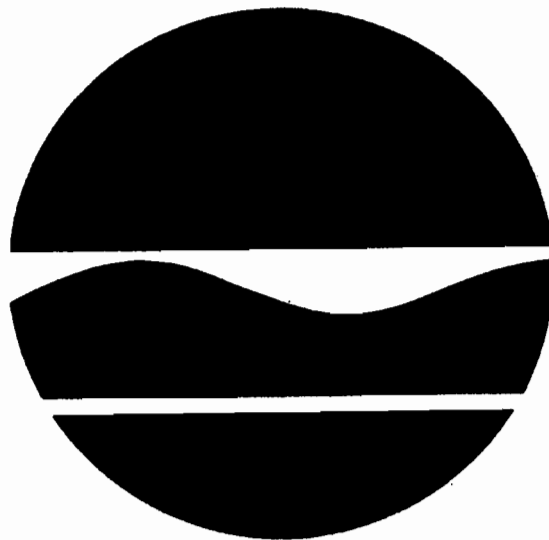


NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

REMEDIATION SUMMARY REPORT

VAN DER HORST PLANT NO. 2 SITE
CITY OF OLEAN, CATTARAUGUS COUNTY
CONTRACT NO. D003337
SITE NO. 9-05-022



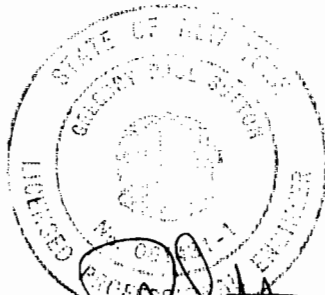
November 1996

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* MICHAEL D. ZAGATA *Commissioner*

REMEDIATION SUMMARY REPORT
VAN DER HORST PLANT #2
SOIL CONSOLIDATION AND CAPPING PROJECT

NYSDEC Site No. 9-05-022
Contract No. - D-0003337
Olean, New York

Prepared by:



Gregory P. Sutton 11/25/96

Gregory P. Sutton, P.E.
Project Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation
Region 9 Office
270 Michigan Avenue
Buffalo, New York 14203-2999

November 1996

TABLE OF CONTENTS

Section

| | | |
|----------|---|----|
| | EXECUTIVE SUMMARY | 1 |
| 1 | SITE BACKGROUND | |
| 1.1 | LOCATION | 2 |
| 1.2 | HISTORY | 3 |
| 2 | SUMMARY OF REMEDIAL WORK | |
| 2.1 | GENERAL OVERVIEW | 5 |
| 2.2 | SITE PREPARATION | 7 |
| 2.3 | HEALTH AND SAFETY | 8 |
| 2.4 | SITE SERVICES | 9 |
| 2.5 | SOIL AND OTHER MATERIALS HANDLING | |
| | 2.5.1 - CONTAMINATED SOIL EXCAVATION | |
| | 2.5.1.1 - SITE EXCAVATIONS | 10 |
| | 2.5.1.2 - RETENTION BASIN AREA | 11 |
| | 2.5.2 - HAZARDOUS SOIL EXCAVATION AND STABILIZATION . | 12 |
| | 2.5.3 - TWO-MILE CREEK SEDIMENT REMOVAL | 12 |
| | 2.5.4 - CONCRETE STRUCTURES | 13 |
| | 2.5.5 - UNDERGROUND STORAGE TANK | 13 |
| | 2.5.6 - SEWER AND WATER LINE REMOVAL | 14 |
| 2.6 | PRE-EXCAVATION/VERIFICATION/CHARACTERIZATION | |
| | SAMPLING | 15 |
| 2.7 | DISPOSAL CELL CONSTRUCTION | 16 |
| 2.8 | CLEAN FILL MATERIAL | 19 |
| 2.9 | TOPSOIL, SEED AND MULCH | 20 |
| 2.10 | MONITORING WELL ABANDONMENT AND RESTORATION | 21 |
| 2.11 | FIELD ORDERS | 22 |
| 2.12 | PROPOSED CHANGE ORDERS/CHANGE ORDERS | |
| | 2.12.1 - PROPOSED CHANGE ORDERS | 23 |

2.12.2 - CHANGE ORDER NO. 1 24
2.12.3 - CHANGE ORDER NO. 2 27
3.0 CONCLUSIONS AND RECOMMENDATIONS 27

APPENDICES

- A DRAWING INDEX
- B CONSTRUCTION RECORDS AND REPORTS INDEX
- C CONSTRUCTION PHOTOGRAPHS/VIDEO INDEX
- D MONITORING WELL CONSTRUCTION DIAGRAMS

LIST OF TABLES

Table

| | | |
|---|--|----|
| 1 | TWO-MILE CREEK EXCAVATION SCHEDULE | 30 |
| 2 | BID QUANTITY SUMMARY | 31 |
| 3 | SUMMARY OF SOIL EXCAVATION QUANTITIES | 33 |
| 4 | LIST OF SUBCONTRACTORS | 34 |
| 5 | OVERALL EVALUATION OF THERMOCOR KIMMINS, INC. | 35 |
| 6 | SUMMARY OF SOIL VERIFICATION SAMPLING RESULTS | |
| | 6a. - TWO-MILE CREEK SEDIMENT | 36 |
| | 6b. - RETENTION BASIN | 38 |
| | 6c. - ENTRANCE/EXIT SAMPLES | 41 |
| | 6d. - SITE EXCAVATIONS | 43 |
| | 6e. - CAP BOUNDARY | 45 |
| | 6f. - SOIL STABILIZATION-TCLP | 46 |
| | 6g. - UNDERGROUND STORAGE TANK RESULTS | 47 |

LIST OF FIGURES

Figure

| | | |
|---|--|----|
| 1 | PRE-REMEDICATION SITE PLAN | 48 |
| 2 | TWO-MILE CREEK PROFILE | 49 |
| 3 | CAP CROSS SECTION | 50 |
| 4 | REMEDIAL EXCAVATION LOCATIONS | 51 |
| 5 | EXCAVATION SAMPLING LOCATION | 52 |
| 6 | POST-REMEDICATION SITE PLAN | 53 |
| 7 | TWO-MILE CREEK SEDIMENT SAMPLE LOCATIONS | 54 |

EXECUTIVE SUMMARY

The New York State Department of Environmental Conservation (NYSDEC), Region 9 Office provided construction inspection and engineering services during the remediation of the Consolidation and Capping Project at the Van der Horst Plant #2 site (NYSDEC Site No. 9-05-022), Olean, New York. NYSDEC-R9 construction services included full-time inspection and monitoring of remedial activities to ensure conformation with contract documents. Remediation work commenced on October 1, 1995, and substantial completion of the project was accomplished by July 3, 1996.

The remediation activities completed at the Van der Horst Plant #2 site under this project included the excavation and on-site placement under a cap of all identified soils on the site that exceeded clean-up goals established for the site (11,742 cubic yards), the excavation and stabilization of 23 cubic yards of characteristically hazardous soil and the excavation and on-site placement of 2,600 cubic yards of contaminated sediment from Two-Mile Creek. Clean-up goals established for the site included site soils of chromium (50 mg/kg), lead (500 mg/kg) and arsenic (35 mg/kg) and Two-Mile Creek sediments, chromium 26 mg/kg. This value was later increased to 100 mg/kg which was the background chromium level in the creek sediments upgradient of the site. After remediation was accomplished the highest chromium value detected in the remaining sediment was 88 mg/kg, with an average value for all sediment samples of 27.5 mg/kg (see Table 6a.)

Remediation was performed by ThermoCor Kimmins, Inc. (TCK) of Niagara Falls, New York. TCK was selected through competitive bidding on June 6, 1995, to perform the work. TCK submitted the lowest of 7 bids at \$945,690.55 (see Table 2). The engineer's estimate for the work was \$1,126,668.75.

The estimated and actual quantities for the remediation bid items are shown on Table 2. The estimated unit quantities for remedial operations at the Van der Horst Plant #2 site were exceeded for ten bid items due to additional amounts of contaminated soil and sediments encountered at the site and the resultant time and materials that were required to construct the capped cell because of this increase in these contaminated materials. Sample quantities were also increased in order to verify the complete removal of contaminated soils from the excavation areas. Seven bid items were lower than the contract amount due to design changes implemented during

the work. Excavation and removal of contaminated sediments (00504.A) was the only bid item which varied by more than 15% or \$30,000. The unit price for quantities in excess of 115% of the estimated quantity was renegotiated. Five new bid items was developed to address additional sample collection required to verify the removal of contaminated soils found on site and to address several concrete structures that had not been identified in the Contract Documents.

There were two change orders issued. The first dealt with several unforeseen conditions that resulted in the increase in soil and sediment removal and the increase in sampling requirements. C.O. #1 also addressed the removal of an additional water main, removal of a concrete structure in the retention basin and extended the Contract Time to account for a winter shutdown. This change order increased the Contract Amount by \$159,745.95. The second change order was also for several unforeseen site conditions (i.e., removal of additional concrete structures, excavation and removal of a underground storage tank (UST) discovered during the work) and also extended the Contact Time. This change order also adjusted the unit price bid item values to their actual quantities resulting in a \$26,985.76 decrease in the Contract Amount. The total change to the original Contract Amount of \$945,690.55 was and increase of \$132,760.19 (14%) for a final Contract Amount of \$1,078,450.79.

The remediation of the Van der Horst Site was satisfactorily completed by TCK (see Table 5). There were several significant problems encountered during the work including: dewatering of Two-Mile Creek for sediment excavation; Increased sediment quantity and sampling required in Two-Mile Creek; Excess moisture in soil and sediment that inhibited timely compaction of soil within the cap limits; Increase quantity of soil and sediment that resulted in the redesign of the disposal cell; Encounter of several underground concrete structures and an UST that had not been identified in the Contract Documents. However, all these issues were satisfactorily addressed and the project completed. NYSDEC believes remediation of the Van der Horst Plant #2 site was conducted in accordance with all applicable state and federal regulations and that analytical laboratories utilized by TCK complied with Environmental Laboratory Approval Program (ELAP) certification (see Appendix B).

Construction was completed in accordance with the contract documents entitled *Soil Remediation and Cap Placement for the Van der Horst Plant #2 (ERM April 1995)*.

1.0 SITE BACKGROUND

1.1 LOCATION

The Van der Horst Plant #2 site is a Class 2 site listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State (NYSDEC Site No. 905022). The site is a former industrial metal-finishing/plating facility of approximately 11 acres, and located on Johnson Street in the City of Olean, Cattaraugus County. It is located in an industrial /commercial area of the City and is bounded by residential property to the west, State Route 17 Expressway to the north, commercial land and Johnson Street to the east and a Conrail rail line to the south (Figure 1). The topography of the site is generally flat. Storm water runoff from the site is either conveyed to the City storm sewer system or accumulates in low areas on the site and eventually percolates into the soil. The nearest surface water body is Two-Mile Creek which borders the site on the north side. The naturally occurring groundwater flow is toward the southwest.

1.2 HISTORY

The Van der Horst Corporation was founded in 1940 in the City of Olean. The first chrome plating operation was performed at Plant No. 1, which is located 0.5 miles east of Plant No. 2. The VDH opened a second a plating operation Plant No.2 in 1951 on Johnson Street in Olean. Plant No.2 was constructed to perform iron plating to repair and restore the worn surfaces of machinery components, including cylinders and crankshafts.

The Plant's plating process utilized many large open holding tanks containing a variety of hazardous substances. Several tanks were located below grade to a depth of 12 feet. From data obtained during the investigation, it is believed that these tanks were a major contributor to the subsurface soil and groundwater contamination at the site.

The on-site disposal of wastes reportedly occurred throughout the plant's active period. From the previous records of the plant's activities, documentation from the County Health Department, and interviews with former employees, it is believed that wastes from Plant No. 1 were dumped at Plant No. 2. An area west of the Plant No. 2 building was used as a fill area to deposit all the wastes generated at the plant.

Plant No. 2 ceased manufacturing operations in the summer of 1987. During a preliminary visit in the fall of 1988 by the New York State Department of Environmental Conservation

(NYSDEC), several surface soil samples were collected in the fill area for chemical analysis. The results showed high concentrations of chromium and barium in the soil. The VanDerHorst Corporation Plant No. 2 was listed in the "Registry of Inactive Hazardous Waste Sites" by the NYSDEC in 1988. The Plant No. 2 site was classified as a Class 2 site, which requires remediation to eliminate the significant threat posed by the site to the environment and public health.

In 1989, a summary abatement order was issued by NYSDEC to VanDerHorst Corporation stating that the conditions existing at the plant facility constituted an imminent and substantial danger to public health and the environment. At the hearing, substantial evidence was presented by the VanDerHorst Corporation to prove that the company lacked financial resources to undertake remedial activities, thus making it necessary for the State to do so.

In 1989, another summary abatement order was issued requiring the immediate removal and disposal of large volumes of corrosive plating solutions and other hazardous substances which remained at the VanDerHorst plants. The company responded with a proposed closure plan which fell short of requirements for closure, but did include financial statements which demonstrated that the company lacked financial resources to undertake the necessary activities for adequate closure. The NYSDEC requested USEPA to take action immediately because of the imminent threat posed by these improperly stored chemicals inside the plant's buildings. The USEPA mobilized its team in the middle of 1989 and erected a fence around the fill area at Plant No. 2 site. The chemicals inside the building were properly characterized, packaged, and removed. The removal action completed by USEPA eliminated the threat posed by the various chemicals and spent solutions which were improperly stored inside the building on the site.

NYSDEC's Remedial Investigation/Feasibility (RI/FS) study was completed and in March 1992, a Record of Decision (ROD) was executed for VanDerHorst corporation Plant No. 1. The major elements of the selected remedy include:

- The asbestos materials will be removed from the plant building and the building will be demolished. The debris will be disposed at appropriate off-site facilities. This will eliminate the threat posed by the contamination inside the building and provide the space needed for the construction of the cap. (Completed July 1995 as part of Phase I of Remedial Activities)
- An impermeable, multi layer cap will be constructed on-site which will be located to the west

of the plant building. This will minimize the leaching of contaminants from the soil to the groundwater.

- Soils that are identified as characteristic hazardous waste will be excavated, chemically treated (stabilized) on-site and will be placed on-site before the placement of the cap. This will eliminate the leaching of contaminants from the hazardous soils to the groundwater.
- Contaminated soils (above clean up goals) located in areas other than the cap area will be excavated and will be consolidated on-site in the area to be capped. This will eliminate the threat posed by the contaminated soil to the public health and the environment via direct contact and fugitive dust emissions.
- The contaminated sediments from Two Mile Creek and the Catch Basin will be dredged and consolidated on-site before the placement of the cap. This will eliminate the threat posed by the creek sediments to the biota and will prevent the leaching of contaminants from the catch basin sediments to the groundwater.
- The on-site groundwater contamination which is limited to the mid-section of the site will be monitored. Because of the inconsistencies detected in the concentration of the contaminants in the groundwater, a two year quarterly monitoring program was implemented in May 1992 by the State. Groundwater monitoring will continue.
- A long-term groundwater monitoring will be implemented to determine the effectiveness of the remedial program after the completion of the construction of the selected remedy. (To be included in the Operation and Maintenance Plan)

2. SUMMARY OF REMEDIAL WORK

2.1 GENERAL OVERVIEW

On Wednesday, September 27, 1995, a preconstruction conference was held at the

NYSDEC Region 9 offices in Buffalo, New York, for the remediation of the Van der Horst Plant #2 site, Consolidation and Capping project. In attendance at the meeting were staff from NYSDEC and ThermoCor Kimmins. The previous day, NYSDEC issued a Notice to Proceed to ThermoCor Kimmins (TCK) dated September 26, 1995. It was agreed that site mobilization would begin on October 1, 1995, and that working hours would be between 7:00 a.m. and 4:00 p.m., Monday through Friday. Staff for NYSDEC consisted of: Mr. Michael Cruden, P.E., Project Manager, Gregory Sutton, P.E., Project Engineer, William Roblee and Kevin Glaser, Construction Inspectors. Mr. Roblee provided inspection services from the onset of the project until March 31, 1996. Mr. Glaser then assumed the inspection responsibilities until the conclusion of the project.

TCK initially mobilized equipment and secured the site by placing temporary construction fencing around the perimeter of the site. This also included the area across Two-Mile Creek (TMC) where sediment excavation was to be conducted. During the latter part of 1995 TCK proceeded with the excavation of hot spots on the site and stock piling of the soil onto the concrete foundation slab of the former building. At the same time TCK made several unsuccessful attempts to dewater sections of TMC so that sediment removal could begin. The diversion dam and pumping system that was installed upgradient of the excavation area operated satisfactory. However, inflow from groundwater and various storm drains into the creek during non-construction periods (4pm to 7am) prevented TCK from keeping the Creek dewatered to the extent that sediment could be removed. Eventually TCK was able to dewater small sections (100') of the creek and gradually using this method, move down the creek completing the sediment removal in approximately three weeks (2/26/96 to 3/18/96). The initial construction schedule called for the creek to be completed by January 1, 1996. Sediment from Two-Mile Creek was also placed on the north east corner of the building foundation. A soil berm was constructed around the area of the sediment storage and a dewatering pit constructed at the northeast corner of the slab which allowed the free water to be collected.

After the sediment removal was completed and the majority of site excavation performed, TCK began consolidation and compaction of the soil within the design foot print of the cap layout. This work continued for several weeks but was delayed due to wet weather. The wet weather prevented the soil and sediment from dewatering sufficiently so that design compaction limits could be met. TCK choose not to cover the entire area of the cap during this activity to prevent precipitation from effecting the soil.

After consolidation and compaction of the soil and sediment, a cap consisting of 6" of select

fill subbase, 60 HDPE geomembrane liner, 14" of select fill, 6" of common fill and 6" of topsoil was placed and compacted to contract specifications. The site was then seeded and mulched and watered to promote rapid growth of the vegetative layer to guard against erosion of the cap materials.

Due to the delay in the initiation of the removal of sediment from Two-Mile Creek and cold, wet weather in the spring of 1996, substantial completion was not reached until July 3, 1996. During the course of the work, 13 field orders and two change orders were issued to TCK to address unforeseen site conditions (discussed in Sections 2.13 and 2.14). These unforeseen conditions included increase in remediation soil volume which included the redesign of the cap to accommodate the additional material and removal of an UST. These resulted in the issuance of Change Orders No. 1 and 2 which increased the total Contract Amount by \$132,760.19 to a total of \$1,078,450.79

Change Order Nos. 1 and 2 also to extended the time of completion for the removal of additional sediment and concrete structures as well as winter shut down. All seeding and mulching were conducted after substantial completion in July 1996.

A summary of actual quantities of materials is provided in Table 3. TCK utilized a variety of subcontractors and materials suppliers to complete the remediation work (Table 4).

2.2 SITE PREPARATION

Mobilization for the remedial work began on October 1, 1995 with the arrival of the personnel decontamination trailer and office trailers, which were placed in uncontaminated area of the site along the access road to the plant property. KelKer Electrical Company, subcontractor to TCK, connected electrical services to the personnel decontamination trailer and office trailers. Telephone service was provided at the Site by NYNEX. Construction water service was provided by the City of Olean Water Department by connecting to an existing hydrant located south the trailer area. All lines were heat taped and insulated and/or buried to prevent freezing during cold weather.

TCK proceeded to establish the perimeter of the remedial work area along the north embankment of the stream. The exclusion zones of the site were established through the use of a 4-foot-high temporary construction fence that was placed around the entire perimeter of the work area. Because the project consisted of several small excavation in various areas of the site in addition to the large excavation of soil in the retention basin area, the entire work area was enclosed within the exclusion zone on March 27, 1996.

The Olean community was provided limited access to the site. Access was provided by

entering the site on the existing access road so that the office trailers could be reached, for the duration of the project. Fencing was provided around the trailer area to restrict access to the rest of the site. This was done so that individuals requesting information or who had questions or complaints could have access to the NYSDEC site office trailer, but not the rest of the site.

An official project sign was installed on the site fence next to the entrance along with signs indicating appropriate officials to contact regarding questions about site activities. A security trailer with guard was initially established at the entrance to the site to restrict unauthorized entry. This procedure was later modified when excavation activities were limited to only the retention basin and cap areas. After this time site security was provided from the TCK Office trailer by TCK personnel.

Clearing and grubbing operations began along both north and south banks of Two-Mile Creek. Clearing of all trees and brush in the area of the disposal cell and the retention basin was also conducted. The trees and brush were removed, chipped, and stockpiled in the southeast corner of the site. Once the site was cleared, TCK surveyed in the excavation areas shown on the Contract drawings.

TCK proposed to collect all verification samples prior to performing the actual excavations. This procedure was approved by DEC to expedite activities at the site. These samples were collected to determine and define soils and sediments within the remediation area that did not meet cleanup goals prior to actual remedial work. This method also allows the contractor to proceed with excavation without stopping to collect samples and wait for the results from the laboratory before the excavation can be backfilled. During the collection and analysis of samples it was shown that approximately 50% of the Two-Mile Creek sediment samples exceeded the clean-up goal of 26 mg/kg for chrome at the design depth of cut of 24". Various other areas of the site soil excavations also exceeded the clean goals in soil for chromium (50 mg/kg), lead (500 mg/kg) and arsenic (35 mg/kg) beyond the design limits of the project. In addition, several entrance samples also exceeded the clean-up goals for the site for one or more of the metals. These locations were identified and resampled to define both the horizontal and vertical limits of the contamination. Once the limits were established, these areas were included in the excavation plan as part of C.O. #1 and the contaminated soil excavated.

TCK made minor repairs to the decontamination station, used during the previous phase of remediation, with the installation of a high-pressure stream cleaner and holding tank.

2.3 HEALTH AND SAFETY

TCK's Health and Safety Plan (HASP) was reviewed by NYSDEC and NYSDOH as part of their initial submissions (see Appendix C, Construction Records and Reports). TCK's HASP was implemented under the direction of Mr. Michael Labosky, C.I.H., along with the site safety officer (SSO), Mr. Al Tewsley. On November 13, 1995, Mr. Tewsley was replaced as Site Safety Officer by Mr. Scott Pfohl until the conclusion of the project. All personnel entering the exclusion zones were required to have the proper OSHA health and safety training and personal protection equipment (PPE). The SSO initiated health and safety activities on site on October 18, 1995, and held weekly health and safety meetings with site personnel to discuss site contamination and PPE, especially how it related to the planned activities for that week. The SSO also collected real-time particulate measurements with the use of a digital dust indicator (see Appendix D).

When particulate readings were below the specified action limit of 0.15 milligrams per cubic meter (mg/m³), the level of PPE assigned was modified Level D. This included: Tyvek, gloves, boots, boots (outer), hard hat, and safety glasses. Real-time particulate sampling occurred during each work day based on site activities. These readings were typically taken during site activities that had the greatest potential to generate dust during a particular day.

Dust control measures, such as reducing equipment speed, were used during periods of dry weather and high winds to maintain dust particulate levels below 0.15 mg/m³. However, due to winter weather and wet spring conditions there was limited need for dust control measures at the site. Documentation air monitoring was conducted at three or four perimeter locations (one upwind and two or three downwind) on a daily basis and at the start of a new activity. A high-risk sample was also collected each day by having an operator working in the highest risk area carry a sampler. None of these samples exceeded the action limit.

Three exceedences of the real time particulate monitoring were recorded. At haeres and 14:30 hours on May 15, 1996 and at 14:30 hours on May 17, 1996, both occasions were caused by a roller compacting the waste soils on the cell at a relatively fast pace and were corrected by slowing the speed of the roller.

TCK's SSO conducted a meeting with the Olean Fire Department No. 1 on October 17, 1995, to discuss site layout, communications, potential hazards, entry/exit routes, and decontamination procedures for potential emergency response during implementation of the remediation activities at the VDH Plant #2 site.

During the project, TCK provided 69 full days and 18 half days of health and safety equipment and supervision (under the requirements of Bid Item 3). 18 half days of health and safety equipment and supervision were not allowed to be billed by the resident engineer for violations of health and safety requirements of the contract documents and site-specific HASP. These violations typically were for incomplete documentation or real time monitoring procedures. Incomplete monitoring occurred during the early stages of site during the clearing and grubbing of vegetation on the site and during drilling activities.

2.4 SITE SERVICES

Twenty-four hour security services at the site were provided by ThemoCor Kimmins staff for the initial phases of the project. A Security trailer was placed at the entrance of the site on Johnson Street and all personnel entering the site were required to sign in at the trailer. Security personnel had not completed the 40-hour Occupational Health and Safety Act (OSHA) health and safety training, and consequently were prohibited from entering the exclusion zones. Security was provided only during working hours when the site was open. At the end of each work day, all site entrances, both temporary and permanent were closed and locked by TCK personnel. On December 13, 1996 DEC agreed to a TCK proposal, with substantial cost savings, to eliminate the security services at Johnson Street. After that date TCK site staff provided security and all visitor were required to sign in at the TCK Office trailer. This was done since the site had limited access and was located in a isolated area of the City. No problems with trespass by unauthorized personnel was noted after site security facilities were reduce.

2.5 SOIL AND OTHER MATERIALS HANDLING

2.5.1 CONTAMINATED SOIL EXCAVATION

2.5.1.1 SITE EXCAVATIONS

A total of 16 separate site excavations were conducted at the site during the remedial work. The locations of the various excavations are shown in Figure 4. The excavations were located based on samples collected during the remedial investigation of the site. In addition, during the collection of exit samples from the Demolition Project and collection of entrance samples during this project,

several other areas of contamination were located that exceeded the clean-up goals established for the site. These areas were then added to the excavation plan for the site. During excavation of the various areas, the initial area (generally 10 feet on each side of the sample point) was excavated to the required design depth (6"). TCK collected samples at the center of the excavation and the sidewalls to confirm that all contamination had been removed. If sample results indicated that clean-up goals had not been achieved, additional excavation was performed and additional samples collected and analyzed until goals were met. The results of the verification sampling can be found in Table 6. The depth of the excavation ranged from 6 inches to 4 feet.

2.5.1.2 RETENTION BASIN AREA

The purpose of the retention basin is two fold. The excavation in this area was necessary to remove a significant amount of contaminated soil between the cell area and Two-Mile Creek. The excavated area was also designed to contain precipitation run-off from the cap of the disposal cell area for a 100 year storm event.

The basin was excavated using a PC-300 excavator and two bulldozers. A total of 5857 cubic yards of contaminated soils and 4460 cubic yards of clean soil were removed. Also found in the basin was an old concrete foundation, miscellaneous pieces of concrete and numerous railroad ties. TCK was requested to break up the foundation to a foot below finished basin dimensions, to break-up all large pieces of concrete and put the concrete and railroad ties into the cell. The work to excavate these materials and place them within the capped area was performed on a time and materials basis, as they were not part of the Contract and was beyond the scope of the project.

The original area to be excavated was based on samples collected during the remedial investigation of the site. However, during the field work it was noted that the RI did detect contamination beyond the limits of the excavation limits noted in the contract documents. Therefore during the actual field activities, the limit of excavations were extended to encompass the additional area along the Two-Mile Creek berm where contamination had been previously located. To confirm that all contaminated soil had been removed, confirmatory samples were taken as the original quantities of contaminated soils were removed. If confirmatory samples came back above the clean-up objective, 50 mg/kg chromium, excavations and confirmatory samples continued until they were below the objective. Three locations along the TMC berm were left slightly above the 50 mg/kg limit

(51, 56.6 and 66 mg/kg) because further excavation would have compromised the integrity of the flood control berm. Any excavations that extended beyond the designed basin dimensions were backfilled with clean soils from the basin. The excess clean soil was removed from the basin in order to achieve the final design grades of the basin. The majority of the excess soil was thinly spread in low areas along the west portion of the site or was used to raise the design height of the retention basin 1.5 feet on the west end. This was done to insure that excess water in the basin would not drain into the residential area west of the site. The excavation of the retention basin commenced on November 16, 1995 and was completed on May 24, 1996. This time included a winter shut down period by the Contractor.

2.5.2 HAZARDOUS SOIL EXCAVATION AND STABILIZATION

Three areas measuring twenty (20) feet by twenty (20) feet by six (6) inches in depth each, were required to be excavated and stabilized. These three areas were located in the vicinity of the former disposal area and are all located within the foot print of the cap area. The soil within these areas was determined to have characteristic hazardous properties for chromium, barium, arsenic and/or lead. The total of each excavation is 7.5 cubic yards (total 23 cy). Each area was located by reference on the Contract drawings. TCK proceeded to excavate the soil and stage the soil on poly adjacent to the excavation. TCK mixed the soil with a lime and ferrous sulfate to stabilize the metals in the soil and make them non-hazardous. After the appropriate reaction time had been reached a sample of the mixture was collected and analyzed for TCLP for chromium, barium, arsenic and lead. The results of the verification samples taken from the bottom of the excavations can be found in Table 6f. The maximum results of the tests is as follows: chromium- <0.01 mg/l (limit-5.0mg/l), barium- 0.74 mg/l (limit-5.0mg/l), arsenic- 0.06 mg/l (limit-5.0mg/l), and lead - 0.003 mg/l (limit-5.0mg/l). The treated soils were ultimately placed back in their original excavations and covered by the cap.

2.5.3 TWO-MILE CREEK SEDIMENT REMOVAL

TCK made several unsuccessful attempts to dewater sections of TMC so that sediment removal could begin. The diversion dam and pumping system that was installed upgradient of the excavation area operated satisfactory. However, inflow from groundwater and various storm drains into the creek during non-construction periods (4pm to 7am) prevented TCK from keeping the Creek dewatered to the extent that sediment could be removed. Eventually TCK was able to dewater small

sections (100') of the creek and gradually using this method, move down the creek completing the sediment removal in approximately three weeks (2/26/96 to 3/18/96). The initial construction schedule called for the creek to be completed by January 1, 1996. Sediment from Two-Mile Creek was placed on the north east corner of the building foundation. A soil berm was constructed around the area of the sediment storage and a dewatering pit constructed at the northeast corner of the slab which allowed the free water to be collected.

Prior to the actual start of work in the Creek, verification samples were collected at the design excavation depth. The results of these samples showed that approximately 50% exceeded the clean-up goal of 26 mg/kg. Once samples results had been received an alternative excavation plan was developed. This plan authorized the contractor to collect another round of verification samples at depths determined by the Department. These depths were established based on the actual depth to natural subsurface materials below the creek bed. The depth to natural soils was determined through a series of excavations along the creek during verification sample collection. A typical profile of Two-mile Creek is shown in Figure 2. Based on the suspected profile of the creek and the results of the test pit and first round of samples a schedule of excavation was established for which the contractor proceeded with the excavation of sediments in the creek. The clean-up goal of 26 ppm for chromium was increased to 100 ppm. This increase is believed to be protective of fish and wildlife because it is still below the clean-up guidance values established by the Department's Division of Natural Resources ("Technical Guidance for Screening Contaminated Sediments", November 1993). In this, the Severe Effect value of 110 ppm was used as guidance in selecting a clean-up goal that more closely reflected the background values for chromium in the area. The results of the verification samples are shown in Table 6a. The location of the samples are shown on Figure 7. A typical excavation profile of the creek bed is shown in Figure 2.

2.5.4 CONCRETE STRUCTURES

The removal of concrete structures fall into three categories, original design, additional work by contract line item, and extra work by time and materials. Two concrete structures were removed as part of the original plans, a wall and footer at the south end of the main building and the entire foundation and slab of the out building north of the main building. Additionally, the top two feet of the main building foundation walls on the north, south and east sides and three feet of the slab on these three side totaling 90.3 cubic yards was also removed as addition to line item 00505.a of the contract.

Removal of the wall was necessary because it interfered with the design elevation of the subgrade.

Approved extra work included the removal, size reduction and placement into the cell, of several concrete structures encountered during the basin excavation. The first was a complete foundation of an unknown building, the second was a 12 inch thick wall north of the main building, the third item were large chunks of concrete found in the south basin area and finally a pocket of railroad ties and concrete debris found in the south basin area which were approved for disposal in the cell.

2.5.5 UNDERGROUND STORAGE TANK

During the excavation and removal of the storm sewer lines an underground storage tank (UST) was discovered along the east edge of the main building foundation slab. Initially the top of the tank was exposed so that a fill port could be accessed. It was determined at this time that the tank consisted of a 5000 gallon single wall steel tank that contained approximately 1000 gallons of a water/petroleum mixture. On March 28, 1996 TCK was directed by PCO #6 to excavate and properly dispose of the tank in accordance with established NYSDEC procedures. The tanks location also interfered with the construction of the drainage swale along the east side of the cap.

The material in the tank was sampled and the results are provided in Table 6g . The material and cleaning waters were pumped out by Bison Waste Oil Co. on April 26, 1996 and transported to the Bison facility in Cowlesville, New York on April 26, 1996. TCK cleaned the tank in accordance with NYSDEC guidelines "Permanent Closure of Petroleum Storage Tanks" by steam cleaning the interior. The steel tank was then cut up and disposed off-site as scrap at Goodman Bros. Service Inc., 286 High St. , Bradford, PA. There was no direct evidence such as an odor or sheen noted in the tank excavation that would have indicated that the UST had leaked. However, to insure that no contamination remained, all soil that appeared to be discolored or stained was excavated and placed within the limits of the cap area. Removal of the UST was paid for on a time and materials basis (Section 2.12.3).

2.5.6 SEWER AND WATER LINE REMOVALS

The original Contract documents called for the excavation and removal of a 4" water main located at the Southeast corner of the foundation slab and the excavation and removal of the plant sewer line that started near the northeast corner of the Plant foundation slab and traveled in a north

east direction towards Two-Mile Creek. Upon commencing work at the site, TCK notified the Department that in addition to the 4" main, a 6" main was also visible from the valve pit at the site. The City of Olean also provided the Department with its building code requirements that provided a detailed procedure for the decommissioning of a water tap to the City's system. This information was provided to TCK in PCO#5. TCK was instructed to remove the additional 6" line and remove the two taps from the City water line in accordance with City procedures. TCK hired Anderson-Shortell Plumbing and Heating Co. to complete the work on the City water main which was performed by removing a ten foot section of the existing line and replacing it with a new section of 8" ductile iron pipe connected with dresser couplings. TCK personnel performed the excavation of the two plant water lines from the City main to the Plant value pit. Upon removal of the lines the top of the pit was broken into the pit itself and the remaining structure filled with common fill.

TCK also completed the removal of the plant sewer line. During removal the Department determined that contrary to the Contract documents the sewer did not terminate at Two-Mile Creek, but was connected to the City of Olean sanitary sewer system on the north side of Two-Mile Creek. A manhole was located on the VDH plant side directly adjacent to Two-Mile Creek. TCK was directed to plug the line with cement at both the City line side and the VDH plant side. Upon the plugging of the line the top of the manhole was broken into the structure itself and the remaining structure filled with common fill.

2.6 PRE-EXCAVATION/VERIFICATION/CHARACTERIZATION SAMPLING

Verification samples were collected to determine the extent of contamination in soils and sediments within the remediation area that did not meet cleanup goals prior to commencement actual remedial work. Collecting samples in this method allows the Contractor to proceed with excavation of all contamination in one step without stopping to collect samples and waiting for the results from the laboratory to show that the clean-up goals have been met. This method also allows the contractor to backfill the excavations to prevent collection of precipitation that may require treatment or proper disposal of the water. During the collection and analysis of samples it was shown that approximately 50% of the Two-Mile Creek sediment samples exceeded the clean-up goal of 26 mg/kg for chromium at the design depth of 24". Once samples results had been received an alternative excavation plan was developed. This plan authorized the Contractor to collect another round of verification samples at depths determined by the Department. These depths were established based on the actual depth to

natural subsurface materials below the creek bed. The depth to natural soils was determined through a series of excavations along the creek performed during collection of the first round of verification samples. A typical profile of Two-mile Creek is shown in Figure 2. Based on the suspected profile of the creek and the results of the test pit and first round of samples, a schedule of excavation was established for which the contractor proceeded with the excavation of sediments in the creek. The clean-up goal of 26 ppm for chromium was also increased to 100 ppm to be consistent with clean-up guidance values established by the Department's Division of Natural Resources ("Technical Guidance for Screening Contaminated Sediments", November 1993). In this, the Severe Effect value of 110 ppm was used as guidance in selecting a clean-up goal that more closely reflected the background values for chromium in the area. The results of the verification samples are shown in Table 6a. The location of the samples are shown on Figure 6. A typical excavation profile of the creek bed is shown in Figure 2. At the conclusion of the sediment removal the highest analytical result for chromium was 88 mg/kg, below the revised clean-up goal of 100 mg/kg. After remediation was accomplished the highest chromium value detected in the remaining sediment was 88 mg/kg, with an average value for all sediment samples of 27.5 mg/kg (see Table 6a.)

Various other areas of the site soil excavations also exceeded the clean goals in soil for chromium (50 mg/kg), lead (500 mg/kg) and arsenic (35 mg/kg). In addition several entrance samples also exceeded the clean-up goals for the site for one or more of the metals. These locations were identified and resampled to define both the horizontal and vertical limits of the contamination. Once the limits were established, these areas were included in the excavation plan as part of C.O. #1 and the contaminated soil excavated. The location of the excavation and the associated sampling points are shown on Figure 4. A summary of the results of the verification soil sample analysis are shown on Table 6. All analytical results were below the soil clean-up values established for chromium, lead and arsenic, with the exception of sample No. CA-01-03R3 (440 mg/kg). This sample was collected east of the decon pad at a depth of 1 feet. No further excavation was pursued since the value appeared to be isolated (all four samples around this point were below 45 mg/kg, chromium) and the excavated area was backfilled with 2 feet of clean fill. Three locations along the TMC berm were left slightly above the 50 mg/kg limit (51, 56.6 and 66 mg/kg) because further excavation would have compromised the integrity of the flood control berm. Any excavations that extended beyond the designed basin dimensions were backfilled with clean soils from the basin.

Samples for site contaminants were also collected along the perimeter of the cap area. These

samples designated "D" on Table 6e showed two samples, D-01 and D-02 exceeded site clean-up goals for arsenic and chromium. Additional samples were collected in ten foot intervals until contaminants levels were detected below the clean-up goal. The soil from this area was removed during the construction of the drainage swale and the soil placed beneath the cap.

2.7 DISPOSAL CELL CONSTRUCTION

The subgrade of compacted contaminated soils and sediments was constructed by placing 12" loose material with bulldozers and compacting each to an 8" lift with multiple passes of a smooth drum, vibratory roller. Each lift was tested for compaction by a third party, Maxim Technologies, using a nuclear densitometer. Original specifications required compaction to 90% of Relative Density. On April 10, 1996 TCK requested a lowering of the compaction requirement to 80% Relative Density. This request followed several days of trying to obtain 90% compaction. TCK was unable to reach 90% compaction due to the high water content of the materials and the lack of good drying weather in April. The Department agreed to lowering of Relative Density requirement to 85% on April 15, 1996.

As work progressed it became apparent that the original design for the cell was not obtainable because of increased quantities of sediments from TMC and an increase in basin area excavations. ERM-Northeast was requested to redesign the cell dimensions to accommodate the revised calculated volumes of materials to be covered. On May 8, 1996 the Department gave TCK the revised dimensions for the cell including a 10' extension of the cell on the west side and an increase in peak elevation of the completed cell from 1429' to 1434'. These changes were also determined to be unobtainable, and on May 30, 1996 using the revised footprint of the cell and field calculations, a new cap layout, with a peak elevation of 1431', was designed by the Department and provided to TCK. This final design had side slopes of 5% on the east, west and south sides and a 3% slope on the north side. These changes required additional work by the contractor including regrading of completed areas and additional surveying with each change of the dimensions.

The original cell was to be constructed of a compacted waste soils and sediment subgrade, and a cap of, 6 inches sub-base of common fill, the 60 mil. HDPE geomembrane, 20 inches of select fill drainage layer and 6 inches of topsoil vegetative layer. Prior to completion of the subgrade, DEC noted that the gradation of the common fill did not meet the design requirements of the geomembrane manufacturer by including stones that exceeded the $\frac{3}{8}$ " size. This was confirmed through the

geomembrane installer Chenango, Inc. on May 23, 1996. A design change was made by Field Order No. 11 that modified the structure of the cap to replace the common fill sub-base layer with a select fill sub-base, (Figure 3). To maintain the same quantities as noted in the contract documents, the 20 inch drainage layer of select fill now consists of a 14 inches of select fill and a 6 inch common fill layer followed by the 6 inches of vegetated topsoil.

The compacted surface of the subgrade had surface irregularities of +/- 4 inches after rolling to a Relative Density of 85%. These irregularities were the reason for the minimum 6 inch sub-base layer having an actual thickness of 6-15 inches. The sub-base surface was dragged with a section of chain link fence behind a 4 wheeler smoothing the bulldozer tracks and preparing it for geomembrane installation. The 60 mil HDPE geomembrane was deployed over sub-base by pulling with a 6-wheel all terrain vehicle to minimize disturbing the select fill surface. The geomembrane was extended 4 feet beyond the drainage ditch inverts on the east, west and south sides and down and across the bottom of a 3' x 3' key trench on the north side. The quality control report for the geomembrane installation can be found in Appendix D. The 14 inch select fill/protection layer over the geomembrane was placed as one lift using two Kamatsu bulldozers, a K-31 and a K-37 both with wide tracks, to minimize the weight placed on the geomembrane. The select fill was dumped along access points to the cap and pushed across by the bulldozers. The 6 inch common fill layer was also dumped at access points and pushed onto the cap by bulldozer. Both select fill layers and the common fill were tested for Relative Density by Maxim Technologies and all passed the required 70% compaction before proceeding to next layer. During topsoil placement, trucks were permitted to drive onto the cap and dump their loads as needed. One truck did sink into the cap material during this time, after being pulled out by a bulldozer, TCK dug down to the geomembrane in this location and verified that there was no damage to the geomembrane.

The installation of geotextile on top of the geomembrane perimeter was completed with 3 feet of the 12 ounce fabric and 6 feet of the 6 ounce fabric inside the cap limit. The 12 ounce fabric was placed perpendicular to the cap limit with sewn seams every 14 feet along the east, west and south sides, the north side was placed horizontally as there is no drainage ditch and the riprap in this section will only be 12 wide. The 6 ounce geotextile came in a 15 foot wide roll which was placed parallel the cap limit, any butt seams were sewn. To construct the cap as designed, it was necessary to simultaneously construct the drainage ditches as sidewalls to the cap layers. Therefore as each component of the cap was placed the washed stone and riprap was placed in the ditches. This

simultaneous construction of cap and drainage ditches complicated the installation of the 12 ounce geotextile. Select fill could not be pushed out to within 3 feet of the cap limit to secure the fabric without washed stone and riprap in place, and the placement of these materials caused the 12 ounce textile to slide down into the ditch. Typically, as built, the 12 ounce geotextile extends 12 to 18 inches inside the cap limit.

The washed stone and riprap were placed and graded in the drainage ditches with a Kamatsu 90 trackhoe.

On May 13, 1996 the Department requested that TCK use a different blend of grass seed than originally specified. This new mixture came from the Departments Division of Natural Resources and is designed to require less maintenance and be beneficial to wildlife. TCK determined that the new mixture did not affect the seed pricing and they agreed to the change. After placing topsoil, the surface was dragged with a section of chain link fence pulled by a four wheeler to remove the bulldozer tracks. The seed was distributed by carried spreaders at a rate of 2 pounds per 1000 square feet. The fertilizer was distributed with the same device at a rate of 10 pounds per 1000 square feet as specified by the fertilizer manufacturer. The cap was again dragged with the chain link fence to shallowly bury the grass seed. An original cover of mulch was placed by a straw shredder/mulcher. TCK made arrangements with the Olean City Fire Department to water the cap after the mulch placement using City of Olean fire trucks and men. Additional straw was spread by hand as needed during grass development. The original mulching was done during a particularly dry period and the watering by the City of Olean Fire Department was a significant event in the development of the vegetative cover.

2.8 CLEAN FILL MATERIAL

Four types of fill materials were used at the site to fill excavations, to construct the multi-layer cap, and to construct the drainage ditches. Fill materials consisted of Common fill, Select fill, Washed stone and Riprap. Common fill was used to fill all shallow excavation of the site to within six inches of the ground surface and as part of the cap system. Select fill was used as the sub-base and the drainage layer of the cap system and was also specified to be placed in the creek as needed to replace excavated sediment. However, the bottom of the creek was leveled for drainage by the contractor after the sediment was removed and no additional fill was required. Washed stone was used as a base in the drainage ditches to protect the geomembrane from the riprap, it was also used in the

construction of the perc basins and the drainage sump in the southwest corner of the site. Riprap was used to line the drainage ditches around the cell and into the perc basin as well as around the inlet to the perc basins.

TCK collected a sample for common fill and select fill material for analysis while the Engineer was present. A visual inspection of the borrow source for common fill and select fill was made by the Engineer. The common fill and select fill were provided by the Great Valley Plant of Gernatt Asphalt Products, Inc., Taylor Road, Collins, New York. By letter dated November 11, 1995, Gernatt noted that the gradation required by the contract documents would not meet the density requirements also specified by the Contract. The gradation was reviewed by the design engineer and an alternate gradation approved for use on December 12, 1995. ERM noted that the contractor had proposed a coarser gradation which offers improved performance for permeability (better than 1.0 x 10⁻² cm./sec.). ERM subsequently rewrote the topsoil specification to confirm that topsoil particles would not settle into the select fill, a condition known as piping. The physical analysis of the approved source for common fill and select fill was found to meet the contract specifications.

Washed stone was provided by Lippert Gravel Pit, Nine Mile Road, Allegany, New York. A sample of the washed stone was approved by the Engineer on April 19, 1996. Riprap was provided by Buffalo Crushed Stone from their Williamsville, New York quarry.

2.9 TOPSOIL, SEED AND MULCH

The specifications for top soil gradation were modified after a November 27, 1995 request by TCK to use the New York State Department of Transportations typical top soil specifications. This modification of the specifications was accepted for this project on December 7, 1995. The topsoil was provided by Gernatt Asphalt Product, Inc from the firms Chaffee Plant Site. A visual inspection of the topsoil source location was conducted by the Engineer and a sample of the material was collected and found acceptable. Topsoil for the project was transported to the site by Gernatt Asphalt Products. In general, topsoil was placed to a depth of 6 inches in all excavation on the site and across the cap of the cell area and along the berms of the retention basin. The bottom of the percolation basin was only covered with a nominal 3 inches of topsoil and not seeded. This was done to provide suitable base to promote the growth of aquatic plant species, seed and mulch was not placed on the bottom of the basin. The area west of the cell, which was used to dispose of clean soil from the basin area was seeded and fertilized in accordance with the requirements of the specifications.

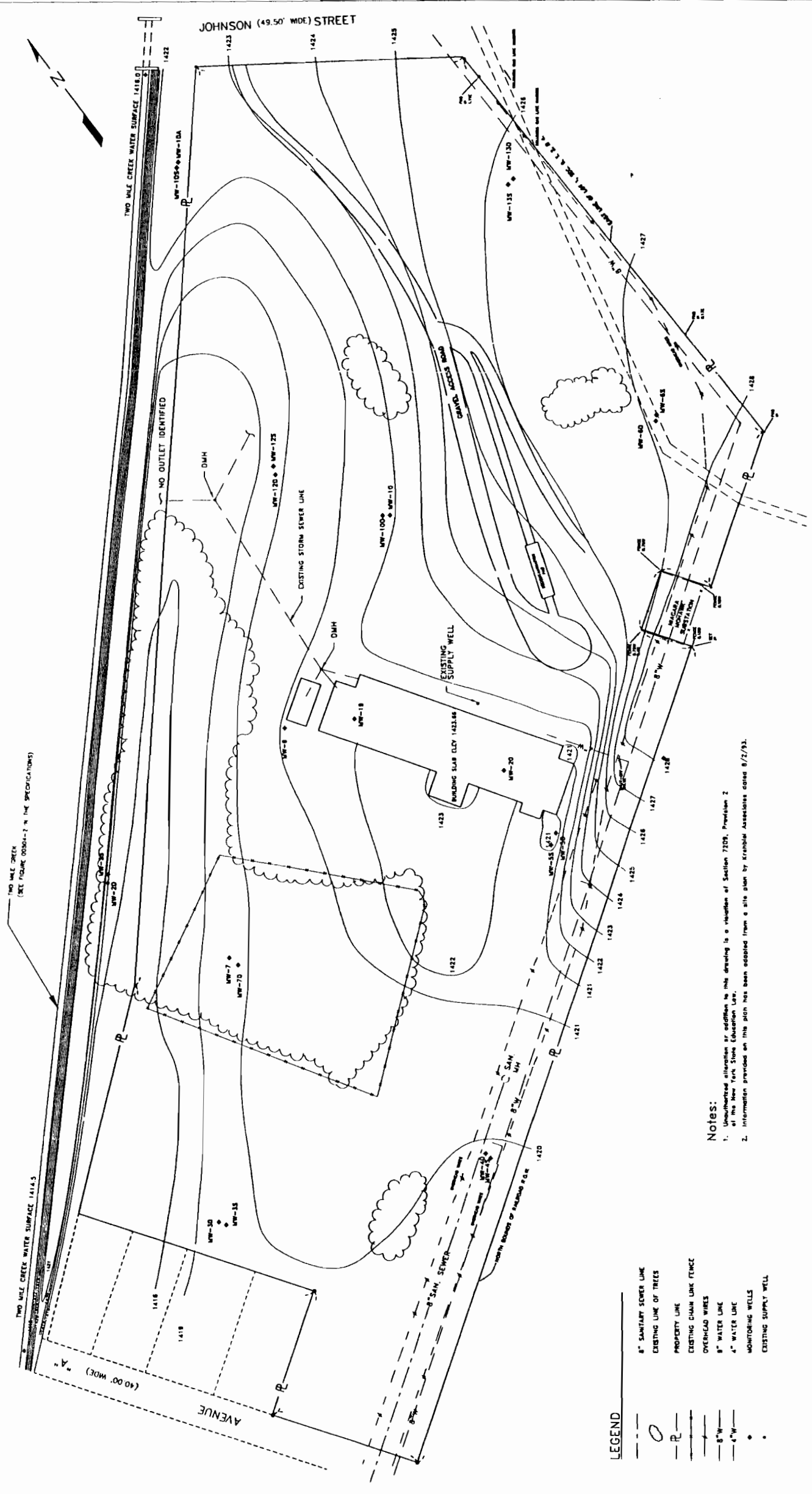
However since the Department did not require this area to be covered with topsoil, the Contractor was not required to guarantee growth. After the basin was constructed DEC determined that it was inappropriate to seed and mulch the bottom of the basin (below the 1416.5 elev.) because of continuously standing water. Therefore, TCK was requested and agreed to provide the seeding requirement to the additional area west of the cell (Field Order #10) in lieu of the basin bottom. TCK seeded and mulched the site using existing site personnel. A 10-10-10 fertilizer mixture was applied after seeding at a rate 10 lbs./1000 square feet per the manufacturers recommendation. The topsoil had a pH of 6.8 which met the minimum requirement for pH of 6.0, so no adjustment of pH was necessary. The seed mixture was modified by the Department to include recommendation by the Departments Division of Natural Resources. A seed mixture of tall fescue, perennial ryegrass, creeping red fescue, orchard grass and bird-foot trefoil and was distributed at a rate of 2 pounds per 1,000 square feet. This revised mixture was provided by TCK at no additional cost to the Department.

NYSDEC conducted a substantial completion inspection at the Van der Horst Plant#2 site on July 3, 1996. Minor grading, along with the final seeding and mulching of major portions of the site were included on the punch list work items (Appendix D, Item 7). The total quantity of topsoil used was 3,276 cubic yards, a 13% decrease under the contract quantity of 3,775 cubic yards.

2.10 MONITORING WELL ABANDONMENT AND RESTORATION

Seven monitoring wells (MW-5S, 5D, 7S, 7D, 19, 20 and a 6 inch dia. 85 ft. deep former production well) were scheduled to be abandoned in accordance with the requirements of the Contract Documents. All monitoring wells were over drilled using a 4¼ inch hollow stem auger to the design depth of the boring and backfilled with a bentonite/Portland cement grout mixture. The 6 inch production well, located east of main building foundation, was not abandoned in accordance with the Contract documents. TCK requested that the method for abandonment be altered. TCK proposed that the total depth of the casing be measured, any pipes, pumps or other debris removed from the well, tremie grout the casing with cement-bentonite grout to surface, cut off casing 5 feet bgs, and backfill with common fill. A credit of \$900.00 was provided to DEC for the change in the work. Abandonment of the wells was completed on December 21, 1995.


Reinstallation of the monitoring wells commenced on July 16, 1996 and was completed on July 22, 1996 by Maxim Technologies. Prior to well installation, TCK requested clarification on were



- LEGEND**
- 8" SANITARY SEWER LINE
 - EXISTING LINE OF TREES
 - R- PROPERTY LINE
 - EXISTING CHAIN LINK FENCE
 - OVERHEAD WIRES
 - 8" WATER LINE
 - 4" WATER LINE
 - MONITORING WELLS
 - EXISTING SUPPLY WELL

Notes:

1. Unauthorised alteration of addition to this drawing is a violation of Section 7205, Provision 2 of the New York State Education Law.
2. Information provided on this plan has been adopted from a site plan by Kremling Associates dated 8/2/93.



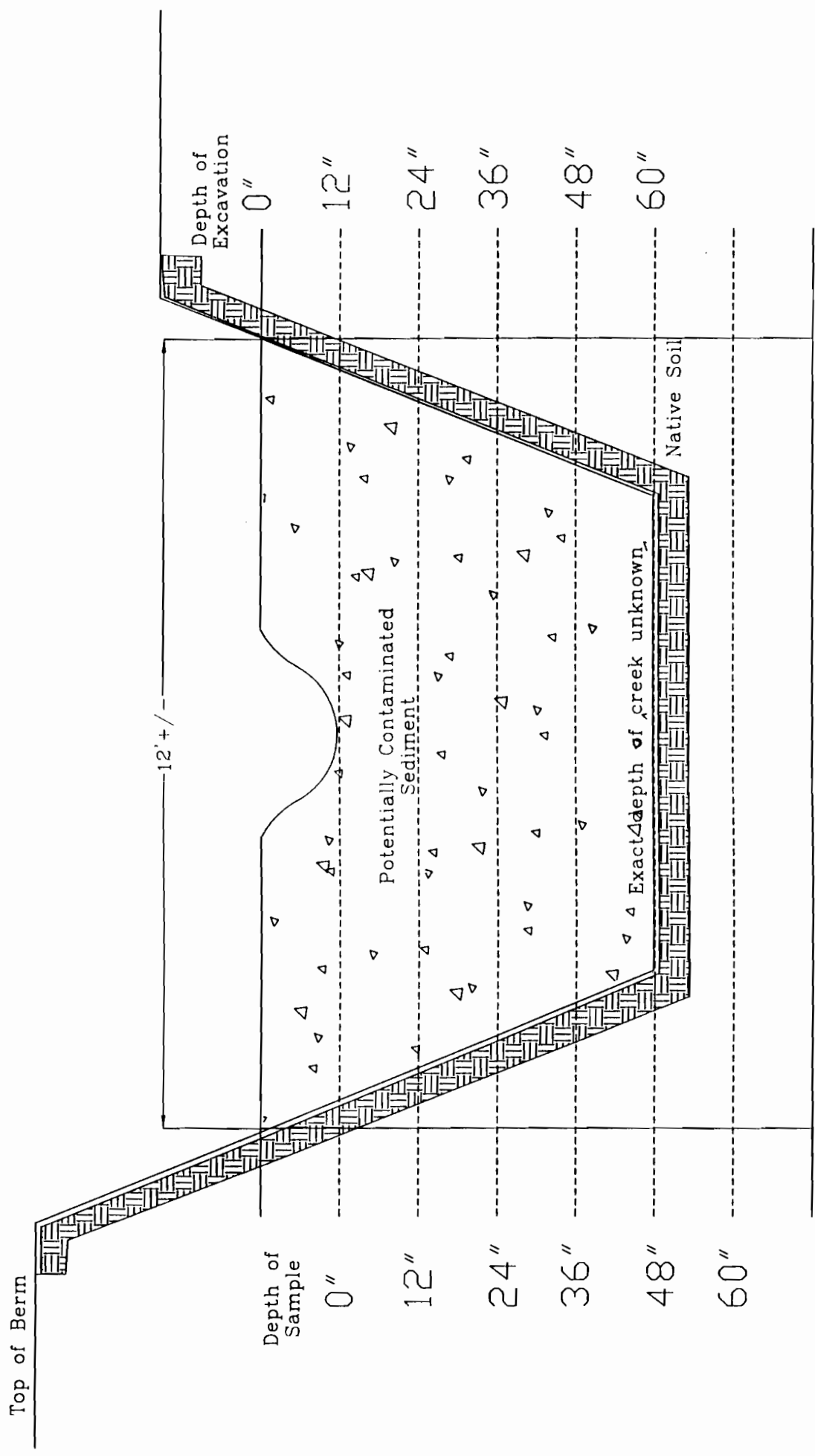
**Pre-Remediation
Site Plan**

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 6/24/96 DRAWING: vdhexist.dwg

Van der Horst Plant No.2
Consolidation and Capping Project

Figure 1



TWO MILE CREEK PROFILE

Depth of excavation shall be based on the results of verification samples for chromium.

The limits of the excavation shall be as close to the original limits of the creek bed as possible or as determined in the field by the Engineer.


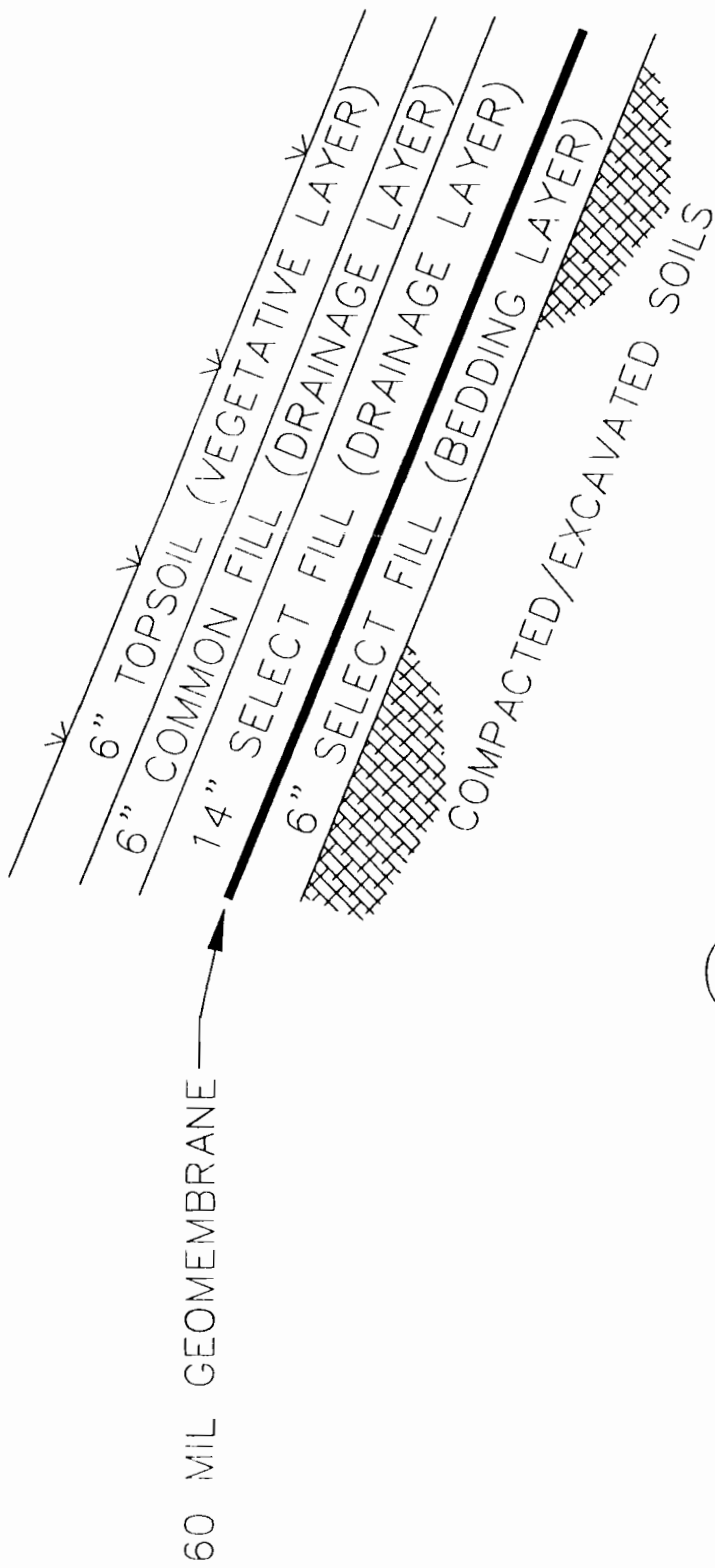
| | |
|---|-----------------------|
|  | |
| TWO-MILE CREEK PROFILE | |
| DIVISION OF ENVIRONMENTAL REMEDIATION | |
| DATE: 12/12/95 | DRAWING: creekcut.dwg |
| Van der Horst Plant No.2 Consolidation and Capping Project | |

Figure 2




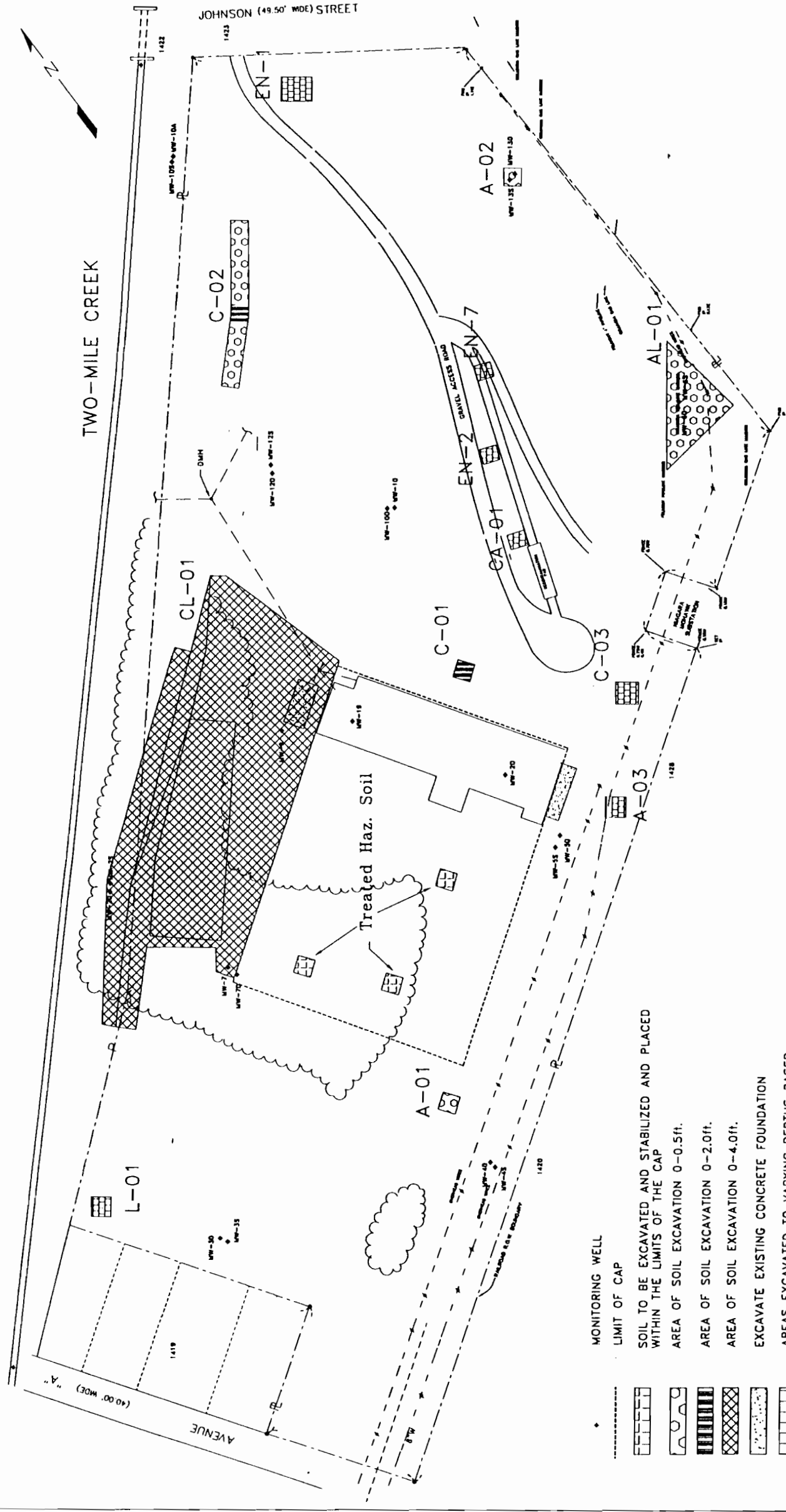
SELECT FILL TO BE PLACED IN ACCORDANCE TO SPECIFICATIONS (IE: 8" LIFTS MAXIMUM)


3 TYPICAL CAP CROSS SECTION

NO SCALE

NOTE: MATERIAL WITHIN THE BEDDING LAYER SHALL NOT EXCEED 3/8" IN DIAMETER AND SHOULD BE OF A NATURAL, WELL ROUNDED MATERIAL

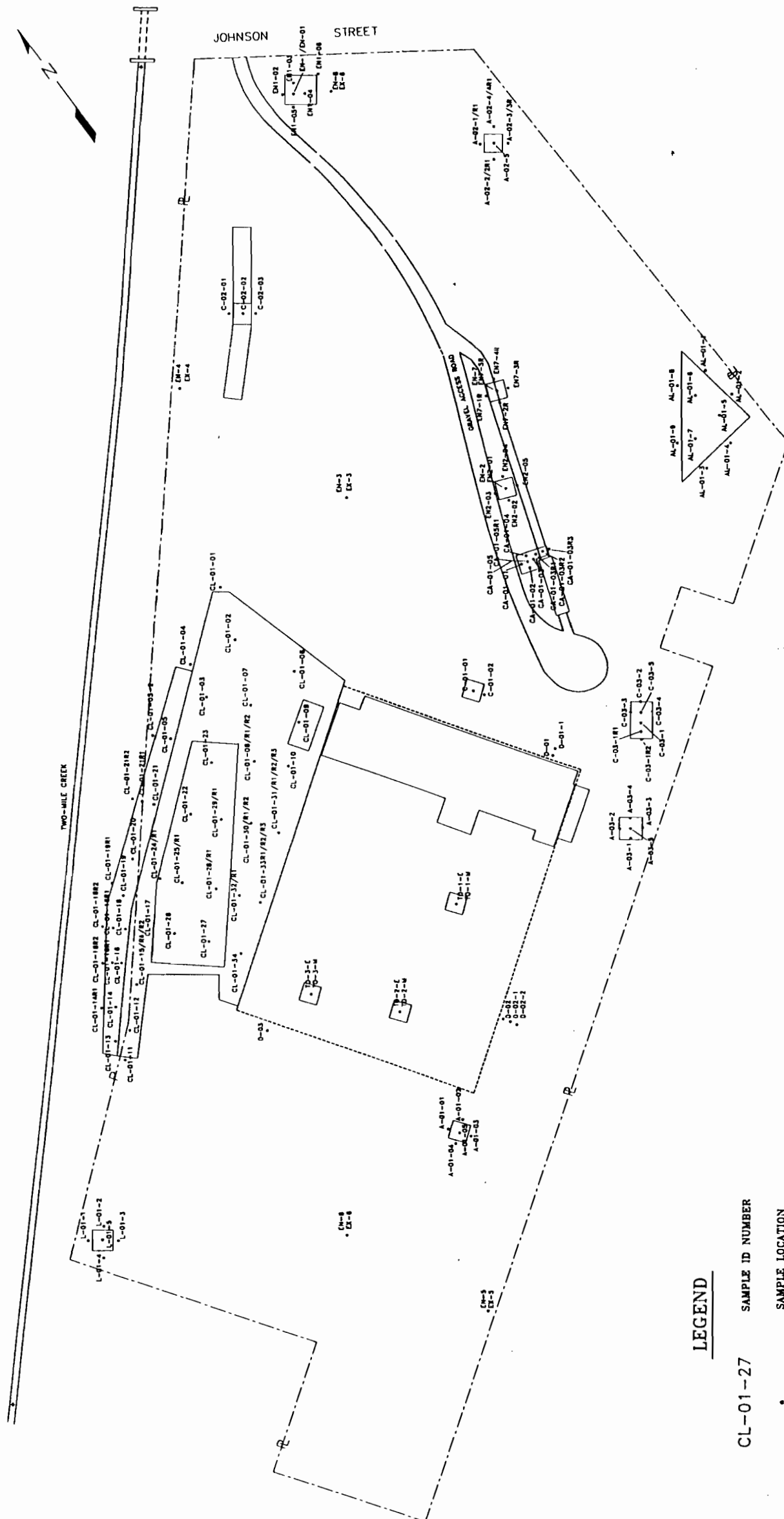
| | |
|---|---------------------|
|  | |
| CAP CROSS SECTION | |
| DIVISION OF ENVIRONMENTAL REMEDIATION | |
| DATE: 05/28/96 | DRAWING: capdet.dwg |
| Van der Horst Plant No.2 Consolidation and Capping Project | |
| Figure 3 | |





| | |
|---|----------------------|
| Soil Excavation Locations | |
| DIVISION OF ENVIRONMENTAL REMEDIATION | |
| DATE: 6/26/96 | DRAWING: soilexc.dwg |
| Van Der Horst Plant No.2 Consolidation and Capping Project | |

Figure 4



LEGEND

- CL-01-27 SAMPLE ID NUMBER
- SAMPLE LOCATION


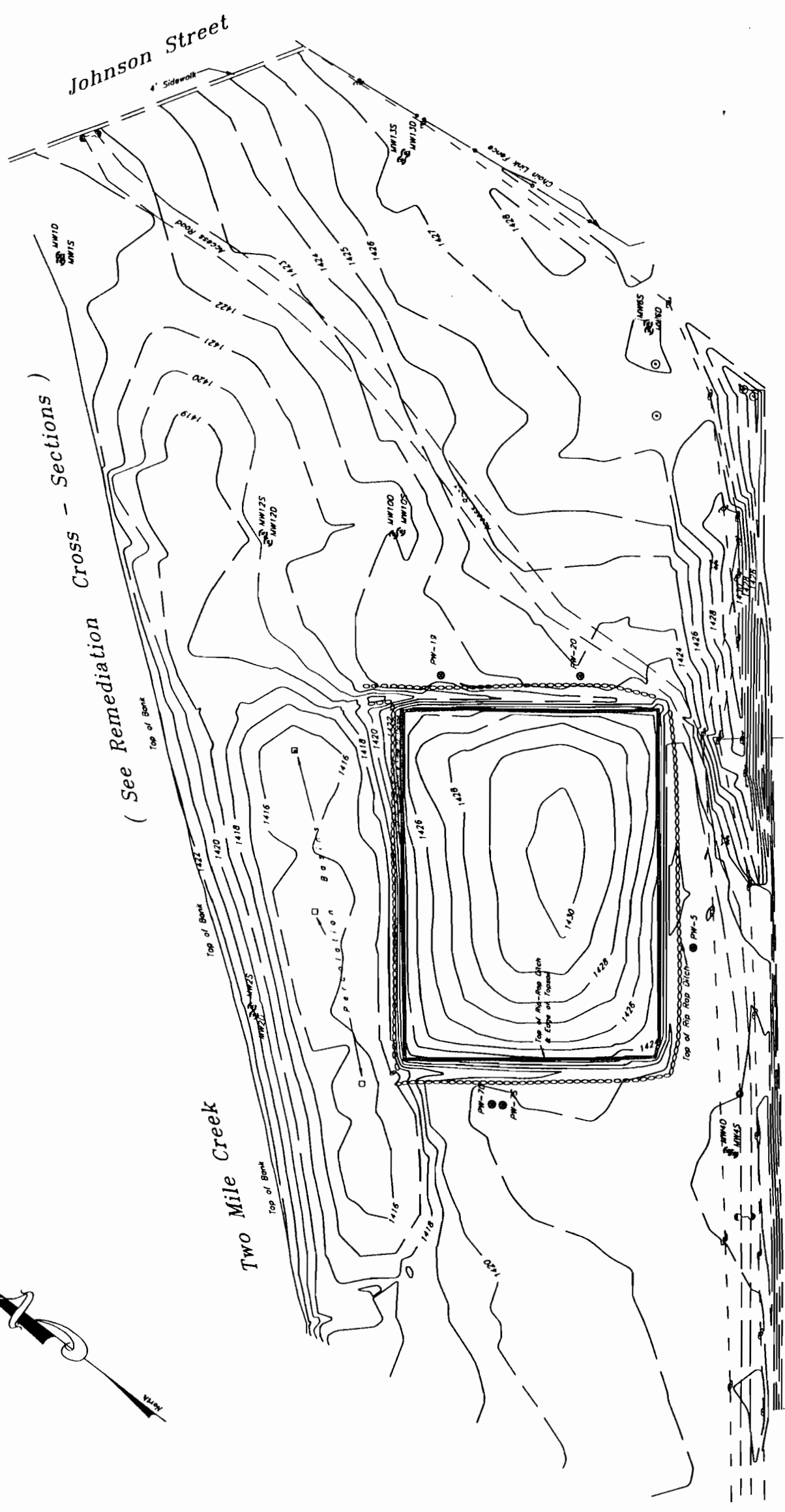
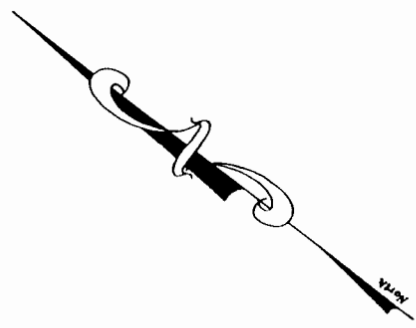
| | |
|---|----------------------|
|  | |
| EXCAVATION SAMPLE LOCATIONS | |
| DIVISION OF ENVIRONMENTAL REMEDIATION | |
| DATE: 10/28/96 | DRAWING: samploc.dwg |
| Van der Horst Plant No.2 Consolidation and Capping Project | |

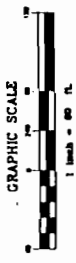
Figure 5



New Monitoring Wells

| | | |
|-------|--------------|---------|
| PM-5 | Ground Elev. | 1427.04 |
| | Shore Elev. | 1423.46 |
| | Casing Elev. | 1424.17 |
| PM-75 | Ground Elev. | 1423.82 |
| | Shore Elev. | 1422.46 |
| | Casing Elev. | 1427.58 |
| PM-70 | Ground Elev. | 1424.14 |
| | Shore Elev. | 1422.73 |
| | Casing Elev. | 1424.75 |
| PM-19 | Ground Elev. | 1423.55 |
| | Shore Elev. | 1426.08 |
| | Casing Elev. | 1426.69 |

- Legend
- Hydrant
 - Sanitary Manhole
 - Utility Pole
 - Monitoring Well
 - Gas Line Marker

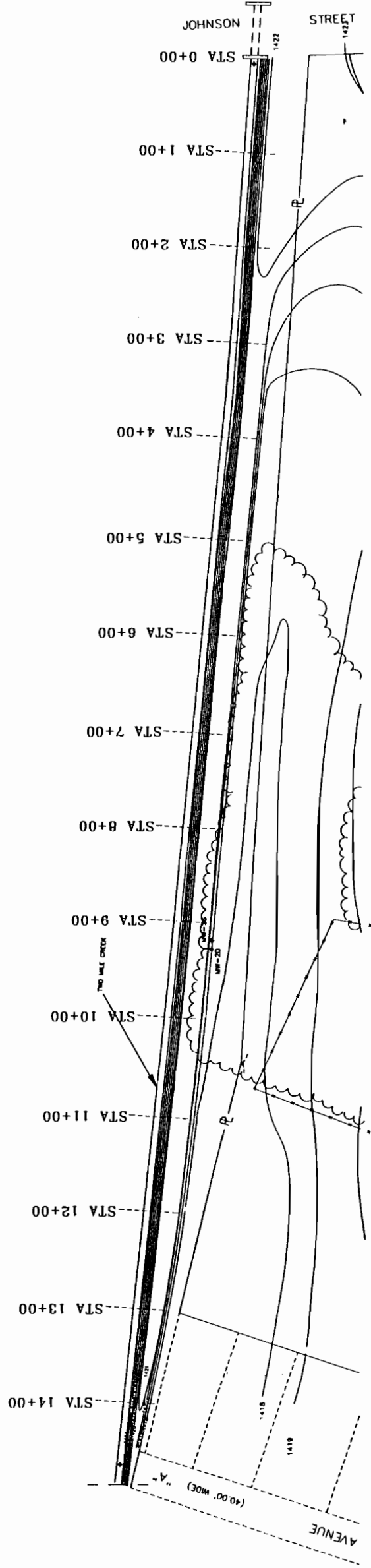
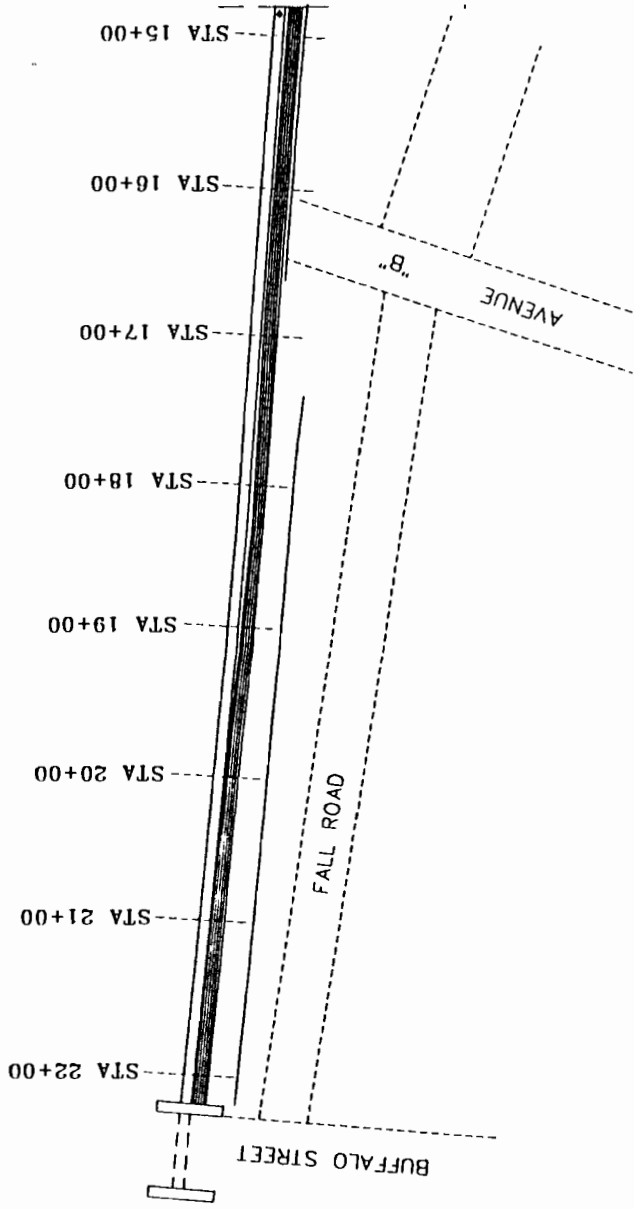


Survey by Douglas C. Myers PLS #20718
 Douglas C. Myers
 Professional Land Surveyor, P.C.
 13 Main St., Columbia, N.C. 28024-1179
 October 24, 1998




Post-Remediation
 Site Plan
 DIVISION OF ENVIRONMENTAL REMEDIATION
 DATE: 11/25/98 DRAWING: postrem.dwg
 Van der Horst Plant #2
 Consolidation and Capping Project

Figure 6



SAMPLES OF CREEK SEDIMENT WERE COLLECTED
AT EACH STATION LOCATION SHOWN ABOVE

| | |
|---|----------------------|
|  | |
| TWO-MILE CREEK SEDIMENT SAMPLE LOCATIONS | |
| DIVISION OF ENVIRONMENTAL REMEDIATION | |
| DATE: 7/31/96 | DRAWING: tmcsamp.dwg |

Van der Horst Plant No.2
Consolidation and Capping Project

Figure 7

to locate the seven monitoring wells to be replaced at the site. It was agreed that the wells could not be placed at the original location since they would now be within the limits of the cell and would interfere with the cap. On June 7, 1996, DEC clarified the Contract document by supplying TCK staff with a figure showing the location of the monitoring wells. Only five of the seven monitoring wells were replaced. The wells were positioned around the perimeter of the cell as shown on Figure 5. The driller installed all wells using a 4¼ inch hollow stem auger and following the procedures outlined in the Contract documents. In addition to the monitoring wells on the site, TCK was directed per PCO#7 to abandon and replace a 57 feet deep monitoring well at the Van der Horst Plant #1 site. This work was also completed as part of the work at the Plant #2 site. The Plant #2 wells were developed by Maxim Technologies staff on July 24-30, 1996. Copies of the well construction diagram are included in Appendix F.

2.11 FIELD ORDERS

Field Orders are provided clarification of necessary work. Costs were included under existing line items or in subsequent Proposed Change Orders.

1. Additional verification samples needed 10' east of D-01 and 10' south of D-02, one at each location for total Chromium.
2. Additional verification samples needed at EN-1 and EN-2, a center 12" sample and at a depth of 6" at each of the four corners. Five additional samples at each location for a total of 10 extra samples for total Chromium.
3. Additional verification samples: 20' south of EN1-04 for Chromium, 10' south of D02-01 for Arsenic and two additional entrance samples at locations EN-7 and EN-8 for Chromium, Arsenic and Lead. Additional excavation required adjacent to EN201 and EN203, a 24' x 10' area to a 6" depth.
4. Additional verification samples needed at EN-7, a center 12" sample and at a depth of 6" at each of the four corners.
5. Excavate an additional 770 cubic yards of soils due to high Chromium levels at CL-01, CL-01-15, CL-01-17, CL-01-24, CL-01-25, CL-01-28 and CL-01-29. Additional verification samples required after excavation, 11 total Chromium
6. Analysis of the contents of an underground storage tank, covered by PCO#6.
7. Additional excavation and verification sampling. At C-03-01, excavate an additional 5' x20'

on the west side of excavation, one sample for chromium. At A-02, excavation expanded from the completed 20' x 20' to 30' x 30', four samples for Arsenic.

8. Excavate large pieces of concrete from the basin area, break into smaller pieces and place in cell.
9. Construct a drainage sump on Van der Horst property behind the northern most house on Avenue A. The sump will be 6' x 6' x 6' and filled with washed stone specified for drainage ditches, topped with a filter fabric and covered with topsoil.
10. Seed and fertilize the area around the basin that was disturbed due to additional work requested by the Department.
11. Change the sequence of fill materials used to construct the cap. Replace the 6" common fill subbase with a 6" select fill subbase. Replace the 20" select fill protection layer with 14" of select fill on the geomembrane and 6" of common fill after the select fill. This does not increase quantities or work effort required.
12. Remove concrete from the main plant foundation as it interferes with the construction of the cap.
13. Extend the select fill, common fill and top soil layers on the north side of the cap an additional 18" to separate the geomembrane from the riprap.

2.12 PROPOSED CHANGE ORDERS/CHANGE ORDERS

Seven proposed change orders were issued by NYSDEC to address unforeseen site conditions during the course of the work. These proposed change orders were incorporated into two formal change orders. Change Order No. 1 encompassed all work specified by Proposed Change Orders (PCOs) Nos. 1 through 4. These PCOs dealt with various contract issues as shown below in detail. Change Order No. 2 encompassed all work specified by PCOs Nos. 5 through 7.

Copies of all proposed change orders and formal change orders are included in the project records maintained by NYSDEC Division of Environmental Remediation. A description of each change order is provided below.

2.12.1 PROPOSED CHANGE ORDERS

PCO No. 1 - A. Removal of additional contaminated soils including collection and analyses of

- verification samples; and
 - B. Provision for a Computer; and
 - C. Redesign of the infiltration basin.
- PCO No.2 - A. Removal of additional sediment from a 1000 foot section Two-Mile Creek 0.5 miles downstream of the site. This PCO was later withdrawn by the Department on November 15, 1995.
- PCO No.3 - A. Collection and analysis of additional chromium samples.
- PCO No.4 - A. Removal and on-site disposal under the cap of a concrete structure unearthed within the boundaries of the retention basin.
- PCO No.5 - A. Removal of approximately 75 feet of 6" water line and removal of 4" and 6" water line taps on City water main.
- PCO No.6 - A. Removal and disposal off-site of a 5000 gallon underground storage tank and its contents.
- B. Removal and on-site disposal under the cap of a concrete structure unearthed within the boundaries of the retention basin.
- PCO No.7 - A. Abandonment of existing monitoring well MW-7D at VDH Plant #1 Site and installation of a new well, MW-7D2, at that location.

2.12.2 CHANGE ORDER NO. 1

Change Order No. 1 was issued on March 7, 1996. This change was necessary to correct several design omissions concerning previously unknown buried structures that interfered with the final elevation of the retention basin, increased the amount of sediment to be removed from Two-Mile creek , increased the number of verification samples to be collected and analyzed, and extended the contract time at no cost to allow for a winter shut down period. The specifics of each item is detailed as follows:

- A. Increase in the quantity of Bid Item 5A - Excavation and Consolidation of Soil and Concrete as per PCO#1 and as required for Retention Basin construction as per Contract Document. Removal of additional contaminated soils, including collection and analyses of verification samples as required by PCO#1, that was not included in the scope of the original contract

documents. Removal of additional soil in the area of the retention basin necessary to achieve final dimensions as specified in the Contract Documents.

- B. Increase in quantity of Bid Item 0A - Site Verification Samples - Chromium, as per PCO#1, PCO#3 and as required during additional excavation activities. Collection and analysis of additional surface and subsurface soil samples for total chromium, to delineate the extent of contamination detected during entrance sampling and additional verification sampling required in creek due to increased excavation activities.
- C. Increase in quantity of Bid Item 0C - Site Verification Samples - Arsenic, as per PCO#1 and as required during additional excavation activities. Increase in quantity of soil samples collected and analyzed that were required to delineate the extent of contamination at various locations on the site.
- D. Addition of a Payment Item for collection of Site Verification Samples - Lead, as per PCO#1 and as required during additional excavation activities. Increase in quantity of soil samples collected and analyzed that were required to delineate the extent of contamination at various locations on the site.
- E. Addition of a Payment Item for collection of Site Verification Samples - Chromium and Arsenic as per PCO#1 and as required during additional excavation activities. Increase in quantity of soil samples collected and analyzed that were required to delineate the extent of contamination at various locations on the site.
- F. Addition of a Payment Item for collection of Site Verification Samples - Arsenic, Chromium, and Lead, as required during additional excavation activities. Increase in quantity of soil samples collected and analyzed that were required to delineate the extent of contamination at various locations on the site.
- G. Purchase of Computer as per PCO#1. Purchase of an on-site desktop computer for the exclusive use of the Department during remedial activities. This computer will be used by

the State in the field office for project management during construction under this contract. At the completion of the work under this contract, the computer will continue to be used for work on future contracts.

- H. Contractor shut down site activities, at his own option, with no cost to the Department. Contractor shut down site facilities at his own option from late December 1995 to early January 1996.
- I. Increase in quantity of Bid Item 4.A - Two Mile Creek Sediment Excavation and Consolidation. Increase in the quantity of sediment to be removed from Two-Mile Creek was required because clean-up goals were not obtained at the depth specified in the Contract Document. Additional quantity to be removed is 1700 cubic yards.
- J. Increase in quantity of Bid Item 5.C - Excavation and Consolidation of Storm Sewer Pipes. The removal of approximately 75' of 6" water line that had been not been included in the Contract document and the removal of the 4" and 6" water line taps on the City water main in accordance with City codes and requirements that were also not included in the Contract Document.
- K. Increase in quantity of Bid Item 2 - Site Facilities and Services. Site Facilities and Services were increased due to need for the removal of additional 1700 cy of contaminated sediment in Two Mile Creek, excavation of additional 2200 cy of soil in retention basin area, removal of a concrete structure and removal of additional water line.
- L. Increase in quantity of Bid Item 8 - Health and Safety. Health and Safety was increased due to need for the removal of additional 1700 cy of contaminated sediment in Two Mile Creek, excavation of additional 2200 cy of soil in retention basin area, removal of a concrete structure.
- M. Credit for Bid Item 5.D - Monitoring Well Abandonment. The contractor requested and was granted permission to use an alternate abandonment procedure of leaving the existing

process well casing in place and filling the casing with grout to the surface. The change in the procedures resulted in a credit to the Department.

- N. Addition of payment for time and materials to remove a unknown concrete structure. Removal and on-site disposal of a concrete structure found during excavation activities within the boundaries of the retention basins as per PCO#4. The structured had to be removed so that the final elevation of the retention could be achieved.

- O. Increase in the duration of the contract time per Section VI, Article 6 for (1) substantial completion and for (2) final payment. Duration of contract was extended in order to allow the installation of the cap geomembrane liner in accordance with the requirements of Section 00506.11, Item. B1 of the Contract Document. The contractor also opted to continue work during part of his winter shut, at no cost to the Department, in order to complete the project on schedule.

The change order increased the amount of the Contract by \$159,745.95 to a total amount of \$1,105,436.50.

2.12.3 CHANGE ORDER NO. 2

Change Order No. 2 was issued September 20 , 1996. This change order was necessary to adjust unit price quantities to their actual values, extend the time to substantial completion. Changes in the unit prices quantities were necessary based on unforeseen site conditions that resulted in changes in the design. The major changes in design resulted in the removal of additional quantities of contaminated soil which increased the size (height) of the capped area, and increased the quantities of materials used to construct the cap. The time for substantial completion was extended to allow the contractor to complete the additional work necessary to properly remediate the site and meet the design requirements of the contract documents. The Change Order also included additional costs associated with the removal of several concrete structures and a under ground storage tank that had not been identified in the contract documents and whose location interfered with the final grades of the retention basin or the design of the cap structure.

This change order decreased the amount of the Contract by \$26,985.76 to a total of \$1,078,450.79.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The remediation of the Van der Horst Plant #2 was satisfactorily completed by TCK. However, the Department was not satisfied with the delays of the TMC Creek sediment excavation. TCK failed to start sediment removal as specified by the initial schedule and delayed initiation of this work item for 4 months. The amount of sediment to be removed was also significantly increased based on the collection of verification samples. Total amount of sediment removed from the creek increased from 1,245 cubic yards to 2,600 cubic yards, a 108% increase in sediment quantity. Once the work was started it was completed in a timely and efficient manner.

TCK proceeded with the excavation and stabilization of the hazardous soil in a satisfactorily manner. TCK's original plan was to conduct the sediment removal and excavation of site soils simultaneously. This was not possible because of the dewatering problems TCK encountered with the Two-Mile Creek. TCK therefore proceeded independently with the excavation of contaminated soils at the site. It is felt the excavation of these soils proceeded in a satisfactory manner due to the collection of verification prior to actual excavations. Any delays noted in the completion of this work item can be attributed to the additional amounts of contaminated soils and concrete debris that were encountered in the various areas of the site. These additional soil and concrete debris resulted in an increase in the amount of material to be placed under the cap from 7,173 cubic yards to 11,742 cubic yards, a 64% increase in material. The excavation and staging of contaminated soil was also completed in an acceptable manner.

The consolidation of soil in the limits of the cap was also significantly delayed. Several factors (time of year, weather etc.) resulted in the both the soil and sediment not effectively "drying out" over the winter, and exceeding the optimal moisture content for compaction of 14%. The fact that the soil was not sufficiently covered also exacerbated the situation. Generally, the soil measured 20%+ moisture and had to be worked and reworked with a disk or bulldozer to achieve acceptable compaction results..

TCK's bid price of \$945,690.55 was exceeded approximately 14 % , primarily due to a \$95,000 increase in cost attributed to the removal of additional sediment from Two-Mile Creek.

Other cost increases can be attributed to the removal of several unknown concrete structures an underground storage tank and additional verification samples collection and analysis. The final Contract Price for this project is \$1,078,450.79.

At he conclusion of the construction of the retention basin it was evident that the basin is not dewatering as was designed. The basin remains flooded with approximately 12" of standing water. This may be due to a high groundwater table or to a condition where by Two-Mile Creek is percolating though the adjacent berm in the low area of the basin. To address this issue DEC will post "No Trespassing" signs adjacent to the capped area and the retention basin. While the design of the basin did not intend it to continually have standing water, this condition will not effect the reliability of the capped area and may make an excellent wildlife habitat on the site once vegetation cover has been established.

This work has completed the overall site soil remediation. With the consolidation and capping of of contaminated soil, groundwater on the site should show a resultant decrease in contamination. NYSDEC is preparing a separate Operation and Maintenance Report. This report will address the long term maintenance of the site including the cap area and will also outline a long term groundwater monitoring plan for the site.

RECOMMENDATION

It is recommended that with the completion of this project and the implementation of long term monitoring, that the Van der Horst Plant #2 site be reclassified on the NYS Registry of Inactive Hazardous Waste Sites. It is proposed the site description be redefined so that the east portion of the site (~6 acres) along Johnson Street be removed as part of the site since all known contamination has been removed from this area. It is also recommended that the remaining portion of the site consisting of the cap area and basin be reclassified to a Class 4 status, indicating that remediation has been completed and long term maintenance in being conducted.

Table 1
TWO-MILE CREEK EXCAVATION SCHEDULE
Van der Horst Plant #2
Soil Consolidation and Capping Project
Site No. 905022
Project No. D003337

| Location (Sta.) | Sample I.D. | Sample Depth | Chrome (ppm) | Depth of Excavation (ft.) | Basis: Sample Depth(S) or Natural Soil(N) | Length of Section (ft.) | Sta. to Sta. |
|----------------------------|------------------------|-------------------------|-------------------------|--|--|--|---------------------|
| 0+00 | VC-01 | 12" | 370 | 3.0 | N | 50 | 0+00 to 0+50 |
| 1+00 | VC-02 | 18" | 270 | 3.5 | N | 100 | 0+50 to 1+50 |
| 2+00 | VC-03 | 18" | 210 | 3.5 | N | 100 | 1+50 to 2+50 |
| 3+00 | VC-04 | 24" | 46 | 3.0 | S | 75 | 2+50 to 3+25 |
| 3+56 | VC-05 | 24" | 730 | 4.0 | N | 50 | 3+25 to 3+75 |
| 4+00 | VC-06 | 18" | 29 | 2.5 | S | 75 | 3+75 to 4+50 |
| 5+00 | VC-07 | 12" | 88 | 2.0 | S | 100 | 4+50 to 5+50 |
| 6+00 | VC-08 | 12" | 36 | 2.0 | S | 100 | 5+50 to 6+50 |
| 7+00 | VC-10 | 12" | 160 | 3.0 | N | 100 | 6+50 to 7+50 |
| 8+00 | VC-11 | 12" | 36 | 2.0 | S | 100 | 7+50 to 8+50 |
| 9+00 | VC-12 | 12" | 73 | 2.0 | S | 100 | 8+50 to 9+50 |
| 10+00 | VC-13 | 12" | 61 | 2.0 | S | 100 | 9+50 to 10+50 |
| 11+00 | VC-14 | 12" | 86 | 2.0 | S | 100 | 10+50 to 11+50 |
| 12+00 | VC-15 | 18" | 430 | 3.5 | N | 100 | 11+50 to 12+50 |
| 13+05 | VC-17 | 12" | 200 | 3.0 | N | 100 | 12+50 to 13+50 |
| 14+00 | VC-18 | 18" | 1100 | 4.0 | N | 100 | 13+50 to 14+50 |
| 15+00 | VC-20 | 12" | 1400 | 3.5 | N | 100 | 14+50 to 15+50 |
| 16+00 | VC-21 | 12" | 260 | 3.0 | N | 100 | 15+50 to 16+50 |
| 17+00 | VC-23 | 12" | 530 | 3.0 | N | 100 | 16+50 to 17+50 |
| 18+00 | VC-24 | 18" | 780 | 3.5 | N | 100 | 17+50 to 18+50 |
| 19+00 | VC-25 | 18" | 350 | 3.5 | N | 100 | 18+50 to 19+50 |
| 20+00 | VC-26 | 12" | 690 | 3.0 | N | 100 | 19+50 to 20+50 |
| 21+00 | VC-27 | 18" | 390 | 3.5 | N | 100 | 20+50 to 21+50 |
| 22+00 | VC-30 | 12" | 260 | 3.0 | N | 50 | 21+50 to 22+00 |

**Table 2
Bid Quantity Summary
Van der Horst Plant #2
Consolidation and Capping Project
Project No. D0003337 / Site No. 905022**

| PAYMENT ITEM NO. | DESCRIPTION | UNIT | QUANTITY | UNIT COST | BID TOTAL | ACTUAL QUANTITY | ACTUAL COST |
|------------------|---------------------------------------|---------|----------|-----------|------------|-----------------|---------------------------|
| 00500A | Verification Sample - Chromium | Sample | 25 | 35.00 | 875.00 | 79 | 2,765.00 |
| 00500B | Verification Sample - Chromium & Lead | Sample | 15 | 60.00 | 900.00 | 14 | 840.00 |
| 00500C | Verification Sample - Arsenic | Sample | 16 | 50.00 | 800.00 | 27 | 1,350.00 |
| 00500D | Verification Sample - Arsenic & Lead | Sample | 5 | 75.00 | 375.00 | 5 | 375.00 |
| 00500E | Verification Sample - TCLP | Sample | 6 | 175.00 | 1,050.00 | 6 | 1,050.00 |
| 00500F | Two Mile Creek Verification Sample | Sample | 31 | 35.00 | 1,085.00 | 50 | 1,750.00 |
| 00502 | Site Facilities & Services | Workday | 70 | 360.00 | 25,200.00 | 114 | - |
| 00502A | Security Services | Workday | 70 | 150.00 | - | 42 | 6,300.00 |
| 00502B | Access Roads | Workday | 70 | 7.00 | - | 114 | 798.00 |
| 00502C | Temporary Facilities and Utilities | Workday | 70 | 175.00 | - | 114 | 19,950.00 |
| 00502D | Meteorological Station | Workday | 70 | 7.00 | - | 114 | 798.00 |
| 00502E | Project Sign and Fencing | Workday | 70 | 7.00 | - | 114 | 798.00 |
| 00502F | Traffic Control | Workday | 70 | 7.00 | - | 36 | 252.00 |
| 00502G | Staging Areas | Workday | 70 | 7.00 | - | 114 | 798.00 |
| 00503A | Select Fill | CY | 6,200 | 20.50 | 127,100.00 | 6,425 | 131,712.50. |
| 00503B | Common Fill | CY | 2,175 | 16.75 | 36,431.25 | 2,014 | 33,734.50 |
| 00503C | Topsoil, Seeding & Mulch | CY | 3,775 | 26.50 | 100,037.50 | 3,276 | 86,814.00 |
| 00503D | Washed Stone | CY | 750 | 17.50 | 13,125.00 | 517 | 9,047.50 |
| 00504 | Riprap for Site Drainage | CY | 1,675 | 24.50 | 41,037.50 | 939 | 23,005.50 |
| 00504A | Two Mile Creek Sediment Excavation | CY | 1,245 | 168.00 | 209,160.00 | 2,600 | 314,227.21 ⁽¹⁾ |
| 00504B | Two Mile Creek Sediment Dewatering | Gallon | 25,000 | 0.20 | 5,000.00 | 0 | 0.00 |

| <p align="center">Table 2 Bid Quantity Summary Van der Horst Plant #2 Consolidation and Capping Project Project No. D0003337 / Site No. 905022</p> | | | | | | | |
|---|--|----------|---------|------------|------------|-----------|--------------|
| | | CY | 7,173 | 4.35 | 31,202.55 | 11,742 | 51,077.70 |
| 00505A | Excavation & Consolidation of Soil & Concr | CY | 23 | 66.00 | 1,518.00 | 23 | 1,518.00 |
| 00505B | Excavation & Stabilization of Soil | Ln Foot | 725 | 10.50 | 7,612.50 | 937 | 9,838.50 |
| 00505C | Excavation & Consolidation of Storm Sewe | Well | 7 | 1,100.00 | 7,700.00 | 7 | 7,700.00 |
| 00505D | Monitoring Well Abandonment | Well | 7 | 1,700.00 | 11,900.00 | 5 | 8,500.00 |
| 00505E | Monitoring Well Installation | Sq Foot | 103,125 | 0.85 | 87,656.25 | 110,865.6 | 94,235.76 |
| 00506 | Geomembrane Installation | Sq Foot | 45,000 | 0.19 | 8,550.00 | 45,000 | 8,550.00 |
| 00507 | Geotextile Installation | Workday | 55 | 225.00 | 12,375.00 | 78 | 17,550 |
| 00508 | Health & Safety | Lump Sum | 1 | 205,000.00 | 205,000.00 | 1 | 205,000.00 |
| 00509 | Site Preparation | Lump Sum | 1 | 34,000.00 | 34,000.00 | 1 | 34,000.00 |
| | Performance Bond | Lump Sum | 1 | 15,000.00 | 15,000.00 | 1 | 15,000.00 |
| | General Liability Insurance | Lump Sum | 1 | 75,000.00 | 75,000.00 | 1 | 75,000.00 |
| 00501A | Mobilization/Demobilization | Lump Sum | 1 | 10,000.00 | 10,000.00 | 1 | 10,000.00 |
| 00501B | Clearing and Grubbing | Lump Sum | 1 | 10,000.00 | 10,000.00 | 1 | 10,000.00 |
| 00501C | Temporary Utilities | Lump Sum | 1 | 10,000.00 | 10,000.00 | 1 | 10,000.00 |
| 00501D | Temporary Facilities | Lump Sum | 1 | 10,000.00 | 10,000.00 | 1 | 10,000.00 |
| 00501E | Meteorological Station | Lump Sum | 1 | 5,000.00 | 5,000.00 | 1 | 5,000.00 |
| 00501F | Staging Areas | Lump Sum | 1 | 20,000.00 | 20,000.00 | 1 | 20,000.00 |
| 00501G | Project Sign and Temporary Fencing | Lump Sum | 1 | 7,000.00 | 7,000.00 | 1 | 7,000.00 |
| 00501H | Access Roads | Lump Sum | 1 | 8,000.00 | 8,000.00 | 1 | 8,000.00 |
| 00501I | Decontamination Pads | Lump Sum | 1 | 11,000.00 | 11,000.00 | 1 | 11,000.00 |
| | Pollution Liability Insurance | Lump Sum | 1 | 10,000.00 | 10,000.00 | 1 | 10,000.00 |
| | TOTALS | | | | 945,690.55 | | 1,247,205.17 |

(1) - Price adjusted for unit price negotiated in CO#1

Table 3
Summary of Soil Excavation Quantities
Van der Horst Plant #2
Site No. 905022

| Excavation Designation | Approximate Dimensions | Amount (cubic yards) |
|------------------------|-------------------------------|-------------------------|
| A-01 | 20'x20'x0.5' | 7.4 |
| A-02 | 20'x20'x1.0' 20'x5'x0.5' | 16.7 |
| A-03 | 20'x20'x0.5' | 7.4 |
| C-01 | 20'x20'x2.0' | 29.6 |
| C-02 | 175'x20'x0.5' 20'x20'x1.5' | 87 |
| C-03 | 20'x20'x0.5' | 7.4 |
| CA-01 | 30'x30'x0.5' 20'x20'x0.5' | 24 |
| EN-1 | 20'x20'x1' | 14.8 |
| EN-7 | 20'x20'x0.5' | 7.4 |
| AL-01 | 5254sf x0.5' | 97.3 |
| L-01 | 20'x20'x0.5' | 7.4 |
| CL-01 | Retention basin area | 7,589.5 |
| Two-Mile Creek | Varies in depth & width | 2,600 |
| East Drainage Swale | 285'x30'x3' | 475 |

See Figure 4 for the location of the excavation areas.

excavat.tab

Table 4
List of Subcontractors and Suppliers
Van der Horst Plant #2
Consolidation and Capping Project
Project No.0003337
Olean(C), Cattaraugus County, Site No.905022

| <u>NAME</u> | <u>SERVICE/MATERIAL</u> |
|-------------|-------------------------|
|-------------|-------------------------|

SUBCONTRACTORS

| | |
|--|--|
| Maxim Technologies, Inc. | Monitoring Well Drilling and Abatement |
| Douglas C. Myers Chenango Contracting | Surveying HDPE Liner Installer |

SUPPLIERS

| | |
|-----------------------------------|------------------------------|
| Rupp Rental & Sales | Equipment Rental and Repairs |
| Howgen Transport Co. | Trucking Rip Rap |
| Buffalo Crushed Stone | Rip Rap |
| Simon Construction | Mulching |
| E.F. Lippert & Co. | Washed Stone |
| Schooley Trucking | Topsoil |
| Pavilion Drainage Supply Co. | Geotextile |
| Maxim Technologies, Inc. | Compaction Testing |
| L.B. Smith | Off-Road Trucking |
| Grosjean Associates | Electrical Equipment |
| Upstate Laboratories, Inc. | Air & Soil Sample Analysis |
| Kistner Concrete Products | Precast Catch Basins |
| Kelkur Electric | Electric Service |
| ITT Flygt Corp. | Pumps |
| Griffith Oil Co. | Fuels |
| Shembada Plumbing & Heating | Plumbing |
| Computer City | Computer |
| Olean General Hospital | Medical Services |
| Safety & Ecology Consulting, Inc. | Meteorological Station |
| Seneca Gravel Products | Select Fill |
| Seneca Gravel Products | Common Fill |
| Williams Scotsman | Decon Trailer |
| Rupp Rental | Office and Security Trailers |

Table 5
Overall Evaluation of ThermoCor Kimmins Inc.
Van der Horst Plant #2
Consolidation and Capping Project
Project No. D0003337
Olean(C), Cattaraugus County, Site No. 905022

| Work Item | Rating (1-5) | Comments |
|------------------------------------|-----------------|---|
| Project Management | 4 | Coordination and cooperation with engineer was very good. |
| Project Submittals | 3 | Used good system for tracking submittals but even so, several submittals (ie: biweekly schedule update) were consistently late. Most other submittals complete and adequate. |
| Site Preparation/mobilization | 4 | Satisfactory |
| Health & Safety | 3 | Real-time & documentation monitoring generally performed as required. Cooperative with engineer on suggested changes and responses to concerns regarding dust generation. |
| Access Road Construction | 4 | Constructed all routes necessary in order to complete job in efficient manner. |
| Retention Basin Excavation | 4 | Responded well to removal of below grade structures and additional contaminated soil. |
| TCLP Soil Stabilization | 5 | Completed in timely manner |
| Water/Sewer Line Excavation | 5 | Work conducted expeditiously. Responded to change in work. |
| Misc. Site Excavations | 5 | Completed in a timely manner |
| Disposal Cell Construction | 2 | Significant delays encountered because of poor sediment dewatering procedures and lack of proper cover over excavated soils to protect from precipitation. Lack of controls on covers layers resulted in increased use of materials at Contractors expense. |
| Two-Mile Creek By-Pass System | 4 | Sufficient system installed and operated to perform required work. |
| Two-Mile Creek Dewatering | 2 | Had trouble identifying issues and determining method for removal which delay progress. |
| Two-Mile Creek Sediment Excavation | 3 | Once dewatering issue resolved proceeded satisfactorily |
| Disposal of Decon. Liquids | 4 | |
| Backfill | 3 | |
| Topsoil/seed/mulch | 4 | |
| Verification Samples | 4 | |
| Proposed Change Order #1 | 4 | Additional work performed in timely manner |
| Proposed Change Order #2 | 4 | Additional work performed in timely manner |
| Total | 3.7 | Average |

Table 6a.
TWO-MILE CREEK SEDIMENT
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022
 All results in ppm(mg/kg)

| Sample # | Date Collected | Location | Depth | Chromium (Cr) |
|----------|----------------|------------------------|-------|---------------|
| VC-01 | 10/25/95 | STA 0+00 @ Center | 12" | 370 |
| VC-01-02 | 2/26/96 | STA 0+10 @ Center | 42" | 15 |
| VC-02 | 10/25/95 | STA 1+00 @ Center | 18" | 270 |
| VC-02-02 | 2/26/96 | STA 1+00 @ Center | 42" | 12 |
| VC-03 | 10/25/95 | STA 2+00 @ Center | 18" | 210 |
| VC-03-02 | 2/27/96 | STA 2+00 @ Center | 36" | 13 |
| VC-04 | 10/25/96 | STA 3+00 @ Center | 24" | 46 |
| VC-05 | 10/31/95 | STA 3+56 @ Center | 24" | 730 |
| VC-05-02 | 2/29/96 | STA 3+50 @ Center | 30" | 10 |
| VC-06 | 10/31/95 | STA 4+00 - 3' E Center | 18" | 29 |
| VC-07 | 10/31/95 | STA 5+00 @ Center | 12" | 88 |
| VC-08 | 10/31/95 | STA 6+00 - 3' W Center | 12" | 36 |
| VC-09 | 11/1/95 | STA 6+70± @ Culvert SW | 18" | 23 |
| VC-09D | 11/1/95 | STA 6+70± @ Culvert SW | 18" | 35 |
| VC-10 | 10/31/95 | STA 7+00 - 3' W Center | 12" | 160 |
| VC-10-02 | 3/4/96 | STA 7+00 @ Center | 36" | 19 |
| VC-11 | 10/31/95 | STA 8+00 - 3' W Center | 12" | 36 |
| VC-12 | 10/31/95 | STA 9+00 - 3' W Center | 12" | 73 |
| VC-13 | 10/31/95 | STA 10+00 @ Center | 12" | 61 |
| VC-14 | 11/1/95 | STA 11+00 @ Center | 12" | 86 |
| VC-15 | 11/1/95 | STA 12+00 @ Center | 18" | 430 |
| VC-15-02 | 3/7/96 | STA 12+00 @ Center | 42" | 12 |
| VC-16 | 11/1/95 | STA 12+65 @ Culvert SW | 12" | 19 |
| VC-17 | 11/1/95 | STA 13+05 @ Center | 12" | 200 |
| VC-17-02 | 3/8/96 | STA 13+10 @ Center | 36" | 9.4 |
| VC-18 | 11/1/95 | STA 14+00 @ Center | 18" | 1100 |

Table 6a.
TWO-MILE CREEK SEDIMENT
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| | | | | |
|-----------|---------|---------------------------------|-----|------------|
| VC-18-02 | 3/11/96 | STA 14+00 @ Center | 42" | 14 |
| VC-19 | 11/2/95 | STA 14+40 @ Culvert SW | 12" | 21 |
| VC-19D | 11/2/95 | STA 14+40 @ Culvert SW | 12" | 44 |
| VC-20 | 11/2/95 | STA 15+00 @ Center | 12" | 1400 |
| VC-20-02 | 3/11/96 | STA 15+00 @ Center | 42" | 20 |
| VC-21 | 11/2/95 | STA 16+00 @ Center | 12" | 260 |
| VC-21-02 | 3/11/96 | STA 16+00 @ Center | 36" | 11 |
| VC-22 | 11/2/95 | STA 16+30 - North Overflow Pipe | 6" | 32 |
| VC-23 | 11/2/95 | STA 17+00 @ Center | 12" | 530 |
| VC-23-02 | 3/12/96 | STA 17+00 @ Center | 36" | 9.2 |
| VC-23-02D | 3/12/96 | STA 17+00 @ Center | 36" | 15 |
| VC-24 | 11/2/95 | STA 18+00 @ Center | 18" | 780 |
| VC-24-02 | 3/12/96 | STA 18+00 @ Center | 42" | 8 |
| VC-25 | 11/2/95 | STA 19+00 @ Center | 18" | 350 |
| VC-25-02 | 3/13/96 | STA 19+00 @ Center | 42" | 10 |
| VC-26 | 11/2/95 | STA 20+00 @ Center | 12" | 690 |
| VC-26-02 | 3/13/96 | STA 20+00 @ Center | 36" | 11 |
| VC-27 | 11/2/95 | STA 21+00 @ Center | 18" | 390 |
| VC-27-02 | 3/13/96 | STA 21+00 @ Center | 42" | 16 |
| VC-28 | 11/2/95 | STA 21+00 - 1/2 Up West Bank | 6" | 32 |
| VC-29 | 11/2/95 | STA 21+80 @ Culvert SW (W) | 12" | 23 |
| VC-29D | 11/2/95 | STA 21+80 @ Culvert SW (W) | 12" | 41 |
| VC-30 | 11/2/95 | STA 22+00 @ Center | 12" | 260 |
| VC-30-02 | 3/13/96 | STA 21+95 @ Center | 36" | 31 |

D - Indicates duplicate samples result.

Shaded values indicate clean-up goals exceeded: Chromium-100ppm

Bold values indicate sample result at bottom of excavation.

Table 6b.
RETENTION BASIN
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| Sample # | Date Collected | Location | Chromium (Cr) | Lead (Pb) | Arsenic (As) | Barium (Ba) |
|------------|----------------|------------------------------|---------------|-----------|--------------|-------------|
| CL-01-01 | 12/1/95 | In 2' Cut Area (SW) | 9.7 | | | |
| CL-01-02 | 12/1/95 | In 2' Cut Area (Bottom) | 22 | | | |
| CL-01-03 | 12/1/95 | In 2' Cut Area (Bottom) | 24 | | | |
| CL-01-04 | 12/5/95 | In 2' Cut Area (SW) | 42 | | | |
| CL-01-05 | 12/1/95 | In 2' Cut Area (SW) | 110 | | | |
| CL-01-05-2 | 12/13/95 | In 2' Cut Area (SW) | 21 | | | |
| CL-01-06 | 12/1/95 | In 2' Cut Area (Bottom) | 9.2 | 26 | | |
| CL-01-07 | 12/1/95 | In 2' Cut Area (Bottom) | 12 | 73 | | |
| CL-01-08 | 12/1/95 | In 2' Cut Area (Bottom) | 89 | 68 | | |
| CL-01-08R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 530 | | | |
| CL-01-08R2 | 5/6/96 | In 2' Cut Area (Bottom) +12" | 21 | | | |
| CL-01-09 | 12/1/95 | In 2' Cut Area (Bottom) | 18 | 22 | | |
| CL-01-10 | 12/1/95 | In 2' Cut Area (Bottom) | 9.5 | 40 | | |
| CL-01-11 | 12/8/95 | In 2' Cut Area (SW) | 13 | | | |
| CL-01-12 | 12/8/95 | In 2' Cut Area (Bottom) | 36 | | | |
| CL-01-13 | 12/8/95 | In 2' Cut Area (SW) | 23 | | | |
| CL-01-14 | 12/8/95 | In 2' Cut Area (SW) | 150 | | | |
| CL-01-14R1 | 3/21/96 | In 2' Cut Area (SW) | 14 | | | |
| CL-01-15 | 12/8/95 | In 2' Cut Area (Bottom) | 54 | | | |
| CL-01-15R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 88 | | | |
| CL-01-15R2 | 4/18/96 | In 2' Cut Area (Bottom) +12" | 51 | | | |
| CL-01-16 | 12/8/95 | In 2' Cut Area (SW) | 400 | | | |
| CL-01-16R1 | 3/21/96 | In 2' Cut Area (SW) | 130 | | | |
| CL-01-16R2 | 4/10/96 | In 2' Cut Area (SW) | 66 | | | |
| CL-01-17 | 12/8/95 | In 2' Cut Area (Bottom) | 360 | | | |
| CL-01-17R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 240 | | | |
| CL-01-17R2 | 4/18/96 | In 2' Cut Area (Bottom) | 120 | | | |

Table 6b.
RETENTION BASIN
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| | | | | | |
|-------------|----------|------------------------------|------|----|--|
| CL-01-17R3 | 4/26/96 | In 2' Cut Area (Bottom) | 30 | | |
| CL-01-18 | 12/8/95 | In 2' Cut Area (SW) | 170 | | |
| CL-01-18R1 | 3/21/96 | In 2' Cut Area (SW) | 740 | | |
| CL-01-18R2 | 4/10/96 | In 2' Cut Area (SW) | 56.6 | | |
| CL-01-19 | 12/8/95 | In 2' Cut Area (SW) | 530 | | |
| CL-01-19R1 | 3/25/96 | In 2' Cut Area (SW) | 10 | | |
| CL-01-20 | 12/8/95 | In 2' Cut Area (SW) | 23 | | |
| CL-01-21 | 12/8/95 | In 2' Cut Area (SW) | 490 | | |
| CL-01-21R1 | 3/25/96 | In 2' Cut Area (SW) | 78 | | |
| CL-01-21R2 | 4/10/96 | In 2' Cut Area (SW) | 102 | | |
| CL-01-21R3 | 4/22/96 | In 2' Cut Area (SW) | 14 | | |
| CL-01-22 | 12/13/95 | In 4' Cut Area (Bottom) | 9.5 | | |
| CL-01-23 | 12/13/95 | In 4' Cut Area (Bottom) | 11 | | |
| CL-01-24 | 12/13/95 | In 4' Cut Area (Bottom) | 250 | | |
| CL-01-24R1 | 4/8/96 | In 4' Cut Area (Bottom) +12" | 9.7 | | |
| CL-01-24R1D | 4/8/96 | In 4' Cut Area (Bottom) | 33 | | |
| CL-01-25 | 12/13/95 | In 4' Cut Area (Bottom) | 70 | 11 | |
| CL-01-25R1 | 4/8/96 | In 4' Cut Area (Bottom) +12" | 21 | | |
| CL-01-26 | 12/13/95 | In 4' Cut Area (Bottom) | 27 | 13 | |
| CL-01-27 | 12/13/95 | In 4' Cut Area (Bottom) | 19 | 12 | |
| CL-01-28 | 12/13/95 | In 4' Cut Area (Bottom) | 220 | 13 | |
| CL-01-28R1 | 4/8/96 | In 4' Cut Area (Bottom) +12" | 13 | | |
| CL-01-29 | 12/13/95 | In 4' Cut Area (Bottom) | 190 | 14 | |
| CL-01-29R1 | 4/8/96 | In 4' Cut Area (Bottom) +12" | 11 | | |
| CL-01-30 | 12/13/95 | In 2' Cut Area (Bottom) | 2400 | 38 | |
| CL-01-30R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 360 | | |
| CL-01-30R2 | 5/6/96 | In 2' Cut Area (Bottom) +12" | 31 | | |
| CL-01-31 | 12/13/95 | In 2' Cut Area (Bottom) | 780 | 15 | |
| CL-01-31R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 170 | | |
| CL-01-31R2 | 5/6/96 | In 2' Cut Area (Bottom) +12" | 1800 | | |

Table 6b.
RETENTION BASIN
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022
 All results in ppm(mg/kg)

| | | | | | | |
|------------|----------|------------------------------|-------------|-----|--|--|
| CL-01-31R3 | 5/20/96 | In 2' Cut Area (Bottom) +12" | 16 | | | |
| CL-01-32 | 12/13/95 | In 2' Cut Area (Bottom) | 72 | 11 | | |
| CL-01-32R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 27 | | | |
| CL-01-33 | 12/13/95 | In 2' Cut Area (Bottom) | 3700 | 120 | | |
| CL-01-33R1 | 4/8/96 | In 2' Cut Area (Bottom) +12" | 830 | | | |
| CL-01-33R2 | 4/18/96 | In 2' Cut Area (Bottom) +12" | 400 | | | |
| CL-01-33R3 | 5/6/96 | In 2' Cut Area (Bottom) +12" | 10 | | | |
| CL-01-34 | 12/13/95 | In 2' Cut Area (Bottom) | 28 | 9.7 | | |

Shaded values indicate clean-up goals exceeded: Chromium-50ppm, Lead-500ppm and/or Arsenic-35ppm
 Bold values indicate sample result at final extent of excavation.
 SW - Side wall of excavation
 Bottom - Bottom of excavation

Table 6c.
ENTRANCE/EXIT SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| Sample # | Date Collected | Location | Chromium (Cr) | Lead (Pb) | Arsenic (As) | Barium (Ba) |
|----------|----------------|----------------------|---------------|-----------|--------------|-------------|
| EN-1 | 10/18/95 | By Guard Trailer | 112 | 140 | 11.9 | 101 |
| EN1-01 | 11/6/95 | @ EN1+12" | 59 | | | |
| EN1-02 | 11/6/95 | 10' N-EN1 | 25 | | | |
| EN1-03 | 11/6/95 | 10' E-EN1 | 53 | | | |
| EN1-04 | 11/6/95 | 10' S-EN1 | 93 | | | |
| EN1-05 | 11/6/95 | 10' W-EN1 | 33 | | | |
| EN1-06 | 12/1/95 | 20' SE of EN1-04 | 20 | | | |
| EN-2 | 10/18/95 | Between Trailers | 109 | 422 | 16.9 | 132 |
| EN2-01 | 11/6/95 | @ EN2 +12" | 35 | | | |
| EN2-02 | 11/6/95 | 10' W-EN2 | 39 | | | |
| EN2-03 | 11/6/95 | 10' N-EN2 | 66 | | | |
| EN2-04 | 11/6/95 | 10' E-EN2 | 14 | | | |
| EN2-05 | 11/6/95 | 10' S-EN2 | 51 | | | |
| EN-3 | 10/18/95 | NW Field of Trailers | 10.5 | 41.5 | 8.6 | 161 |
| EN-4 | 10/18/95 | Edge of Berm | 19.6 | 37 | 20.1 | 104 |
| EN-5 | 10/18/95 | By Rear Gate | 6 | 28 | 15.2 | 241 |
| EN-6 | 10/18/95 | Field N of Rear Gate | 15.9 | 141 | 20.4 | 125 |
| EN-7 | 12/1/95 | Back of Trailers | 56 | 210 | 390 | |
| EN7-1R | 2/27/96 | 10' NW of EN7 | 7.8 | | 28 | |
| EN7-2R | 2/27/96 | 10' SW of EN7 | 13 | | 9.6 | |
| EN7-3R | 2/27/96 | 10' SE of EN7 | 20 | | 11 | |
| EN7-4R | 2/27/96 | 10' NE of EN7 | 11 | | 8.3 | |
| EN7-5R | 2/27/96 | @ EN7 | 9.1 | | 8.3 | |
| EN-8 | 12/1/95 | Southeast of EN-1 | 1.5 | 71 | 1.9 | |
| EX-3 | 5/15/96 | @ EN-3 | 7.7 | 37 | 21 | 630 |
| EX-4 | 5/15/96 | @ EN-4 | 8.3 | 19 | 11 | 110 |
| EX-5 | 5/15/96 | @ EN-5 | 6.4 | 22 | 11 | 110 |

Table 6c.
ENTRANCE/EXIT SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022
 All results in ppm(mg/kg)

| | | | | | | |
|------|---------|--------|-----|-----|----|-----|
| EX-6 | 5/15/96 | @ EN-6 | 8.0 | 110 | 21 | 97 |
| EX-7 | 5/15/96 | @ EN-7 | 110 | 120 | 12 | 83 |
| EX-8 | 5/15/96 | @ EN-8 | 9.8 | 91 | 26 | 260 |

Shaded values indicate clean-up goals exceeded: Chromium-50ppm, Lead-500ppm and/or Arsenic-35ppm

Table 6d.
SITE EXCAVATIONS
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022
 All results in ppm(mg/kg)

| Sample # | Date Collected | Location | Chromium (Cr) | Lead (Pb) | Arsenic (As) |
|-----------|----------------|--------------------------------|---------------|-----------|--------------|
| C-01-01 | 11/13/95 | 2' - 20x20 - Bottom L | 11 | | |
| C-01-02 | 11/13/95 | 2' - 20x20 - South SW | 11 | | |
| C-02-01 | 11/13/95 | Bottom 2' Cut - Narrow Area | 14 | | |
| C-02-02 | 11/13/95 | West SW - 2' Cut - Narrow Area | 6.7 | | |
| C-02-03 | 11/13/95 | East SW - 2' Cut - Narrow Area | 13 | | |
| A-01-01 | 1/17/96 | West Sidewall | | | 21 |
| A-01-02 | 1/17/96 | North Sidewall | | | 19 |
| A-01-03 | 1/17/96 | East Sidewall | | | 28 |
| A-01-04 | 1/17/96 | South Sidewall | | | 8.2 |
| A-01-05 | 1/17/96 | Middle Bottom | | | 17 |
| A-03-01 | 3/18/96 | West sidewall | | | 6.8 |
| A-03-02 | 3/18/96 | North Sidewall | | | 26 |
| A-03-03 | 3/18/96 | South Sidewall | | | 4.9 |
| A-03-04 | 3/18/96 | East Sidewall | | | 5.1 |
| A-03-05 | 3/18/96 | Center Bottom | | | 8.3 |
| C-03-01 | 3/18/96 | West Sidewall | 76 | | |
| C-03-01R1 | 4/11/96 | +10' -West Sidewall | 71.2 | | |
| C-03-01R2 | 5/20/95 | +10' -West Sidewall | 31 | | |
| C-03-02 | 3/18/96 | East Sidewall | 15 | | |
| C-03-03 | 3/18/96 | North Sidewall | 13 | | |
| C-03-04 | 3/18/96 | South Sidewall | 13 | | |
| C-03-05 | 3/18/96 | Center Bottom | 45 | | |
| A-02-01 | 3/18/96 | North Sidewall | | | 40 |
| A-02-01R1 | 4/11/96 | +10' -North Sidewall | | | 3.7 |
| A-02-02 | 3/18/96 | West Sidewall | | | 38 |
| A-02-02R1 | 4/11/96 | +10' - West Sidewall | | | 36.6 |
| A-02-03 | 3/18/96 | South Sidewall | | | 48 |

Table 6d.
SITE EXCAVATIONS
VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| | | | | | |
|------------|---------|-----------------------|-----|-----|------|
| A-02-03R1 | 4/11/96 | +10' - South Sidewall | | | 17.5 |
| A-02-04 | 3/18/96 | East Sidewall | | | 55 |
| A-02-04R1 | 4/11/96 | +10' - East Sidewall | | | 29 |
| A-02-05 | 3/18/96 | Center Bottom | | | 23 |
| AL-01-01 | 3/18/96 | See Location Figure | | | 34 |
| AL-01-02 | 3/18/96 | See Location Figure | | | 11 |
| AL-01-03 | 3/18/96 | See Location Figure | | | 12 |
| AL-01-04 | 3/18/96 | See Location Figure | | | 12 |
| AL-01-05 | 3/18/96 | See Location Figure | | 17 | 30 |
| AL-01-06 | 3/18/96 | See Location Figure | | 58 | 8.5 |
| AL-01-07 | 3/18/96 | See Location Figure | | 167 | 24 |
| AL-01-08 | 3/18/96 | See Location Figure | | 89 | 21 |
| AL-01-09 | 3/18/96 | See Location Figure | | 68 | 14 |
| L-01-01 | 3/21/96 | North Sidewall | | 70 | |
| L-01-02 | 3/21/96 | East Sidewall | | 54 | |
| L-01-03 | 3/21/96 | South Sidewall | | 51 | |
| L-01-04 | 3/21/96 | West Sidewall | | 50 | |
| L-01-05 | 3/21/96 | Middle Bottom | | 45 | |
| CA-01-01 | 3/26/96 | SW | 29 | | 19 |
| CA-01-02 | 3/26/96 | SW | 70 | | 22 |
| CA-01-03 | 3/26/96 | SW | 82 | | 21 |
| CA-01-03R1 | 4/11/96 | SW | 138 | | |
| CA-01-03R2 | 5/20/96 | SW | 110 | | |
| CA-01-03R3 | 6/1/96 | Again South | 440 | | |
| CA-01-04 | 3/26/96 | SW | 48 | | 16 |
| CA-01-05 | 3/26/96 | Middle Bottom | 82 | | 21 |
| CA-01-05R1 | 4/11/96 | Middle Bottom | 52 | | |

Shaded values indicate clean-up goals exceeded: Chromium-50ppm, Lead-500ppm and/or Arsenic-35ppm

Table 6e.
CAP BOUNDARY SAMPLE RESULTS

Van der Horst Plant #2 Site
Olean(C), New York
NYSDEC SITE NO. 9-05-022
All results in ppm(mg/kg)

| Sample # | Date Collected | Location | Depth | Chromium (Cr) | Lead (Pb) | Arsenic (As) | Barium (Ba) |
|----------|----------------|-----------------|-------|---------------|-----------|--------------|-------------|
| D-01 | 10/25/95 | NE Edge of Cap | 0-6" | 120 | | | |
| D-01-1 | 11/13/95 | 10' E of D-01 | 0-6" | <i>14</i> | | | |
| D-02 | 10/25/95 | E Edge of Cap | 0-6" | | | 55 | |
| D-02-1 | 11/13/95 | 10' S of D-02 | 0-6" | | | 45 | |
| D-02-2 | 12/5/95 | 10' S of D-02-1 | 0-6" | | | <i>15</i> | |
| D-03 | 10/25/95 | W Edge of Cap | 0-6" | | | <i>26</i> | |

Shaded values indicate clean-up goals exceeded: Chromium-50ppm, Lead-500ppm and/or Arsenic-35ppm

Table 6f.
SOIL STABILIZATION
TCLP VERIFICATION SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022
 All results in ppm(mg/l)

| Sample # | Date Collected | Location | Chromium (Cr) | Lead (Pb) | Arsenic (As) | Barium (Ba) |
|----------|----------------|----------------------|---------------|-----------|--------------|-------------|
| TO-1-E | 11/8/95 | Center Excavation #1 | 0.07 | <0.003 | <0.01 | 2.2 |
| TO-1-M | 11/8/95 | Mix Pile #1 | <0.01 | <0.003 | 0.05 | 0.74 |
| TO-2-E | 11/8/95 | Center Excavation #2 | 0.25 | 0.116 | 0.01 | 3.1 |
| TO-2-M | 11/8/95 | Mix Pile #2 | <0.01 | 0.003 | 0.06 | 0.38 |
| TO-3-E | 11/8/95 | Center Excavation #3 | <0.01 | 0.029 | <0.01 | 1.4 |
| TO-3-M | 11/8/95 | Mix Pile #3 | <0.01 | <0.003 | 0.03 | 0.34 |

Table 6g.
UNDERGROUND STORAGE TANK
CONTENTS SAMPLE RESULTS

Van der Horst Plant #2 Site
 Olean(C), New York
 NYSDEC SITE NO. 9-05-022

| Parameter | Result | Guidance Value ⁽¹⁾ |
|-----------------|-------------|-------------------------------|
| Flash Point | >60 deg. C | 60 deg. C |
| Percent Solids | 33% | - |
| PCB | 28 mg/kg | 50 mg/kg |
| TCLP - Chromium | 0.055 mg/l | 5.0 mg/l |
| TCLP - Lead | 0.074 mg/l | 5.0 mg/l |
| TCLP - Benzene | 0.06 mg/l | 0.5 mg/l |
| Petroleum, GC | 20% Fuel #1 | - |
| | 80% Fuel #2 | - |

(1) - Referenced from the Spills technology and Remediation Series (STARS) Meom #1, "Petroleum-Contaminated Soil Guidance Policy", dated August 1992

APPENDIX A

DRAWING INDEX

| <u>Description of Drawing:</u> | <u>Drawing No.</u> |
|---|---------------------------|
| Location of Work in Two Mile Creek | 00504-2 |
| Limits of Sediment Removal from Two Mile Creek | 00504-1 |
| Location of Site Verification Samples | Unnumbered |
| Cover Page - Contract Drawings | Unnumbered |
| Existing Conditions Plan | 1 of 5 |
| Soil Excavation Plan | 2 of 5 |
| Proposed Capping and Site Drainage Plan | 3 of 5 |
| Details Sheet - 1 | 4 of 5 |
| Details Sheet - 2 | 5 of 5 |
| Record Drawing - Final Site Survey | Unnumbered |
| Record Drawing - Cap Construction - Top of Topsoil Elev. | Unnumbered |
| Record Drawing - Cap Construction - Top of Common Fill Elev. | Unnumbered |
| Record Drawing - Cap Construction - Top of Select Fill Drainage Layer | Unnumbered |
| Record Drawing - Cap Construction - Top of Select Fill Bedding Layer | Unnumbered |
| Record Drawing - Cap Construction - Subgrade Elevations | Unnumbered |
| Record Drawing - Percolation Basin Elevations | Unnumbered |
| Record Drawing - Two-Mile Creek Pre & Post Elev. | Unnumbered |

APPENDIX B

CONSTRUCTION RECORDS AND REPORTS INDEX

1. Contract Documents and Specifications
2. Supplementary Documents - Limited Site Data
3. Addendum No.1
4. Certifications of Decontamination of Equipment
5. Certificate of Substantial Completion
6. Change Orders No. 1 and No. 2
7. Proposed Change Orders Nos. 1 through 7
8. Contact Reports
9. Contractors Health and Safety Plan
10. Real Time Air Monitoring Records
11. Documentation Air Monitoring Records
12. Contractors Work Plan
13. Contractors Schedules
14. Contractor submittals, shop drawings and materials testing
15. Daily Construction Reports
16. Daily Safety Reports
17. Field Orders Nos. 1 through 13
18. Job Meeting Minutes
19. Monitoring Well Logs
20. NYSDEC memorandums and Letters
21. ThermoCor Kimmins memorandums and Letters
22. News releases and articles
23. Notice to Proceed
24. Public Notices
25. Pollution Liability Insurance
26. Payrolls (TCK)
27. Payrolls (Subcontractors)
28. Verification Sampling/ analytical results
29. Remediation Summary Report
30. Operation and Maintenance Report

APPENDIX C
CONSTRUCTION PHOTOGRAPHS INDEX

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| PHOTO NO. | LOCATION | DATE | DESCRIPTION |
|-----------|-------------|----------|---|
| 1 | VDH Plant#2 | 9/25/95 | Pre-remediation Looking northwest towards building foundation and TMC |
| 2 | VDH Plant#2 | 9/25/95 | Pre-remediation looking west at building foundation |
| 3 | VDH Plant#2 | 9/25/95 | Pre-remediation Path on top of TMC berm looking west |
| 4 | VDH Plant#2 | 9/25/95 | Pre-remediation Building foundation |
| 5 | VDH Plant#2 | 9/25/95 | Pre-remediation 4' culvert @ TMC |
| 6 | VDH Plant#2 | 9/25/95 | Pre-remediation Looking south west towards building foundation |
| 7 | VDH Plant#2 | 9/25/95 | Pre-remediation Culvert into TMC |
| 8 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC |
| 9 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC |
| 10 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC berm near Avenue "A" |
| 11 | VDH Plant#2 | 9/25/95 | Pre-remediation Culvert into TMC |
| 12 | VDH Plant#2 | 9/25/95 | Pre-remediation Top of TMC berm looking east from Ave. "A" |
| 13 | VDH Plant#2 | 9/25/95 | Pre-remediation Top of TMC berm looking east from Ave. "A" |
| 14 | VDH Plant#2 | 9/25/95 | Pre-remediation Top of TMC berm looking east from Ave. "A" |
| 15 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC |
| 16 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC |
| 17 | VDH Plant#2 | 9/25/95 | Pre-remediation Culvert into TMC |
| 18 | VDH Plant#2 | 9/25/95 | Pre-remediation TMC Buffalo Road bridge |
| 19 | VDH Plant#2 | 9/25/95 | Two Storm sewer flap gates into TMC from Avenue "A" area. |
| 20 | VDH Plant#2 | 9/25/95 | Pre-remediation Typ. rip rap in TMC |
| 21 | VDH Plant#2 | 11/10/95 | Digging long 2' excavation near TMC berm |
| 22 | VDH Plant#2 | 11/95 | Dewatered TMC at upstream end @ Johnson Street |
| 23 | VDH Plant#2 | 11/95 | Long 2' excavation near TMC berm completed |
| 24 | VDH Plant#2 | 10/95 | Tree removal |
| 25 | VDH Plant#2 | 11/3/95 | 1' cut north west corner |
| 26 | VDH Plant#2 | 11/3/95 | 1' cut north west corner |
| 27 | VDH Plant#2 | 11/8/95 | misc. excavation (area unknown) |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|----|-------------|----------|--|
| 28 | VDH Plant#2 | 10/95 | Dewatered TMC looking east to Johnson Street |
| 29 | VDH Plant#2 | 10/25/95 | Dam @ Johnson Street Bridge |
| 30 | VDH Plant#2 | 10/25/95 | Dewatering sump in TMC |
| 31 | VDH Plant#2 | 11/14/95 | Water supply hookup @ on-site hydrant |
| 32 | VDH Plant#2 | 10/95 | TMC looking east prior to remediation |
| 33 | VDH Plant#2 | 11/20/95 | Retention basin excavation on east corner |
| 34 | VDH Plant#2 | 11/20/95 | Man hole discovered in east end of retention basin |
| 35 | VDH Plant#2 | 11/28/95 | Excavating retention basin |
| 36 | VDH Plant#2 | 11/30/95 | Large concrete foundation discovered in retention basin area |
| 37 | VDH Plant#2 | 11/30/95 | Manhole in retention basin |
| 38 | VDH Plant#2 | 11/30/95 | Large concrete foundation discovered in retention basin area |
| 39 | VDH Plant#2 | 11/30/95 | Stocking piling soil onto plant foundation |
| 40 | VDH Plant#2 | 12/5/95 | View of site looking southeast from Rt..17. |
| 41 | VDH Plant#2 | 12/5/95 | View of site looking south from Rt..17 |
| 42 | VDH Plant#2 | 12/5/95 | View of site looking south from Rt..17 |
| 43 | VDH Plant#2 | 12/5/95 | View of site looking south from Rt..17 |
| 44 | VDH Plant#2 | 12/5/95 | View of site looking south from Rt..17 |
| 45 | VDH Plant#2 | 12/8/95 | 4' cut in retention basin area |
| 46 | VDH Plant#2 | 12/8/95 | Retention basin cut in northwest corner |
| 47 | VDH Plant#2 | 12/8/95 | Retention basin excavation looking east |
| 48 | VDH Plant#2 | 12/8/95 | Retention basin looking east |
| 49 | VDH Plant#2 | 1/19/96 | Retention basin (w/water in it) looking west |
| 50 | VDH Plant#2 | 1/19/96 | Flooded TMC |
| 51 | VDH Plant#2 | 1/17/96 | Railroad ties and concrete from Basin excavation |
| 52 | VDH Plant#2 | 1/17/96 | Water collecting in basin excavation |
| 53 | VDH Plant#2 | 1/19/96 | Flooded TMC |
| 54 | VDH Plant#2 | 1/19/96 | Flooded TMC @ Johnson street bridge |
| 55 | VDH Plant#2 | 1/19/96 | Flooded TMC looking east from Johnson Street bridge |
| 56 | VDH Plant#2 | 1/19/96 | Flooded TMC looking west |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|----|-------------|---------|---|
| 57 | VDH Plant#2 | 1/22/96 | Retention basin |
| 58 | VDH Plant#2 | 1/19/96 | Retention Basin |
| 59 | VDH Plant#2 | 1/23/96 | Pumps for TMC diversion at Johnson Street |
| 60 | VDH Plant#2 | 1/22/96 | Retention basin |
| 61 | VDH Plant#2 | 1/31/96 | Silt control devices in TMC |
| 62 | VDH Plant#2 | 2/7/96 | Removing ice from TMC after dewatering |
| 63 | VDH Plant#2 | 2/5/96 | Dump trailer used to move sediment from creek |
| 64 | VDH Plant#2 | 2/7/96 | Removing ice from TMC after dewatering |
| 65 | VDH Plant#2 | 2/7/96 | Removing ice from TMC after dewatering |
| 66 | VDH Plant#2 | 2/9/96 | Dam at 4' culvert w/filters |
| 67 | VDH Plant#2 | 2/7/96 | TMC view from Rt..17 |
| 68 | VDH Plant#2 | 2/9/96 | Excavating sediment in TMC |
| 69 | VDH Plant#2 | 2/9/96 | Excavating sediment in TMC |
| 70 | VDH Plant#2 | 2/9/96 | Excavating sediment in TMC |
| 71 | VDH Plant#2 | 2/26/96 | Final depth on east end of TMC |
| 72 | VDH Plant#2 | 2/26/96 | Excavating sediment in TMC |
| 73 | VDH Plant#2 | 2/27/96 | Excavating sediment in TMC |
| 74 | VDH Plant#2 | 2/27/96 | Culvert into TMC at excavation |
| 75 | VDH Plant#2 | 2/26/96 | Excavating sediment in TMC |
| 76 | VDH Plant#2 | 2/27/96 | Excavating sediment in TMC |
| 77 | VDH Plant#2 | 3/4/96 | Completed section of creek |
| 78 | VDH Plant#2 | 3/4/96 | Excavating sediment in TMC |
| 79 | VDH Plant#2 | 3/2/96 | Excavating sediment in TMC |
| 80 | VDH Plant#2 | 3/8/96 | Excavating sediment in TMC |
| 81 | VDH Plant#2 | 3/4/96 | Excavating sediment in TMC |
| 82 | VDH Plant#2 | 3/8/96 | Excavating sediment in TMC |
| 83 | VDH Plant#2 | 3/7/96 | Diversion trench discharge |
| 84 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC |
| 85 | VDH Plant#2 | 3/8/96 | Excavating sediment in TMC |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------|---|
| 86 | VDH Plant#2 | 3/11/96 | Excavated creek at Typ. culvert |
| 87 | VDH Plant#2 | 3/8/96 | Excavating sediment in TMC @ diversion ditch |
| 88 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC showing temp. dam |
| 89 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC @ gas line |
| 90 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC |
| 91 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC |
| 92 | VDH Plant#2 | 3/13/96 | Excavating sediment in TMC |
| 93 | VDH Plant#2 | 3/11/96 | Excavating sediment in TMC west end |
| 94 | VDH Plant#2 | 3/13/96 | Completed section of TMC w/temp. dams in place |
| 95 | VDH Plant#2 | 3/11/96 | Uncompleted section of TMC at sta. 20+00 |
| 96 | VDH Plant#2 | 3/14/96 | Loading into truck along Buffalo Ave. |
| 97 | VDH Plant#2 | 3/13/96 | Excavated Creek at Sta. 21+00 |
| 98 | VDH Plant#2 | 3/14/96 | Excavated creek with temp. dams still in place |
| 99 | VDH Plant#2 | 3/14/96 | Excavated Creek at Buffalo Ave. |
| 100 | VDH Plant#2 | 3/19/96 | Removal of valves in City Water line |
| 101 | VDH Plant#2 | 3/19/96 | Replaced section of City water line |
| 102 | VDH Plant#2 | 3/19/96 | Section of Water line removed |
| 103 | VDH Plant#2 | 3/20/96 | Remediated TMC |
| 104 | VDH Plant#2 | 3/25/96 | CL 01 19R1 - sampling |
| 105 | VDH Plant#2 | 3/20/96 | Staged soil on foundation slab |
| 106 | VDH Plant#2 | 3/29/96 | Apron at one of Two-Mile Creek storm outlets |
| 107 | VDH Plant#2 | 3/25/96 | Soil sampling in CL area |
| 108 | VDH Plant#2 | 3/26/96 | Excavating "hot spot" under break trailer |
| 109 | VDH Plant#2 | 3/29/96 | Closeup of gravel placed to protect aprons from undermining |
| 110 | VDH Plant#2 | 3/26/96 | Closer view of sewer along building slab |
| 111 | VDH Plant#2 | 3/26/96 | Area under lunch trailer |
| 112 | VDH Plant#2 | 3/26/96 | Clay pipe going "east" at corner of slab |
| 113 | VDH Plant#2 | 3/26/96 | Sewer takes turn - along building slab from south manhole |
| 114 | VDH Plant#2 | 3/26/96 | Background - pipe taken out between MH's found pipe 90" from that one |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------|---|
| 115 | VDH Plant#2 | 3/26/96 | Closer look at newly discovered clay pipe |
| 116 | VDH Plant#2 | 3/25/96 | Carl shovels concrete into MH at Two-Mile Creek berm |
| 117 | VDH Plant#2 | 3/26/96 | Breaking MH at corner of building slab |
| 118 | VDH Plant#2 | 3/25/96 | Dumping concrete onto MH at Two-Mile Creek berm (to block pipe) |
| 119 | VDH Plant#2 | 3/25/96 | Excavating sewer between MH's background is landfill/slab |
| 120 | VDH Plant#2 | 3/25/96 | MH at Two-Mile Creek berm - 2 - 6' pipe stubs |
| 121 | VDH Plant#2 | 3/25/96 | Excavating sewer pipe at Two-Mile Creek berm/manhole |
| 122 | VDH Plant#2 | 3/25/96 | Manhole at Two-Mile Creek berm |
| 123 | VDH Plant#2 | 3/25/96 | Closer view of MH at Two-Mile Creek - showing pipe stubs only |
| 124 | VDH Plant#2 | 3/29/96 | Culvert to TMC backfilled with stone at apron |
| 125 | VDH Plant#2 | 3/25/96 | More photos of MH at Two-Mile Creek berm |
| 126 | VDH Plant#2 | 3/29/96 | Culvert to TMC backfilled with stone at apron |
| 127 | VDH Plant#2 | 3/25/96 | Carl in excavation - manhole behind him (Two-Mile Creek berm) |
| 128 | VDH Plant#2 | 4/2/96 | Restoration around culvert into TMC |
| 129 | VDH Plant#2 | 4/2/96 | Two-Mile Creek - post remediation |
| 130 | VDH Plant#2 | 4/2/96 | Removal of concrete in basin area |
| 131 | VDH Plant#2 | 4/9/96 | Soil being placed in Cap area |
| 132 | VDH Plant#2 | 4/11/96 | Basin area |
| 133 | VDH Plant#2 | 4/11/96 | Basin area |
| 134 | VDH Plant#2 | 4/11/96 | Basin area |
| 135 | VDH Plant#2 | 4/11/96 | Soil being placed in Cap area |
| 135 | VDH Plant#2 | 4/11/96 | Soil being placed in Cap area |
| 136 | VDH Plant#2 | 4/11/96 | Soil being placed in Cap area |
| 137 | VDH Plant#2 | 4/9/96 | Basin area start to be excavated with dozer |
| 138 | VDH Plant#2 | 4/9/96 | Basin area start to be excavated with dozer |
| 139 | VDH Plant#2 | 4/11/96 | Concrete removal from basin area |
| 140 | VDH Plant#2 | 4/15/96 | Basin area after first excavation cut |
| 141 | VDH Plant#2 | 4/15/96 | Placing and compacting soil in cap area |
| 142 | VDH Plant#2 | 4/15/96 | Shredding brush and trees south of cap |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------------|--|
| 143 | VDH Plant#2 | 4/15/96 | Concrete removal in basin area |
| 144 | VDH Plant#2 | 4/15/96 | Concrete removal in basin area |
| 145 | VDH Plant#2 | 4/15/96 | Concrete removal in basin area |
| 146 | VDH Plant#2 | 4/15/96 | Concrete removal in basin area |
| 147 | VDH Plant#2 | 4/17/96 | Basin area after excavation |
| 148 | VDH Plant#2 | 4/17/96 | Basin area after excavation |
| 149 | VDH Plant#2 | 4/17/96 | Concrete in basin |
| 150 | VDH Plant#2 | 4/17/96 | Concrete and RR ties in basin |
| 151 | VDH Plant#2 | 4/17/96 | Basin |
| 152 | VDH Plant#2 | 4/17/96 | Concrete and RR ties |
| 153 | VDH Plant#2 | not available | Moving clean soils in basin |
| 154 | VDH Plant#2 | not available | Basin @ west ditch |
| 155 | VDH Plant#2 | not available | Basin with hose pumping water to TMC through filter |
| 156 | VDH Plant#2 | not available | Basin |
| 157 | VDH Plant#2 | not available | Basin looking east |
| 158 | VDH Plant#2 | not available | Pumping basin to TMC |
| 159 | VDH Plant#2 | not available | Completed first lifts of compacted wastes |
| 160 | VDH Plant#2 | not available | Stockpiled soils and sediments |
| 161 | VDH Plant#2 | not available | Stockpiled soils and sediments - first lifts of compacted wastes |
| 162 | VDH Plant#2 | not available | Basin along TMC berm |
| 163 | VDH Plant#2 | not available | RR ties and debris found in basin excavation area |
| 164 | VDH Plant#2 | not available | Pumping out UST |
| 165 | VDH Plant#2 | not available | Basin area |
| 166 | VDH Plant#2 | not available | Opening UST |
| 167 | VDH Plant#2 | not available | UST in ground |
| 168 | VDH Plant#2 | not available | Cleaning UST |
| 169 | VDH Plant#2 | not available | Cleaning UST |
| 170 | VDH Plant#2 | not available | UST pulled from ground |
| 171 | VDH Plant#2 | not available | open excavation after UST pulled |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------------|--|
| 172 | VDH Plant#2 | not available | Stockpiled material - geomembrane and textile staged on site |
| 173 | VDH Plant#2 | not available | Basin |
| 174 | VDH Plant#2 | not available | Perc structure |
| 175 | VDH Plant#2 | not available | Basin perc structure |
| 176 | VDH Plant#2 | not available | Basin looking west |
| 177 | VDH Plant#2 | not available | Basin |
| 178 | VDH Plant#2 | not available | Spreading soils and sediments |
| 179 | VDH Plant#2 | not available | Spreading soils and sediments |
| 180 | VDH Plant#2 | not available | Original contours of subgrade - west edge |
| 181 | VDH Plant#2 | not available | Spreading next lift of soils and sediments |
| 182 | VDH Plant#2 | not available | Spreading next lift of soils and sediments |
| 183 | VDH Plant#2 | not available | Compacted subgrade lift |
| 184 | VDH Plant#2 | not available | View from Expressway - staged soils and sediments |
| 185 | VDH Plant#2 | not available | Spreading soils and sediments |
| 186 | VDH Plant#2 | not available | Perc structure |
| 187 | VDH Plant#2 | not available | View from Expressway subgrade |
| 188 | VDH Plant#2 | not available | Subgrade looking east |
| 189 | VDH Plant#2 | not available | 6 x 6 x 6 dry sump constructed on VDH property near Ave. A |
| 190 | VDH Plant#2 | not available | TMC berm final grade |
| 191 | VDH Plant#2 | not available | Subgrade looking east |
| 192 | VDH Plant#2 | not available | Basin looking southwest |
| 193 | VDH Plant#2 | not available | Basin looking south |
| 194 | VDH Plant#2 | not available | Basin |
| 195 | VDH Plant#2 | not available | Basin |
| 196 | VDH Plant#2 | not available | Looking north along west ditch |
| 197 | VDH Plant#2 | not available | Looking south along west ditch |
| 198 | VDH Plant#2 | not available | Grouting MH cover on berm near Ave. A |
| 199 | VDH Plant#2 | not available | Looking east along south ditch |
| 200 | VDH Plant#2 | not available | Decon pad trailer area |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site
Soil Remediation and Cap Placement Project
Olean(C), New York Large concrete foundation discovered in retention basin area
NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------------|--|
| 201 | VDH Plant#2 | 5/24/96 | Stockpile of contaminated soil getting smaller |
| 202 | VDH Plant#2 | not available | Facilities and decon trailer |
| 203 | VDH Plant#2 | not available | DEC and TCK trailers |
| 204 | VDH Plant#2 | 6/5/96 | Excavating key trench for geomembrane |
| 205 | VDH Plant#2 | not available | Basin/stockpile |
| 206 | VDH Plant#2 | 6/5/96 | Excavating key trench |
| 207 | VDH Plant#2 | 6/5/96 | Pushing select fill subbase |
| 208 | VDH Plant#2 | 6/5/96 | Finish subgrade ½ covered with subbase (select) |
| 209 | VDH Plant#2 | 6/5/96 | Finish subgrade ½ covered with subbase (select) |
| 210 | VDH Plant#2 | 6/7/96 | Final grading of subbase with chain-link fence behind 4-wheeler (smooth for geomembrane) |
| 211 | VDH Plant#2 | 6/5/96 | Finish subgrade ½ covered with subbase (select) |
| 212 | VDH Plant#2 | 6/7/96 | TMC - dry? |
| 213 | VDH Plant#2 | 6/7/96 | Grading topsoil in basin |
| 214 | VDH Plant#2 | 6/7/96 | TMC beaver dam |
| 215 | VDH Plant#2 | 6/10/96 | Deploying geomembrane with 6-wheeler |
| 216 | VDH Plant#2 | 6/10/96 | Hot shoe welder HDPE |
| 217 | VDH Plant#2 | 6/10/96 | Spreader bar for deployment of geomembrane |
| 218 | VDH Plant#2 | 6/10/96 | Lining up HDPE to weld |
| 219 | VDH Plant#2 | 6/10/96 | Cleaning HDPE before welding |
| 220 | VDH Plant#2 | 6/10/96 | Cap covered with HDPE |
| 221 | VDH Plant#2 | 6/10/96 | Cap covered with HDPE |
| 222 | VDH Plant#2 | 6/11/96 | Wrinkles in the PM - note QC markings |
| 223 | VDH Plant#2 | 6/11/96 | Backfill key trench with select fill |
| 224 | VDH Plant#2 | 6/11/96 | Vacuum box testing OK |
| 225 | VDH Plant#2 | 6/11/96 | Air pressure test results painted on HDPE |
| 226 | VDH Plant#2 | 6/11/96 | Panel 36 from Roll 0438 deployed at 3:37 PM |
| 227 | VDH Plant#2 | 6/12/96 | Geotextile seaming in drainage swale |
| 228 | VDH Plant#2 | 6/12/96 | Closeup of select fill being placed over geomembrane |
| 229 | VDH Plant#2 | 6/14/96 | Select fill being placed over geomembrane view southwest |

PHOTOGRAPHIC LOG INDEX

Van der Horst Plant #2 Site

Soil Remediation and Cap Placement Project

Olean(C), New York Large concrete foundation discovered in retention basin area

NYSDEC SITE # 9-05-008\Contract No. D003337

| | | | |
|-----|-------------|---------|--|
| 230 | VDH Plant#2 | 6/14/96 | Select fill being placed over geomembrane view south |
| 231 | VDH Plant#2 | 6/14/96 | Select fill being placed over geomembrane |
| 232 | VDH Plant#2 | 6/21/96 | Typical top soil |
| 233 | VDH Plant#2 | 6/21/96 | Typical washed stone |
| 234 | VDH Plant#2 | 6/21/96 | Placed rip rap |
| 235 | VDH Plant#2 | 6/21/96 | Typical common fill |
| 236 | VDH Plant#2 | 6/21/96 | Checking depth of protection layer |
| 237 | VDH Plant#2 | 6/27/96 | Spreading topsoil |
| 238 | VDH Plant#2 | 6/27/96 | Spreading topsoil |
| 239 | VDH Plant#2 | 6/27/96 | Surveying protection layer as topsoil is spread |
| 240 | VDH Plant#2 | 6/27/96 | Placing rip rap and spreading top soil |
| 241 | VDH Plant#2 | 6/27/96 | Placing rip rap and spreading top soil |
| 242 | VDH Plant#2 | 6/30/96 | Mulching cap area |
| 243 | VDH Plant#2 | 6/30/96 | Mulching cap area |
| 244 | VDH Plant#2 | 6/30/96 | Mulched area |
| 245 | VDH Plant#2 | 7/1/96 | View of cap area looking south after mulching |
| 246 | VDH Plant#2 | 7/1/96 | View of vegetated cap area looking south |
| 247 | VDH Plant#2 | 7/1/96 | View of vegetated cap area looking southeast |
| 248 | VDH Plant#2 | 7/1/96 | View of vegetated cap area looking south |

APPENDIX D
MONITORING WELL CONSTRUCTION DIAGRAMS

MONITORING WELL COMPLETION REPORT

WELL NO. PW-5
 PROJECT NO. 6001-5-00255
 DATE INSTALLED 7/19/96
 PROJECT Van Der Horst Plant #2
clean N.Y. (Kianing)

Augerto 26.5' with 4 1/4 HSA
 sand, gravel, silt,

1. PROTECTIVE CASING I.D. (INCHES) 4"

2. SURFACE SEAL TYPE Concrete

3. BOREHOLE DIAMETER (INCHES) 8"

4. RISER PIPE

TYPE Sch 80 PVC

I.D. (INCHES) 2"

LENGTH (FEET) 13.5'

JOINT TYPE Flush Thread

5. BACKFILL

TYPE Cement/Bentonite Grout

INSTALLATION Tremie

6. TYPE OF SEAL Bentonite

7. SCREEN

TYPE PVC

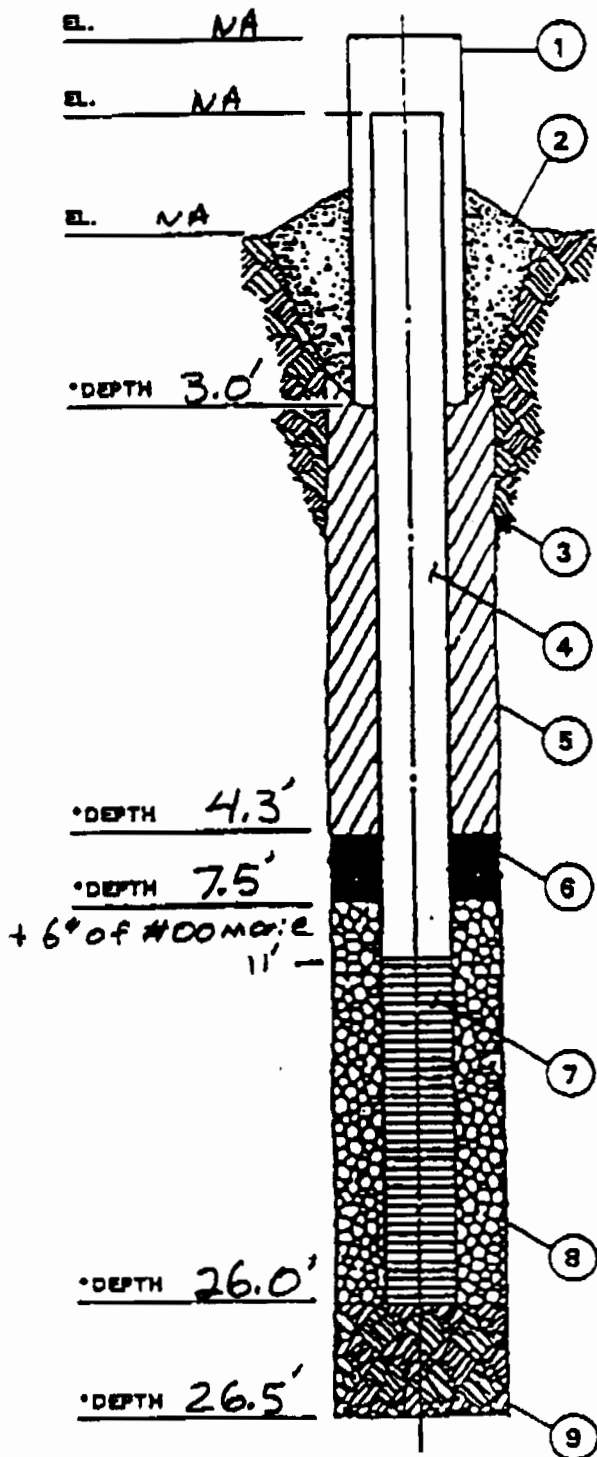
I.D. (INCHES) 2"

SLOT SIZE (INCHES) .020"

LENGTH 15'

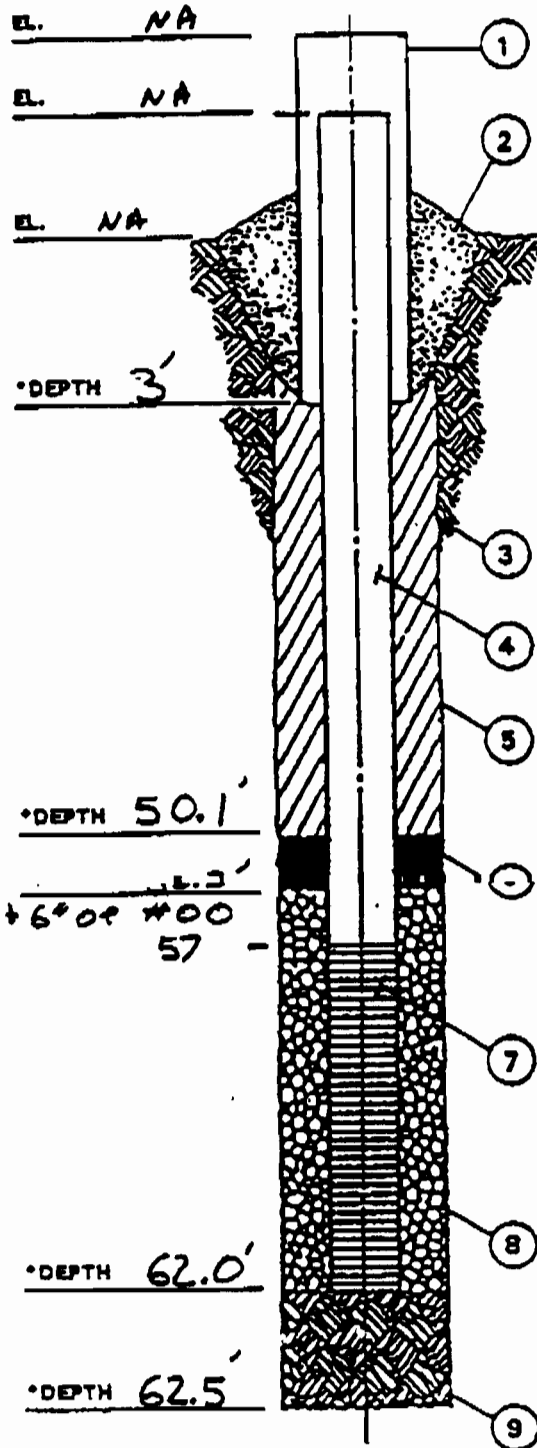
8. SCREEN FILTER TYPE #1 MORIE

9. BACKFILL TYPE #1 MORIE



*DEPTH IN FEET BELOW GRADE

MONITORING WELL COMPLETION REPORT



*DEPTH IN FEET BELOW GRADE

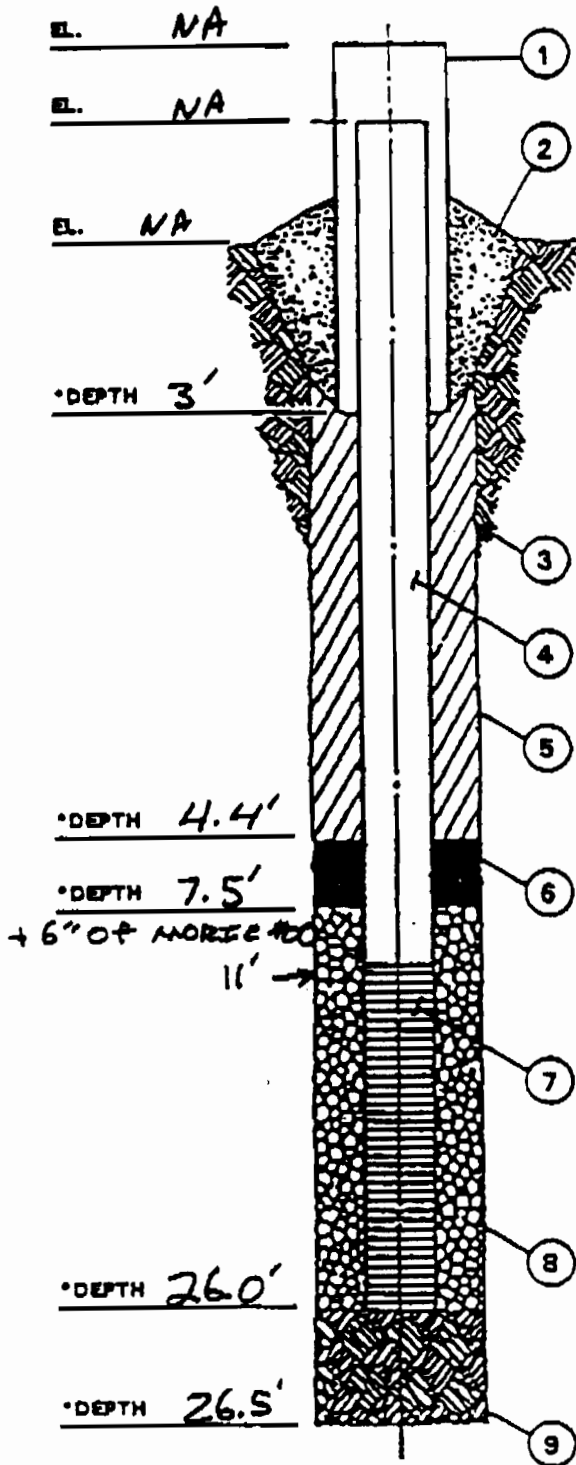
MAXIM
TECHNOLOGIES INC

- WELL NO. PW-7D
- PROJECT NO. 6001-S-00255
- DATE INSTALLED 7/22/96
- PROJECT Van Der Horst Plant #2
Olean NY (Mining)
- Auger to 62.5' with 4 1/4" HSA
soils were sand, gravel, silt,
- PROTECTIVE CASING I.D. (INCHES) 8"
 - SURFACE SEAL TYPE Concrete
 - BOREHOLE DIAMETER (INCHES) 8"
 - RISER PIPE
TYPE Sch 80 PVC
I.D. (INCHES) 2"
LENGTH (FEET) 59.5'
JOINT TYPE Flush Thread
 - BACKFILL
TYPE Current, 1" morie
INSTALLATION Tremie
 - TYPE OF SEAL Bentonite
 - SCREEN
TYPE PVC
I.D. (INCHES) 2"
SLOT SIZE (INCHES) .020"
LENGTH 5'
 - SCREEN FILTER TYPE #1 MORIE
 - BACKFILL TYPE #1 MORIE

MONITORING WELL COMPLETION REPORT

WELL NO. PW-7S
 PROJECT NO. 6001-5-00255
 DATE INSTALLED 7/19/96
 PROJECT Vander Horst Plant #2

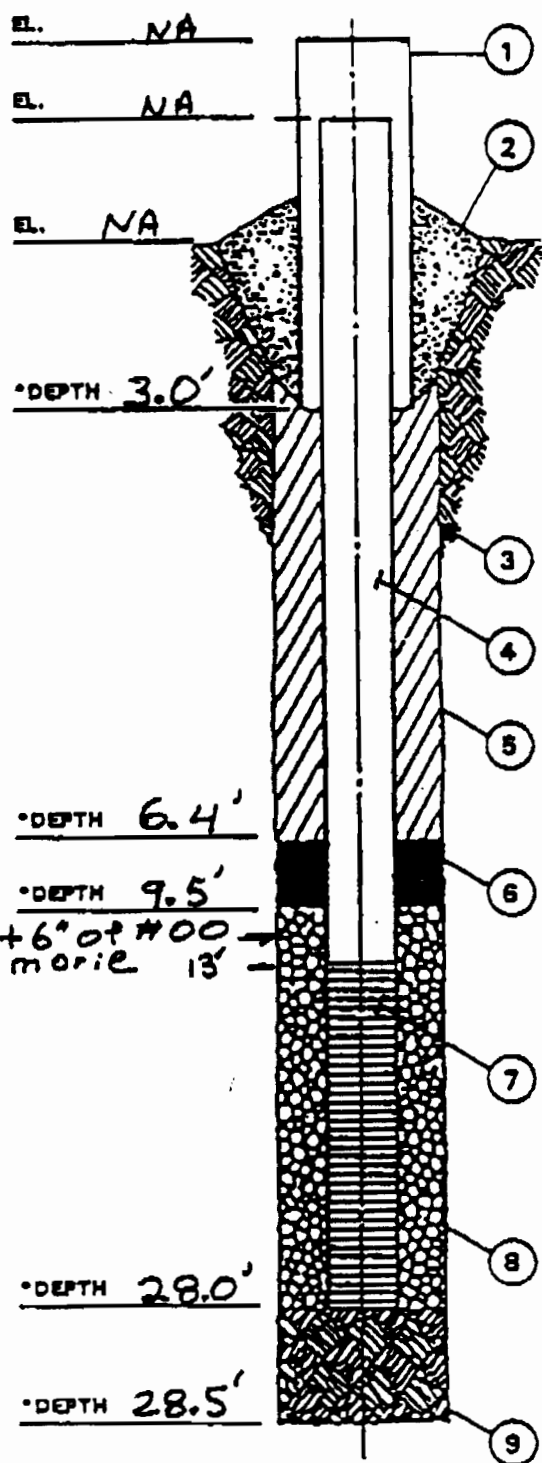
Olean N.Y. (trimming)
 Auger to 26.5' with 4 1/4" HSA
 sand, gravel & silt



1. PROTECTIVE CASING I.D. (INCHES) 4"
2. SURFACE SEAL TYPE Concrete
3. BOREHOLE DIAMETER (INCHES) 8"
4. RISER PIPE
 TYPE Sch. 80 PVC
 I.D. (INCHES) 2"
 LENGTH (FEET) 13.5'
 JOINT TYPE Flush Thread
5. BACKFILL
 TYPE Cement / Bentonite Grout
 INSTALLATION Tremie
6. TYPE OF SEAL Bentonite
7. SCREEN
 TYPE PVC
 I.D. (INCHES) 2"
 SLOT SIZE (INCHES) .020"
 LENGTH 15'
8. SCREEN FILTER TYPE #2 MORIE
9. BACKFILL TYPE #1 MORIE

*DEPTH IN FEET BELOW GRADE

MONITORING WELL COMPLETION REPORT



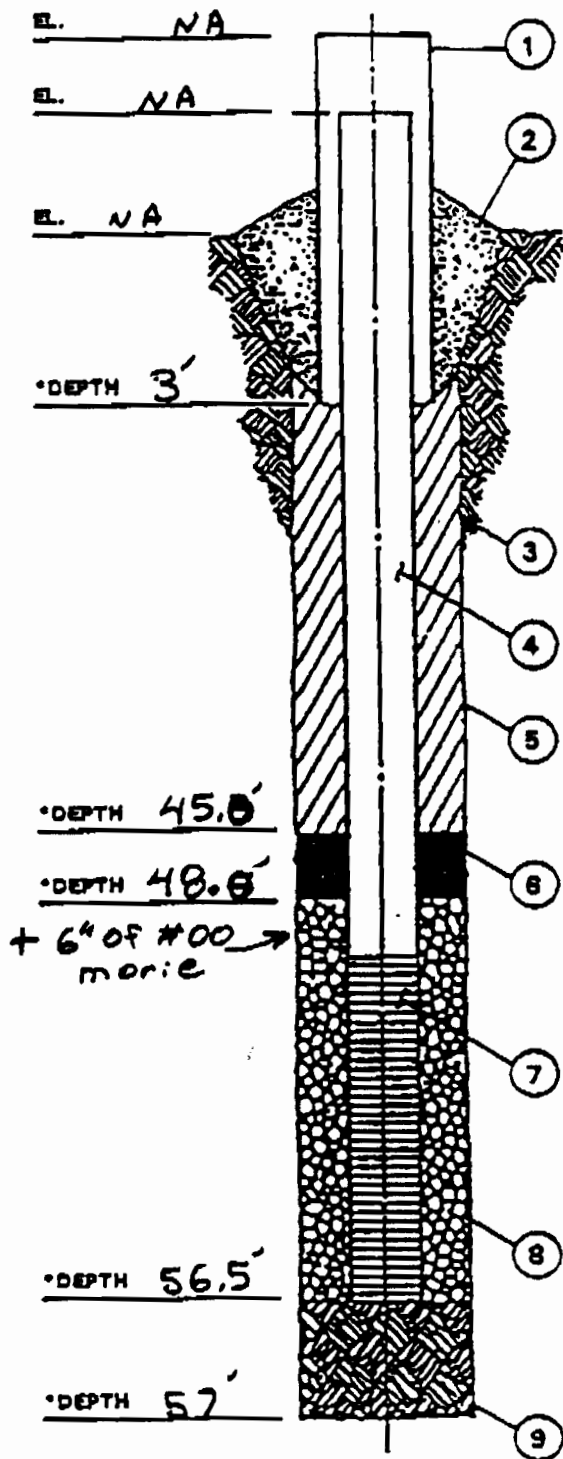
*DEPTH IN FEET BELOW GRADE



WELL NO. PW-19
 PROJECT NO. 6001-5-00255
 DATE INSTALLED 7/18/96
 PROJECT Van der Horst Plant #2
Clean N.Y. (Finning)
 Auger to 28.5' with 4 1/2" MSA
 sand, gravel & silt.

1. PROTECTIVE CASING I.D. (INCHES) 4"
2. SURFACE SEAL TYPE Concrete
3. BOREHOLE DIAMETER (INCHES) 8"
4. RISER PIPE
 TYPE Sch 80 PVC
 I.D. (INCHES) 2"
 LENGTH (FEET) 15.5'
 JOINT TYPE Flush Thread
5. BACKFILL
 TYPE Cement / Bentonite Grout
 INSTALLATION Tremie
6. TYPE OF SEAL Bentonite
7. SCREEN
 TYPE PVC
 I.D. (INCHES) 2"
 SLOT SIZE (INCHES) .020
 LENGTH 15'
8. SCREEN FILTER TYPE #1 Morie
9. BACKFILL TYPE #1 Morie

MONITORING WELL COMPLETION REPORT

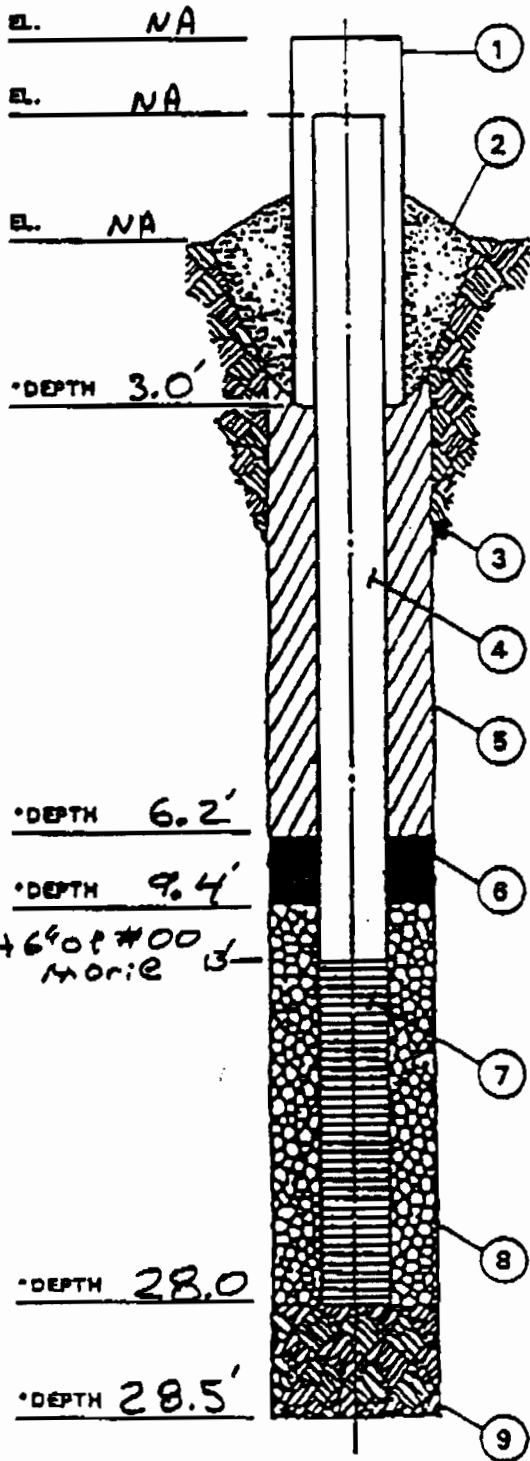


*DEPTH IN FEET BELOW GRADE

MAXIM
TECHNOLOGIES INC

- WELL NO. MW-702
- PROJECT NO. 6001-5-00255
- DATE INSTALLED 7/17/96
- PROJECT Vander Horst plant 1
Olson N.Y. Kimmins
- Auger to 57.0 with 4 1/2" HSA
SOIL WAS Sand, gravel & Silt.
1. PROTECTIVE CAS: IG I.D. (INCHES) 4"
 2. SURFACE SEAL TYPE Concrete
 3. BOREHOLE DIAMETER (INCHES) 8"
 4. RISER PIPE
TYPE Sch. 80 PVC
I.D. (INCHES) 2"
LENGTH (FEET) 54 with stickup
JOINT TYPE Flush thread
 5. BACKFILL
TYPE Cement / Bentonite Grout
INSTALLATION tremie
 6. TYPE OF SEAL Bentonite
 7. SCREEN
TYPE PVC
I.D. (INCHES) 2"
SLOT SIZE (INCHES) .020
LENGTH 5'
 8. SCREEN FILTER TYPE #1 morie
 9. BACKFILL TYPE #1 morie

MONITORING WELL COMPLETION REPORT



*DEPTH IN FEET BELOW GRADE

MAXIM
TECHNOLOGIES INC

WELL NO. PW-20
 PROJECT NO. 6001-5-00255
 DATE INSTALLED 7/18/96
 PROJECT Van Der Horst Plant #2
Olean N.Y. (Kimmings)
 Auger to 28.5' with 4 1/4" HSA
 gravel, silt, sand.

1. PROTECTIVE CASING I.D. (INCHES) 4"
2. SURFACE SEAL TYPE Concrete
3. BOREHOLE DIAMETER (INCHES) 8"
4. RISER PIPE
 TYPE Sch. 80 PVC
 I.D. (INCHES) 2"
 LENGTH (FEET) 15.5'
 JOINT TYPE Flush Thread
5. BACKFILL
 TYPE Cement / Bentonite Grout
 INSTALLATION Tremie
6. TYPE OF SEAL Bentonite
7. SCREEN
 TYPE PVC
 I.D. (INCHES) 2"
 SLOT SIZE (INCHES) .020"
 LENGTH 15'
8. SCREEN FILTER TYPE #1 Morie
9. BACKFILL TYPE #1 Morie