Design Plan - Volume 2 of 2

Construction Plan, Specifications, and Schedule

CanonieEnvironmental

Construction Plan, Specifications, and Schedule

PAS Clothier Site
Granby, New York

For

PAS Clothier PRPs

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1.0 GENERAL PROJECT REQUIREMENTS

1.1 General

The work covered by these Specifications consists of remedial construction activities for the PAS Clothier Disposal site located near Granby, New York. The site location is shown on Sheet 1 of the Construction Drawings. Reduced copies of the Construction Drawings are provided in Appendix A. All work performed shall be in accordance with these Specifications and the Construction Drawings. The work will be monitored by a representative of the Potentially Responsible Parties (PRPs) Group (hereinafter referred to as the Owner's Representative). In the event of discrepancies or if any aspect of the work is questionable, it shall be solely the responsibility of the Contractor to request clarification from the Owner's Representative. Work by the Contractor shall be performed in compliance with the health and safety requirements identified herein and the Health and Safety Plan (HASP) developed by the Contractor. Work shall be performed in accordance with the schedule included as part of the Construction Drawings. The work shall be considered as having been completed upon inspection and written approval by the Owner's Representative and Environmental Protection Agency (EPA).

A description of the construction plan is provided below. The remainder of this section presents the general requirements that the contractor shall follow as part of performing the work. Additional details related to project administration are provided in the Contract Documents. The details of the Specifications for the site work are included in Section 2.0 of these Specifications.

1.2 Definition of Terms

PRPs' Designated Representative (Owner's Representative) - The corporation or person designated by the PRPs with whom the Contractor has entered into the Agreement and for whom the work is to be provided.

Site Engineer - The corporation or person assigned by the Owner's Representative to the site during remedial construction activities, responsible for acceptance and approval of Contractor's work and submittals.

Contractor - The person, firm, or corporation with whom the Owner has entered into the Agreement.

Superintendent - The person representing the Contractor responsible for conducting site activities in accordance with the Specifications.

Field Engineer - The person or firm representing the Contractor responsible for documenting all field activities and coordinating work of the Surveyor, Chemical Analytical Testing Laboratory, and Geotechnical Testing Laboratory.

Health and Safety Officer (HSO) - The person or firm representing the Contractor responsible for implementation of the HASP, oversight of air monitoring programs on-site, and completion of any amendments to the HASP.

Chemical Analytical Testing Laboratory - Firm or corporation designated by the Contractor to conduct chemical analytical testing in accordance with the Specifications.

Geotechnical Testing Laboratory - Firm or corporation designated by the Contractor to conduct geotechnical tests to verify compliance with the specifications.

Surveyor - The person or firm designated by the Contractor to perform surveying activities. The Surveyor shall be a Licensed Professional Land Surveyor in the state of New York.

Subcontractor - Firm or corporation designated by the Contractor to perform a portion of the Work in accordance with the Agreement.

Design Engineer - Firm or corporation selected by the Owner's Representative responsible for developing the Specifications and Construction Drawings.

EPA - Environmental Protection Agency or person or firm representing the EPA.

NYSDEC - New York State Department of Environmental Conservation or person or firm representing the NYSDEC.

FSDWAC - Fulton Safe Drinking Water Action Committee or person or firm representing the FSDWAC.

Work - The entire completed construction required under the contract documents. Work is the result of performing services and furnishing labor and materials all as required by the contract documents.

Agreement - The written agreement between the Owner's Representative and the Contractor covering the Work to be performed.

Specifications - Those portions of the contract documents consisting of written technical descriptions of materials, construction systems, standards, and workmanship as applied to the Work and certain administrative details.

Construction Drawings - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by the Design Engineer and referred to in the contract documents.

Wetland - The area west of the wetland boundary designated by the NYSDEC Department of Fish and Wildlife, as shown on Sheet 3 of the Construction Drawings.

1.2.1 Codes and Standards

Work described herein shall be conducted in accordance with industry standards including, but not limited to, the most current designation of the codes and standards designated herein. Wherever the following abbreviations are used in these Specifications or on the plans, they shall be construed the same as the respective expressions represented:

1. ASTM, "American Society of Testing and Materials."

2. ASTM D 698, "Test Method for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-lb. (2.49-kg) Hammer and 12-inch (305-mm) Drop."

3. ASTM D 422, "Method for Particle-Size Analysis of Soils." Without hydrometer analysis unless specified by the Owner's Representative.

4. ASTM D 4318 - "Liquid Limit, Plastic Limit, and Plasticity Index of Soils."

5. ASTM D 2922, "Density of Soil and Soil-Aggregate In Place by Nuclear Methods."

6. ASTM D 3017, "Moisture Content of Soil and Soil-Aggregate In Place by Nuclear Methods."

7. ASTM D 1566, "Density of Soil In Place by the Sand Cone Method."

8. AASHTO T217, "Moisture Content of Soil by Speedy Moisture Meter Method."

9. ASTM D 2049, "Relative Density of Cohesionless Soils."

10. ASTM D 4632, "Test Method for Breaking Load and Elongation of Textiles."

11. ASTM D 3786, "Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphram Bursting Strength Tester Method."

12. ASTM D 3787, "Test Method for Bursting Strength of Knitted Goods: Constant-Rate of Transverse, Ball Burst Test."

13. "Corp of Engineers Test Method for Determining Equivalent Opening Size."

14. ASTM D 4355, "Test Method for Deterioration of Geotextile from Exposure to Ultraviolet Light and Water."

15. ASTM C 150, "Standard Specification for Portland Cement."

16. ASTM C 33, "Standard Specification for Concrete Aggregates."

17. ASTM D 4491, "Test Method for Water Permeability of Geotextiles by Permittivity."

1.3 Construction Plan

This section describes the construction activities that shall be followed to complete the remedial action. The sequence of the activities is provided on Sheet 5 of the Construction Drawings. The purpose of the construction plan is to identify the various construction activities, how they relate to each other, and the manner in which the work should proceed to meet the design intent. The construction plan is intended to provide guidance to the Contractor for performance of the remediation in a manner which will limit the potential for spreading contaminants and provide a minimum 1-foot-thick cover of clean soil over the contaminated area. Any variation from this plan shall be approved by the Site Engineer.

In preparation for regrading and covering the remediation area, the affected area shall be cleared and grubbed of all vegetation to the limits shown on Sheet 3 of the Construction Drawings. Initially, all trees in the area shall be cleared and stockpiled in a portion of area requiring soil cover. After clearing all trees, the grass and brush shall be removed and spread uniformly during regrading. Upon completion of clearing and grubbing, the stockpiled trees shall be chipped and spread uniformly over the surface prior to regrading.

Following clearing and grubbing, the area requiring soil cover shall be regraded to provide a uniform surface for verification of the placement of a minimum 1-foot-thick clean soil cover. The regraded surface shall conform to the lines and grades shown on the Construction Drawings. The regraded lines and grades shall take into account the thickness of the final cover material required to attain the final lines and grades shown.

After completing the area regrading, a minimum 1-foot-thick clean soil cover shall be placed over the regraded area to the lines and grades shown on Sheet 3 of the Construction Drawings. The soil used to cover the area of surface contamination shall be verified as clean through testing by the Contractor to ensure that contaminant concentrations on the Target Compound List (TCL) are within acceptable levels to the Owner's Representative. Acceptability shall be based upon background levels as identified in the Ebasco Services, Inc. Remedial Investigation/Feasibility Study. The soil cover shall be placed by dumping the clean soil at the edge of the cover limits and spreading the material ahead of the construction equipment and over the regraded surface. Grading equipment shall always work on top of the clean soil to eliminate the potential for spreading contamination onto the clean soil cover material.

All areas of the site affected by construction activities and the area requiring soil cover (see Sheet 2 of the Construction Drawings) shall be revegetated. Revegetation of the soil cover and of the affected areas shall be performed to provide erosion protection for these areas to minimize the potential for surface water runoff off-site. Revegetating these

areas shall occur after completing the soil cover, when weather permits. If revegetation is not completed during the construction season, the affected areas shall be covered with a crimped and tackified straw mulch to prevent erosion of the soil cover during the winter and early spring. The Contractor shall also revegetate other areas where instructed by the Owner's Representative within the site boundary to minimize erosion. These additional areas shall be designated following an evaluation and mutual agreement between the Owner's Representative and EPA.

Temporary and permanent fencing shall be installed to restrict access to the site. Temporary fencing will only be required in the active work area. Permanent fencing shall be installed at the locations shown on Sheet 2 of the Construction Drawings during the course of the remedial action to enclose the site.

Eleven existing ground water monitoring wells are located on the site as shown on Sheet 2 of the Construction Drawings. Five of the existing ground water monitoring wells will require repairs. Monitoring well CBW-2S shall require removal and replacement of the top portion of the protective steel casing and stainless steel well riser. After replacing the top section of the riser, a new protective casing, set in concrete, shall be installed. Sheet 4 of the Construction Drawings provides a detail for the riser and casing replacement. In addition, the concrete surface seals for wells CBW-1S, CBW-1D, CBW-2D, CBW-6, and CBW-7 shall also be replaced as shown on Sheet 4 of the Construction Drawings. Wells CBW-3, CBW-4S, CBW-4D, and CBW-8 shall be extended in height per sheet 4 of the Construction Drawings to allow for the clean fill placed in the soil cover area. The Contractor shall keep the well casings covered at all times to prevent any contamination from entering the monitoring well.

Throughout the course of the Remedial Action, surveying by a Registered Land Surveyor provided by the Contractor shall be conducted. Surveying activities shall include:

1. Establish the coordinate system as shown on Sheet 2 of the Construction Drawings and establish two permanent survey control points at the locations shown on Sheet 3 of the Construction Drawings and as detailed on Sheet 4 of the Construction Drawings;

2. Verify the coordinates and elevations for the ten existing ground water monitoring wells shown on Sheet 2 of the Construction Drawings after the modifications have been completed.

3. Identify the limits of clearing and grubbing as shown on Sheet 3 of the Construction Drawings;

4. Provide survey control during regrading of the site in preparation for placement of the 1-foot-thick soil cover; and

5. Provide survey of the cover soil placement to verify a minimum 1-foot-thick soil cover.

Additional details for each of the activities described above are provided in Section 2.0, Site Work.

The methods used by the Contractor shall produce satisfactory work for the services intended and shall be in accordance with standard construction industry practices and shall comply with applicable Federal, State, and local regulations.

1.4 Remediation Work Items

Remediation shall be performed to reduce the risk of exposure to surface soil/sediment contaminants and prepare the site for post-closure monitoring. Primary activities to be performed during remediation are as follows:

Activity	Specifications Section
Clearing and Grubbing	2.1
Regrading	2.2
Soil Cover Placement	2.3
Revegetation	2.4
Monitoring Well Repair	2.5
Fencing	2.6

These activities are generally described below and in subsequent specification sections in detail:

1. The site shall be cleared and grubbed in accordance with these Specifications and the Construction Drawings.

2. The site shall be regraded to conform to the lines and grades shown on Sheet 3 of the Construction Drawings taking into consideration the 1-foot soil cover. Regraded materials shall be placed in accordance with these Specifications.

3. A soil cover shall be placed over the area identified with surface contamination to the lines and grades shown on Sheet 3 of the Construction Drawings to reduce the risk of contact. The cover materials shall be placed, moistened, and compacted in accordance with these Specifications.

4. The soil cover, areas disturbed during construction, and areas delineated by the Owner's Representative shall be revegetated to prevent soil erosion and/or minimize water runoff to Ox Creek and its wetlands or neighboring properties in accordance with these specifications.

5. Existing monitoring wells shall be repaired, as designated in these Specifications, for sampling during post-closure monitoring.

6. Fencing shall be installed around the site to control access at the locations shown on Sheet 2 of the Construction Drawings, in accordance with these specifications.

1.5 Project Coordination and Meetings

1.5.1 Coordination

The Contractor shall coordinate scheduling, submittals, and work of the various sections of these Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

1.5.2 Field Engineering

The Owner's Representative shall provide a Site Engineer to observe and verify that the remedial construction meets the intent of the design. The Site Engineer will be responsible for documentation of the satisfactory completion of each of the work items presented in these specifications and will work under the supervision of a New York State Registered Professional Engineer. The Site Engineer's responsibilities shall include, but not be limited to, the following:

1. Review and acceptance of Contractor submittals; and

2. Acceptance and documentation of clearing and grubbing activities, regrading, soil cover placement, revegetation, monitoring well repair, and fencing.

The Contractor shall employ a Land Surveyor registered in the state of New York and acceptable to the Owner's Representative. The Contractor shall submit the name and qualifications of the land surveyor for acceptance by the Owner's Representative. The Contractor shall locate and protect survey control and reference points, and establish elevations, lines, and levels utilizing recognized engineering survey practices. The control datum for surveys is that shown on Sheet 2 of the Construction Drawings. The Contractor shall submit a copy of the site drawing and certificate signed by a licensed Land Surveyor that the elevations and locations of the Work are in conformance, or non conformance, with the Contract Documents. All survey work shall be performed and signed by a licensed surveyor.

1.5.3 Preconstruction/Site Mobilization Meeting

The Owner's Representative shall schedule a conference prior to Contractor occupancy of the site. The planned attendees include the Owner's Representative, Site Engineer, Contractor, EPA, NYSDEC, and FSDWAC or their representative. The agenda for the meeting shall include:

1. Name and qualifications of Subcontractors, Geotechnical Testing Laboratory, Chemical Analytical Laboratory, and Surveyor;

2. List of Products and construction schedule;

3. Designation of personnel representing the parties in the contract;

4. Procedures for processing of field decisions, submittals, substitutions, applications for payments, change orders, and contract closeout procedures;

5. Scheduling;

6. Use of premises by Owner's Representative, Site Engineer, and Contractor;

7. Requirements by the Owner's Representative;

8. Construction facilities;

9. Temporary utilities;

10. Survey and layout;

11. Security and housekeeping procedures;

12. Procedures for testing;

13. Procedures for maintaining record documents;

14. Submittals; and

15. Procedures for interacting with media representatives and interested local residents.

1.5.4 Progress Meetings

The Contractor shall schedule and administer meetings throughout progress of the work at maximum weekly intervals. The Contractor shall make arrangements for the meetings, prepare the agenda with copies for participants, preside at the meetings, record the minutes, and distribute copies within two days to the Owner's Representative, participants, and those

affected by decisions made. As meeting agendas dictate, attendees will include the Contractor, major Subcontractors, and Site Engineer. Also invited to the progress meetings will be the EPA, NYSDEC, and FSDWAC or their representative. The agenda for progress meetings shall include:

1. Review of work progress;

2. Field observations, problems, and decisions;

3. Identification of problems that impede planned progress;

4. Review of submittals schedule and status of submittals;

5. Maintenance of progress schedule;

6. Corrective measures to regain projected schedules;

7. Planned progress during succeeding work period;

8. Maintenance of quality and work standards;

9. Effect of proposed changes on progress schedule and coordination; and

10. Other business relating to the Work.

1.6 Submittals

The Contractor shall submit the following items to the Site Engineer for acceptance:

1. The Work Plan (including the following) must be approved by the Site Engineer prior to mobilization to the site:

- o Construction schedule,
- o Description of work methods,
- o Quality Assurance Plan,
- o Security Plan,
- o Sampling Plan, and
- o Health and Safety Plan;

2. Name and qualifications of Geotechnical Testing laboratory and Chemical Analytical Laboratory must be approved prior to conducting on-site activities;

3. Name and qualifications of Subcontractors must be approved prior to conducting on-site activities;

4. Name and qualifications of Surveyor must be approved prior to conducting on-site activities;

5. List of products must be approved prior to conducting on-site activities;

6. Analytical testing results for borrow soil samples must be approved prior to transporting the borrow soil to the site;

7. Analytical testing results of wipe tests on debris, if required, must be approved prior to removing debris to a clean area;

8. Soil amendment requirements must be approved prior to modifying the soil; and

9. As-Built Drawings must be approved prior to final payment.

Submittal Procedures

The Contractor shall transmit each submittal with a sequentially numbered transmittal form. Resubmittals shall have the original number with an alphabetic suffix. On each form, identify the project, Contractor, Subcontractor, or supplier; pertinent drawing sheet and detail identification; and Specification section number, as appropriate. Schedule submittals to expedite the project and deliver to the Owner's Representative via the Site Engineer. Identify variations from the contract documents and product or system limitations. Provide space for Engineer review stamps, if required. Revise and resubmit submittals as required and identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.7 As-built Construction Drawings

The Contractor shall provide the Owner's Representative with as-built construction drawings providing a permanent record of remedial activities for the site. The following types of information shall be recorded on the as-built drawings:

1. Dimensions and location of constructed facilities;

2. Contours and dimensions of regraded and soil covered areas;

3. Modifications to the Construction Drawings; and

4. Details of monitoring well repairs and elevations of casings.

The Contractor's Field Engineer shall be responsible for preparing the as-built drawings by recording information on a print of the Construction Drawings. The print will be submitted to the Site Engineer for approval.

1.8 Testing Laboratory Services

The Contractor shall employ and pay for the services of an independent testing laboratory to perform specified inspection and testing including, but not limited to, chemical analytical testing and geotechnical testing. Employment of a testing laboratory shall in no way relieve the Contractor of obligation to perform work in accordance with the requirements of the contract documents. The Chemical Analytical Testing Laboratory shall participate in an EPA or EPA-equivalent Quality Assurance Program as required by the Consent Decree. The Geotechnical Testing Laboratory shall be authorized in the state of New York and maintain a full-time specialist on staff to review services. Prior to start of work the Contractor shall submit testing laboratory name, address, telephone number, and certification, and names of full-time specialist and responsible officer to the Site Engineer for approval.

The testing laboratory's responsibilities shall include:

1. Testing of samples submitted by Contractor.

2. Provide qualified personnel at site if required. Cooperate with Site Engineer and Contractor in performance of services.

3. Perform specified inspection, sampling, and testing of products in accordance with specified standards.

4. Ascertain compliance of materials with requirements of the Specifications.

5. Promptly notify the Site Engineer and Contractor of observed irregularities or nonconformance of work or products.

6. Perform additional inspections and tests required by the Owner's Representative and/or Site Engineer.

After each inspection and test, the laboratory shall promptly submit two copies of the laboratory report to the Site Engineer and Contractor.

Include with each report:

1. Date issued;
2. Project title and number;
3. Name of inspector;
4. Date and time of sampling or inspection;
5. Identification of product and Specifications section;
6. Location in the project;
7. Type of inspection or test;
8. Date of test;
9. Results of tests; and
10. Conformance with the Specifications.

When requested by the Owner's Representative or Site Engineer, the testing laboratory shall provide interpretation of test results.

The laboratory may not release, revoke, alter, or enlarge on requirements of the Specifications. The laboratory may not approve or accept any portion of the Work, may not assume any duties of Contractor, or has no authority to stop the Work.

The Contractor shall deliver to the laboratory at designated location adequate samples of materials that require testing, cooperate with laboratory personnel, and provide access to the work. The Contractor shall provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples at the site or at the source of products to be tested, and to facilitate tests and inspections, provide storage of test samples, and notify the laboratory 24 hours prior to expected time for operations requiring inspection or testing services.

1.9 Construction Facilities and Temporary Utilities

1.9.1 Temporary Utilities

The Contractor shall provide temporary electricity, provide, maintain, and pay for telephone service to the field office, supply a potable water source for construction operations, and provide and maintain required sanitary facilities and enclosures at the time of project mobilization.

1.9.2 Security

The Contractor shall provide security and facilities to protect work from unauthorized entry, vandalism, or theft, allow entrance only to authorized persons, and maintain a log of workmen and visitors available to the Owner's Representative, Site Engineer, and EPA on request.

The Contractor shall provide fencing around the site perimeter at the locations shown on Sheet 2 of the Construction Drawings to prevent unauthorized access during construction activities. The Contractor also shall post signs on the fence at 500 foot intervals stating: "Warning: Hazardous Work Area, Do Not Enter Unless Authorized." The Contractor shall provide and maintain a lock at the entrance to the site during construction. The site shall remain locked when the Contractor is not present onsite.

1.9.3 Access Roads and Parking

The Contractor shall construct and maintain temporary roads at a minimum as shown on Sheet 2 of the Construction Drawings accessing public thoroughfares to serve the construction area and to provide a means of preventing mud on vehicle wheels from entering streets. The temporary roads shall be constructed a minimum of 10 feet wide by leveling the existing road and placing a minimum six-inch lift of crushed stone on the leveled surface. The Contractor shall provide a temporary gravel surface parking area on-site as shown on Sheet 2 of the Construction Drawings to accommodate construction personnel. The parking area shown on Sheet 2 of the Construction Drawings will be covered with a minimum six inches of crushed stone. The temporary roads and parking area shall remain after completion of the project.

1.9.4 Progress Cleaning

The Contractor shall maintain areas free of waste materials, debris, and rubbish created as a part of construction, maintain site in a clean and orderly condition, and remove nonhazardous waste materials, debris, and rubbish from the site periodically and dispose of off-site in an approved landfill. The Contractor shall submit the name of the facility to the Site Engineer prior to removing any material off-site for disposal.

1.9.5 Field Offices and Sheds

The Contractor shall provide a field office with lighting, electrical outlets, telephone, copying machine, furnishings, and adequate space for project meetings. The field office shall be available to the Site Engineer and EPA oversight personnel.

1.10 Temporary Controls

1.10.1 Surface Water Control

The Contractor shall maintain excavations free of water and provide, operate, and maintain pumping equipment to protect the site from puddling. At a minimum, and as approved by the Site Engineer, the contractor shall construct a perimeter dike/swale around the area of surface soil contamination to control surface water run-on to the work area during regrading and soil cover placement. In addition, temporary lined swale outlet sediment traps shall be constructed at the locations shown on Sheet 3 of the Construction Drawings for collection of surface water runoff that has come into contact with potentially contaminated surface soils. Water control structures shall be in place prior to completion of clearing and grubbing activities.

Additional details regarding the erosion and sediment control structures are provided in Sections 1.10.3 and 5.0 of these Specifications.

1.10.2 Dust Control

The Contractor shall execute work by methods to minimize the creation of dust from construction operations and prevent airborne particulates from exceeding the specified limits.

The Contractor shall perform particulate air monitoring and provide dust suppression techniques in accordance with the NYSDEC Division Technical and Administrative Guidance Memorandum (HRW-89-4031) - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites. The Contractor shall perform particulate air monitoring during construction activities and utilize the following dust suppression techniques as necessary to conform with the regulations for particulate emissions:

1. Apply water on haul roads and excavation faces;

2. Spray water on excavated materials during excavation and dumping;

3. Restrict vehicle speeds to a maximum of 10 miles per hour on-site; and

4. Reduce the excavation size and number of excavations.

The Contractor shall provide additional details for dust control and monitoring in the Work Plan and Health and Safety Plan.

1.10.3 Erosion and Sediment Control

The Contractor shall conform to the requirements of the Erosion and Sediment Control Plan in Section 5.0 of these specifications.

1.10.4 Pollution Control

The Contractor shall provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations. The Contractor shall provide air monitoring during excavation activities in accordance with the requirements in the Health and Safety Plan to prevent the discharge of contaminants from the site. The Contractor shall provide a copy of the project relevant certificate of insurance and the insurance policy or policies to the EPA for approval and its records.

1.10.5 Decontamination

The Contractor shall provide a 20 ft by 20 ft reinforced concrete decontamination pad and the necessary equipment at the approximate location shown on Sheet 2 of the Construction Drawings. All equipment contacting contaminated surface soils in the area shown on sheet 2 of the Construction Drawings shall enter the decontamination pad and be decontaminated prior to

contacting clean cover materials or exiting the exclusion zone defined by the Contractor. The water produced from the decontamination procedures shall be collected and placed over the regraded area and allowed to infiltrate prior to placing the clean soil cover. Existing concrete decontamination pads may be used for personnel decontamination.

1.11 Decontamination of Debris

The Contractor shall report to the Site Engineer any miscellaneous debris (abandoned vehicles, car parts, tires, etc.) encountered during clearing and grubbing or regrading activities in the area of surface soil contamination. The Contractor shall move the debris to the area shown on Sheet 2 of the Construction Drawings. The Contractor shall submit a work plan to perform decontamination, a wipe test, and analytical testing for PCBs and CPAHs to the Site Engineer and EPA. Upon approval, the Contractor shall decontaminate the debris on the decontamination pad and perform a wipe test and analytical testing to verify that the debris has been cleaned to levels approved in the decontamination work plan.

Once the wipe tests indicate that the debris is clean, the debris will be placed with other debris outside the area of the soil cover.

1.12 Schedule Requirements

The contractor shall maintain the schedule provided on Sheet 5 of the Construction Drawings, starting no activity later than the indicated late start date and completing each activity by the indicated late finish date. After completion of the site revegetation, the Owner's Representative will notify the EPA.

1.13 Contract Closeout

1.13.1 Closeout Procedures

The Contractor shall submit written certification that the Specifications have been reviewed, work has been inspected, and that work is complete in

accordance with the Specifications and ready for EPA, NYSDEC, and Owner's Representative inspection. The Contractor shall complete all deficiencies of work identified in the inspection and resubmit written certification of the Work. The Contractor shall then submit the final Application for Payment identifying total adjusted contract sum, previous payments, and sum remaining due upon acceptance of the work.

1.13.2 Final Cleaning

The Contractor shall execute final cleaning prior to final inspection. This work shall include removal of waste and surplus materials, rubbish (created as a part of construction activities), and construction facilities from the site.

1.13.3 Project Record Documents

The Contractor shall maintain on-site one set of the following Record documents:

1. Construction Drawings;

2. Specifications;

3. Addenda; and

4. Change Orders and other Modifications to the work.

The Contractor shall store the Record Documents under separate file from documents used for construction and recording information concurrent with construction progress. In addition, the Contractor shall legibly mark and record at each product section of the Specifications a description of the actual products installed, including the following:

1. Manufacturer's/supplier's name;

2. Product substitutions or alternates utilized; and

3. Changes made by addenda and modifications.

The Contractor shall submit as-built drawings to the Site Engineer with Application for Final Payment.

The Contractor shall provide a Daily Work Activity Log summarizing and recording information concurrent with construction progress. Included with the Daily Work Activity Log shall be:

1. Test records;

2. Records of all site work;

3. Chain-of-custody documents;

4. Reports on all spill incidents; and

5. Personnel and equipment on-site.

The Contractor shall submit a copy of the Daily Work Activity Log to the Owner's Representative the following work day and maintain the original on-site. The Daily Work Activity Log will also be made available, in a timely fashion, to the EPA, NYSDEC, and FSDWAC or their designated representative.

The contractor shall take and maintain photographs of the construction activities. At a minimum, 12 photographs, blown up to the 8-inch by 10-inch size, shall be taken bi-weekly for documentation. One set of photgraphs shall be provided to the Owner's Representative and copies made available to EPA, NYSDEC, and FSDWAC.

2.0 SITE WORK

2.1 Clearing and Grubbing

2.1.1 General

2.1.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with clearing and grubbing in accordance with the Construction Drawings and these Specifications.

2.1.1.2 Related Work

Section 1.0 - General Project Requirements
Section 2.2 - Regrading
Section 2.3 - Soil Cover Placement
Section 2.4 - Revegetation
Section 3.0 - Health and Safety
Section 4.0 - Quality and Control
Section 5.0 - Erosion and Sediment Control Plan

2.1.2 Products

Not applicable.

2.1.3 Execution

Clearing and grubbing shall be performed within the approximate limits of the area requiring a 1-foot soil cover as shown on Sheet 3 of the Construction Drawings. The work performed shall provide for complete removal of all brush and trees on the surface and major root systems adjacent to the surface. Removal of root systems associated with grasses shall not be required. Vegetative debris such as grass and shrubs shall be buried

within the remediation area. Trees shall be chipped and spread over the regraded surface prior to placement of the clean soil cover. Under no circumstances shall vegetative debris material be removed from the site or burned on-site. If unnatural debris (i.e., tires, junk vehicles, auto parts, etc.) is encountered during the clearing and grubbing operations, the debris shall be moved to the area shown on Sheet 2 of the Construction Drawings and handled in accordance with Section 1.11 of these specifications. Monitoring requirements are presented in Section 4.0 - Quality Control of these Specifications.

2.2 Site Regrading

2.2.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with site regrading in accordance with the Construction Drawings and these Specifications.

All areas subject to regrading operations identified herein are shown on Sheet 3 of the Construction Drawings. The Contractor shall be responsible for providing all surveying necessary to conduct earthwork to the lines and grades specified.

2.2.1.1 Related Work

Section 1.0 - General Project Requirements
Section 2.1 - Clearing and Grubbing
Section 2.3 - Soil Cover Placement
Section 2.4 - Revegetation
Section 3.0 - Health and Safety
Section 4.0 - Quality Control
Section 5.0 - Erosion and Sediment Control Plan

2.2.2 Products

Not applicable.

2.2.3 Execution

Site regrading shall consist of excavation and regrading the site to provide a regraded surface conforming to the lines and grades shown on Sheet 3 of the Construction Drawings. The regraded lines and grades shall take into account the thickness of final cover material required to attain the final lines and grades as shown on Sheet 3 of the Construction Drawings.

Care shall be taken during regrading and other site activities not to damage the existing monitoring wells. Wells damaged by the Contractor during the course of the work shall be repaired or replaced by the Contractor at the Contractor's expense.

All slopes and excavations shall be configured by either cutting existing materials to form the design lines and grades below the soil cover or by placing compacted fill beyond the lines and grades and trimming to the design configuration. Fill shall be placed in maximum 12-inch-thick lifts and compacted to at least 85 percent of its maximum dry density within three percent of optimum moisture content as determined by the Standard Proctor method of compaction (ASTM D688) to yield a firm working surface for placement of the clean soil cover.

It is possible that debris such as tires, car bodies, or miscellaneous rubbish may be encountered during regrading. This material shall be handled in accordance with Section 1.11 of these specifications.

Water shall be applied as required to improve the material handling characteristics and suppress dust during fill placement. The acceptable tolerance limit for regrading earthwork (prior to soil cover) is to within ± 0.25 foot of the lines and grades shown on the Construction Drawings.

The Contractor shall also utilize adequate water for dust suppression on haul/access roads and all grading and compaction work. The cost of water pumping and transportation shall be paid by the Contractor.

Monitoring and testing requirements are presented in Section 4.0 - Quality Control of these Specifications.

2.3 Soil Cover Placement

2.3.1 General

2.3.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with the placement of clean soil cover in accordance with the Construction Drawings and these Specifications.

Work shall include, but not be limited to placement, compaction, and grading of cover soils.

The Contractor shall be responsible for providing all surveying necessary to conduct earthwork to the lines and grades specified.

2.3.1.2 Related Work

Section 1.0 - General Project Requirements
Section 2.1 - Clearing and Grubbing
Section 2.2 - Regrading
Section 2.4 - Revegetation
Section 3.0 - Health and Safety
Section 4.0 - Quality Control
Section 5.0 - Erosion and Sediment Control Plan

2.3.2 Products

The cover soil shall be uncontaminated material free of undesirable constituents. The cover soil shall be sampled at the borrow source. Two samples of material shall be analyzed for the parameters specified in the Superfund TCL for semivolatile organics, VOCs, pesticides/PCBs, and metals. The concentrations of contaminants shall be below the contract required detection limits or at concentrations which would not endanger environmental receptors. The test results shall be submitted to the Site Engineer for approval prior to removal of the soil from the borrow source.

The cover soil shall be classified as either silty sand, clayey sand, clay, or silt in accordance with the Unified Soil Classification System with no material larger than two inches in diameter. The test results shall be submitted to the Site Engineer for approval prior to removal of the soil from the borrow source.

The Contractor shall submit a sample of the cover soil to the Cornell Cooperative Extension for Soil Test Nutrient Analyses and Recommendations or an equivalent testing program. The standard analyses package for the soil sample is pH, lime requirement, and available nutrients, such as phosphorus, potassium, calcium, and magnesium. Based on the results from the Soil Test Laboratory, lime and soil amendment recommendations are prepared by the laboratory and provided to the Contractor. Additional geotechnical and analytical testing requirements are provided in Section 4.0 - Quality Control of these Specifications.

2.3.3 Execution

The cover soil shall be placed to a minimum thickness of 1 foot over the regraded area and to the lines and grades shown on Sheet 3 of the Construction Drawings. Prior to placement of the soil cover, the Site Engineer shall inspect the regraded surface and approve commencement of the soil cover placement.

All material placed above existing grade shall be placed in maximum 12-inch-thick lift(s) and compacted to at least 85 percent of its maximum dry density within 3 percent of the optimum moisture content as determined by the standard Proctor method of compaction (ASTM D 698). The Contractor shall utilize adequate water as required to improve compaction and material handling characteristics of the cover soils and for dust suppression on haul/access roads and all grading and compaction work. No preparation work shall be required between lifts. Testing requirements are presented in Section 4.0 - Quality Control of these Specifications.

2.4 Revegetation

2.4.1 General

2.4.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with revegetation in accordance with the Construction Drawings and these Specifications. Revegetation, as specified herein, shall include revegetation of all areas cleared and grubbed or otherwise damaged or stripped of vegetation during construction and vegetation of the regraded and covered areas of the site. Revegetation efforts shall be directed at all areas disturbed by construction and shall include, but not be limited to, the entire regraded and covered areas and any areas where instructed by the Owner's Representative within the site boundary to minimize erosion. These additional areas shall be designated following an evaluation and mutual agreement between the Owner's Representative and EPA.

All revegetated areas shall be protected by tackified straw mulch or equivalent to prevent wind and water erosion damage to the seedbed prior to germination of the vegetation. Revegetation shall be performed immediately

following placement of the soil cover, weather permitting. Prior to re-vegetating the soil cover, the Site Engineer shall inspect the soil cover and approve commencement of revegetation activities. Any damage from erosion shall be repaired prior to revegetating the soil cover.

2.4.1.2 Related Work

Section 1.0 - General Project Requirements
Section 2.3 - Soil Cover Placement
Section 3.0 - Health and Safety
Section 4.0 - Quality Control
Section 5.0 - Erosion and Sediment Control Plan

2.4.2 Products

2.4.2.1 Seed Mixture

All seed shall be fresh, clean, new crop seed of the following composition by weight of pure live seed (PLS) per acre:

Grass Name	Seeding Rate Pounds of PLS per Acre
Perennial Ryegrass	30
Broome Grass	15
Orchard Grass	15

All seed shall be furnished in original containers showing analysis of seed mixture, seed source and production location, percentage of PLS, year of production, net weight, date, and location of packaging. Seed that has become moldy or otherwise damaged in transit or storage shall not be accepted.

2.4.2.2 Mulch

Mulch shall be small-grain hay or straw in a dry condition. Mulch shall be free of weeds and foreign matter detrimental to plant life.

2.4.2.3 Soil Amendments

Soil amendments shall be determined by the Contractor based on analyses of the soil cover material as described in Section 2.3. The proposed amendment composition and application rate shall be developed by the Cornell Cooperative Extension or a qualified soil scientist and submitted to the Site Engineer for approval.

2.4.2.4 Tackifier

A tackifying agent shall be used to prevent soil and seed erosion after sowing and mulching. Tackifier shall be applied at a rate of 250 gallons per acre.

2.4.3 Execution

2.4.3.1 General

Revegetation shall be conducted as specified on the regraded, covered area, any areas disturbed by the construction activities, and any areas designated by the Site Engineer within the site boundary to minimize erosion. All seeding shall be performed when weather conditions are suitable for germination of the sown seed as approved by the Site Engineer. Monitoring requirements are presented in Section 4.0 - Quality Control of these Specifications.

2.4.3.2 Soil Preparation

The soil to be revegetated shall be prepared by first cultivating to a depth of 3 to 6 inches. Fertilizer and soil amendments shall be added to

the soil at the application rate determined in Section 2.4.2.3 and shall be worked into the upper 3 to 6 inches of soil by disking along the contours to the extent practical. This application shall not precede seeding by more than one day.

Fertilizer shall be applied in specified amounts by one of the following methods:

1. Broadcast;

2. Hydrofertilization; or

3. Drill.

The method used shall be dependent on climatic conditions, rate of application, time of application, and will be determined on an area-by-area basis.

2.4.3.3 Seeding

Seeding shall be conducted by hydroseeding or drilling the specified seed mixture at the specified application rates along the contours or opposite the direction of the prevailing wind. Seeding shall not be performed immediately following a heavy rain, during windy periods, or when the ground is too dry. Drill seeding shall use a roller attachment, or its equivalent, attached behind the drill to inhibit movement of seeds previously sown. No seeding shall be performed in areas in excess of that which can be mulched the same day.

2.4.3.4 Mulching

Certified weed-free straw or weed-free grass hay mulch shall be applied to all seeded areas to conserve soil moisture and to protect against soil erosion. Application shall immediately follow seeding unless soil or climate conditions prohibit the operation (wet soils or inclement weather). All mulch shall be anchored with a straw crimper and tackified.

2.4.3.5 Restoration

Planted areas damaged during execution of this work shall be restored according to these Specifications. The areas that fail to show a "catch" or uniform stand shall be reseeded by the Contractor during the next growing season with the specified seed mixture and methodology.

2.5 Monitoring Well Repair

2.5.1 General

2.5.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with the monitoring well repairs and necessary well extensions in accordance with the Construction Drawings and these Specifications.

2.5.1.2 Related Work

Section 1.0 - General Project Requirements
Section 3.0 - Health and Safety
Section 4.0 - Quality Control

2.5.2 Products

All replaced parts and materials shall be of equal or better quality than that used in the original well construction.

2.5.2.1 Protective Well Casing

Protective covers for the ground water monitoring wells shall be 4-inch-diameter Schedule 40 steel pipe with a locking, hinged cap.

2.5.2.2 Well Riser

New well risers shall consist of 2-inch, outside diameter, stainless steel casing.

2.5.2.3 Concrete Plug

The concrete plug shall consist of premixed concrete or a mixture of cement, sand, and gravel, approved by the Site Engineer, properly wetted, and placed in the annulus between the protective casing and borehole. The bottom of the plug shall be placed below the frost line (approximately 4 feet) and the top of the plug will be formed so as to prevent mushrooming as shown on Sheet 4 of the Construction Drawings and described below.

2.5.3 Execution

All ground water monitoring wells shall be repaired as shown on Sheet 4 of the Construction Drawings and as indicated below.

2.5.3.1 Well Cleaning

Ground water monitoring wells CBW-1S, CBW-1D, CBW-2D, and CBW-4S shall be cleaned by removing silt in the bottom of the wells. The wells shall be bailed with a stainless steel bailer until all silt has been removed to within 3 inches at the bottom of the casing.

2.5.3.2 Protective Well Casing

The protective well casing for well CBW-2S will require replacement. The existing casing shall be removed by first removing the concrete plug and then pulling the protective well casing. Care shall be taken not to damage the existing well riser pipe during this operation. The protective well casings for wells CBW-3, CBW-4S, CBW-4D, and CBW-8 shall be extended to accommodate additional fill by either removing and replacement or extending using threaded or welded connections.

2.5.3.3 Well Riser

New well risers shall be required for wells CBW-2S, CBW-3, CBW-4S, CBW-4D, and CBW-8. The riser for well CBW-2S shall be cut and threaded 4 feet below the top of the existing riser pipe. A threaded 4-foot extension shall then be attached. The risers for well CBW-3, CBW-4S, CBW-4D, and CBW-8 shall be extended in height by 2 feet. Threaded connection shall be used to make the extensions.

2.5.3.4 Concrete Plug

The existing concrete plug for wells CBW-1S, CBW-1D, CBW-2S, CBW-2D, and CBW-6 shall be removed between the protective casing and borehole. Concrete removal shall be performed in a manner that does not damage the protective casing or well riser pipe. Following removal of existing concrete, fresh concrete shall be placed in the annulus and tamped in place.

2.6 Fencing

2.6.1 General

2.6.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with installation of the permanent perimeter fencing in accordance with the Construction Drawings and these Specifications.

2.6.1.2 Related Work

Section 1.0 - General Project Requirements
Section 3.0 - Health and Safety
Section 4.0 - Quality Control

2.6.2 Products

2.6.2.1 Steel Line Posts

Steel line posts shall be 2.375-inch outside diameter pipe weighing approximately 3.65 pounds per linear foot, of sufficient length to permit 36 inches to be set in concrete.

2.6.2.2 Steel Top Rail

Steel top rails shall be 1.660-inch outside diameter pipe weighing approximately 2.27 pounds per linear foot.

2.6.2.3 Chain Link Fabric

The chain link fabric shall be woven 2 inch mesh of No. 9 gage copper-bearing steel wire, galvanized after fabrication.

2.6.2.4 Post Tops

Post tops shall be steel, wrought iron, or malleable iron designed as a weather-tight closure cap.

2.6.2.5 Concrete

Concrete shall be portland cement complying with ASTM C150 Type I, aggregates complying with ASTM C33, and clean water, mixed to obtain concrete with minimum 28 day compressive strength of 2500 psi.

2.6.2.6 Warning Signs

Warning signs 12" x 18" in dimension shall read "Warning - Do Not Enter Hazardous Waste Site," and shall have red lettering with a white background.

2.6.3 Execution

The Contractor shall have the property boundaries surveyed and install a six foot high chain link fence in true and correct alignment at the locations shown on Sheet 2 of the Construction Drawings. The west ends of the fence shall terminate at locations that will not allow easy access onto the site by tresspassers. The fence shall be installed as follows:

1. Drill the post holes not less than three inches deeper than the bottom of the posts;

2. Set all posts in concrete footings with a minimum ten-inch diameter;

3. Install the fence tight, free of sags and bulges;

4. Place the fence with the bottom of the fabric one inch above grade;

5. Space the line posts at equal intervals not to exceed ten feet on center;

6. Provide expansion couplings in top rails at not more than 20 foot intervals;

7. Anchor the top rails to main posts with appropriate wrought or malleable fittings;

8. Install bracing assemblies at all end and gate posts, both sides, and corner and pull posts;

9. Pull fabric taught and secure to posts and rails;

10. Install three strands of barbed wire above the fabric spaced at six-inch intervals;

11. Secure the barbed wire such that the wire remains in tension after the pulling force is released;

12. Secure the barbed wire to each post with u-shaped wire conforming to the dimension of the pipe.

13. Construct the gate at the location shown on Sheet 2 of the Construction Drawings;

14. Place warning signs on the fence every 100 feet; and

15. Provide a quality lock with four sets of keys for the gate.

3.0 HEALTH AND SAFETY

3.1 General

This section is intended to provide for working conditions and monitoring that will ensure the health and safety of workers and the general public. It shall be the responsibility of the Contractor that all work be carried out, at a minimum, within the requirements of this section and all applicable local, state, and federal requirements. The Contractor shall designate a site HSO for this purpose.

Prior to commencement of site construction activities, the Contractor shall prepare a site-specific HASP incorporating the requirements of this section and submit such for approval by the Site Engineer. The HASP shall include specific procedures and guidelines for conduct of the work that ensure the health and safety of site personnel and the general public. At a minimum, the HASP shall include:

1. A description of the site and background information;
2. Job hazard analysis;
3. Air monitoring requirements;
4. Personal Protective Equipment requirements;
5. Description of work zones;
6. Decontamination procedures;
7. Contingency plan;
8. Emergency response activities;
9. Training requirements;

10. Medical surveillance requirements;

11. Designation of Health and Safety personnel;

12. Action levels;

13. Communications;

14. Emergency Plan;

15. Monitoring Procedures; and

16. Safety Procedures.

Site conditions are not expected to vary significantly. Specific provisions of the HASP will be upgraded/downgraded, as appropriate, depending on actual field conditions. All changes in the HASP must be approved and documented by the Contractor's HSO prior to implementation. Such changes shall then be conveyed to all on-site personnel. Copies of the HASP shall be sent to the EPA, NYSDEC, and FSDWAC or their designated representatives upon approval of the plan.

All personnel will be instructed by the Contractor's HSO of the HASP requirements before going into the exclusion zone and are expected to comply with all aspects of the HASP. Anyone failing to comply with the on-site protection requirements or other provision of the HASP will be excluded from all active work as deemed appropriate by the Contractor's HSO.

3.1.1 Related Work

All sections included in the Specification.

3.2 Site Description and Background

The PAS Clothier Superfund Site is a privately owned, approximately 15-acre (Ebasco, 1988) parcel located in a rural area approximately seven miles south of Fulton, New York. The EPA alleges that at least 2,200 drums of chemical wastes were stored/dumped on the site from the PAS operation at Oswego, New York. The site was placed on the National Priorities List in 1984. Remedial Investigation/Feasibility Study (RI/FS) activities began in August 1985 and were completed in August 1988. Based on these activities, it was determined that the primary sources of contamination at the site were hazardous substances contained in 2,200 drums and the hazardous substances that leaked or fell out of damaged drums. In the summer of 1986, 1,858 drums were removed from the site for disposal by the PRPs under an Administrative Order. The remaining 271 drums were removed for disposal in July 1987 and 1988 by EPA contractors. Visibly contaminated soil was also removed from the site in July 1987.

The August 1988 RI/FS report indicates that the only material remaining on-site is residual low-level contaminated soil containing xylene, phenol, CPAHs, and PCBs. The RI/FS report concluded that the only pathways of exposure are from contact with surface soils containing PCBs and CPAHs and ground water containing volatile organics. Five discrete on-site locations have been identified for containment of these contaminants. Pre-design sampling activities at the site were conducted in May and July 1990 to identify the area requiring soil cover. Surface soil/sediment sample concentrations for CPAHs were reported up to 0.76 ppm and for PCBs up to 4.3 ppm.

The site's shallow ground water has been affected by low levels of VOCs, primarily trichloroethene and tetrachloroethene. Under the current use scenario for the site, the EPA concluded in the ROD that no ground water exposure pathways are believed to exist. The shallow ground water is contained in a low-yielding aquifer and is unlikely to be used as a water supply. Long-range ground water monitoring and site-use restrictions have been prescribed to address affected ground water. The ROD was signed by

the acting Regional Administrator on December 28, 1988 selecting source control and long-term monitoring of various media as the cost-effective remedy for the PAS Clothier site.

3.3 Responsible Personnel

The Contractor shall designate a line of authority for health and safety concerns including the site Superintendent and HSO. The HSO shall be responsible for the implementation of the HASP, oversight of air monitoring programs on-site, and completion of any amendments to the HASP. The HSO will not be directly responsible to the Superintendent. The HSO shall be responsible for informing all individuals entering the site or exclusion zone of the hazards present on-site and the policies and procedures required to minimize exposure or adverse effects of the hazards.

The HSO shall be an industrial hygienist, certified safety technician, or an approved equal.

The Contractor shall provide a resumé of the HSO candidate for review and approval by the Site Engineer.

3.4 Job Hazard Analysis

The potential hazards associated with the site activities include exposure to both chemical and physical hazards. The chemical hazards include potential contact with contaminated soils and ground water. The physical hazards include exposure to noise, heat, and possible injury from working around heavy machinery.

3.4.1 Chemical Hazards

The primary contaminants of concern identified at the PAS Clothier site include polychlorinated biphenyls (PCBs) and Carcinogenic Polynuclear Aromatic Hydrocarbons (CPAHs) in the surface soils, volatile organics in the soils and ground water, and metals in the ground water.

The CPAHs consist of benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (a) pyrene, and chrysene. For chemical hazard evaluation purposes, these particular CPAHs can be grouped into the class of compounds falling under coal tar pitch volatiles. The volatile organics consist primarily of acetone, 2-butanone, methylene chloride, 1-2 dichloroethene, 1,1,1-trichloroethane, toluene, and xylene. The metals primarily consist of cadmium, selenium, silver, thallium, chromium, and manganese.

Descriptions of the health hazards associated with the above chemicals are as follows:

PCB - This compound is reported to be a potential carcinogen and affects the eyes, ears, and skin. Routes of exposure are reported to include inhalation, ingestion, and skin contact. Symptoms are reported to include acne-form eruptions, eye discharge, swelling of upper eyelids, hyperpigmentation, fever, hearing difficulties, limb spasms, headache, vomiting, and diarrhea. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value - Time Weighted Average (TLV-TWA) is 0.5 milligrams per cubic meter (mg/m^3).

Coal Tar Pitch Volatiles - These compounds are potential carcinogens and affect the lungs and kidneys. Routes of exposure include inhalation, ingestion, and skin contact. Symptoms include dermatitis, bronchitis, and kidney failure. The ACGIH TLV-TWA is 0.2 mg/m^3.

Acetone - This compound is a colorless, volatile liquid moderately toxic by ingestion and inhalation and flammable. Symptoms include headache, drowsiness, respiratory irritation, and dermatitis. The ACGIH TLV-TWA is 750 ppm in air.

2-butanone (methylethyl ketone - MEK) - This compound is flammable and toxic by inhalation, ingestion, and contact. Symptoms include headache, light-headedness, dizziness, nausea, vomiting, eye and nose irritation, and neurological defects. The ACGIH TLV-TWA is 590 ppm in air.

Methylene chloride - This compound is a colorless, volatile liquid that is a carcinogen. The ACGIH TVL-TWA is 50 ppm in air.

1,2-dichloroethene - This compound is a colorless liquid that is flammable and toxic by ingestion, inhalation, and skin contact. Symptoms include drowsiness, ataxia, vertigo, dyspnea, and eye irritation. The ACGIH TLV-TWA is 200 ppm in air.

1,1,1-trichloroethane (methyl chloroform) - This compound is a colorless liquid. Routes of exposure include inhalation, ingestion, and contact. Symptoms include headache, vertigo, ataxia, tremors, drowsiness, nausea, vomiting, visual disturbances, cardiac arrhythmias, and dermatitis. The ACGIH TLV-TWA is 350 ppm in air.

Toluene - This compound is a colorless liquid that is flammable and is toxic by ingestion, inhalation, and skin absorption. Symptoms include drowsiness, fatigue, weakness, light-headedness, dizziness, euphoria, confusion, paresthesias, dermatitis, tearing, and liver and kidney failure. The ACGIH TLV-TWA is 100 ppm in air.

Xylene - This compound is a clear liquid that is flammable and toxic by ingestion, inhalation, contact, and absorption. Symptoms include drowsiness, ataxia, euphoria, upper respitory tract irritation, nausea, vomiting, anorexia, gastro intestinal pain, dermatitis, visual disturbances, and liver and kidney failure. The ACGIH TLV-TWA is 100 ppm in air.

Cadmium - This compound is a carcinogen toxic by inhalation of dust or fume and ingestion. Symptoms include dyspnea, cough, chest pain, pulmonary edema, headache, chills, muscle aches, weakness, anemia, kidney failure, nausea, vomiting, and diarrhea. The ACGIH TLV-TWA for dust and soluble compounds is 0.05 mg/m^3 of air.

Chromium - This compound is a carcinogen and corrosive on tissue resulting in ulcers and dermatitis on prolonged contact. Routes of exposure include inhalation and ingestion. Symptoms include lung fibrosis. The ACGIH TLV-TWA for dust and fume is 0.5 mg/m^3 of air.

Manganese - This compound is flammable as a dust or powder and toxic by inhalation and ingestion. Symptoms include insomnia, confusion, metal fume fever (flu-like symptoms), upper respiratory irritation, lower respiratory congestion, tremors, ataxia, fatigue, and kidney failure. The ACGIH TLV-TWA as fume is 1 mg/m^3 of air.

Selenium - This compound is toxic by ingestion, inhalation, and contact. Symptoms include upper respiratory tract irritation, headache, fever, chills, dermatitis, eye burns, anorexia, nausea, vomiting, and kidney failure. The ACGIH TLV-TWA is 0.2 mg/m^3 of air.

Silver - This compound is toxic. Routes of exposure include inhalation, ingestion, and contact. Symptoms include nasoseptal ulcer, skin irritation/ulcer, anorexia, nausea, vomiting, and eye disturbance.The ACGIH TLV-TWA of the metal is 0.1 mg/m^3 of air and 0.01 mg/m^3 of air for soluble compounds as silver.

Thallium - This compound forms toxic compounds on contact with moisture. Routes of exposure include inhalation, ingestion, contact, and absorption. Symptoms include chest pain, dyspnea, psychiatric disturbances, strabismus, eyelid droop, abdominal pain, nausea, vomiting, diarrhea, hair loss, and kidney and liver failure. The ACGIH TLV-TWA is 0.1 mg/m^3 of air.

3.4.2 Physical Hazards

The anticipated physical hazards are due to the nature of the work involved as well as the site activities and conditions.

Hazards inherent for the field activities may include the following:

1. Heavy equipment traffic;
2. Excavation;
3. Noise;
4. Uneven terrain; and
5. Inclement weather.

3.5 Training Requirements

All on-site technical personnel and visitors shall have training and/or prior experience that meets the requirements of 29 CFR 1910.120. All subcontractor personnel on-site must demonstrate compliance with the training provisions specified in 29 CFR 1910.120.

3.6 Medical Surveillance

All on-site technical personnel shall receive annual physical examinations in accordance with 29 CFR 1910.120(f).

All subcontractor personnel with the potential for chemical exposures are required to have medical monitoring in accordance with 29 CFR 1910.120(f).

All visitors and regulatory personnel who enter the active work areas are expected to demonstrate participation in a medical program in accordance with 29 CFR 1910.120(f).

Prior to entry into the exclusion zone, all subcontractor personnel, visitors, and regulatory personnel shall submit to the Contractor a physician's statement that they are fit for hazardous waste site work and able to wear a respirator with no restrictions.

3.7 Air Monitoring Requirements

Ambient air monitoring shall be conducted with direct reading instrumentation during site entry and daily during the remedial action unless otherwise directed by the Site Engineer. Either an OVA photoionization detector, or flame ionization detector, and a random aerosol monitor (RAM) shall be used for evaluating the airborne concentration of the chemical constituents and particulates. Monitoring will be performed at the site boundary and in the active work area. In addition, one worker, subject to the greatest potential exposure, shall be outfitted with a calibrated, personal air sampling pump. One 8-hour sample will be collected at a minimum of one day of every week that field activities are in progress. Samples will be collected on solid sorbent (VOC monitoring) and filter cartridges (particulate monitoring). A Gilian pump or equivalent will be used for air sample collection. The pump will be calibrated to draw 100 cubic centimeters per second for VOC samples and 2,000 cubic centimeters per minute for particulate samples. The collection tube for VOCs will include a backup section to detect breakthrough or excessive vapor migration. Samples will be analyzed for the constituents listed in Table 1.

4.0 QUALITY CONTROL/VERIFICATION TESTING

4.1 General

This section summarizes inspection and testing requirements for construction and verification that the execution of the Design Plan will meet the intent of the Construction Drawings and Specifications and meet or exceed the design criteria.

Unless otherwise specified, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with performing quality control/verification testing monitoring in accordance with the Construction Drawings and these Specifications.

Quality control/verification testing tasks shall include, but not be limited to, analytical testing of clean cover soil materials, geotechnical testing of the cover soils, and observation of the work to verify that the work is being performed in accordance with these Specifications.

4.1.1 Related Work

All sections included in these Specifications.

4.1.2 Project Organization

A project organization chart is provided as Figure 1 and the organizations involved in the project are described below.

4.1.2.1 Regulatory Agencies

The regulatory agency involved with this project is Region II of the EPA. Its responsibilities include review and approval of these Specifications for compliance with the Consent Decree and the Record of Decision. The NYSDEC will review this plan and provide comments to the EPA. The FSDWAC is a private citizen organization also providing comments to the EPA.

4.1.2.2 PRPs' Designated Representative (Owners Representative)

The PRPs' designated representative is responsible for administration and implementation of the work elements required by the Consent Decree.

4.1.2.3 Design Engineer

The Design Engineer is responsible for providing the Specifications and Construction Drawings and will approve any changes to such.

4.1.2.4 Site Engineer

The Site Engineer is the field representative for the Owner's Representative. The Site Engineer will provide coordination between the Design Engineer, Owner's Representative, and Contractor. The primary responsibility of the Site Engineer is to approve contractor submittals and verify compliance of construction activities with design intent. The engineer reports directly to the Owner's Representative.

The Site Engineer shall review the activities specified in this Quality Control Plan, interface directly with the Superintendent during the construction, and monitor construction to verify that the remedial action is completed in accordance with the established design criteria, Construction Drawings, and Specifications. The Site Engineer shall act at the same authority level as the Superintendent. The Site Engineer has the authority to require that corrective measures be implemented for any work that does not meet the project acceptance/rejection criteria.

4.1.2.5 Contractor

The responsibility of the Contractor is to provide materials and labor to construct the remedial action in accordance with design criteria, plans, and specifications using the construction procedures, techniques, and schedules as presented in these specifications. The Contractor must also implement the corrective measures directed by the Site Engineer for work or materials that do not meet project acceptance/rejection criteria. The

Contractor has the authority to direct and manage its employees and the equipment they use to accomplish the construction. The Contractor shall designate a Superintendent to represent the Contractor. The Superintendent shall be on-site during all construction activities. The Contractor shall also designate a Field Engineer responsible for conducting all quality control testing, documentation, and reporting required as outlined in this section.

The Contractor shall also employ the services of a Surveyor, Geotechnical Testing Laboratory, and Chemical Analytical Testing Laboratory responsible to the Field Engineer.

4.2 Products

Testing and reporting forms used to document the work shall be submitted to the Site Engineer for approval.

4.3 Execution

4.3.1 Borrow Soil Laboratory Testing

Chemical analytical testing of borrow soils shall be performed by the Contractor to ensure the cover soil is free of undesirable constituents. The Contractor's field engineer shall document all sample locations and methods. Two samples shall be collected from the borrow soil and tested in accordance with EPA test methods for all constituents on the Superfund TCL, for semi VOCs, VOCs, pesticides/PCBs, and metals. Laboratory results shall be submitted to the Site Engineer for approval prior to placing the cover soil.

In addition, geotechnical testing of the cover soil shall be performed in accordance with ASTM D 422 for gradation and ASTM D 4318 for Atterberg limits. One test shall be performed along with each analytical test sample. These results shall be used to classify the soil in accordance with the Unified Soil Classification System. The cover soil shall classify

as either silty sand, clayey sand, clay, or silt with no material larger than two inches in diameter.

4.3.2 Soil Cover Compaction and Testing

Inspection and testing of all earth moving shall be performed by the Contractor's Field Engineer to ensure that specified materials are placed and compacted as designated on the Construction Drawings and in these Specifications. The loose thickness of the lifts of material and evaluations shall be verified to ensure compliance to the specification requirements for the materials being placed. Inspection shall verify that the compaction of the material is sufficient to meet the compaction specification requirements.

Documentation of all soil testing and placing shall be conducted by the Contractor's Field Engineer on Daily Field Activity Logs and test procedure forms. Documentation of placing the cover soil shall verify that the material was placed by procedures which did not contaminate the clean soil cover.

In-place field density tests and laboratory moisture-density tests shall be performed to further evaluate compaction. All in-place density testing will be performed in accordance with ASTM D 2922, "Density of Soil and Soil-Aggregate In Place by Nuclear Methods," and ASTM D 3017, "Moisture Content of Soil and Soil-Aggregate In Place by Nuclear Methods." Periodic testing in accordance with ASTM D 1566, "Density of Soil In Place by the Sand Cone Method," may be required to verify compaction results of nuclear methods. Corrections shall be made to values obtained by nuclear methods based on sand cone values, if required. Moisture contents for rapid field evaluation purposes shall be determined either by using a speedy moisture meter (AASHTO T217) or an on-site microwave oven to verify moisture content values obtained by nuclear methods.

The Contractor's Field Engineer shall perform one in-place moisture-density test for every 200 cy of soil placed above the existing grade. In addition, a minimum of one in-place moisture-density test shall be taken per lift. Any fill which is placed and tested that does not meet the specified compaction and moisture requirements shall be reworked, recompacted, and retested until the compaction and/or moisture specifications are met.

The Contractor's Field Engineer shall perform one moisture-density relationship, gradation, and Atterberg Limits test for each soil cover type encountered. Moisture-density relationships shall be determined in accordance with ASTM D 698 or ASTM D 2049.

4.3.3 Survey Control

The Contractor shall provide all survey control based on two reference points to be established by the Contractor using data provided by the Site Engineer. The Contractor shall provide a Surveyor, other personnel, and equipment to provide survey control of the Work. The Surveyor shall be qualified to perform all aspects of the control of the Work, shall possess registration as a Professional Land Surveyor in the state of New York, and shall be subject to prior approval by the Site Engineer.

The Contractor shall provide a detailed baseline and completion survey of all areas to be disturbed, prior to and after disturbing, in order to provide adequate bases for the calculation of payment quantities and certification of compliance with the design plan, Construction Drawings, and Specifications. The Contractor's Field Engineer shall verify the quality of the survey and report in Daily Field Activity Logs.

4.4 Records

Weekly inspection reports shall be written by the Contractor's Field Engineer that address the adequacy, progress, and details of construction activities. The reports shall include the results of visual inspection, measurements, and daily tests performed in the laboratory and in the field. Volumes of emplaced materials and the number of field and laboratory tests

performed on each material on a weekly basis shall be summarized. The inspection and test reports shall become part of the permanent record of the implementation of the Remedial Action. All reports shall be submitted to the Site Engineer by Tuesday of the week following completion of the work. Copies of the weekly inspection report shall be made available in a timely fashion, to the EPA, NYSDEC, and FSDWAC or their designated representatives.

Records shall include the date, name of the tester, items inspected or tested, type of inspection or test, identification of test method, results, acceptability and acceptance criteria, and name and initials of the reviewer. The records shall also identify the testing equipment or instruments used in performing the test. When documenting deviations, nonconformances, and stop work order situations, the report shall provide sufficient details so that acceptability of the necessary corrective action and final resolution can be independently reviewed. All records of activities, measurements, and testing shall be submitted to the Site Engineer.

5.0 EROSION AND SEDIMENT CONTROL PLAN

The Erosion and Sediment Control Plan is prepared for the remedial action at the PAS Clothier site and provides additional detail related to temporary erosion control. This plan is prepared in accordance with the New York Guidelines for Urban Erosion and Sediment Control, March 1989, and provides temporary controls during construction to minimize erosion and sediment problems.

Temporary structural erosion and sediment controls are presented in this plan for use during construction. Permanent erosion and sediment controls and revegetation are presented in Section 2.4 of the Specifications. The temporary structural erosion and sediment controls which will be used during the course of the remedial action consist of:

1. Installation of silt fence;

2. Construction of a perimeter dike/swale; and

3. Construction of swale outlet sediment traps.

The silt fence is a temporary barrier of geotextile fabric (filter cloth) used to intercept sediment laden runoff from small drainage areas of disturbed soil. The purpose of the silt fence is to reduce runoff velocity and cause deposition of transported sediment load. The silt fence shall be installed prior to clearing and grubbing and remain until the vegetation prevents sediment migration to the wetland. The silt fence shall be removed during clearing and grubbing, regrading, soil cover placement, and revegetation when it interfere with these activities but will be replaced each evening or if a rainfall event begins while the silt fence is down.

The perimeter dike/swale is a temporary ridge of soil excavated from an adjoining swale located along the perimeter of the disturbed area. The purpose of the perimeter dike/swale is to prevent off-site runoff from entering the disturbed area or, when used along the base of slopes, to direct sediment laden flows to a trapping device.

The swale outlet sediment traps consist of traps formed by overexcavating a swale. The outlet is controlled by the invert of the downstream swale. The swale sediment traps will be placed in drainage swales just before the swale enters the wetland. The purpose of the swale outlet sediment traps is to intercept sediment-laden runoff and trap the sediment in order to protect the wetland.

Specifications for the construction of these temporary structural erosion and sediment control devices are presented in the following sections.

5.1 Silt Fence

5.1.1 General

5.1.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, and required equipment, and shall perform all operations in connection with installation of the silt fence in accordance with the Construction Drawings and these Specifications.

5.1.1.2 Related Work

Section 2.0 - Site Work
Section 5.2 - Perimeter Dike/Swale
Section 5.3 - Swale Outlet Sediment Traps

5.1.2 Products

5.1.2.1 Silt Fence Fabric (for Fabricated Units)

The fabric shall meet the following specifications unless otherwise approved by the Site Engineer.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D 4632
Elongation at Failure (percent)	50	ASTM D 4632
Mullen Burst Strength (psi)	190	ASTM D 3786
Puncture Strength (lbs)	40	ASTM D 3787 (modified)
Water Flow Rate (gal/min/sf)	0.3	ASTM D 4491
Equivalent Opening Size (US Std. Sieve)	40 - 80	COE CW-02215
Ultraviolet Radiation Stability (percent)	90	ASTM D 4355

5.1.2.2 Fence Posts (for Fabricated Units)

The length of the fence posts shall be a minimum of 36 inches. Wood posts shall be of sound hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts shall be a standard T or U section weighing not less than 1.00 pounds per linear foot.

5.1.2.3 Wire Fence (for Fabricated Units)

Wire fencing shall be a minimum 14-1/2 gage with a maximum 6-inch mesh opening.

5.1.2.4 Prefabricated Silt Fence

Prefabricated silt fence shall be Envirofence, Geofab, or equivalent product approved by the Site Engineer.

5.1.3 Execution

The Contractor shall install the silt fence at the location shown on Sheet 3 of the Construction Drawings and as shown on Sheet 4 of the Construction Drawings.

For a fabricated silt fence, the Contractor shall install the posts along the alignment shown for the silt fence with a maximum spacing of 10 feet, center to center, and a minimum 8 inches into the ground. The Contractor shall fasten the woven wire fence to the posts with wire ties or staples and fasten the filter fabric to the woven wire fence with tie spaced every 24 inches at the top and midsection. When two sections of filter fabric adjoin each other, they shall be overlapped by six inches and folded.

For a prefabricated silt fence, the Contractor shall install the silt fence as per the manufacturer's instructions.

The silt fence shall be reinstalled after placement of the soil cover and maintained until vegetation is reestablished, and then removed.

5.2 Perimeter Dike/Swale

5.2.1 General

5.2.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with the construction of the perimeter dike/swale in accordance with the Construction Drawings and these Specifications.

5.2.1.2 Related Work

Section 2.0 - Site Work
Section 5.1 - Silt Fence
Section 5.3 - Swale Outlet Sediment Trap

5.2.2 Products

Not applicable.

5.2.3 Execution

The Contractor shall construct a perimeter dike/swale at the location shown on Sheet 3 of the Construction Drawings and to the dimensions shown on Sheet 5 of the Construction Drawings. The perimeter dike/swale shall be constructed with an 18-inch minimum height from the bottom of the swale to the top of the dike evenly divided between dike height and swale depth. The bottom width of the dike and swale shall maintain positive drainage but not exceed a 20 percent slope. The runoff from the swale shall be diverted to the swale outlet sediment trap.

The perimeter dike/swale will not be vegetated due to the anticipated short duration of the project. The perimeter dike/swale shall be maintained until completion of the soil cover placement.

5.3 Swale Outlet Sediment Trap

5.3.1 General

5.3.1.1 Scope of Work

Unless otherwise specified by the Site Engineer, the Contractor shall furnish all labor, materials, required equipment, and shall perform all operations in connection with the construction of the swale outlet sediment trap in accordance with the Construction Drawings and these Specifications.

5.3.1.2 Related Work

Section 2.0 - Site Work
Section 5.1 - Silt Fence
Section 5.2 - Perimeter Dike/Swale

5.3.2 Products - Synthetic Liner

The Synthetic liner shall be a 40 mil High Density Polyethylane (HDPE) liner unless otherwise approved by the Site Engineer.

5.3.3 Execution

Swale outlet sediment traps shall be installed at the locations shown on Sheet 3 of the Construction Drawings and to the dimensions shown on Sheet 4 of the Construction Drawings. The synthetic liner shall be anchored with sand bags placed at 10-foot intervals along its perimeter. The sediment shall be removed and the trap restored when the sediment has accumulated to half the design depth of the trap. The structure shall be inspected after each rain and repairs made as needed. Removed sediment shall be deposited in the area requiring soil cover, allowing for soil to be placed over the sediments. The swale outlet sediment trap shall be removed by removing the liner for disposal and backfilling the depression with clean soil at the conclusion of the soil cover placement and revegetated with the other areas.

TABLES

TABLE 1
AIR SAMPLE ANALYSES

Test Method/Analyte

NIOSH 0500
- Nuisance Dusts
- Calcium Carbonate
- Cellulose
- Glycerin Mist
- Limestone

NIOSH PCANM-3
- 2-Butanone

NIOSH 1003
- Benzyl chloride
- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chlorobromomethane
- Chloroform
- o-dichlorobenzene
- p-dichlorobenzene
- 1,1-dichloroethane
- 1,2-dichloroethylene
- Ethylene dichloride
- Hexachloroethane
- Methylchloroform
- Tetrachloroethylene
- 1,1,2-trichloroethane
- 1,2,3-trichloropropane

NIOSH 1005
- Methylene Chloride

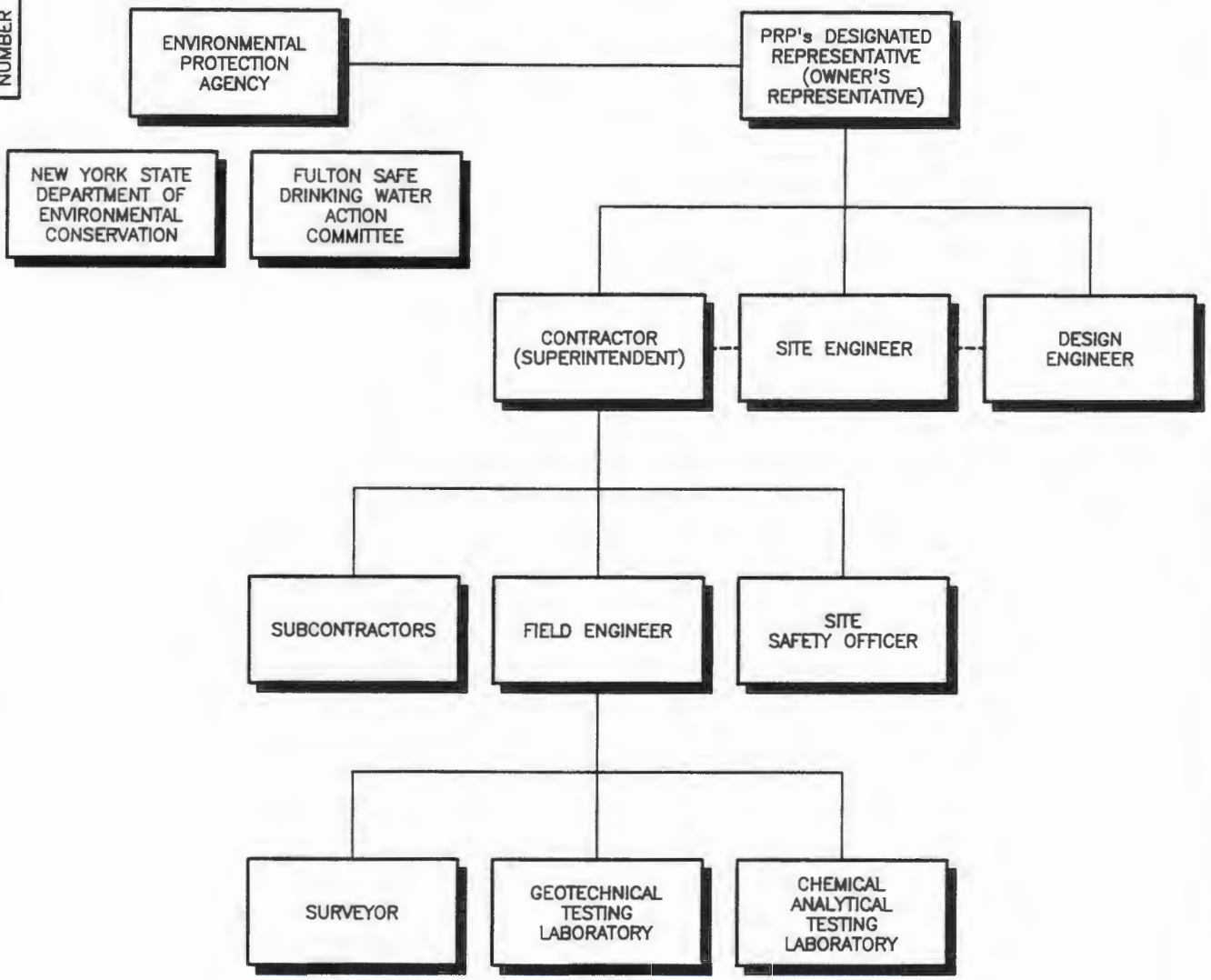
NIOSH 1300
- Acetone

NIOSH 1500
- Cyclohexane
- Cyclohexene
- n-heptane
- n-hexane
- Methylcyclohexane
- n-octane
- n-pentane
- Toluene

NIOSH 1501
- Benzene
- P-tert-butyltoluene
- Cumene
- Ethylbenzene
- Methyl styrene
- Napthalene
- Styrene
- Xylene

FIGURES

DRAWING NUMBER 88-209-A39



LEGEND:

PRP's POTENTIALLY RESPONSIBLE PARTIES

PROJECT ORGANIZATION CHART

PREPARED FOR

PAS CLOTHIER SITE
GRANBY, NEW YORK

CanonieEnvironmental

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	6-19-91	ISSUED FOR CONSTRUCTION	R.H.	JMK	DHG
1	5-14-91	ISSUED FOR AGENCY REVIEW	P.M.W.	T.M.K.	D.H.G.

DATE: 5-6-91
SCALE: N.T.S.

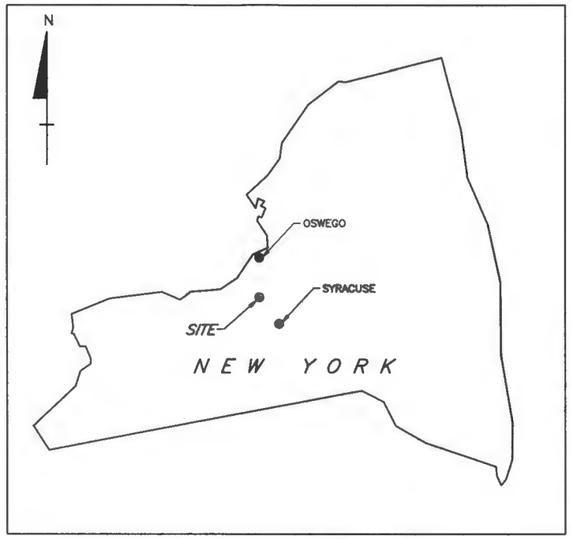
FIGURE 1

DRAWING NUMBER 88-209-A39

APPENDIX A

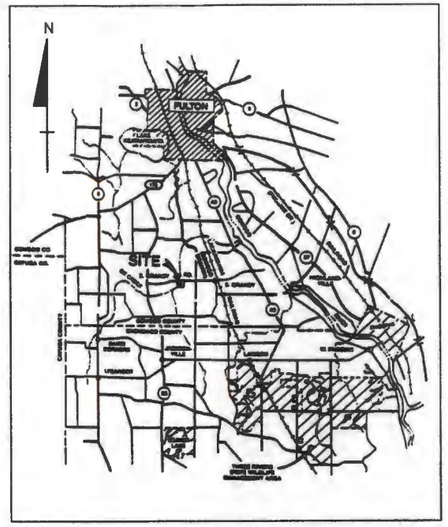
CONSTRUCTION DRAWINGS

DRAWING NUMBER 88-209-E35



LOCATION MAP

INDEX OF DRAWINGS		
SHEET NO.	DRAWING NO.	TITLE
1 of 5	88-209-E35	TITLE SHEET
2 of 5	88-209-E36	SITE PLAN
3 of 5	88-209-E38	SOIL COVER LIMITS AND FINAL GRADING PLAN
4 of 5	88-209-E37	SOIL COVER, MONITORING WELL AND EROSION CONTROL SECTIONS AND DETAILS
5 of 5	88-209-E34	REMEDIAL CONSTRUCTION SCHEDULE



VICINITY MAP

SCALE
2 0 2 MILES

CONSTRUCTION DRAWINGS

PREPARED FOR

PAS CLOTHIER SITE
GRANBY, NEW YORK

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	6-17-91	ISSUED FOR CONSTRUCTION	R.H.	T.M.K.	D.H.G.
1	5-14-91	ISSUED FOR AGENCY REVIEW	M.T.H.	T.M.K.	D.H.G.

STATE OF NEW YORK JOSEPH E. [illegible] 061854-1 LICENSED PROFESSIONAL ENGINEER

TITLE SHEET
PREPARED FOR
PAS CLOTHIER SITE
GRANBY, NEW YORK

CanonieEnvironmental

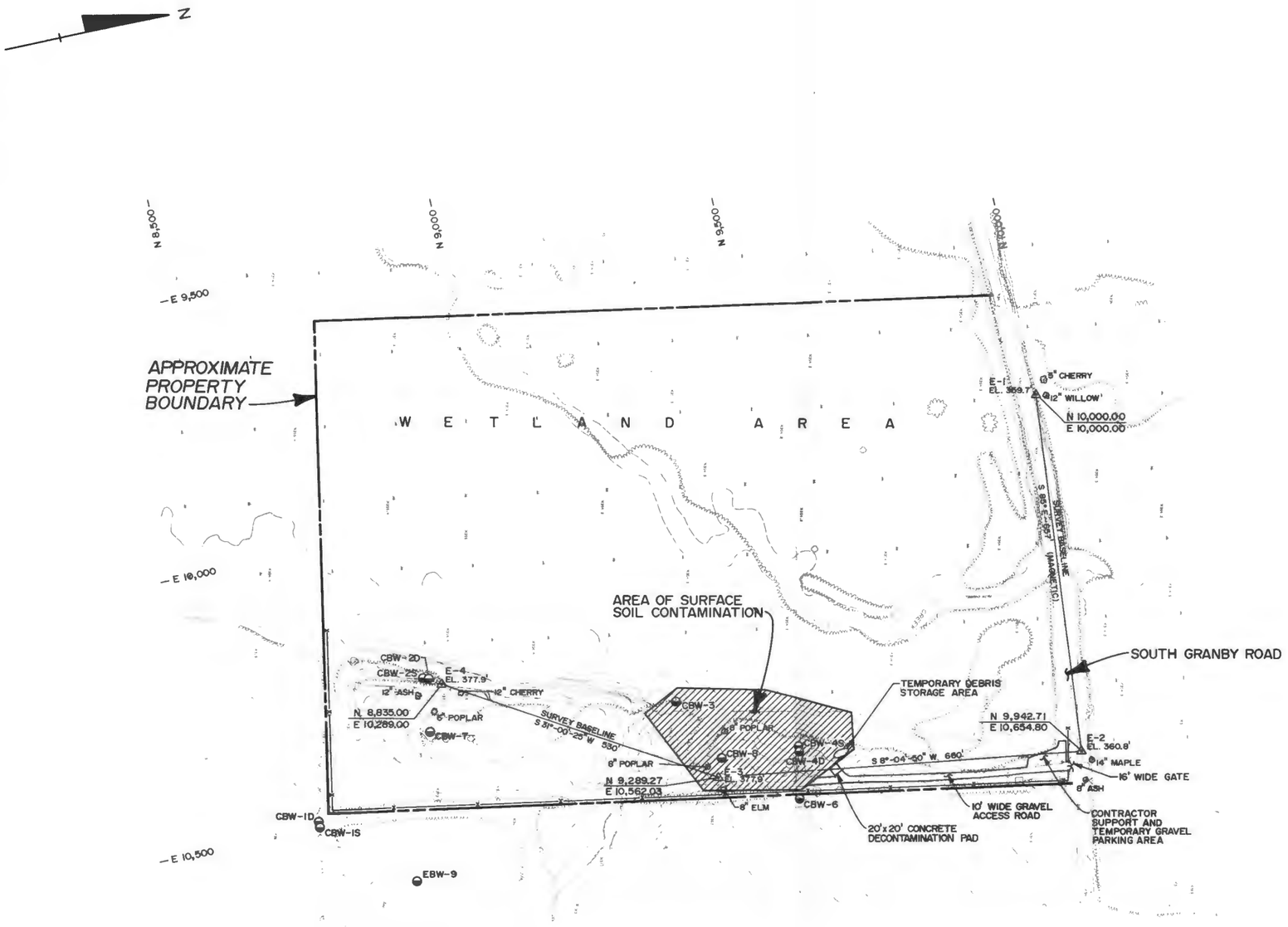
DATE: 5-1-91	SHEET 1 of 5	DRAWING NUMBER 88-209-E35	REV. 2
SCALE: AS SHOWN			

88-209-E16

DRAWING NUMBER 88-209-E36

E15 88-209-E15 9-7-90

E16



MONITORING WELL COORDINATES (a)		
MONITORING WELL	NORTHING	EASTING
CBW-1D	8,585.0	10,487.3
CBW-1S	8,584.5	10,497.4
CBW-2D	8,814.4	10,274.4
CBW-2S	8,804.9	10,271.2
CBW-3	9,243.4	10,408.4
CBW-4D	9,441.8	10,545.9
CBW-4S	9,442.7	10,536.1
CBW-6	9,428.3	10,529.1
CBW-7	8,796.5	10,369.8
CBW-9	9,302.4	10,528.9
EBW-9	NOT AVAILABLE	NOT AVAILABLE

(a) COORDINATES WERE SURVEYED BY MODI ASSOCIATES, CLAY, NEW YORK ON MAY 29, 1990.

NOTE:

1. HORIZONTAL COORDINATES ARE REFERENCED TO A SELECTED PROJECT CONTROL NETWORK. VERTICAL ELEVATIONS ARE BASED ON THE UNITED STATES COASTAL AND GEODETIC SURVEY (USC&GS) MEAN SEA LEVEL DATUM OF 1929.

LEGEND:

- CBW-6 — EXISTING GROUND WATER MONITORING WELL LOCATION AND DESIGNATION
- E-2 — EXISTING BASELINE CONTROL POINT (REBAR) LOCATION AND DESIGNATION
- —x— 6' HIGH CHAIN LINK FENCE WITH THREE STRANDS OF BARBED WIRE (TO BE CONSTRUCTED)

SCALE
100 0 100 200 FEET

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	6-17-91	ISSUED FOR CONSTRUCTION	R.H.	SMK	DHG
1	5-14-91	ISSUED FOR AGENCY REVIEW	M.B.H.	SMK	DHG

REFERENCE:
COMPILED BY: LOCKWOOD SUPPORT SERVICES.
DATED: 3-26-86. SCALE: 1" = 50'.

JOSEPH E. MAY — STATE OF NEW YORK — 061854-1 — PROFESSIONAL ENGINEER

SITE PLAN

PREPARED FOR

PAS CLOTHIER SITE
GRANBY, NEW YORK

CanonieEnvironmental

DATE: 5-1-91	SHEET 2 of 5	DRAWING NUMBER 88-209-E36	2
SCALE: AS SHOWN			

9-7-90 88-209-E15

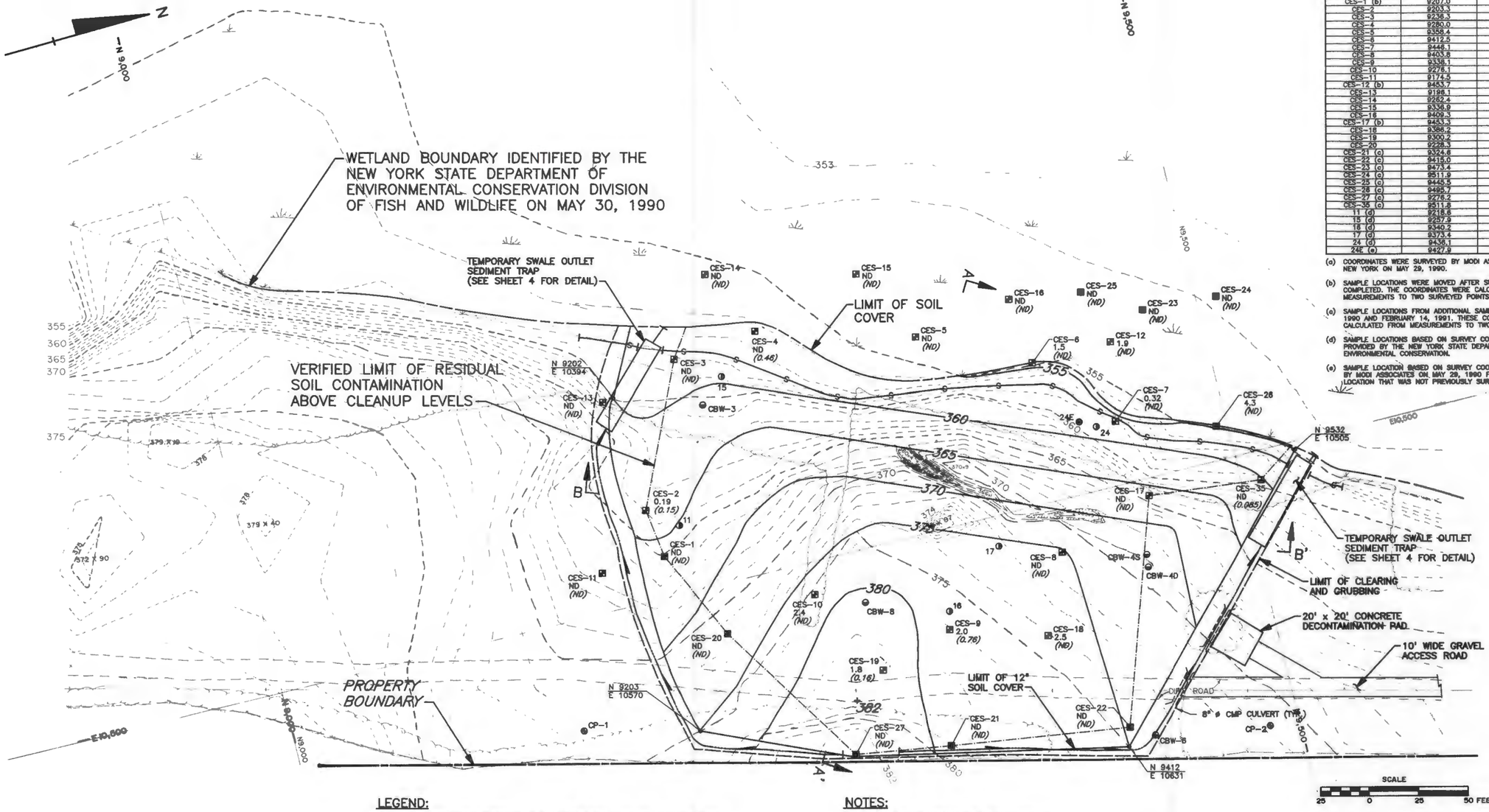
88-209-E16

88-209-E10

DRAWING NUMBER 88-209-E38

88-209-E12 M.B.M. 9-5-90

E10 E12



SURVEY COORDINATES (a)		
SAMPLE NUMBER	NORTHING	EASTING
CES-1 (b)	9207.0	10479.3
CES-2	9203.3	10453.8
CES-3	9236.3	10381.8
CES-4	9280.0	10377.7
CES-5	9358.4	10400.8
CES-6	9412.5	10428.3
CES-7	9446.1	10487.7
CES-8	9403.8	10508.4
CES-9	9338.1	10551.5
CES-10	9276.1	10516.9
CES-11	9174.5	10479.8
CES-12 (b)	9453.7	10427.4
CES-13	9198.1	10394.5
CES-14	9262.4	10343.3
CES-15	9338.9	10361.9
CES-16	9409.3	10363.5
CES-17 (b)	9453.3	10508.7
CES-18	9386.2	10568.2
CES-19	9300.2	10563.0
CES-20	9228.3	10525.6
CES-21 (c)	9324.6	10609.7
CES-22 (c)	9415.0	10622.5
CES-23 (c)	9473.4	10415.2
CES-24 (c)	9511.9	10417.5
CES-25 (c)	9445.5	10399.1
CES-26 (c)	9495.7	10482.3
CES-27 (c)	9276.2	10602.2
CES-35 (c)	9511.8	10515.6
11 (d)	9218.6	10465.5
15 (d)	9257.9	10396.9
16 (d)	9340.2	10543.8
17 (d)	9373.4	10519.7
24 (d)	9436.1	10468.5
24E (e)	9427.9	10463.6

(a) COORDINATES WERE SURVEYED BY MODI ASSOCIATES, CLAY, NEW YORK ON MAY 29, 1990.

(b) SAMPLE LOCATIONS WERE MOVED AFTER SURVEY WAS COMPLETED. THE COORDINATES WERE CALCULATED FROM MEASUREMENTS TO TWO SURVEYED POINTS.

(c) SAMPLE LOCATIONS FROM ADDITIONAL SAMPLING ON JULY 23, 1990 AND FEBRUARY 14, 1991. THESE COORDINATES WERE CALCULATED FROM MEASUREMENTS TO TWO SURVEYED POINTS.

(d) SAMPLE LOCATIONS BASED ON SURVEY COORDINATES PROVIDED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

(e) SAMPLE LOCATION BASED ON SURVEY COORDINATES PROVIDED BY MODI ASSOCIATES ON MAY 29, 1990 FOR THE STAKED LOCATION THAT WAS NOT PREVIOUSLY SURVEYED.

REFERENCE:
TOPOGRAPHY PROVIDED BY MODI ASSOCIATES CLAY, N.Y. CHECKED BY DOUGLAS J. REITH, P.L.S. MAP TITLED, "TOPOGRAPHIC SURVEY" DATED: 7/89, REVISED: 8/90 SCALE: 1"=25'.

LEGEND:

- CES-20 — CANONIE SURFACE SOIL SAMPLING LOCATION, MAY 30, 1990
- CES-21 — CANONIE SURFACE SOIL SAMPLING LOCATION, JULY 23, 1990
- CES-35 — CANONIE SURFACE SOIL SAMPLING LOCATION, FEBRUARY 14, 1991
- 24E — REM III BORING, OCTOBER 1987
- 16 — NYSDEC SOIL BORING, FEBRUARY 1988
- CBW-8 — EXISTING GROUND WATER MONITORING WELL LOCATION
- CP-1 — PERMANENT SURVEY CONTROL POINT (TO BE CONSTRUCTED)
- 2.4 — CONCENTRATION OF PCBs IN SOIL, ppm
- (0.085) — CONCENTRATION OF CPAHs IN SOIL, ppm
- --380-- — EXISTING TOPOGRAPHY, FEET
- —380— — FINAL GRADE CONTOUR, FEET (S Ξ NOTE 2)
- —S— — SILT FENCE (SEE SHEET 4 FOR DETAIL)
- —···— — PERIMETER SWALE/DIKE (SEE SHEET 4 FOR DETAIL)

NOTES:

1. SEE SHEET 4 FOR CROSS SECTIONS.
2. CONTOURS REPRESENT THE TOP OF THE 12 INCH SOIL COVER IN THE REGRADED AREA.
3. PERMANENT SURVEY CONTROL POINTS WILL BE ESTABLISHED NEAR THE LOCATIONS SHOWN. COORDINATES FOR THE CONTROL POINTS SHALL BE ESTABLISHED AND RECORDED.
4. GROUND WATER MONITORING WELLS CBW-3, CBW-4S, CBW-4D, AND CBW-8 WILL BE EXTENDED 2.0 FEET TO ACCOMODATE PLACEMENT OF CLEAN SOIL COVER.
5. HORIZONTAL COORDINATES ARE REFERENCED TO A SELECTED PROJECT CONTROL NETWORK. VERTICAL ELEVATIONS ARE BASED ON THE UNITED STATES COASTAL AND GEODETIC SURVEY (USC&GS) MEAN SEA LEVEL DATUM OF 1929.
8. THE CONTRACTOR SHALL PROTECT ALL EXISTING GROUND WATER MONITORING WELLS DURING REGRADING AND SOIL COVER PLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING WELLS DAMAGED DURING CONSTRUCTION.

9-5-90
88-209-E12

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	6-17-91	ISSUED FOR CONSTRUCTION	R.H.	CMK	DHG
1	5-14-91	ISSUED FOR AGENCY REVIEW	P.M.W.	T.M.K.	D.H.G.

STATE OF NEW YORK JOSEPH E. MODI 061854-1 PROFESSIONAL ENGINEER

SOIL COVER LIMITS AND FINAL GRADING PLAN

PREPARED FOR

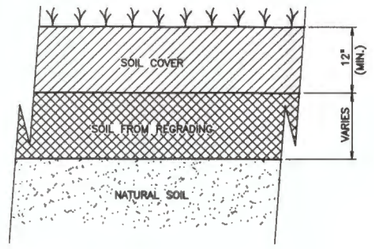
PAS CLOTHIER SITE
GRANBY, NEW YORK

CanonieEnvironmental

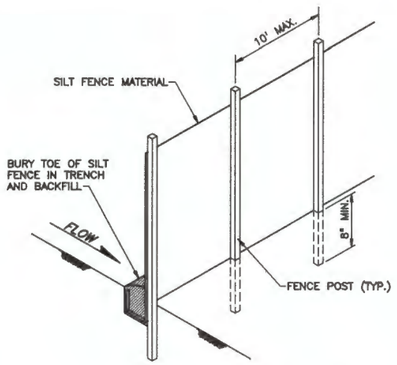
DATE: 5-1-91	SHEET 3 of 5	DRAWING NUMBER 88-209-E38	2
SCALE: AS SHOWN			

88-209-E10

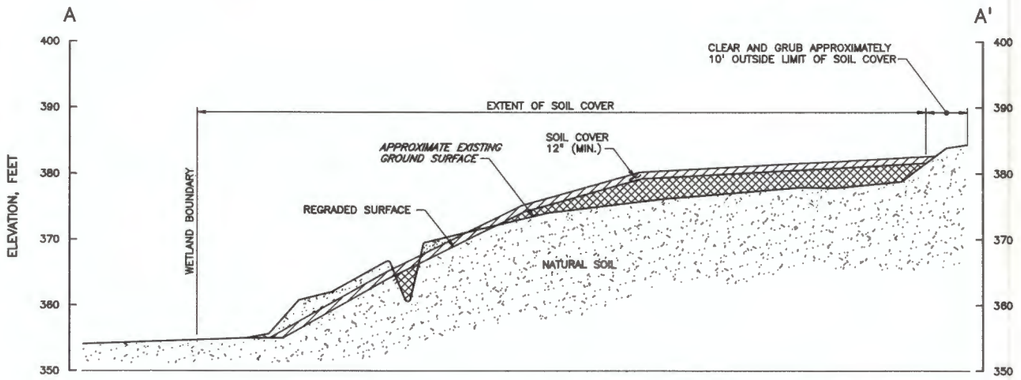
DRAWING NUMBER 88-209-E37



SOIL COVER CROSS SECTION
NOT TO SCALE

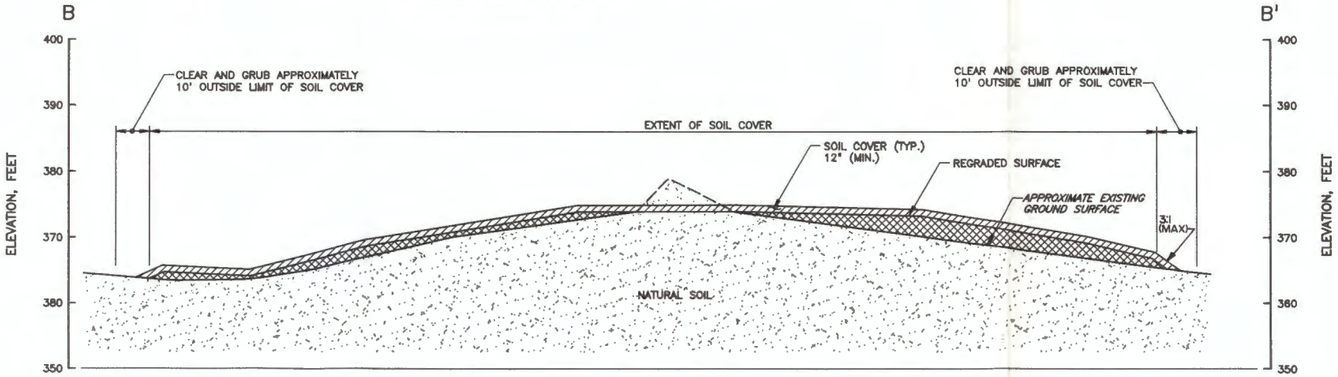


SILT FENCE DETAIL
NOT TO SCALE



SECTION A–A'

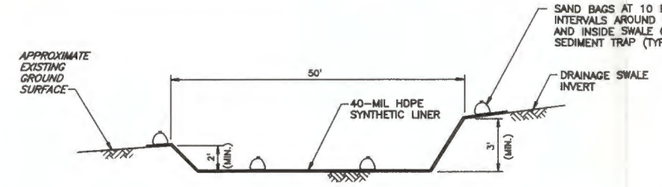
VERTICAL SCALE 10 0 10 FEET
HORIZONTAL SCALE 20 0 20 FEET
VERTICAL EXAGGERATION = 2X



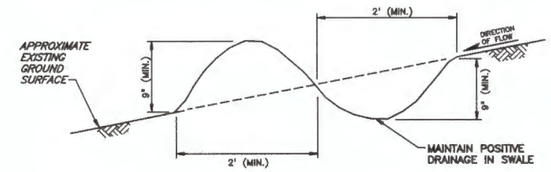
SECTION B–B'

VERTICAL SCALE 10 0 10 FEET
HORIZONTAL SCALE 20 0 20 FEET
VERTICAL EXAGGERATION = 2X

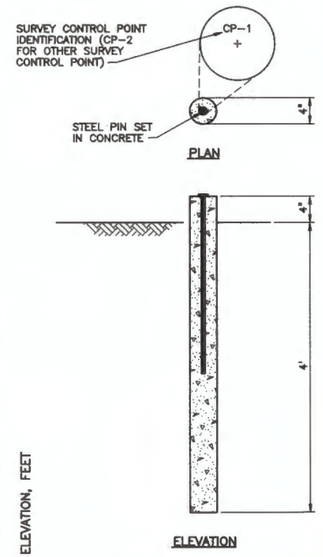
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	6-17-91	ISSUED FOR CONSTRUCTION	R.H.	SMK	DHG
1	5-14-91	ISSUED FOR AGENCY REVIEW	P.M.W.	T.M.K.	D.H.G.



SWALE OUTLET SEDIMENT TRAP DETAIL
NOT TO SCALE

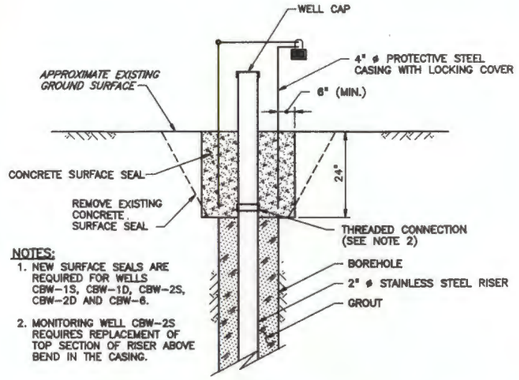


PERIMETER SWALE AND DIKE DETAIL
NOT TO SCALE



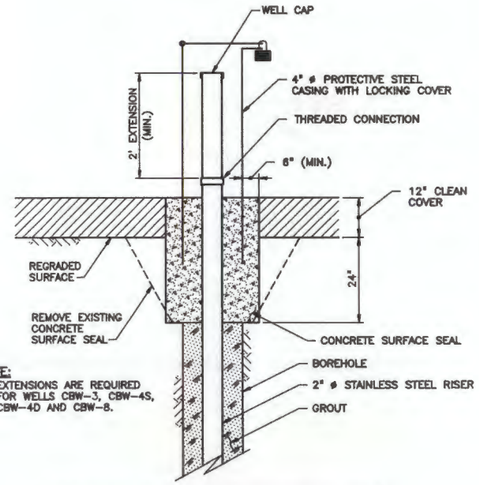
PERMANENT SURVEY CONTROL POINT DETAIL
NOT TO SCALE

NOTE:
1. FOR PLAN LOCATIONS OF CROSS SECTIONS A–A' AND B–B' SEE SHEET 3.



NOTES:
1. NEW SURFACE SEALS ARE REQUIRED FOR WELLS CBW-1S, CBW-1D, CBW-2S, CBW-2D AND CBW-6.
2. MONITORING WELL CBW-2S REQUIRES REPLACEMENT OF TOP SECTION OF RISER ABOVE BEND IN THE CASING.

GROUND WATER MONITORING WELL DETAIL
NOT TO SCALE



NOTE:
1. EXTENSIONS ARE REQUIRED FOR WELLS CBW-3, CBW-4S, CBW-4D AND CBW-8.

GROUND WATER MONITORING WELL WITH EXTENSION DETAIL
NOT TO SCALE

SOIL COVER, MONITORING WELL AND EROSION CONTROL SECTIONS AND DETAILS

PREPARED FOR

PAS CLOTHIER SITE
GRANBY, NEW YORK

Canonie Environmental

DATE:	4-30-91	SHEET 4 of 5	DRAWING NUMBER	2
SCALE:	AS SHOWN		88-209-E37	

DRAWING NUMBER 88-209-E34

ACTIVITY/MILESTONE EVENT	JUNE	JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER			
	1	8	15	22	29	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16	24
EPA APPROVAL OF REMEDIAL DESIGN PLAN	▲																									
CONTRACT NEGOTIATIONS																										
SAMPLE BORROW SOIL																										
ANALYSIS OF BORROW SOIL																										
DATA VALIDATION																										
PREPARE WORK PLANS																										
PRECONSTRUCTION/MOBILIZATION MEETING																										
MOBILIZATION																										
INSTALL PERIMETER FENCE																										
CLEAR AND GRUB																										
REGRADE SITE																										
PLACE SOIL COVER																										
REVEGETATE AFFECTED AREAS OF SITE																										
REPAIR GROUND WATER MONITORING WELLS																										
SITE CLEANUP																										
DEMOBILIZATION																										
EPA INSPECTION/REVIEW OF REMEDIAL ACTION																										

NOTE:

1. TIME BASED ON 5 DAY WORK WEEK.

LEGEND:

▲ MILESTONE EVENT

EARLY START, EARLY FINISH ACTIVITY

LATE START, LATE FINISH ACTIVITY

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
2	5-17-91	ISSUED FOR CONSTRUCTION	R.H.	TMK	DHG
1	5-14-91	ISSUED FOR AGENCY REVIEW	M.T.H.	T.M.K.	D.H.G.

STATE OF NEW YORK · JOSEPH E. MOSS · 061854-1 · LICENSED PROFESSIONAL ENGINEER

REMEDIAL CONSTRUCTION SCHEDULE

PREPARED FOR

PAS CLOTHIER STIE

GRANBY, NEW YORK

CanonieEnvironmental

DATE:	4-30-91	SHEET 5 of 5	DRAWING NUMBER	REV.
SCALE:	AS SHOWN		88-209-E34	2