grade.
- Iron filings and pea stone were capped in well area.

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

CMW
3-Pinnacle men
1-Adsit Mach.
1-Backhoe

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
None	Clear	[illegible]	None.

7. Who were the visitors that came to the site? List names.

Name	Representing

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No. If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date [redacted] Contract No._____

Job Shoshone GC Continuous Percussion Boring Well

Contractor Pinnacle Const

Project Representative CMW

Signature [signature]

Time arrived on site_____

Time left site_____

1. What significant construction work was accomplished today, and where?

- Crane track having problems getting into site due to mud.
- Crane operator disassembled left rear wheel and removed shaft.
- Operator stated to Pinnacle that he could not get crane into site unless a bulldozer is set up to pull him in
- Bulldozer was set up through Adsit septic and Excavator and towed crane into site.
- Crane was set up with pneumatic clamps to pull sheeting
- Adsit brought a tank truck in and delivered water to holding tank for pressure washer
- Pinnacle set up pressure washer to spray sheeting into casing
- Sheets were cut apart using a torch.
- They were then clamped, lifted and lifted out of the ground.
- Pinnacle pressure washed the sheets as they were lifted out.
- The sheets were in very good shape and cleaned very easily
- Only the top sections of the sheets showed signs of corrosion.
- Small deposits of bentonite could be seen at the bottom of the sheets
- The sheets were loaded onto a trailer and taken off site by the crane operator.
- The shoring and well area were backfilled and graded
- The bulldozer was pulled by crane back out of the site

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

CMW, GDM

2 cont. Pinnacle

1 Bulldozer operator - Adsit

3 Crane operators

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
None	Clear, Sunny	80°	None

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Greg Myka	S&W Services

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☒ Yes ☐ No

If yes, indicate specific location and description.

Shooting - Pilot Test area

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/5/97 Contract No. 7014W const

Job Sherburne - dam wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chris Ford Time left site_____

1. **What significant construction work was accomplished today, and where?**

Continued Setting up trenching Machine

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

7 men - Glen Beavers - Super

Trencher, Excavator, Dozer

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
Rain	Cloudy	40°	wet

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Thomas Favalora	GIC

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/8/97 Contract No. 7014w const

Job Sherburne - Iron Wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chris Ford Time left site_____

1. What significant construction work was accomplished today, and where?

Horizontal Continued Setting up trenching machine

Adsit Construction excavated bench area for shart wall installation, stockpiled top soil

Measured Roadway with Bob Adsit - usable road including turn around / parking areas = 325 feet

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

Horizontal - 8 men - David Welting - Super

Adsit - 4 men - Bob Adsit - Super

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	cloudy	30°	Snow/wet

7. Who were the visitors that came to the site? List names.

Name	Representing
Thomas Favaloro	GIC
Diane Clark	Stearns & Wheler

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☒ Yes ☐ No

If yes, indicate specific location and description.

Benching Area

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/9/97 Contract No. ~~70046.04~~ 7014n coast

Job Sherburne

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chris Stark Time left site_____

1. What significant construction work was accomplished today, and where?

Trenching of Iron wall will be delayed one day - until Wednesday 12/10/97 Mark Justice from Horizontal feels that the trenching machine will not be ready until late in the afternoon and he would rather start the trench first thing in the morning. Horizontals crew continued to put the trenching machine together and do other various maintenance on the machine

Laid out Exclusion, Contamination reduction & support Zones

Horizontal was adding more teeth to the trenching machine.

Mark Justice would like to have the bench area widened by five feet to ensure that there is enough space for the trenched material

Covered excavated material with poly to help keep moisture out & keep from freezing

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

Horizontal - 9 men - Mark Justice - Supe -

Addit - 3 men - Bob asst. super

Trackhoe, loader, welder

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
Ø	P. Sunny	30°	wet / snow / mud

7. **Who were the visitors that came to the site? List names.**

Name	Representing
John Voigan	Enviremetal tech
Tom Favalora	GIC
Diane Clark	Stearns & Wheler
[redacted] Steve Klein	GPM

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☐ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☑ Yes ☐ No

If yes, indicate specific location and description.

Trencher work
Bench Given

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/16/97 Contract No. 70144 Const

Job Sherburne - Iron Wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chuni Hanlin Time left site_____

1. **What significant construction work was accomplished today, and where?**

Completed Preparation of trenching Machine

Stripped and Stockpiled topsoil for long bench area

Staked out exclusion and CRZ Zones
Extended Iron holding area to allow for a larger stockpile.
Began trucking Iron to stockpile area

laved timbers for trencher to run on to help keep it level
Extended Bench area 20' to allow excavator to dig a starting point for the trencher & contain the contaminated soil within the bench area.

Started trenching at 2pm. travelled appox. 10 feet when Mark Justice stopped the machine because he did not feel that enough Iron was going into the trench Horizontal then welded a steel plate on the upper back end of the trench box to create a head pressure on the Iron. It was then accepted by John Vegan that the Iron was being placed in correct quantities

4:15pm the Soil displacement belt broke & trenching was ended for the day

about 40' of trench wall was installed

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Horizontal - 9 men - Mark Justice - Super

Adsit - 3 men - Bob Adsit

Dozer, excavator, trencher, loader

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☑ Other ☐ None

Soil Displacement belt snapped - delayed trenching until next day

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
Snow	cloudy	30°	Snow

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Thomas Faviloro	GIC
Diane Clark, Beth Smith	Stearns & Wheler
Bill Matulewicz, John Rhodes, Joe Hayes Stephan Klein	Environmental Connelly

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☑ Yes ☐ No If yes, explain and describe actions taken.

Trencher was placing from 16' not 15', Spoke with Mark Justice about placing top 2' with Backhoe after trenching was completed

9. **Were photographs taken by project representative?** ☑ Yes ☐ No

If yes, indicate specific location and description.

Trenching process

Additional Comments:

Began Snowing Quite hard around 3:30 pm

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/11/97 Contract No. 7014w const

Job Sherburne - Iron wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chuck Hall Time left site_____

1. **What significant construction work was accomplished today, and where?**

Adsit placed roadway - 9am

Horizontal cleaned dirt & debris from belt area on trencher so that new belt could be installed upon arrival. New Belt arrived at 12 noon - trenching began at 3pm and was completed at 4:30 pm - 90' of wall was placed

Horizontal placed 4 additional timber mats at end of trench to allow trencher to move out of bench area.

Horizontal welded splash guards in place above soil displacement Belt.

A total of 62 cy of Iron was placed using the trench machine during the 2 day process.

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Horizontal - 9men - March Justice - Supr

Adsit - 3men - Bob Adsit - supr

Excavator, trencher, loader, Dump trucks, welder

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
0	cloudy	32°	Snow / wet

7. Who were the visitors that came to the site? List names.

Name	Representing
John May, Karen Mairano	NYS - DEC
John Vaughn	Environmental
Diane Clark	Stearns & Wheler

8. Did observations reveal any work not in compliance with the Contract Documents?

☒ Yes ☐ No If yes, explain and describe actions taken.

Trench drain only placed at 16' not 15'- will excavate and extend drain wall when trenching complete

9. Were photographs taken by project representative? ☒ Yes ☐ No

If yes, indicate specific location and description.

trenching process

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/12/97 Contract No. 7014w const

Job Sherburne - Iron wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chris Gast Time left site_____

1. **What significant construction work was accomplished today, and where?**

Excavated soil to a depth of 2 feet above Iron wall and placed Iron from second excavator in same area. John Vogan worked with me to verify we where at the proper depth & actually extending the wall - placed appox. 20 cy of Iron over 130' trench.

Horizontal began trench box modifications.

Decanted small excavator in bench area

Began excavating 2nd trench area

moved timber mats for Backfilling of Short wall bench area

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Horizontal - 9 men - David Kelting - Super

Adsit - 3 men - Bob Adsit Super

Excavator, loader, dozer, welder

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	Cloudy	35°	Snow / wet

7. Who were the visitors that came to the site? List names.

Name	Representing
Dian Clark	Stearns & Wheler

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☒ Yes ☐ No

If yes, indicate specific location and description.
Topping of Dam wall

Additional Comments:
Replaced lock on Job trailer. 1 1/2 hrs. C.G.

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/13/97 Contract No. 7014wcon5t

Job Sherburne Iron Wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Kari Clark Time left site_____

1. **What significant construction work was accomplished today, and where?**

Excavated long bench area - entrance and exit ramps.

while moving trencher to southern end of Bench area a small drive shaft broke. This was replaced by monday morning

During the bench excavation an area of petroleum contaminated soil was encountered and removed. It was stockpiled by the existing farm cell

Diane Clark said it will be added to the farm cell

It has been decided to place non woven geotextile fabric over the construction spoils, prior to placing any backfill material. This decision was reached by Stearns & Wheler

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Horizontal - 8 men - Dave Kelting - super

Addit. 3 men - Bob addit super

Excavator, Dozer, loader

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
0	cloudy	30°	Snow/wet

7. Who were the visitors that came to the site? List names.

Name	Representing

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/15/97 Contract No. 7014W const

Job Sherburne - Dam Wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chuck Hood Time left site_____

1. What significant construction work was accomplished today, and where?

Leveled bench area, placed timber mats for trencher to run on.

Started to set trench machine at 12 noon. Machine was vertical by 1 pm. Door release at bottom of trench box would not open - problem resolved by 1:30. Starting trenching at 1:30 pm - Pipe on end of trench box would not release. Trench Machine was pulled from excavation - repairs where made and trenching will resume in the morning - 12/16/97

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

Horizontal - 6 men - Dave Welding - Super
Bob Adsit - 3 men - Bob Adsit - Super

loader, trencher, Excavators, Dump trucks, welder

3. What special incidents happened?

☑ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☐ None

Geotextile Fabric

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	clear	25°-34°	Snow /wet

7. Who were the visitors that came to the site? List names.

Name	Representing
Robert Focht	Environmental
David Stoner, Larry Hineline, Wayne McFarland, [redacted]	- Stearns & Wheler
Mike Howell	SW Services
John Muy	NYS DEC

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☑ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☑ Yes ☐ No

If yes, indicate specific location and description.

trenching process

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/16/97 Contract No. 7014wconst

Job Sherburne - Iron wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chris Stark Time left site_____

1. What significant construction work was accomplished today, and where?

Started to set trencher at 8:30 am, machine was vertical by 8:45
Began trenching at 9:00 am
10:15 am - 70' of trench was completed, by this time, when the conveyer belt tore and needed to be replaced
11:40 - New conveyor belt has been installed and trenching begins at 12:30.
1:50 p.m - 170' into trench - stopped to adjust belt tension
2:15 - Started trenching again
3:40 p.m - 2nd conveyer belt is broken
4:1 p.m - Stopped to wait for new belt which will arrive in am

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

Horizontal - 8 men - Dave Kelting - Super
Adsit - 3 men - Bob Adsit - Super

Trencher, Excavators, loaders, Dump truck

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	Sunny	34	Snow/mud

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Scott Graham	Stearns & Wheler
Tom Favalaro	- GEC
Robert Focht	Environmental

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☒ Yes ☐ No

If yes, indicate specific location and description.

trenching process

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/17/97 Contract No. 9014w const

Job Sherburne - Dran wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature Chan Gant Time left site_____

1. What significant construction work was accomplished today, and where?

Started day by tapping the Southern end of trench wall. Used transit to maintain dran wall height.

New Belt arrived at 11am, was installed and ready by 12noon.

2:45pm - Finished placement of dran wall

Monitored air hourly - all readings ~~were~~ indicated 0 ppm

2. What manpower and equipment were used today? (total men/contractor, major power equipment, job superintendent)

Horizontal - 8 - Dave Welting
Adsit - 3 - Bob Adsit

Trencher, excavators, loaders, Dump truck & Trailer

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
~~P. Cloudy~~ C	P. Cloudy	35	Snow/mud

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Peter Haporico	Emcon
Robert Focht	Enviremetal

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☒ Yes ☐ No

If yes, indicate specific location and description.

Trenching process

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/18/97 Contract No. 7014w const

Job Sherburne Dam Wall

Contractor Horizontal

Project Representative_____ Time arrived on site_____

Signature_____ Time left site_____

1. **What significant construction work was accomplished today, and where?**

Completed topping off of dam wall -- last 100'

Horizontal dismantled the trenching machine and consolidated their remaining equipment for pick up on 12/29/97.

Bob Adsit began to level the bench area for Fabric and back fill.

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Horizontal - 6men - Dave Kolting - Super
Adsit - 2men - Bob Adsit - Super
Excavators, loaders, Dump truck & trailer

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☒ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	Sunny	40°	Snow / mud

7. Who were the visitors that came to the site? List names.

Name	Representing

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☒ Yes ☐ No

If yes, indicate specific location and description.

trench area
Beach area

Additional Comments:

☐ Continued on separate page(s).

Report No._____

Daily Field Report

S&W Services, Inc.

Date 12/19/97 Contract No. 7014wconst2

Job Sherburne - Iron Wall

Contractor Adsit

Project Representative_____ Time arrived on site_____

Signature Chuck Stark Time left site_____

1. **What significant construction work was accomplished today, and where?**

Adsit leveled the bench area with the excavator then layed down the fabric. Began to backfill bench area and ran equipment on the lifts for compaction.

Compaction tests varied between 83% and 87% on first lift. Larry Hineline from Stearns & Wheler said we could proceed with the second lift

Compaction in cornfield - 74% & 68%

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

Adsit - 5 men - Bob Adsit - Supervisor

Dozer, Excavator, loader, Dump truck & trailer

3. What special incidents happened?

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. Where there any damages to property? ☐ Yes ☑ No If yes, explain and locate.

6. What were the weather and site conditions?

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
∅	P. Cloudy	30°	Snow / mud

7. Who were the visitors that came to the site? List names.

Name	Representing
Larry Hireling	Stearns & Wheler

8. Did observations reveal any work not in compliance with the Contract Documents?

☐ Yes ☒ No If yes, explain and describe actions taken.

9. Were photographs taken by project representative? ☑ Yes ☐ No

If yes, indicate specific location and description.
Back Filling

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/22/97 Contract No. 7014WCons2

Job Sherburne - Iron wall

Contractor Adsit

Project Representative_____ Time arrived on site_____

Signature Chuni Gadl Time left site_____

1. **What significant construction work was accomplished today, and where?**

Met on site with Jack Howard & Bob Adsit discussed areas that needed additional Top soil & grading

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☑ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☑ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
&	cloudy	32°	Snow

7. **Who were the visitors that came to the site? List names.**

Name	Representing

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☑ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☑ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

Daily Field Report

S&W Services, Inc.

Report No._____

Date 12/23/97 Contract No. 7014w cont'd

Job Sherburne - Dran Wall

Contractor adsit

Project Representative_____ Time arrived on site_____

Signature Chris Stark Time left site_____

1. **What significant construction work was accomplished today, and where?**

Spread Topsoil on bench area with 6" crown

Met with Parratt - Wolf - Brad said they will begin on Jan. 5 1998

Compaction test results varied between 54% & 78% on crowned area. Tested by Chris Braun from Parratt-Wolff

2. **What manpower and equipment were used today?** (total men/contractor, major power equipment, job superintendent)

adsit - 2 men - Bob adsit

Bulldozers

3. **What special incidents happened?**

☐ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☒ None

4. **What special instructions were given to the Contractor and what was Contractor's response?**

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☐ Other ☒ None

5. **Where there any damages to property?** ☐ Yes ☒ No If yes, explain and locate.

6. **What were the weather and site conditions?**

Precipitation	Skies	Air Temperature	Ground/Pavement Moisture
rain	cloudy	33°	snow / mud

7. **Who were the visitors that came to the site? List names.**

Name	Representing
Diane Clark	Stearns & Wheler

8. **Did observations reveal any work not in compliance with the Contract Documents?**

☐ Yes ☒ No If yes, explain and describe actions taken.

9. **Were photographs taken by project representative?** ☐ Yes ☒ No

If yes, indicate specific location and description.

Additional Comments:

☐ Continued on separate page(s).

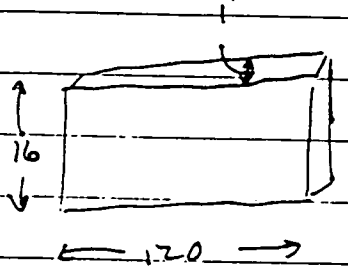
EnviroMetal Technologies, Inc. Construction Monitoring Report

J.V. Dec 11/97

Field Observations/Calculations - Sherburne Site (very much in draft)

- short reactive wallsection in core area of plume
- design specs 120 x 18 x 1'
- from field observation not much iron in upper 2 ft (at least along 45 ft section closest to Hwy 80; initial south section)

so calculate volume based on 16' depth



total volume = 120 x 16 x 1
= 1920 ft³

@ 18' → 2160 (76%)

how much iron was installed?

(A) Bob A's truck volume estimate 8 trucks x 9 yd³/truck to site
= 72 yd³
- 10 yd³ left over in hopper/on pad

62 yd³

- 62 yd³ x 27 ft³/yd³ = 1674 ft³ ⇒ 87% of total
↓ c .075 tons/ft³ (150 lbs/ft³)

difference = 246 ft³ 125 tons

(B) from shovel/bucket counts - assume 30 ft³/bucket (?) (JV did track 14 buckets for 27 ft of section)
- JV's count is incomplete for 45-50 ft section completed on Dec 10
- Dec 11 - JV 32 to 35 buckets for 75 ft

75 x 16 x 1 = 1200 ft³

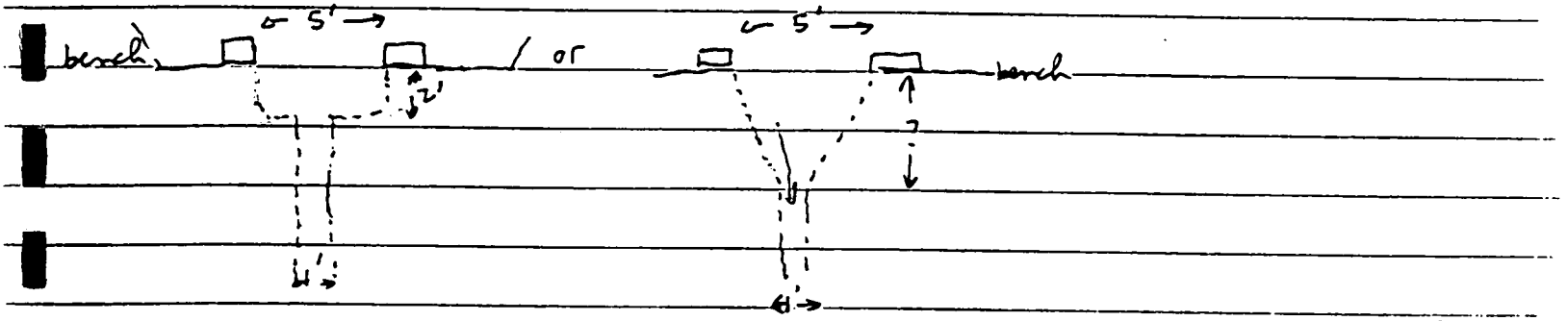
32 x 30 = 960 ft³ ⇒ 80% of 1200 ft³

35 x 30 = 1050 ft³ ⇒ 87.5% of 1200 ft³

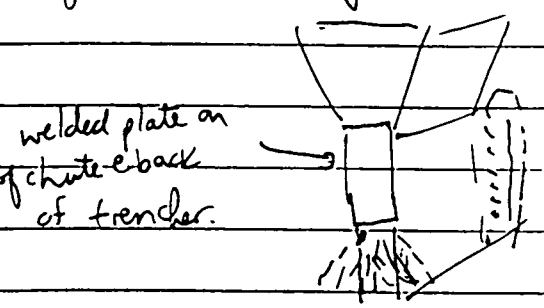
J.V. Dec 11/97

but still question as to configuration of iron, especially in last 70-75 ft section.

- open area/caving between timbers - 4 to 5 ft wide at bench level, how far down does this extend? Did a lot of iron end up in "cave" area & is not going to depth?



- lots of iron came out immediately below plate at top of chute opening & entered wide excavation - was this iron moved via "trenching action" into bottom of trench as per design, or did it "pancake" out into "cave area" & not move to depth?



(i.e. not flowing)

- at least for last 75 foot section, iron may have been "packed" into the "back" of the chute - could have lost ~½ of chute area/opening. This "packing" or "caking" could be seen in the upper inch or so of the iron left in hopper & on pad overnight

for large wall? → keep accurate track, 10' intervals of time permits, of iron buckets, trucks
→ extend upper plate deeper (i.e. assume this ~2' ft of caving between timbers will occur) ↳ that is, if its easy to go in & "top up" iron to design elevation.
→ 1 day runs possible!

APPENDIX F

ATTENDANCE SHEETS

CONTINUOUS PERMEABLE REACTION WALL INSTALLATION
SHERBURNE, NEW YORK

DATE	PRINTED NAME	SIGNATURE
12/10/97	Bill Mutulewicz	
12/10/97	John Rhodes	
12/10/97	Joe Hayes	
12/10/97	Beth A Smith	Beth A Smith
12/10/97	Stephen M. Klew	(The Iron Man)
12/11/97	John A May	
12/11/97	Marty Loeffler	
12/11/97	Robert Focht	
12/15/97	David Stone	
12/15/97	Larry Hineline	
12/15/97	Wayne McFarland	
12/15/97	Jim Clark	
12/15/97	John May	
12/15/97	Michael Howell	
12/16/97	Peter Hadvenko	
12/17/97	Peter Hadvenko	
12/19/97		

Stearns & Wheler, LLC Daily Field Reports

Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DAILY FIELD REPORT

REPORT NO.	1		
DATE	December 8, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc.		
PROJECT REPRESENTATIVE	Diane K. Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

Excavation of the bench for the installation of the granular iron wall began during the morning. HTI personnel had begun excavation of the bench for the 120 foot-long iron wall. In addition work continued on assembly of the continuous trench machine.

Adsit Septic & Excavating personnel were surveying the bench to verify placement and grade of the bench.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Adsit Septic & Excavating personnel had three people on site (Bob Adsit, excavator operator, and surveyor). Horizontal Technologies, Inc. had 8 people on site (5 associated with assembly of the trenching machine, including the job foreman _____ Beavers, two working on the bench excavation with the Adsit personnel, and the project manager David Kelting)

Equipment on site included two track mounted excavators, one bulldozer, one front-end loader, and the trenching machine.(track mounted excavator, chain excavating equipment, trench box, hopper, and conveyor.

Chris Gosch was on site representative for S&W Services.

3. What special incidents happened?

___ Deliveries ___ Blasting ___ Strikes ___ Accidents _X_ Other ___ None

Helicopter flew over site on three separate occassions. On two of the passes it hovered very low and appeared to get ready to land. There was no form of identification on the helicopter.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None

Asked Chris Gosch about starting to think about how he wants to handle keeping track of the iron that is going into the wall during construction. Explained that the history with HTI at another site showed they got some gaps in the iron, so we will need to verify the quantity of iron when they commence installation. Suggested Chris and Stearns & Wheler people both keep records and compare to verify quantities. Also discussed starting to monitor breathing zone of workers and the downwind property zone tomorrow.

Contractor was told it was ok to place the shorter iron wall 10 ft (versus 5 ft.) away from longer iron wall.

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.				
Noon	None	Overcast	32°F	trace of snow on ground
3:00 p.m.				

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer ___ Other _X_ None

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes _X_ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? ___ Yes _X_ No (S&W Services has project camera.)
If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

Stearns&Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DAILY FIELD REPORT

		REPORT NO.	2
DATE	December 9, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

HTI still working on assembly of trencher. Appears it will not be ready before noon. Mark Justice said if not ready by noon they will not start installing iron until tomorrow.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Approx. 8 men from HTI, Mark Justice is HTI Superintendent. GMM on site briefly at start of day. Chris Gosch on site all day for S&W Services.

Anticipate using excavator and bulldozer to widen bench so they don't have to stop part way through the first trench. Need bench wider to accomodate the conveyor - so that all contaminated soil ends up in bench.

3. What special incidents happened?

___ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other _X_ None

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None
Discussed bench placement with Chris Gosch and HTI. Pointed out ROW issues with railroad and monitoring well to protect. Discussed oil collector with Chris - needs to be protected in place.

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	None	Partly sunny	approx 38°F	none
Noon				
3:00 p.m.				

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer _X_ Other ___ None
John Vogan, EnviroMetal Technologies.

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes _X_ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? _X_ Yes ___ No (by S&W Services)

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)
Chris taking pictures of trencher being assembled.

11. Additional Comments:

Discussed how easier for Stearns & Wheler to provide support if construction continues this week and weekend, instead of trying to break on Thursday and start up again on Monday-Tuesday. Ok with Mark Justice.

_____ Continued on separate page(s).

Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DAILY FIELD REPORT

		REPORT NO.	3
DATE	12/09/97	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	Beth Ann Smith		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

   Beth Ann Smith was on the site from 11:40 to 12:40.

   Horizontal Technologies, Inc. (HTI) was constructing the trenching machine. The contractor plans to start the trenching work on December 10, 1997. Part of the bench for the short section of the permeable wall was excavated. The iron from the pilot test wall was visible and appeared to be granular with no signs of oxidation or silting.

   Chris Gosch from S&W Services was present at the site. I discussed the compaction requirements for the bench backfill with him. The discussion is summarized as the compaction requirements are to obtain a layered compacted backfill that will not permeate precipitation more than the surrounding area and will not leave a depression after the work is completed and the soil has settled. We discussed that if there is a problem obtaining 90% compaction, we can review the effort being put into the compaction and decrease the percent compaction if absolutely necessary. The DEC would need to be contacted if there is a change. We also discussed that the contractor should be aware that frozen soil is not to be used for backfill and the subgrade should be protected from freezing.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

   Approximately 8 men from HTI were present at the site, Mark Justice is HTI Superintendent. Chris Gosch was reportedly on site all day for S&W Services.

   2 track excavators, trenching machine, rubber tired backhoe

3. What special incidents happened?

___ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other _X_ None

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages ___ Other _X_ None

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	NA	NA	NA	NA
Noon	none	Sunny	32+	Frozen Crust
3:00 p.m.	NA	NA	NA	NA

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer ___ Other _X_ None

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes _X_ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? ___ Yes _X_ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	4
DATE	December 10, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

I arrived at approximately 10:40 AM. Upon arrival it appeared the machine was just about ready to start the trenching. They were finishing putting a few more teeth on the chain. Mark Justice questioned me about my preference on QA/QC. Two options for evaluating depth of installation. Said they could either survey using the bench for the reference point or they could use the ground surface. We discussed both and decided to use the ground surface at MW-19, as that was the only undisturbed portion of the site. Thought that would be the best way to measure 21 feet of depth. If they used the average elevation of the topsoil along the 100 foot length of the bench, they might end up putting it in the ground 6 inches deeper than planned and could end up running out of iron.

Chris Gosch called for specs on excavator bucket. Found it is 1.5 cu yd (heaping). We decided that this meant that we would need a bit less than one bucket for every 2 linear feet of iron trench placed.

It was decided to break for lunch at about 11:20. When we get back from lunch they will walk the trencher over and start.

Started walking the trencher over to the bench at about 12:40. Began putting boot into the hole at about 1:00. HTI was surprised at how soupy the aquifer material being brought out is. They had some trouble with the conveyor, as the material was spraying all over. When they tried to insert the boot into the hole the machine started to lift so they had to put it in the ground very slowly. Because of the need to go in slow, there was about a 15 foot loss of length from where they started putting the boot in to where it was vertical. Once vertical they pulled the PVC pipe out from the back end and advanced the machine about 10 feet. However, we only put in about 2 buckets of iron to advance the ten feet. Apparently the machine was not placing enough iron. Mark thought it was because the aquifer is so soupy and they were getting a some of the "soup" going around the back of the box and pushing in. we discussed the problems and decided to put a plate on the hopper so that the hopper could be filled up. Thought the weight of iron would help keep the water from pushing through . Got the welder over and discussed putting the plate on, and also the possibility of welding some wing-wall, baffles on the back to push the material off to the side. DKC left when they were getting ready to weld.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Continuous trenching machine, two track-mounted excavators, one rubber tired front end loader, two dump trucks for delivery of iron from storage barn in Sherburne.

8 men on HTI crew, including Mark Justice, job superintendant. Bob Adsit had two drivers with the dump truck, and one operator for the excavator. Bob Adsit and another man on site.

3. What special incidents happened?

_X_ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other ___ None

Granular iron deliveries.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None

Discussed QA/QC as described above. Discussed the fact that the shorter pass of the iron is the one that we can play with. Suggested HTI discuss our measure of safety with ETI and see if John is happy with the amount of iron going in the ground.

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	N/A			
Noon	None	cloudy	30-35 F	trace of snow on ground
3:00 p.m.	beginning to snow	cloudy	25 to 32 F	trace of snow on ground

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer _X_ Other ___ None

Steve Klein from Connelly GPM (Iron supplier), two consultants from NJ associated with SITE program, and one consultant from Emcon's office in Burlington, VT associated with Hercules site in VT.

9. Did observations reveal any work *not* in compliance with the Contract Documents? _X_ Yes ___ No

If yes, explain and describe actions taken.

Loss of approximately 10 feet of trench from where the stake marked the starting point. Discussed that this was not at the starting point with the contractor. Will need to check concentrations at that point to see if critical.

10. Were photographs taken by project representative? _X_ Yes ___ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.) Took numerous photos of project. Also filmed approximately 30 minutes of trencher going in the ground and the initial 10 feet of iron installation.

11. Additional Comments:

See DFR from BAS for documentation of work done after 3:00 PM.

Chris Gosch too continuous PID readings in the bench from 12:45 until 3:00. No hits were recorded. Because No VOCs were detected in the bench, no downwind perimeter readings were made. (Wind was coming roughly from the North. Downwind perimeter was at Route 80.) Chris was also taking readings outside the bench and no VOCs were detected.

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	4A
DATE	December 10, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	Beth Ann Smith		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

BAS arrived at approximately 10:40 AM. Upon arrival it appeared the machine was just about ready to start the trenching. They were finishing putting a few more teeth on the chain. Discussions between BAS and Diane Clark from Steams & Wheler and the contractor included the elevation of the ground surface and method for determining depths, the amount of iron in a bucket of the excavator to determine the amount of iron being placed. Refer to Report No. 4 for additional information on this discussion. It was decided to break for lunch at about 11:20. When we get back from lunch they will walk the trencher over and start.

HTI began putting the trencher into the ground at about 1:00. HTI was surprised at how much water was coming up with the soil. Chris Gosch asked if the conditions were as expected. BAS and Diane Clark stated that the conditions were as we had expected. The groundwater appeared to be within 6 to 12 inches of the bench subgrade. The saturated soil was not being brought up to the conveyor to get it out of the way of the machine. There was not enough iron getting into the aquifer with the set up. HTI stopped the process to upgrade the machine to try to get better iron placement. After discussions between HTI, S&W Services and Steams & Wheler representatives; HTI decided to raise the trencher by one foot (they were actually one foot deep to make sure that they got the depth), and put a plate on the back of the trench hopper so that the hopper could be filled with iron to keep greater pressure on the iron, therefore, not allowing the excavated materials to displace the iron. HTI welded a plate to the back of the trench box. Another option was to weld some wing-wall baffles on the back of the trench box to push the excavated material off to the side and keep it away from the excavation. DKC left when they were getting ready to weld.

After the plate was welded and the hopper was filled to the top, a 10 feet section was performed. Approximately 5 buckets were placed for 10 feet, which was approximately correct since the iron was settling and the top 2 feet were being replaced by the excavated material. The trencher was placing a column approximately 15 to 16 feet deep. HTI decided to continue with the trenching and use an excavator to place the upper 2 feet when the trencher was completed. The next 10 feet were placed with another 5 buckets of iron. The iron was continuing to settle approximately 2 feet. However, during the last 10 feet section, the conveyor belt broke. HTI decided to try it without the conveyor belt. The trencher went 4 feet with less than one half of a bucket and the excavated material was collecting around the trencher making it difficult to work. HTI stopped for the day to repair the conveyor at approximately 4:30 pm. HTI planned to begin again on 12/11/97 after the conveyor belt was repaired.

Chris Gosch from S&W Services was the on-site Health and Safety Officer. Chris was performing the air monitoring of the breathing zone with a PID. There were no readings observed until the area where the interceptor ditch was located. The readings were 2 ppm. (Wind was coming roughly from the North. Downwind perimeter was at Route 80.) Chris was also taking readings outside the bench and no VOCs were detected.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Continuous trenching machine, two track-mounted excavators, one rubber tired front end loader, two dump trucks for delivery of iron from storage barn in Sherburne.

8 men on HTI crew, including Mark Justice, job superintendent. Bob Adsit had two drivers with the dump truck, one operator for the excavator, another laborer and himself on site. John Vogan from ETI was on site. Chris Gosch from S&W Services was on site.

3. What special incidents happened?

_X_ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other ___ None

Granular iron deliveries.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None

Discussed QA/QC as described above. Discussed the fact that the shorter pass of the iron is the one that we can play with. Suggested HTI discuss our measure of safety with ETI and see if John is happy with the amount of iron going in the ground.

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	N/A			
Noon	None	cloudy	30-35 F	trace of snow on ground
3:00 p.m.	beginning to snow	cloudy	25 to 32 F	trace of snow on ground

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer _X_ Other ___ None

Steve Klein from Connelly GPM (Iron supplier), two consultants from NJ associated with SITE program, and one consultant from Emcon's office in Burlington, VT associated with Hercules site in VT.

9. Did observations reveal any work *not* in compliance with the Contract Documents? _X_ Yes ___ No

If yes, explain and describe actions taken.

Loss of approximately 10 feet of trench from where the stake marked the starting point. Discussed that this was not at the starting point with the contractor. Will need to check concentrations at that point to see if critical.

10. Were photographs taken by project representative? _X_ Yes ___ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.) Took numerous photos of project. Also filmed approximately 30 minutes of trencher going in the ground and the initial 10 feet of iron installation.

11. Additional Comments:

See DFR from Diane Clark for this day for additional comments.

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	5
DATE	December 11, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

I arrived on site at 11:50. No one was present. Crew arrived back at approximately 12:20 with new belt for the conveyor. They immediately started replacing the belt on the conveyor and making some modifications to the hopper to help feed iron in the "wall" more smoothly.

I discussed the need to go in with a backhoe and see if we can tell how deep the iron was placed with Chris Gosch. Emphasized that there were two reasons why we would like to do this. first is to see how good our calcs on how much iron was placed are. The second reason is to get a closer look at the placement and see if we can fill the iron in to the design grade with the second excavator.

I discussed monitoring well placement with John Vogan. John suggested we move the wells in closer to the wall, as he is concerned that we might get some tailing off effects that could result in the monitoring wells not ever producing samples that meet groundwater standards. His experience is that the drillers can install wells right up to the iron. Chris Gosch was brought into the conversation so that he could understand well placement.

Discussed with John Vogan the need to survey in the long wall so we can properly place the monitoring wells.

Discussed backfill/geotextile issues with Chris Gosch. Geotextile shown on the backfill detail only needs to be placed on the iron to prevent fines from the muck getting into and plugging up the iron.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Adsit Septic and Excavation had three people on site. HTI had 9 people on site. No equipment were being used when I was at site.

3. What special incidents happened?

_X_ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other ___ None

New conveyor belts arrived on site.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None

(See record of discussions with Chris Gosch of S&W Services, Inc.)

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	N/A			
Noon	None	Cloudy	approx 30 F	2 to 3 inches snow
3:00 p.m.	N/A			

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer ___ Other ___ None

John May (NYSDEC Region 7); Steve Klein (Connelly GPM); and Marty Lorfstedt (Rupp Rental)

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes _X_ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? ___ Yes _X_ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	6
DATE	December 12, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

I arrived on site at 9:20 AM. Upon arrival found John Vogan and Chris Gosch working with the excavator operators checking on the depth and continuity of the iron wall. It appeared that the iron was filled up to 2 feet from the bench grade. The crew was using one backhoe fit with a 24-inch bucket to scoop the soupy soil away from the trench while the second (bigger) excavator was being used to place iron in the trench before the soup filled back in.

There appeared to be a bit of free product (sheen) on the water in about a three foot diameter area near the extreme north end of the short wall.

Counted 21 buckets full of iron between P-3 and end of trench. John counted about 8-9 before I arrived. Between John's calcs from Wed-Thurs installation (attached) and the additional 30 buckets of iron we calculated we were well within the design amount of iron for the short portion of the wall.

Finished filling in the iron about 10:45. Only found about two major gaps in the iron wall. John Vogan and I took approximate measurements to show on the plans (and in John's field book) where the gaps were.

Again discussed surveying in the longer length of wall so we can spot the wells after backfill is over.

Chris and Bob had questions about backfill due to the soupy nature of the aquifer. Discussed with GMM and BAS and decided to use any granular material on hand to soak up the moisture (some of the off-spec iron created when Bob dug too deep with the loader on transferring iron to the rock box. about 1 to 2 yards of iron are now mixed with dirt and gravel.) Then he can use a geotextile to bridge the wet soupy material before filling in with lifts of clean top soil.

Discussed the bench with Chris and Dave Kelting. For longer length of wall they will bench only two feet down. That will give them an extra foot at the top so when they lose the 2 ft of iron, they will be within 12" of the design depth. They will still have two feet of topsoil to place on top of the contaminated material. (Max plow depth is 18")

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Adsit Septic and Excavation had three people on site. HTI had 6 people on site. The front end loader and two track mounted excavators were being used. The trencher is idle.

3. What special incidents happened?

_X_ Deliveries ___ Blasting ___ Strikes ___ Accidents ___ Other ___ None

Iron from storage barn.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None

(See record of discussions with Chris Gosch of S&W Services, Inc.)

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:20 a.m.	None	Cloudy	approx30 F	approx 1-2 inches snow
Noon	None	Cloudy	approx 30 F	approx 1-2 inches snow
3:00 p.m.	N/A			

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer ___ Other ___ None

Jack Howard; Steve Klein

9. Did observations reveal any work *not* in compliance with the Contract Documents? _X_ Yes ___ No
If yes, explain and describe actions taken.

Noted two gaps in iron wall. Nothing major. Feel the max installation rate is about 50 feet per hour. More than 75 feet an hour and they will probably get gaps in the iron.

10. Were photographs taken by project representative? _X_ Yes ___ No by Chris Gosch and John Vogan

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	7
DATE	December 13, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

The contractor was working on the bench for the second iron wall when I arrived at the site. They had finished approximately half the bench and expected to be done early afternoon.

During the excavation near the southern end of the wall they came across some discolored, fuel-oil contaminated soil approximately 1 foot below natural grade. The soil was discolored and had a distinct diesel/fuel oil odor. I instructed the job foreman to stage the visually apparent soil separately from the clean soil. They set up a staging area between the landfarm cell and access road and were putting the soil on plastic. When done stockpiling they would cover it up with additional plastic. The band of contaminated soil appeared very narrow and within approximately 10 minutes they had dug through the contaminated soil and hit clean soil to the south.

They were also working on fixing the iron staging area that had been damaged by the front end loader on Friday.

All off spec iron was no longer present in staging area - appeared that they put it in the south end of the trench/bench. The water levels in the bench had gone down overnight. Expected that the 8 oz geotextile would be delivered on Monday.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Job Foreman - David Kelting. HTI had approximately 6 people on site and Adsit had two people on site. They were using one track mounted excavator (the bigger one), the bull dozer, and the tire front end loader.

3. What special incidents happened?

___ Deliveries ___ Blasting ___ Strikes ___ Accidents _X_ Other ___ None
discovered fuel oil contaminated soil as described in (1) above.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages _X_ Other ___ None
Instructed the contractor to stage the contaminated soil from the bench separately from the clean top soil. Will need to work this out on Monday.

5. Were there any damages to property? ___ Yes _X_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

_X_ Changes ___ Relocations ___ Delays ___ Quantities ___ Other ___ None
See (4) above.

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
10 a.m.	None	cloudy	32 F	Snow on ground
Noon				
3:00 p.m.				

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer ___ Other _X_ None

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes _X_ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? ___ Yes _X_ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	8
DATE	December 15, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

Arrive at the site at approximately 9:15. Horizontal not working because a part had broken on the trencher on Saturday. Was told they had arrived at 8:00 with the part and anticipated starting as soon as the part was fixed. While they were working on the trencher, one of the crew was working on placing the mats in the bench for the day's work. At about 10 they tried to start, but the mats were not set securely for the trencher to start, so they pulled it out and reset the mats. At about 11:00 they sent the crew to lunch with the expectation that when everyone was through with lunch they would start.

Arrived back on site at approximately 11:55 and the starting hole had been dug and the trencher was about half-way in the ground. Once vertical they went to pull the chain to release the door at the bottom of the box and discovered that it was covered up by the iron. The foreman had the backhoe remove some of the iron from the hopper, and sent a man up to find the chain. Once found they used the backhoe bucket to pull the chain out, but the chain broke. Dave Kelting also got in the hopper and dug down and reattached the chain. The second try was not successful. Finally they mopved the trencher forward along the trench and placed some iron, thereby lowering the level further in the hopper. Following this they also pulled the PVC pipe off the front of the box to release more iron. Then they reattached the chain, this time again using the backhoe bucket to pull the chain. This time both the chain and the metal rod attached to the hopper door mechanism broke. At that time the job foreman made the decision to pull the trencher out of the ground and leave the iron in place in the bench. Because it was 2:30, it was likely they would not have the equipment fixed for another try on Monday, so I left the site and returned to the office to give SLG the field book and video camera.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Job Foreman - David Kelting. HTI had approximately 5 people on site including the foreman. Adsit septic and excavation had four people on site. They were using one track mounted excavator (the smaller one) to set the mats, dig the starting hole and pull the PVC baffle off the box. The larger excavator was used for transferring iron to the hopper and for troubleshooting and the front end loader was being used to transfer iron from the unloading area to the rock box. Finally the trencher was used.

3. What special incidents happened?

_X_ Deliveries ___ Blasting ___ Strikes ___ Accidents _X_ Other ___ None
separation geotextile delivered to site in AM.

4. What special instructions were given to the Contractor and what was Contractor's response?

___ Tests ___ Defective Work ___ Schedules ___ Damages ___ Other _X_ None

5. Were there any damages to property? ___ Yes _x_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	None	sunny	15 F	Snow on ground
Noon	None	sunny	30 F	Snow on ground
2:00 p.m.	None	sunny	35 F	trace of snow left

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer _X_ Other _ None
JC Smith delivery person, DWS, TLH, SLG, WEM, Jim Clark and John ____ of Agway.

9. Did observations reveal any work *not* in compliance with the Contract Documents? ___ Yes __ No

If yes, explain and describe actions taken.
Need to ask Chris how close they were to the starting point when the trencher was installed vertically.

10. Were photographs taken by project representative? _X_ Yes __ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)
Video taped the trenching activities.

11. Additional Comments:

_____ Continued on separate page(s).

Stearns & Wheler, LLC ENVIRONMENTAL ENGINEERS & SCIENTISTS			DAILY FIELD REPORT
		REPORT NO.	10
DATE	December 23, 1997	CONTRACT NO.	3
JOB	GIC Sherburne - Continuous Permeable Wall Installation [Job 41587ZA]		
CONTRACTOR	Horizontal Technologies, Inc./S&W Services, Inc.		
PROJECT REPRESENTATIVE	DK Clark		
SIGNATURE			

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

I arrived on site at about 10:45 AM. Adsit Septic and Excavating was working on the third lift on the southern end of the bench (crowning the lift) and moving dirt onto the north end of the bench for the first lift over the exposed geotextile. Chris Gosch was present for S&W Services.

Chris said that he, Bob Adsit, and Jack Howard had met to discuss a solution for the exposed geotextile. Overnight the wet trench material that had bubbled up had subsided a bit, and what was left had frozen solid. Because it was frozen, it could not easily be dug up and spread out. Jack Howard suggested that instead of excavating the area again, they just regrade that portion of the site and cover it with two feet of top soil. If additional soil is needed, they can strip the top layer off the adjacent corn field. They had set stakes with the final grade marked for the dozer operators to use as guides for finishing the backfilling/earth moving.

After lunch we had the bulldozers move back to the southern end of the bench and drive back and forth (one in a N/S direction and the other in a W/E direction) to compact the soil more. Following this, they went back to finishing setting grade on the remainder of the bench while we did some compaction tests. Because of the freezing rain the night before, the ground was very wet. The high moisture content was limiting the ability of the dozer to compact the soil to 90%. Test results were 73%, and 52%. We had them drive over the soil again and only achieved 67% compaction.

I discussed it with Chris and Greg Myka. We decided to have them continue to backfill, with compaction by the dozer. Stressed that on the northern end they need to make sure that they do not do more than 12-inches of soil at a time. Then we will have Bob bring the excavator over tomorrow and recompact the final lift. If there is significant settlement, then Bob may have to come back in the spring to fix the grade.

while I was there I discussed the monitoring well placement with Chris, in case he is the field rep when they are installed.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Two bulldozers and two operators from Adsit Septic and Excavation.

3. What special incidents happened?

___ Deliveries ___ Blasting ___ Strikes ___ Accidents _X_ Other ___ None

Compaction testing in field by Parratt Wolff.

4. What special instructions were given to the Contractor and what was Contractor's response?

_X_ Tests ___ Defective Work ___ Schedules ___ Damages ___ Other _X_ None

See (1.) above

5. Were there any damages to property? ___ Yes _x_ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

___ Changes ___ Relocations ___ Delays ___ Quantities ___ Other _X_ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	N/A	N/A		
Noon	None	overcast	35 F	approx 3" snow
2:00 p.m.	N/A	N/A		

8. Who were the visitors that came to the site? List names.

___ Owner ___ Engineer ___ Photographer _X_ Other _ None

Field technician from Parratt Wolff

9. Did observations reveal any work *not* in compliance with the Contract Documents? _X_ Yes ___ No

If yes, explain and describe actions taken.

Compaction test results indicated we were not getting 90% compaction and that it would not be possible, given the moisture content of the soil.

10. Were photographs taken by project representative? ___ Yes _X_ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

11. Additional Comments:

First compaction test done approx. 60 feet north and 10' west of southern end stake. Result was 73% compaction and 29% moisture.

Second test done approximately 30 feet north and 5 feet west of end stake. Result was 52% compaction, 42% moisture. had the bulldozer come back and drive back and forth over the same area to see if we could get better results.

Last test was done after about 8 passes with the bulldozer. Result was 67% compaction and 33% moisture. Test location was about 51 feet north of end stake and about 1 to 2 feet west of stake.

DLC, File 1587-2

Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DAILY FIELD REPORT

REPORT NO.

DATE	May 29, 1998	CONTRACT NO.	3
JOB	41587-A		
CONTRACTOR	Parrat-Wolff		
PROJECT REPRESENTATIVE	Dave Neuner		
SIGNATURE	David M. Neuner		

1. What significant construction work was accomplished today and where? (process unit, street, building, manhole (numbers), sewer, water main, etc. Specifically locate pipeline work by street name, length installed, stationing, or manholes, if applicable.)

- Piezometers T-3 and T-6 were installed according to the specifications. The piezometers were wired through separate PVC conduits from the control box to the bottom of each well. The contractor measured the depth of the well (prior to 5/29) which will be used to calculate the elevation of each piezometer. The contractor backfilled the trench with the excavated material

- The contractor uncovered three (3) small spots of the iron wall while digging the trench (on 5/28). Field Order #1 was given to the contractor instructing him to replace the torn geotextile over each spot. The contractor used several pieces of geotextile to recover the iron wall before backfilling. The geotextile was held in place w/ carpenter nails.

2. What manpower and equipment were used today? (total men each contractor, major power equipment, job superintendent)

Parrat-Wolff:

One (1) Track-Hoe Excavator

Two (2) Laborers

3. What special incidents happened?

☒ Deliveries ☐ Blasting ☐ Strikes ☐ Accidents ☐ Other ☐ None

Geotextile was delivered to the project site (after the trench had been backfilled).

4. What special instructions were given to the Contractor and what was Contractor's response?

☐ Tests ☐ Defective Work ☐ Schedules ☐ Damages ☒ Other ☐ None

Field Order #1

5. Were there any damages to property? ☐ Yes ☒ No

If yes, explain and locate.

6. Claims (verbal or written) made by the Contractor. If written, attach.

☐ Changes ☐ Relocations ☐ Delays ☐ Quantities ☐ Other ☒ None

7. What were the weather and site conditions?

TIME	PRECIPITATION	SKIES	AIR TEMPERATURE	GROUND/ PAVEMENT MOISTURE
9:00 a.m.	none	hazy	65°F	dry
Noon	none	Clearing	75°F	dry
3:00 p.m.				

8. Who were the visitors that came to the site? List names.

☐ Owner ☐ Engineer ☐ Photographer ☒ Other ☐ None

Delivery of geotextile by Bob Adsit

9. Did observations reveal any work *not* in compliance with the Contract Documents? ☐ Yes ☒ No

If yes, explain and describe actions taken.

10. Were photographs taken by project representative? ☒ Yes ☐ No

If yes, then indicate specific location, description, and number of photos. (Developed prints to be sent to project engineer who will file with office copy of Daily Field Reports.)

Photographs were taken at the site and the piezometer installation.

11. Additional Comments:

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☐ Continued on separate page(s).

Stearns & Wheler, LLC
ENVIRONMENTAL ENGINEERS & SCIENTISTS

FIELD ORDER NO. 1

Owner	☐	Contractor	☒
Engineer	☒	Field	☐
Consultants	☐	Other Construction Manager	

PROJECT: Sherburne Piezometer Study

DATE: May 28, 1998

ENGINEER'S PROJECT NO.: 41587FA2200

OWNER: General Instrument Corporation

FEDERAL PROJECT NO.:

TO (Contractor): Parratt-Wolff

CONTRACT NO.: 3

DESCRIPTION: (Insert a written description of the interpretation or change)

Replace torn geotextile with 8-ounce (minimum) geotextile. Overlap replacement geotextile with the existing (torn) geotextile to ensure adequate support before backfilling.

Attachments: (Insert listing of attached or referenced documents which support description)

ENGINEER: Stearns & Wheler, LLC
One Remington Park Drive, Cazenovia, NY 13035

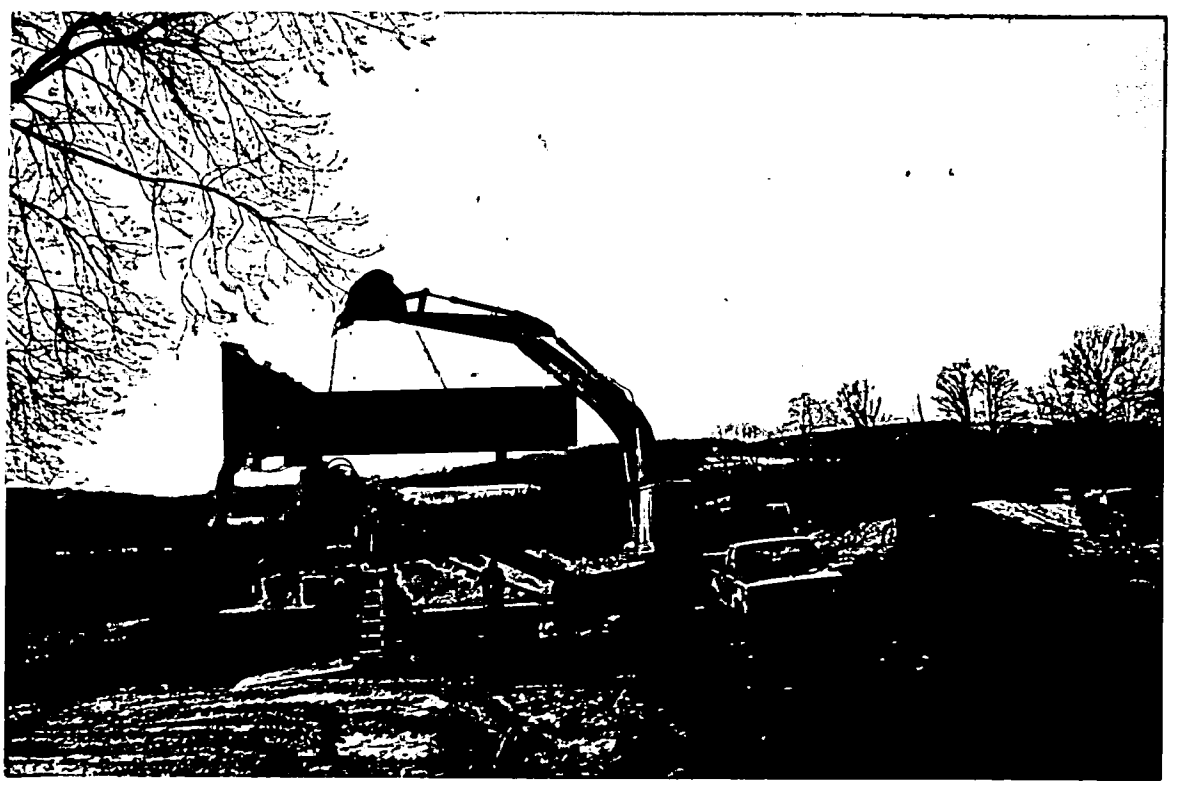
BY: Diane K. Clark D.E. Smp
(Project Manager)

APPENDIX S

CONSTRUCTION PHOTOS – IRON WALL PROJECT

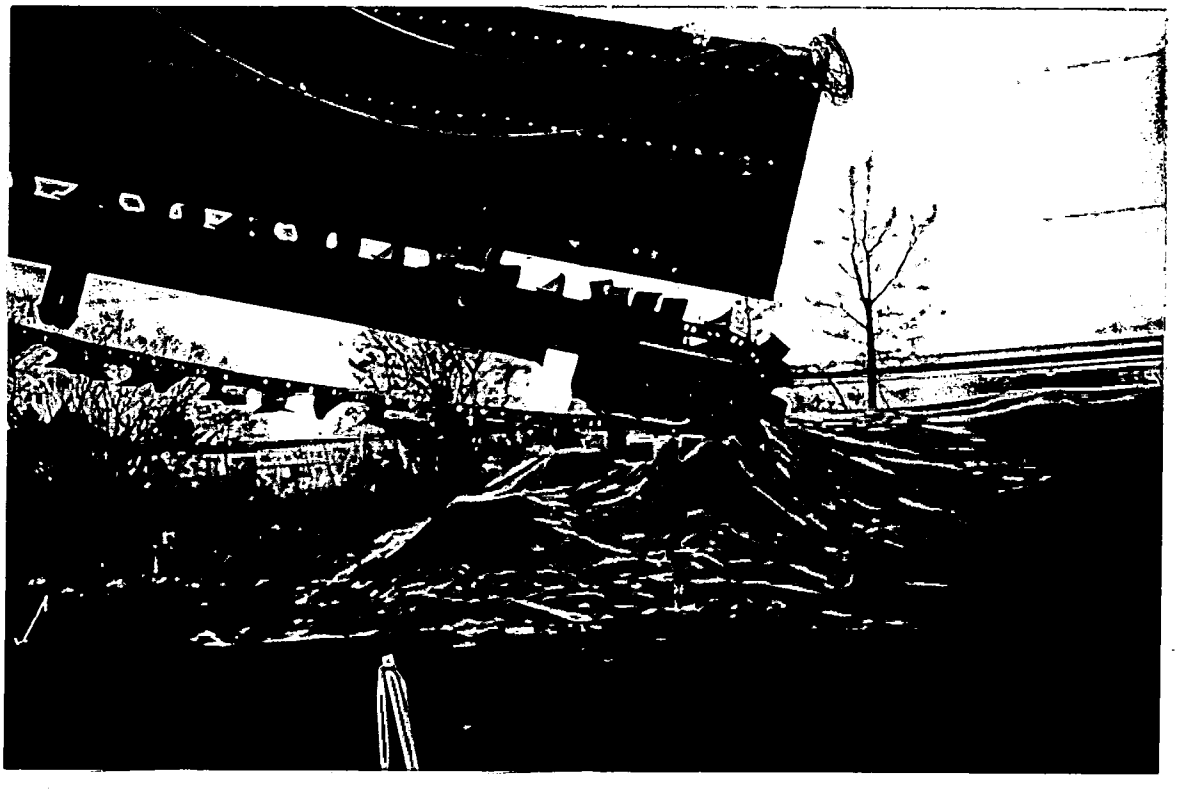
EQUIPMENT ASSEMBLY

December 1997



EQUIPMENT ASSEMBLY

December 1997

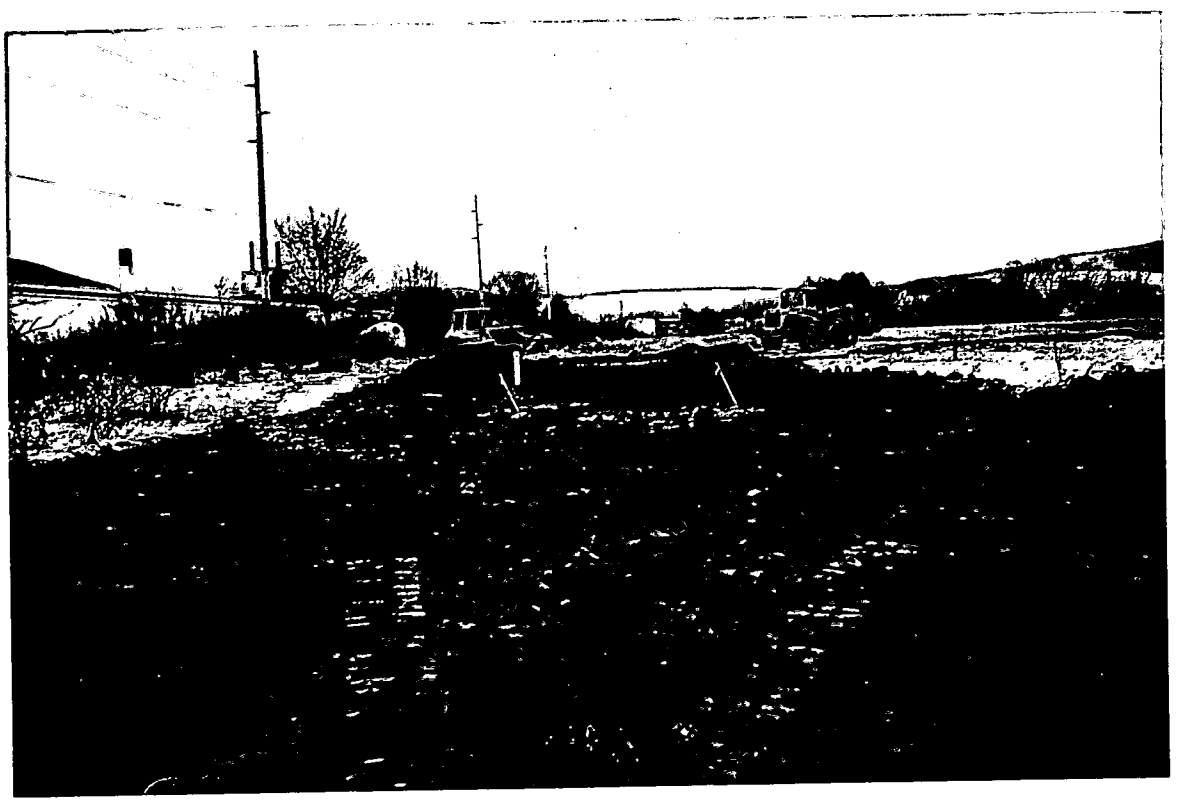


EXCAVATION OF BENCH FOR 120-FT IRON WALL

December 1997

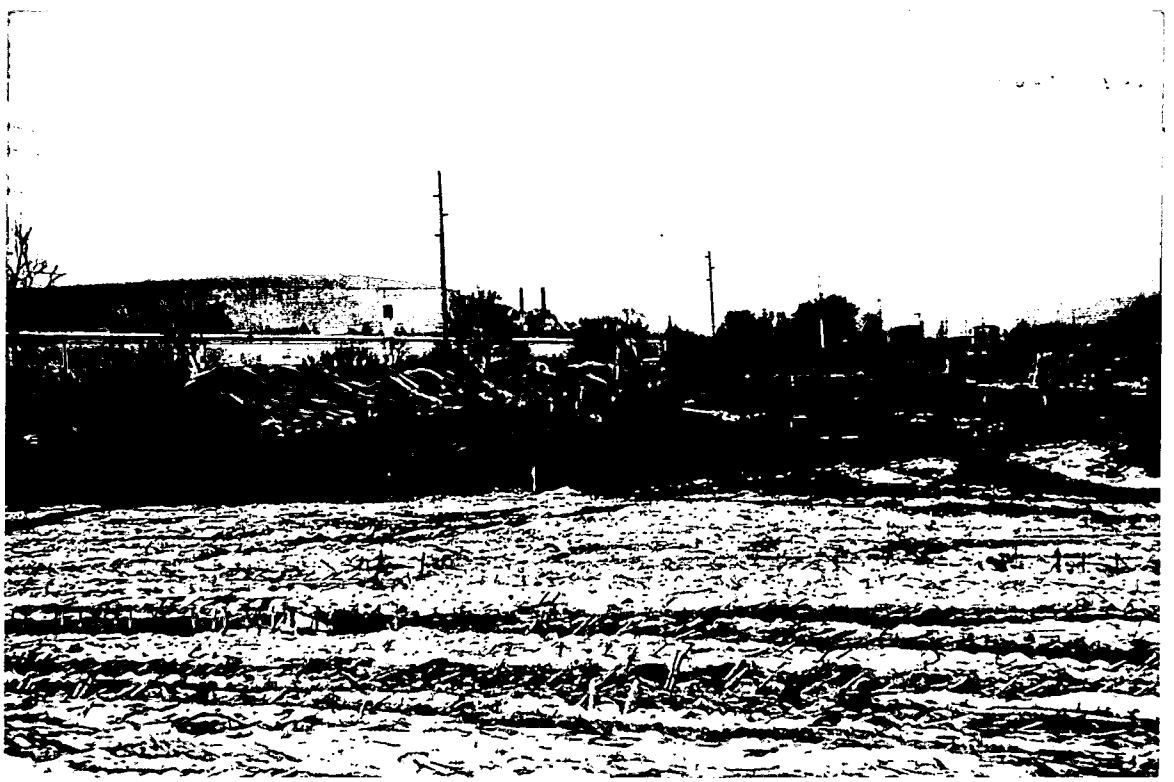
EXCAVATION OF BENCH FOR 370-FT IRON WALL

December 1997



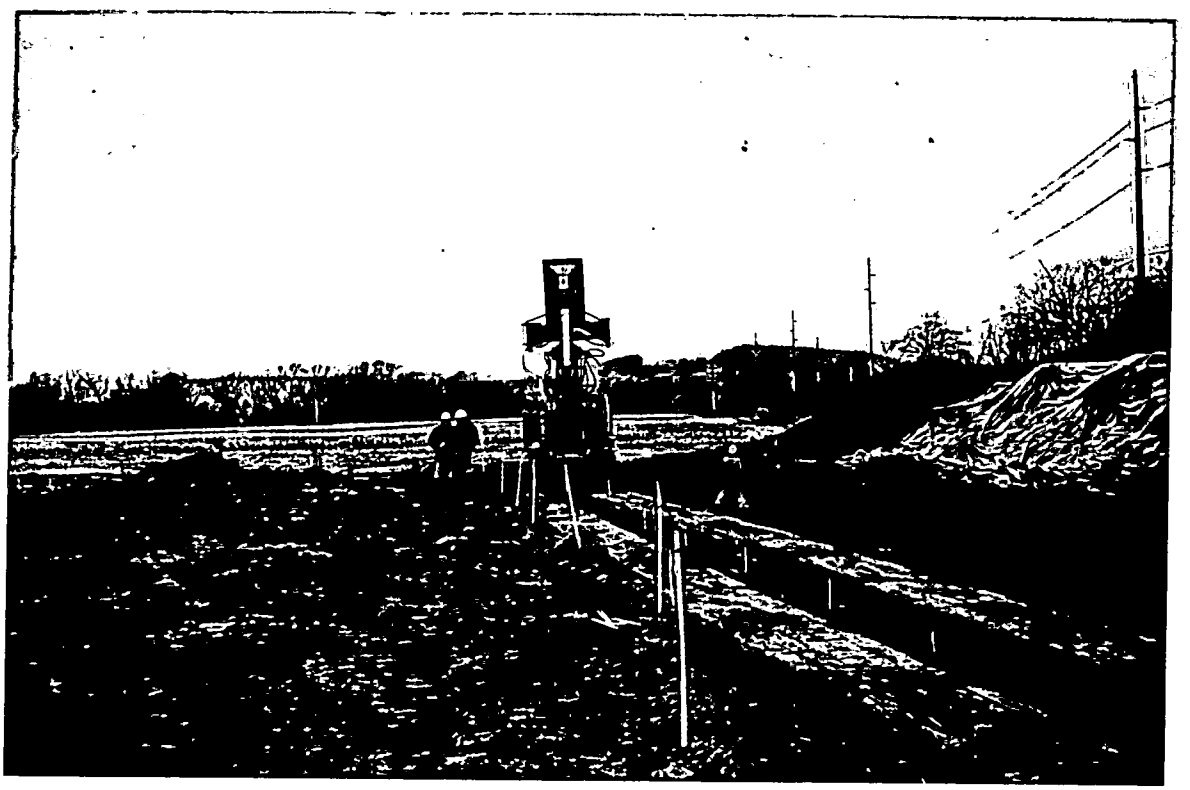
TOPSOIL STOCKPILES

December 1997



PLACING MATS FOR TRENCHING EQUIPMENT

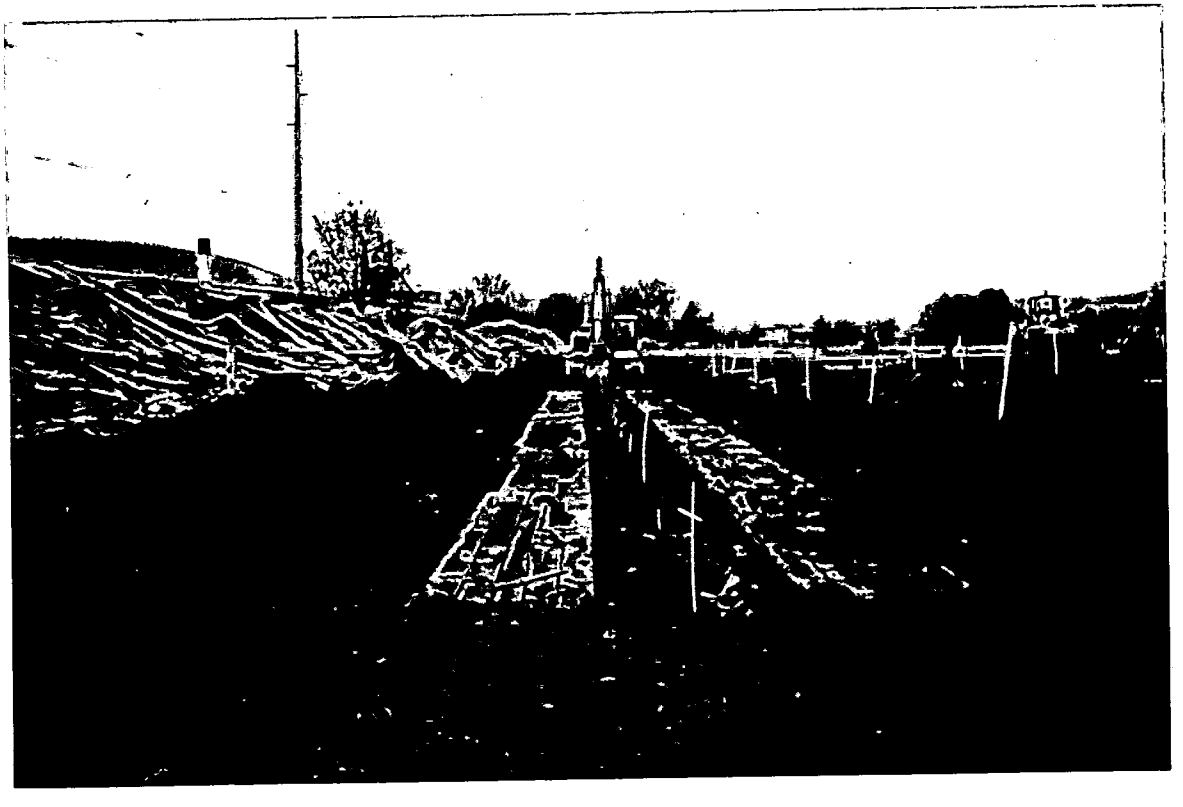
December 1997



PREPPING EQUIPMENT FOR TRENCHING

December 1997

BEGINNING SOUTH END OF SHORT TRENCH

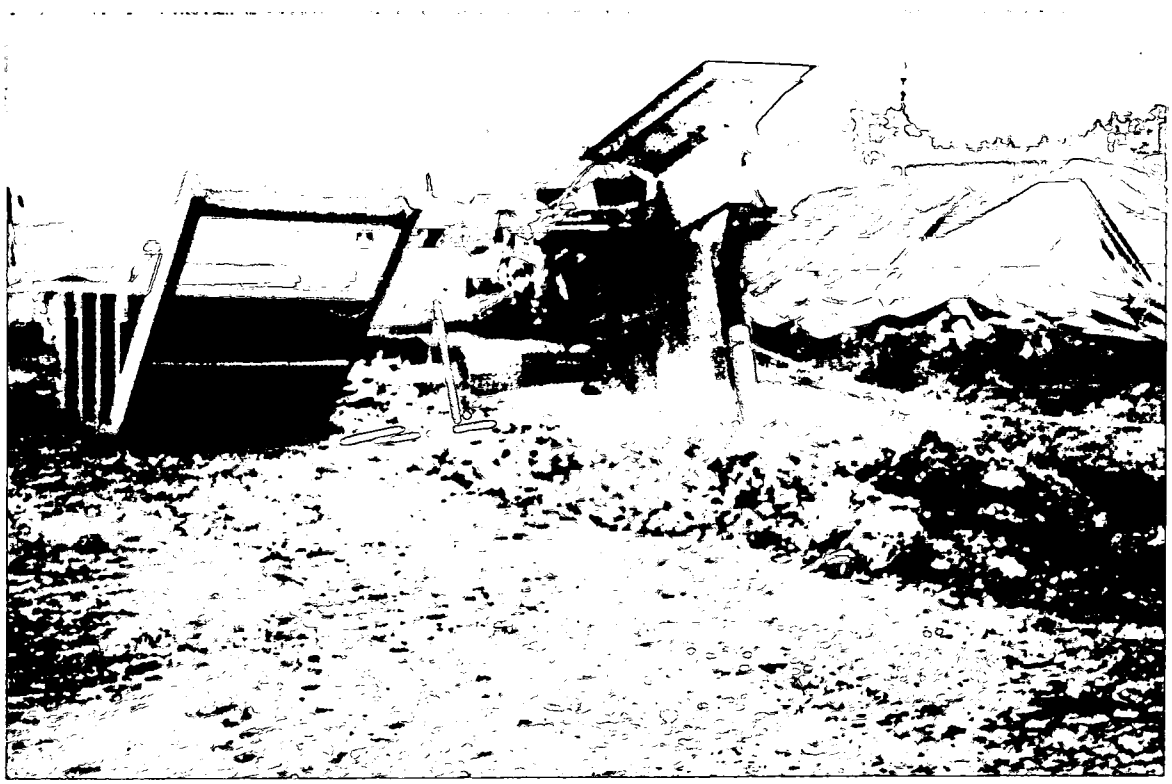


WALKING TRENCHER TO STARTING POINT – SHORT TRENCH

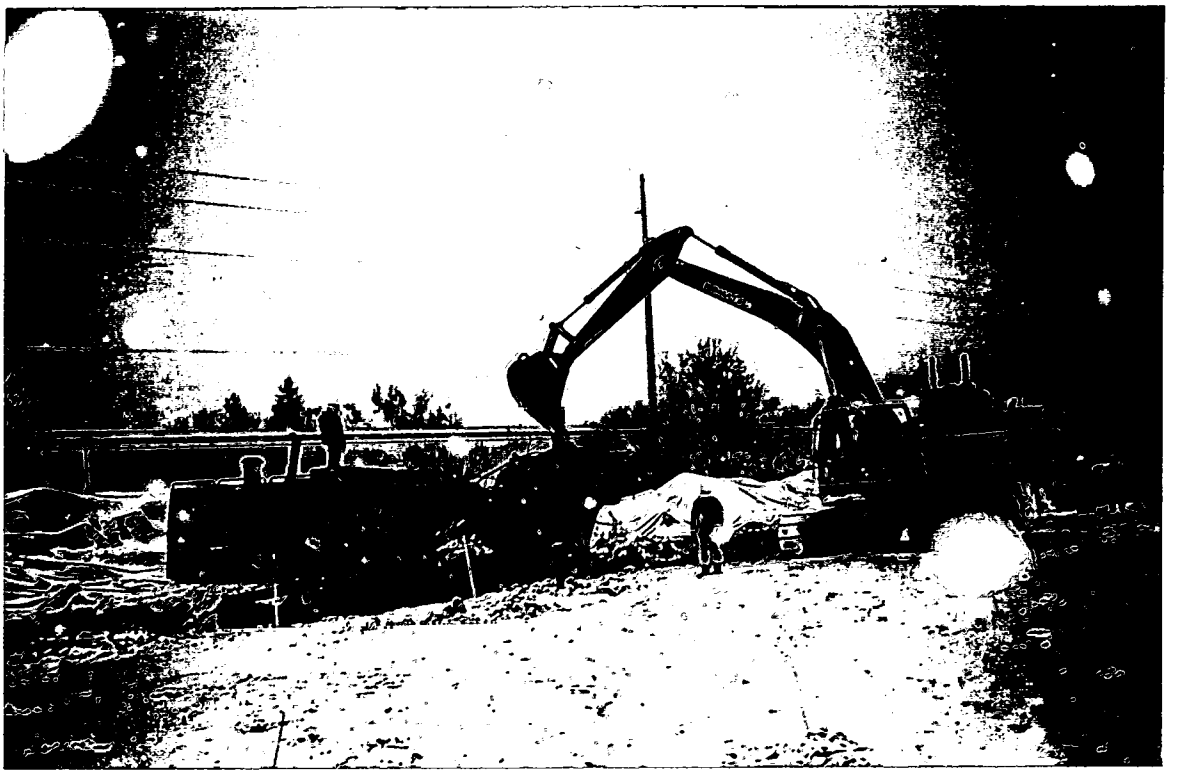
FILLING HOPPER WITH IRON

EXCAVATING STARTING HOLE FOR SHORT TRENCH

GETTING HOPPER/TRENCH BOX VERTICAL – SHORT TRENCH

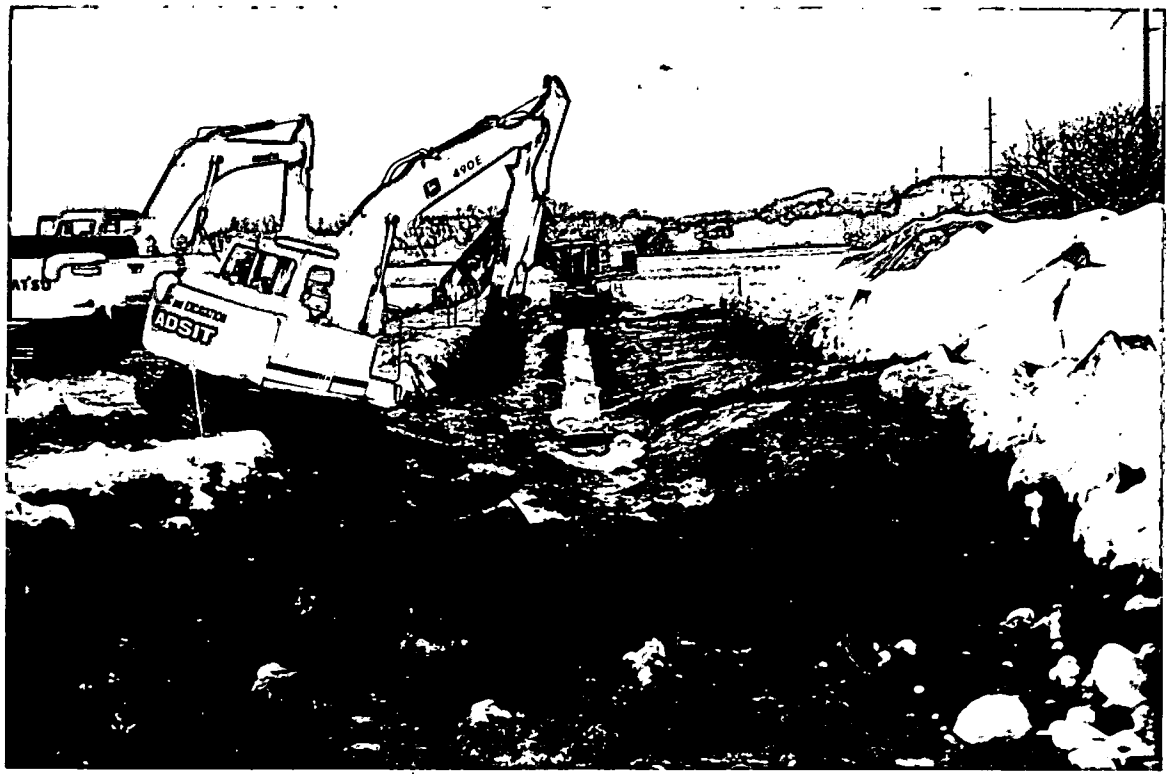


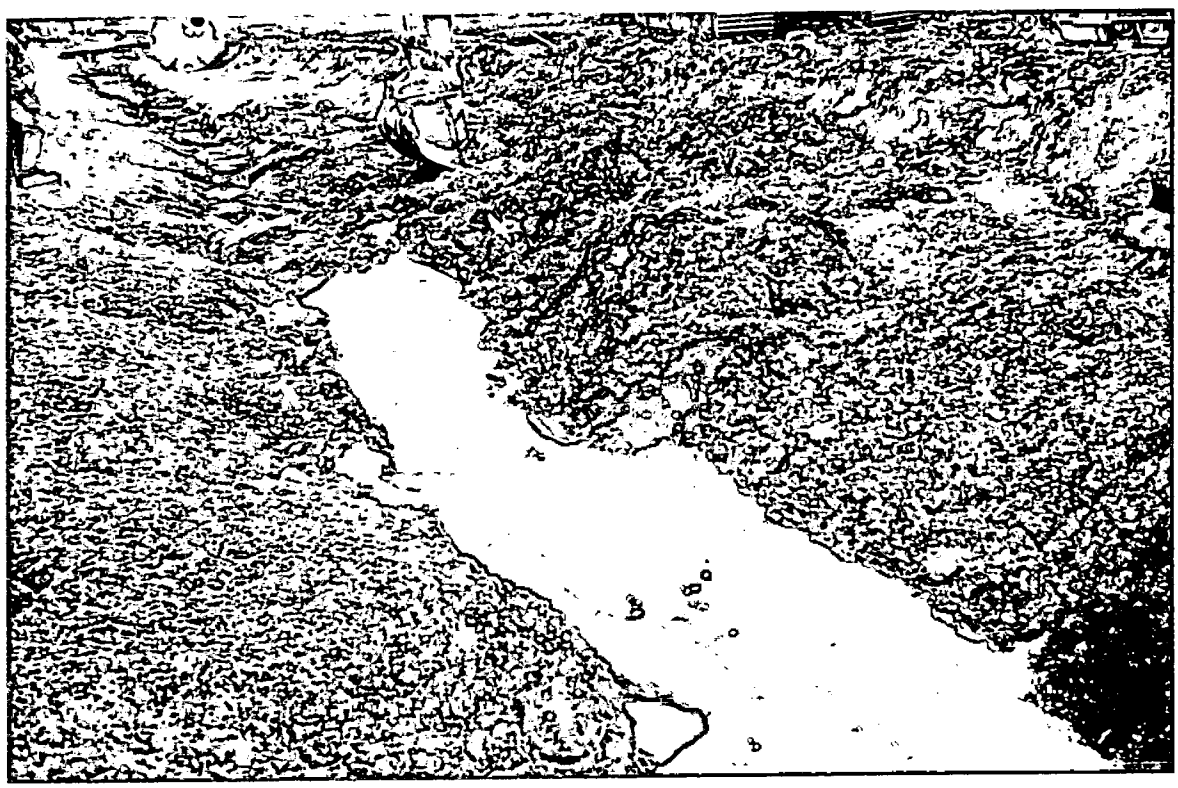
TRANSFERRING IRON – SHORT TRENCH



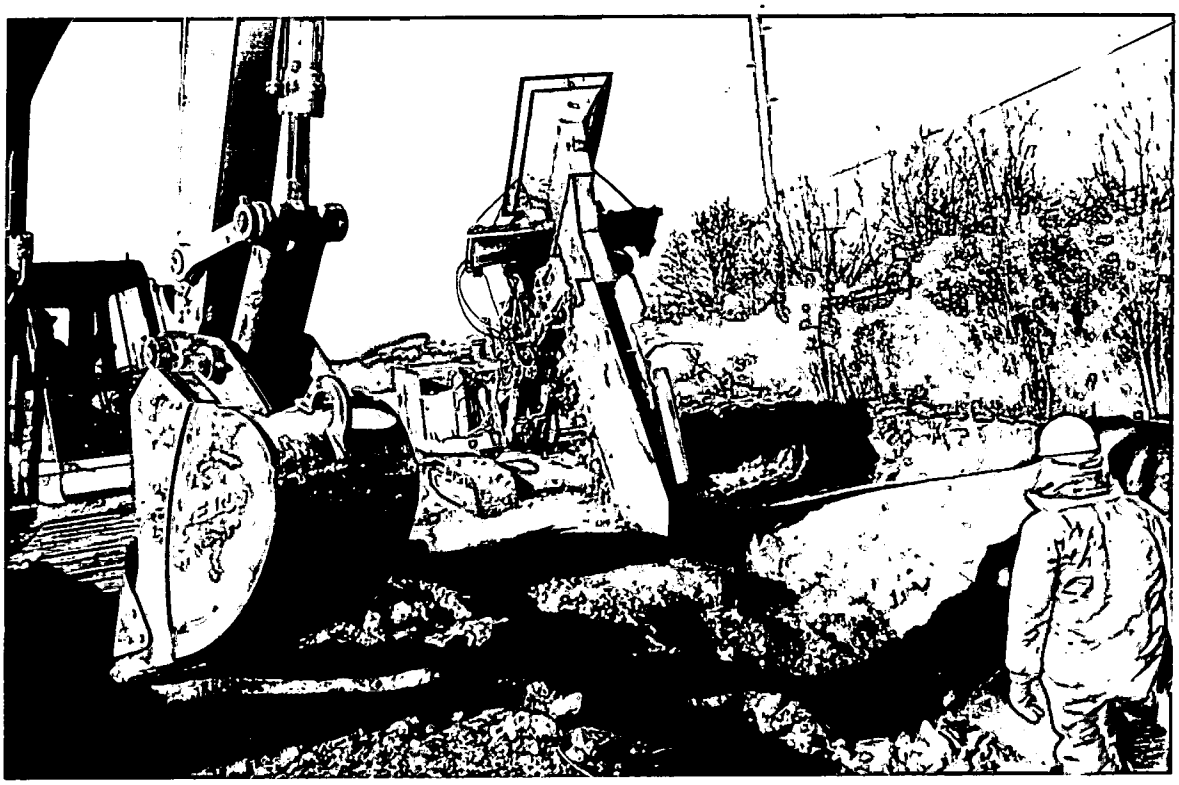
COMPLETION OF SHORT TRENCH

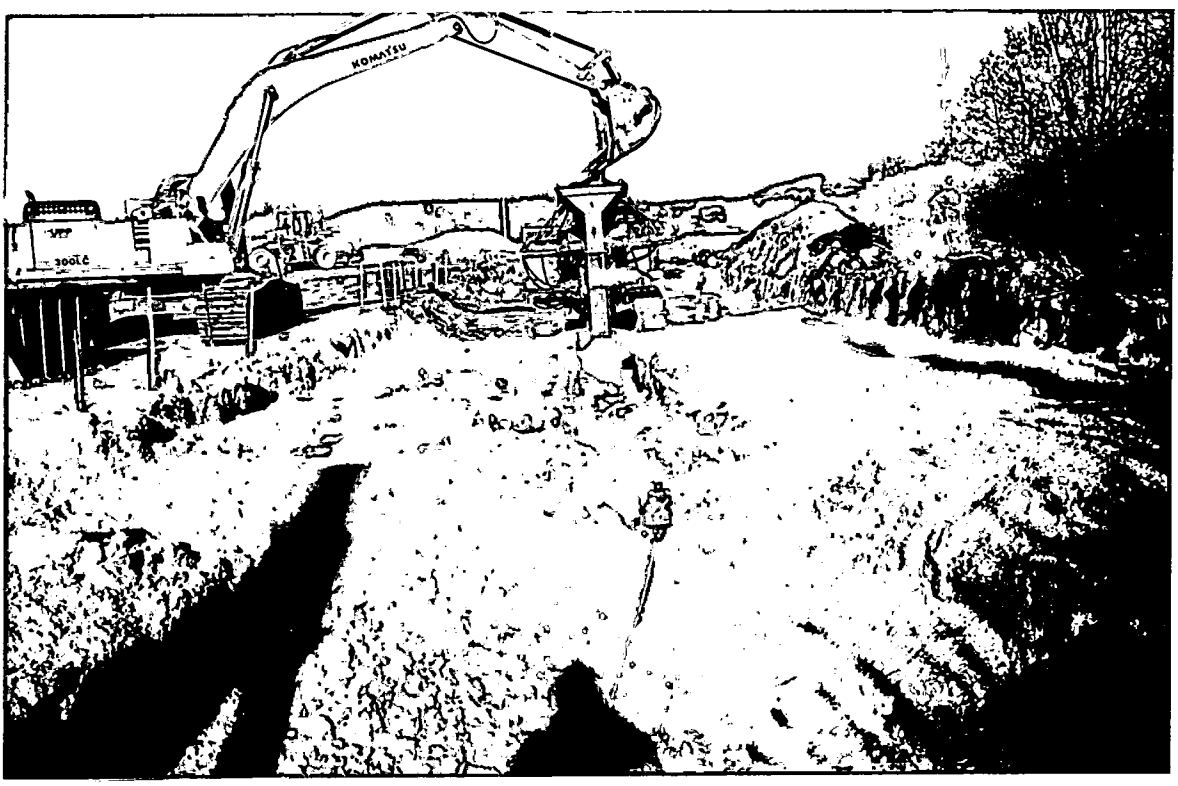
TOPPING OFF TRENCH



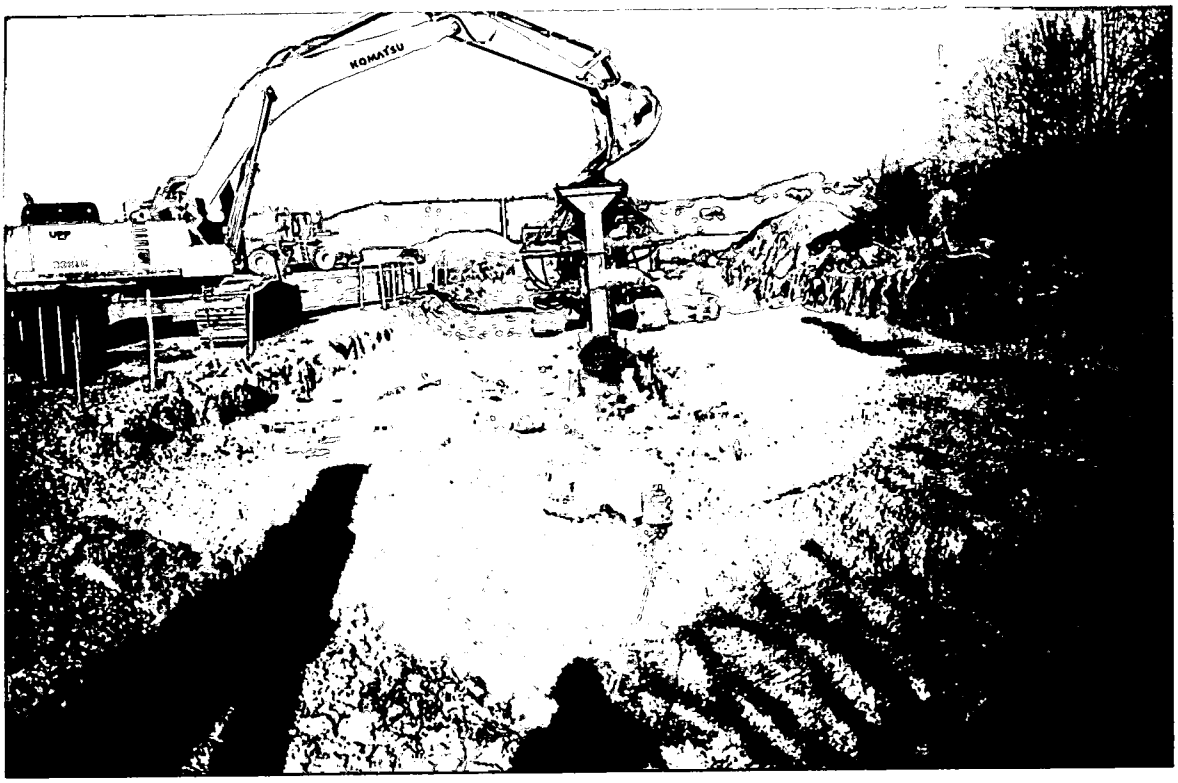


INSTALLING LONGER TRENCH



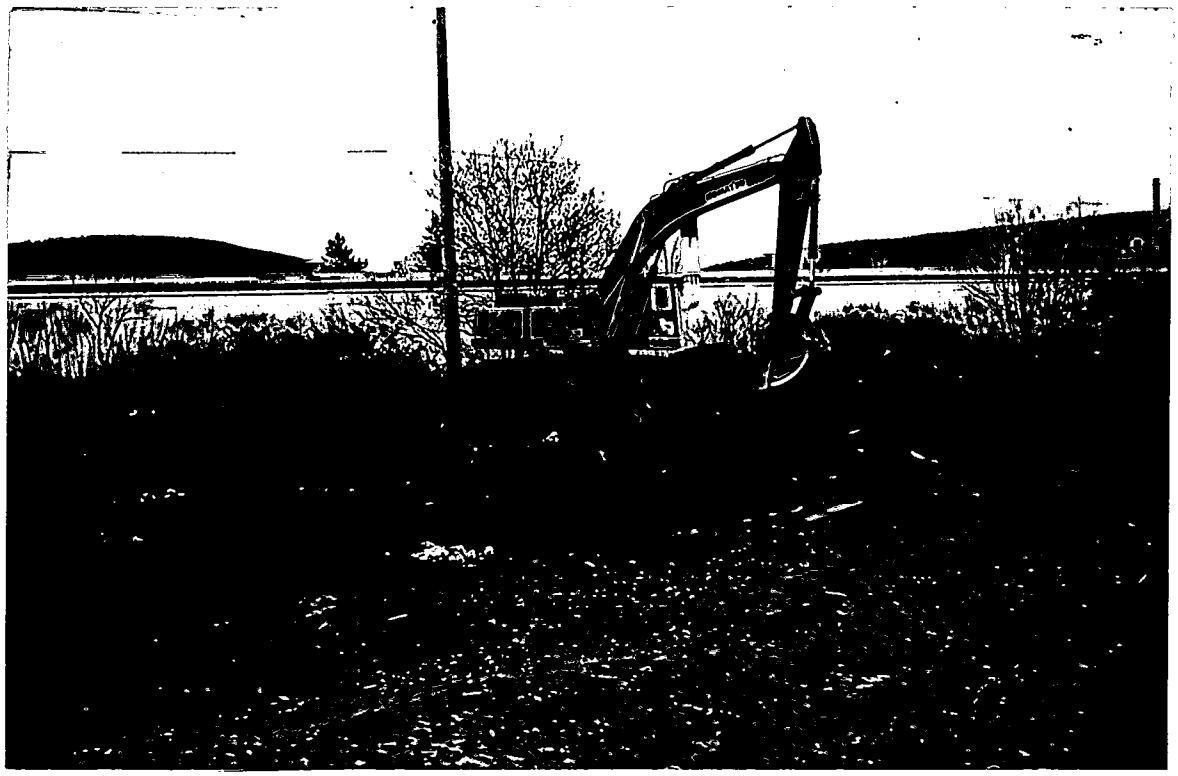


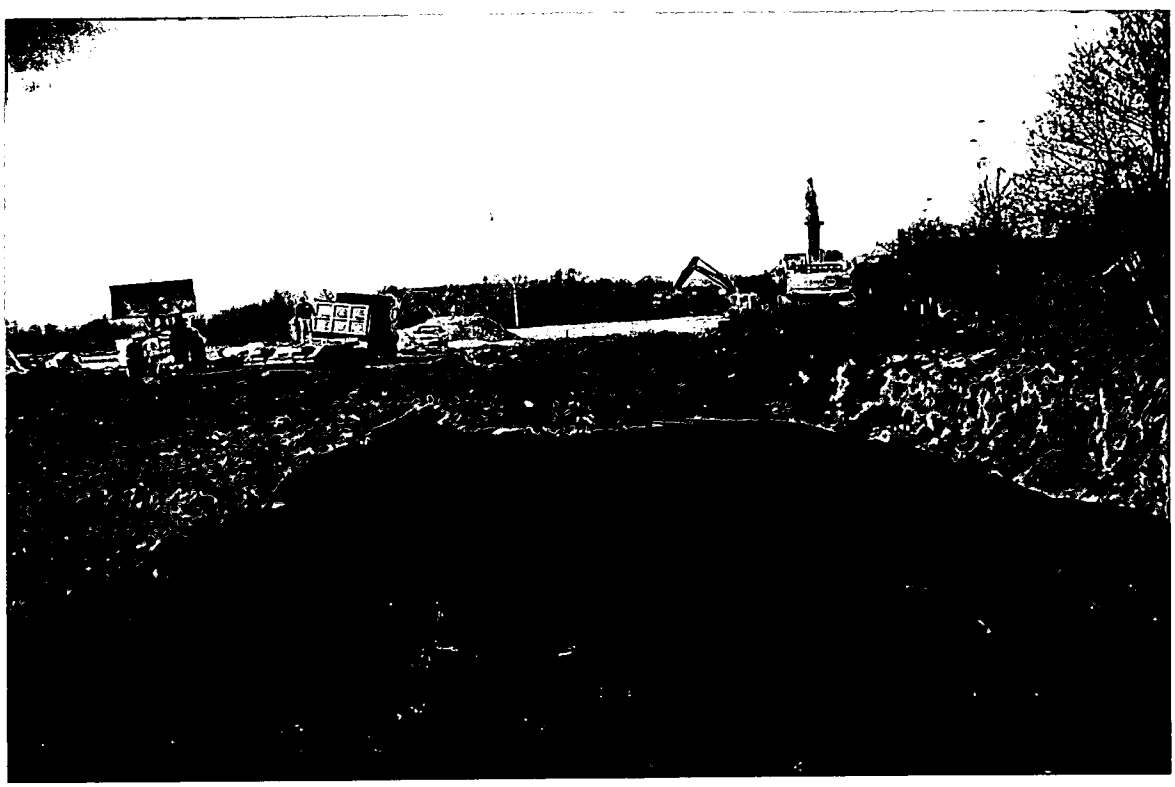
INSTALLING LONGER TRENCH



COMPLETING LONGER TRENCH/TOPPING OFF IRON

BACKFILLING





BACKFILLING