OPERATION AND MAINTENANCE MANUAL

CARROLL LANDFILL

CARROLL, NEW YORK

SEALAND WASTE, LLC

Prepared on behalf of:

Sealand Waste, LLC
85 High Tech Drive
Rush, New York 14543

Prepared by:

DAIGLER ENGINEERING P.C.
2620 Grand Island Blvd.
Grand Island, New York 14072

March 2012

Last Revised May 2017

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1 INTRODUCTION

Sealand Waste, LLC (Sealand), a private enterprise headquartered in Rush, New York, is proposing to purchase the 53.9-acre parcel of land containing the existing Jones Carroll Landfill, a Construction and Demolition (C&D) Debris landfill in the Town of Carroll, Chautauqua County, New York from Carol L. Jones. The site is located on Dodge Road in the Town of Carroll, Chautauqua County, New York, approximately one mile north of the New York/Pennsylvania State line.

Sealand intends to continue the land disposal activity beyond the three acre limit identified in the most recent New York State Department of Environmental Conservation (NYSDEC) Permit (#9-0624-00025/00002-0 expired October 31, 2007). In support of the land disposal operation, the facility will also include stormwater, landfill gas, and leachate management infrastructure, C&D waste recycling and yard waste composting operations.

Sealand proposes to construct, operate, close, and monitor an approximate 35-acre, double composite liner system landfill for the disposal of C&D waste streams. Sealand plans to remove the existing waste from the three-acre footprint, and place the material inside the double composite liner system for the expanded landfill footprint in accordance with the applicable local, state, and federal requirements. The expanded landfill is expected to consist of four cells.

This Operation and Maintenance (O&M) Manual provides information reflecting the day-to-day Solid Waste Management Facility (SWMF) operations throughout its active life, in accordance with the Part 360 regulations addressing the sequencing of the primary site activities and demonstrating that the operation and reporting requirements set forth in the regulations are met.

This O&M Manual includes a general description of the facility's overall operation, including information regarding the following aspects of that operation:

- Facility personnel responsibilities and duties, including lines of authority and the implementation of a training program addressing waste identification and restriction procedures;
- A brief description of the site's facilities covered in this O&M manual;

- Machinery and equipment used at the site;
- Operational controls, including signs, hours and days of operation and traffic controls;
- The anticipated amount, type, and rate of waste receipts;
- Waste receiving and monitoring process, including a brief description of the convenience station for smaller, private vehicles and operations at the working face;
- Winter and inclement weather operations;
- Facility performance monitoring and inspections;
- Landfill fire prevention, and procedures taken in the event of a landfill fire;
- A description of the phasing of site development including waste fill progression;
- Types and functions of discretionary, intermediate, interim and final cover;
- Leachate management;
- Landfill gas management;
- Environmental monitoring; and,
- Record keeping and reporting requirements.

Appendix A includes samples of pertinent reporting forms and logs. The phasing plan is found in Appendix B. Health and safety issues are addressed in the Site Specific Health and Safety Plan (See Appendix E).

2 PERSONNEL MANAGEMENT

2.1 MANAGEMENT ORGANIZATION

Sealand is responsible for the management of the facility and its related support operations. The organizational structure for the operation is presented in Figure 2-1. Typically, between eight and 15 employees' will carry out the facility operation and construction requirements. This level of staffing varies primarily based on the daily in flow of materials, and the intensity of the construction activities.

2.2 PERSONNEL RESPONSIBILITIES

The following presents an overview of the responsibilities of site personnel.

2.2.1 Chief Operating Officer

The Chief Operating Officer is responsible for establishing and promoting the Corporations' goals and policies in collaboration with other top executives of the Corporation. The Chief Operating Officer communicates and meets frequently with subordinates to ensure that operations are conducted in accordance with these established policies. The Chief Operating Officer retains overall accountability; however, senior managers are routinely delegated several important responsibilities, especially including the authority to oversee and direct the activities of site personnel, and implement the organization's policies on a day-to-day basis.

2.2.2 General Manager

The General Manager reports directly to the Chief Operating Officer and is directly responsible for the proper and efficient operation of the SWMF. The General Manager is responsible for managing staff assigned to site operations, as well as in-house and contracted services. In his capacity as General Manager this individual is directly responsible for the proper management and implementation of all institutional requirements, notably including environmental compliance, permitting, and regulatory reporting. The General Manager is available for duty seven days a week, and is on call while away from his post.

In summary the General Manager is responsible for:

- Managing the overall operation and maintenance of the SWMF;

- Approving the utilization of equipment, personnel, and materials for various construction and site operations;
- As appropriate, assisting in the preparation of engineering plans, reports and specifications prepared by the in-house engineering group and consultants;
- Approving engineering plans, reports and specifications prepared by the in-house engineering group and consultants;
- Reviewing inspection reports to assess the performance and continued integrity of all monitoring and environmental control systems;
- Reviewing calculations and cost estimates or other documents related to construction and operation activities managed by the corporation's staff;
- Conferring with senior management regarding personnel, equipment and materials needed for site operations;
- Planning and scheduling the tasks associated with the management of the SWMF;
- Overseeing the work of the staff identified in Figure 1; and,
- Implementing the directives of the Chief Operating Officer.

2.2.3 Site Manager

The Site Manager reports directly to the General Manager and is responsible for the proper and efficient implementation of the operating requirements of the SWMF. The Site Manager must be hands on in the field, available for duty seven days a week, and on call while away from his/her post. The Site Manager is responsible for:

- Reviewing engineering plans, reports and specifications, preparing estimates related to landfill construction and operational requirements;
- Supervising the day-to-day construction, operation, and maintenance activities at the SWMF;
- Ensuring that the operation is in compliance with the rules, regulations, and permits issued by the NYSDEC and other regulatory agencies;

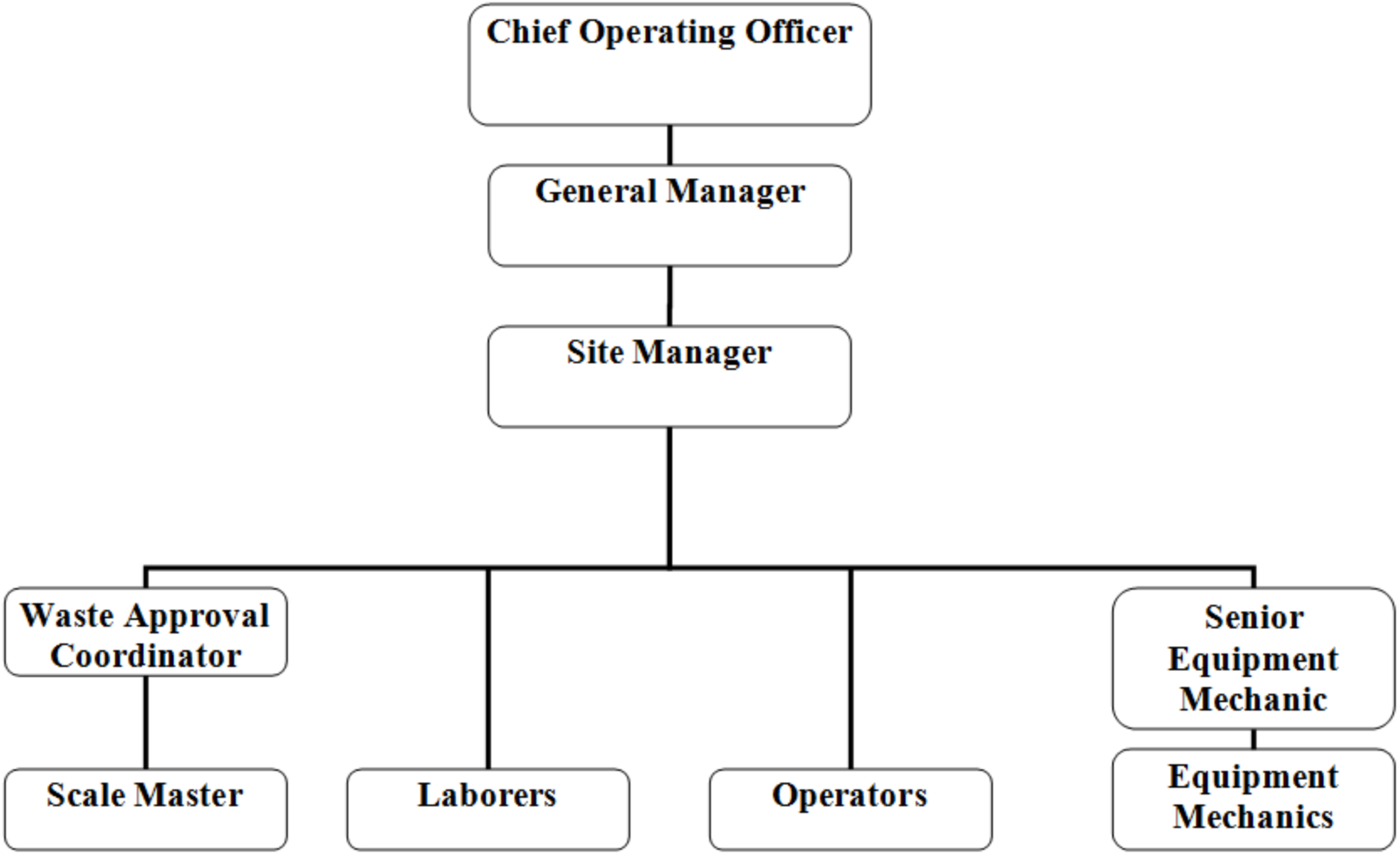


FIGURE 1: MANAGEMENT ORGANIZATION

- Planning and scheduling the utilization of equipment, personnel, and materials for SWMF operations and construction;
- Inspecting the SWMF for impacts from major storm events;
- Reporting to and conferring with the General Manager regarding personnel, equipment, and material requirements for SWMF operations;
- Ensuring that environmental monitoring facilities and support structures are properly maintained;
- Maintaining activity reports;
- Appointing a Site Health and Safety Officer and ensuring the coordination of health and safety issues including periodic review and revisions of the site's Health and Safety Plan;
- Ensuring that safety precautions for employees, contractors, visitors, and customers are adhered to;
- Completing site specific safety training for all employees as described in the O&M Manual;
- Specifying and procuring (with approval of the General Manager) the heavy equipment required for the SWMF operation;
- Supervising the equipment maintenance shop; and,
- Implementing improvements in daily routines.

2.2.4 Waste Approval Coordinator

The Waste Approval Coordinator reports directly to the Site Manager, and is responsible for site specific administrative duties associated with the acceptability and receipt of waste streams managed at the SWMF. The Waste Approval Coordinator is responsible for the proper operation of the scale house and the associated record keeping activities. The Waste Approval Coordinator is responsible for:

- Ensuring the evaluation and acceptance of waste is performed in compliance with the rules, regulations and permits issued by the NYSDEC;

- Directing staff in the required routine or daily, weekly, monthly, quarterly, and annual inspections and confirming that all record keeping is complete for applicable elements of the SWMF operation;
- Ensuring all monitoring, sampling and testing activities required for the SWMF operation are scheduled with the appropriate entities;
- Scheduling calibration of weigh scales by a certified firm; and,
- Preparing reports related to the SWMF operations for the NYSDEC.

2.2.5 Scale Master

The Scale Master reports directly to the Waste Approval Coordinator, and is responsible for the proper operation of the weigh scale and completion of all related record keeping tasks. Work is carried out in accordance with established policies and procedures and involves weighing and registering arriving and departing trucks as required to establish the acceptability of the waste loads, determine appropriate charges and to prepare facility use records. The Scale Master is required to work a six day week, and is responsible for:

- Ensuring the waste hauling vehicles are duly registered;
- Operating scales to measure the quantity of solid waste and other relevant materials delivered to and departing from the SWMF;
- Preparing and recording scale tickets;
- Registering new haulers; and,
- Preparing statistical records identifying the amount and delivery time/date for waste, recyclables, soil, alternate cover materials and any other bulk materials delivered to the site for disposal, recycling, re-use, or construction.

2.2.6 Senior Equipment Mechanic

The Senior Equipment Mechanic is responsible for managing a variety of heavy equipment repair and fabrication tasks completed at the maintenance shop, and all contracted services related to equipment maintenance. The Senior Equipment Mechanic reports directly to the Site Manager and receives general instructions regarding the necessary tasks to perform. The Senior Equipment

Mechanic is responsible for the planning and detailing of work assignments for the Equipment Mechanics. The Senior Equipment Mechanic is responsible for:

- Administration of the equipment maintenance shop;
- Diagnosis of repair/maintenance requirements;
- Supervision and coordination of Equipment Mechanics;
- Scheduling preventive maintenance;
- Prioritizing and assigning repair work on site related equipment;
- Assisting the Equipment Mechanics in performing their duties on an as needed basis;
- Maintaining parts, supplies and tire inventories; and,
- Procuring outside equipment, or equipment repair services, or other specialty services as required.

2.2.7 Equipment Mechanics

Sealand employs Equipment Mechanics who are responsible for maintaining a variety of heavy equipment and they must possess a thorough knowledge of the trade. The Equipment Mechanics report directly to the Senior Equipment Mechanic and receive general instructions regarding the necessary tasks to perform. The Equipment Mechanics are responsible for:

- Inspecting, checking, and diagnosing equipment for type and extent of required or timely maintenance and/or repairs;
- Performing scheduled maintenance of site equipment;
- Performing skilled operations in making general repairs, as well as performing preventive maintenance on such motor and mechanical equipment as bulldozers, trucks, compactors, excavators, loaders and tractors;
- Rebuilding gas and diesel engines;
- Performing minor maintenance work on the weigh scales and other small tools and equipment (e.g. pumps);
- Repairing or overhauling electrical, hydraulic, mechanical and related systems;

- Welding equipment and parts; and,
- Operating, as necessary, machine shop equipment, including lathes, grinders, drill presses, and other metal working machines to make and repair parts for stationary, heavy and automotive equipment.

2.2.8 Machine/Equipment Operator

Machine/Equipment Operators are responsible for the safe and efficient operation of gasoline or diesel powered equipment with wheeled or crawler traction. Machine/Equipment Operators are responsible for daily equipment monitoring chores (e.g. checking fluid levels) and ensuring site facilities, environmental controls, or monitoring systems are not damaged by operation of that equipment. The Machine/Equipment Operators report directly to the Site Manager. The Machine/Equipment Operators follow oral and written instructions concerning the work to be performed, and are responsible for:

- Operating bulldozers, compactors, loaders, excavators, trucks and other heavy equipment;
- Checking equipment before starting for acceptable fuel, oil and lubrication;
- Checking equipment before starting for mechanical condition;
- Maintaining the equipment in a clean condition; and,
- Performing manual labor such as material handling and helping equipment maintenance personnel.

The Machine/Equipment Operators assigned to working face operations are responsible to continually monitor and identify that only acceptable wastes are received and disposed, and that all necessary and appropriate material handling procedures are followed.

2.2.9 Laborers

Laborers perform routine manual work associated with the construction, operation and maintenance of the site facilities. Laborers are supervised by and report to the Site Manager. Laborers responsibilities include:

- Performing various tasks in connection with maintenance and litter control at the site, including daily policing of roadways, buildings and facilities, and retrieval and proper disposal of wind and water-borne papers and debris;
- Performing material handling tasks involving heavy lifting and carrying, usually associated with site construction and maintenance; and,
- Assisting other workers in accomplishing site work as needed.

2.3 EMPLOYEE TRAINING PROGRAM

The Employee Training Program provides personnel with a structured and organized instruction program related to their assigned duties, relating to both routine and emergency operating conditions. This training program includes notifications of SWMF operating requirements, instruction in waste management procedures, as well as inspection and maintenance procedures, emergency response procedures and the proper use of personal protective and emergency equipment.

2.3.1 Training Program Outline

This program provides basic on-the-job training and instruction in the following areas:

- Instruction regarding the applicable regulatory and reporting requirements for the SWMF;
- An introduction to the layout of the SWMF and its material handling and management methods;
- An overview of the contents of the Operation and Maintenance Manual;
- An overview of the safety concerns associated with the materials accepted and the equipment utilized on site;
- Instruction in required inspection and maintenance procedures;
- Instruction on the use of safety and emergency response equipment;
- An overview of the emergency response procedures as presented in the Contingency Plan, and the specific function of each employee during the implementation of Contingency Plan requirements; and,

- A discussion on the importance placed on environmental responsibility, personal safety and protection by senior management.

In addition to individual training, facility wide training programs will be implemented in cases where specific needs are identified.

2.3.2 Training Strategy and Approach

All new employees' hired to work at the SWMF will be trained. As part of the introductory training efforts, each new employee will be provided a facility orientation. An explanation of the relationship between the employees' position and the operation of the SWMF will be provided. This will include a discussion of the site operations and an overview of the nature of the overall site activities from environmental stewardship, solid waste handling and safety perspectives.

The importance of preventive and routine inspections and maintenance will be stressed, with particular emphasis placed on those tasks and duties the employee will perform in the position or role to which they are assigned. The employee will be informed about and shown the location of the emergency and safety equipment available at the facility. The employee will be scheduled for subsequent instruction in the use of any equipment requiring special training. Employees' will also be informed about the procedures for responding to emergency situations, including a fire and/or explosion, spill incident or medical emergency. A personal copy of the Operation and Maintenance Manual, the Contingency Plan, and any other appropriate site related document will be made available to any employee on request.

The employee will be instructed on the proper use of any personal protective equipment (PPE) required for completing assigned tasks. The employee will be reminded of and shown the location of all emergency response equipment, and will be instructed on its' use. The employee will be introduced to the communication system for both internal and external emergency notification. The employee will be questioned on the information pertinent to them as contained in the Operations and Maintenance Manual and the Contingency Plan. At the completion of this instruction session, the Site Manager and employee will complete a Training Program Data Sheet, as shown in Figure 2-2. The Training Program Data Sheet will be filed at the scale house office in the employees' personnel file.

Refresher training will be held annually for all landfill staff. This training can be relatively informal. The main purpose of the training will be to discuss any problems, changes in the operation, or operations that are inconsistent with this manual. Records on attendance will be kept in the scale house.

As a minimum, employees' responsible for managing or supervising landfill activities are required to attend the 40-hour course in Personal Protection and Safety Training in compliance with OSHA Standard 29 CFR 1910 and SARA Section 12(d). Employees' who have attended the 40-hour course also receive annual eight hour refresher classes if it is appropriate with respect to their functional responsibilities.

All employees' will receive awareness training on confined space entry; specifically, the dangers of confined spaces and how to recognize a confined space. Sealand's policy is to be restrictive as to who may enter a confined space. Employees selected for confined space entry work will receive additional specialized confined space entry training as required by 29 CFR 1910.120(b)(4)(ii)(I).

2.3.3 Inspection and Maintenance Procedures

Each employee based at the SWMF will be educated in the importance of both the preventive and routine maintenance inspections that are conducted.

The training will stress that each employee be constantly aware of problems that could potentially occur with the equipment used and the activities performed. The employees will be trained to perform all inspections required for the equipment to be operated, with the objective that if any problems are encountered, the employee will be able to easily recognize the problem and take appropriate and timely action.

Employees directly involved in the waste receiving and handling aspects of the operation will be instructed on the proper handling of each type of waste, including the practical implementation of applicable regulatory guidelines. Emphasis will be placed on waste identification and safe and proper waste handling procedures. Employees' will also be educated in inspections procedures for the petroleum bulk storage tanks and proper fuel handling and equipment fueling procedures to help prevent spills or other incidents. The Waste Approval Coordinator, Site Manager, Scale Master, and working face personnel will receive additional training regarding the identification of

unacceptable wastes, especially including the appropriate actions to be taken in the event unauthorized waste is received at the scale house or deposited at the working face.

Safety and first aid equipment inspections will be given special attention during the employees' instruction, highlighting the importance of maintaining all site safety and first aid equipment in good working condition. Procedures will be outlined for reporting any equipment defects or deficiencies the employee may find, or when first aid supplies are low.

2.3.4 Emergency Response Procedures

Each employee will be trained in the proper and effective response procedures to potential emergency situations that may occur at the site, as outlined in the Contingency Plan. Individuals will be informed of the correct notification procedures in the event of a fire, explosion and/or release incident, including:

- Initiating the internal notification system;
- Notifying the Emergency Coordinator as identified in the Contingency Plan; and,
- Evacuating the area, if required.

Employees' will be advised of the steps to be taken by the Emergency Coordinator to continue the notification process, including the notification of fire and police departments, medical assistance, and state and local emergency response teams. An explanation of the Evacuation Plan for the facility as presented in the Contingency Plan will be provided. Specific conditions will be described under which any area should be evacuated.

Control measures for possible incident occurrences will be explained, detailing precautions to be taken and remedial techniques that can be used. This training will focus on how to effectively utilize readily available equipment and materials at the site to help control an incident. In conjunction with incident control measures, instructions for the proper use of all available fire-fighting, first aid and safety equipment and materials will be provided.

During group and individual instruction sessions, employees' will be provided every opportunity to ask questions about the facility emergency response procedures. This will focus on the use of

available emergency and safety equipment, to help ensure each employee develops a clear understanding of the actions that should be taken in an emergency incident.

2.3.5 Record Keeping

Documentation of the training provided to each employee will be maintained in each employee's personnel file at the scale house office, and this documentation will be periodically updated as the training efforts continue. The documentation will consist of the Training Program Data Sheet (as shown in Appendix A) which includes a description of the type of training or instruction, basic information regarding the employee receiving the instruction, the instructor and the dates of completion. This form also serves as a record that the instruction was given and successfully completed by the employee.

2.3.6 Training Program Evaluation

The Employee Training Program will be evaluated periodically to determine the need for improvements or revisions.

3 SITE FACILITIES AND EQUIPMENT

3.1 GENERAL

The SWMF includes several individual operations that support, and are supported by, the land disposal operation. Central to the operation of the facility are the Landfill, the Construction and Demolition Debris Processing Operation (CDPO), the primary and secondary leachate collection, transfer and storage system, the landfill gas collection and control system and the surface water management system. Important structures and complimentary operations other than these fundamental elements include yard waste composting, scale house and the equipment maintenance and repair shop.

3.2 LANDFILL

The Landfill is comprised of five main cells which will accept all C&D waste not being recycled or that has not been rejected by the Waste Approval Coordinator according to guidelines set forth in Section 5 of this Manual and Part 360 regulations. The Landfill area will be constructed with a double composite baseliner system for the collection of leachate as well as a geosynthetic and soil final cover system after all waste has been placed. Construction of the landfill area will be in accordance with Part 360 regulations and as described in detail in Section 4 of the Engineering Report, the Permit Drawings, and the Construction Quality Assurance/Construction Quality Control Plan (CQA/CQC Plan).

For safety reasons, a separate "residential drop off" area will be provided to isolate residents and small private contractors from the regular waste vehicle traffic. This facility will consist of two or three 30 yard roll off containers set adjacent a ramp that allows pickup trucks or other single axle trucks to pull up to the roll off and afford relatively easy unloading of approved waste materials to the roll-offs. All loads of material destined for the residential drop off area are required to enter through the scale for proper waste screening and documentation. Empty vehicles must also run through the scales on exiting the facility to assess the appropriate tipping fee.

3.3 C&D DEBRIS PROCESSING OPERATION

As is the case for the entire facility, only approved C&D materials will be accepted at the CDPO. Salvaging of reusable items will be done whenever feasible. Items that may be salvageable from

a typical C&D waste stream include; doors and door frames, windows and window frames, plumbing fixtures, porcelain fixtures, brick, and furniture.

The CDPO will be located within the design footprint of the landfill in an area away from the working face, initially in the area of Cells 4. Before Cell 4 is used for the borrow operation, the CDPO will be moved to a location inside Cells 1 and 2 on intermediate cover and above the leachate collection system. The CDPO will be moved once more to a location in Cell 3 on intermediate cover to allow installation of final cover over cells 1 and 2 before its final closure.

The CDPO will process C&D debris mainly in the manufacture of cover for the land disposal operation, aggregate for use as access road construction, wood waste for resale to wood burning facilities as boiler fuel and metal for resale to scrap metal processing facilities. Select waste loads that contain sufficient quantities of concrete and rubble, asphalt paving, bricks, rock, soil, wood, or ferrous metals, as determined by the Site Manager on inspection, will be diverted through the CDPO. To keep the sulfur content of the C&D fines to a minimum, thereby reducing odor potential, the processing of drywall in the CDPO is prohibited. All drywall must be removed before processing of mixed loads.

3.4 YARD WASTE COMPOSTING

Sealand will operate a simple, low tech yard waste composting operation to manage source separated yard wastes generated within the Town of Carroll that may be delivered to the facility. The facility will accept leaves, small brush, wood chips, grass and discarded Christmas trees, etc.

Private landscapers and the general public would normally bring in source separated yard waste. This material will be managed by windrow composting, where organic material is formed into windrows. These windrows are relatively long piles with a triangular cross section that are turned to provide aeration. Frequent turning of the material provides aeration, mixes the material, helps control temperature and redistributes moisture. Turning will be accomplished by using a front end loader or a tractor pulled compost turner (e.g., Aeromaster PT-120 or equivalent). With proper management, windrow composting will produce a high quality product that may be used for mulch and landscaping.

Like the CDPO, composting will take place within the design footprint of the landfill and will similarly be relocated from its initial location in Cells 4, to above the intermediate cover inside Cells 1 and 2, and eventually Cell 3. The compost generated by the operation would be used in site reclamation activities and made available to the Town of Carroll and its residents for use in parks, residential developments and home use for public greening projects.

Composting operations have the potential to produce nuisance odors, section 5.9 of this O&M Manual provides detail on the techniques used to mitigate the potential for offsite odor.

3.5 LEACHATE COLLECTION, TRANSFER AND STORAGE

For the double lined landfill, the primary leachate collection and removal system is designed to remove the peak flow of leachate attributed to a 25-year, 24-hour storm from the landfill within seven days. The baseliner slope will provide gravity drainage of leachate through a stone blanket drain and pipe network to a sump at the low point in the southeast corner of the landfill. Leachate will be pumped from the sump through a side slope riser pipe to the leachate forcemain, and discharging to the leachate storage tank. The secondary leachate collection and removal system is designed to act as the leak detection system for the primary leachate collection system, as well as, for secondary containment.

The leachate storage and load out facility includes the transfer pumping system and a 161,000 gallon above ground glass fused to steel bolted plate storage tank. The transfer pumping system incorporates valves, controls, pumps and other components designed to convey and direct collected leachate from the leachate sump in the landfill to the storage tank. The facility includes a truck loading pad that is designed to contain spills, directing any spilled leachate or contaminated runoff back into the storage tank. The storage tank is positioned above a bed of coarse sand inside a geomembrane lined reinforced concrete ring wall foundation that allows for the containment and detection of leakage from the tank structure. The tank, ring wall foundation and the leak detection system are positioned inside a secondary containment tank with a geomembrane liner system at its base, designed to retain 110% of the leachate storage tank volume.

Sections 4.5 and 4.6 of the Engineering Report provide additional detail on the design and performance of the above referenced leachate management system components.

3.6 LANDFILL GAS COLLECTION AND CONTROL SYSTEM

3.6.1 General

Landfill gas is generated due to the decomposition of organic matter in the waste stream. This gas must be controlled primarily to help avoid nuisance conditions associated with odors. Active gas collection and control systems components will limit gas migration by creating negative pressures in the landfill and an inward gradient. This system is described in detail in Section 4.7 of the Engineering Report.

3.6.2 Landfill Gas Collection System

The collection component of the system is comprised of a series of horizontal collectors installed a during ongoing waste placement operations. The horizontal collection trenches and pipes are aligned parallel with the direction of waste placement at a 200 foot, horizontal spacing and sloped at a 3% grade. Wellheads are located at the outside end of each horizontal collector pipe. The wellhead is where the applied vacuum to the horizontal collector is controlled. Air intrusion into the landfill is monitored at the well head and each horizontal collector can be shut down individually if necessary. The horizontal collection pipes connect into sub-headers which convey the landfill gas to the main transport header. The main header includes in-line condensate drains at select locations to allow moisture and liquid in the gas stream to be separated and drained into the primary leachate collection and removal system. Each sub-header is valved to be able to shut down sections of the collection system. The main header conveys the landfill gas to the landfill gas control system. The layout of the landfill gas collection system and the wellhead locations are shown on Drawing(s) PD-25 and PD-26 of the Permit Drawings, respectively, and the component details are shown on Drawing PD-27 of the Permit Drawings.

3.6.3 Landfill Gas Control System

The landfill gas control system is comprised of the hydrogen sulfide (H_2S) control unit and the enclosed flare. The gas extraction system is comprised of the knockout pots and the blowers. The main header connects to the knockout pots where remaining condensate and liquid in the gas stream is removed from the system. The knockout pots are in line with centrifugal blowers which create the vacuum within the main header. The blowers move landfill gas first to the H_2S control unit. The H_2S control unit is comprised of a series of SulfaTreat adsorber vessels which filter the H_2S from the landfill gas. The pretreated landfill gas is then combusted in an enclosed flare. The

layout and component details of the landfill gas control system are shown on Drawing PD-27 of the Permit Drawings.

3.6.4 Gas Venting Layer

As required by Part 360 regulations, a gas venting layer, consisting of a transmissive polyethylene geonet encapsulated by two non-woven geotextiles (geocomposite), will be installed directly below the geomembrane barrier layer of the final cover system. Once the geomembrane barrier layer of the final cover system is installed, the gas venting layer will be incorporated into the landfill gas collection system via gravel filled subheader trenches and perforated pipe.

3.7 SURFACE WATER MANAGEMENT

The site-wide surface water management system design is discussed in Section 7 of the Engineering Report, and includes the following major components:

- Final cover diversion swales and downchutes that will collect surface water runoff from the landfill cover and convey it to the perimeter contact run-off channel and culverts;
- The perimeter contact runoff channel and culvert system designed to convey contact surface water runoff during landfilling operations and after final cover placement to the sedimentation ponds;
- A run-on diversion channel that will divert surface water entering the site from the north and west into existing roadside stormwater channels;
- Culverts designed to carry run-on and run-off surface water under and around access roads and slopes to the sediment basins;
- Sediment basins designed to collect surface water and provide passive treatment and sedimentation, while reducing post development discharges to slightly less than pre-development rates; and,
- Graded filters to clarify stormwater discharges.

In the event that surface water or precipitation comes into contact with any waste it will be treated as leachate. Stormwater discharges from the facility's surface water management system will be covered under an Individual NYS State Pollutant Discharge Elimination System (SPDES) Permit

for Stormwater Discharges. In concert with the NYS Stormwater Permit, a Stormwater Pollution Prevention Plan (SWPPP) was prepared to address initial and future activities at the site. The industrial activities present at the site include discharges to surface waters associated with the initial and ongoing construction activities of a landfill, the processing, reclaiming, and wholesale distribution of scrap, and the operation of a grinder at the waste recycling portion of the facility.

All system components are to be inspected on a routine basis and excessive silt accumulations or structural deficiencies are to be removed or repaired to insure that the systems are operating as designed.

3.8 SCALE HOUSE

For operations in the double lined Cells 1 through 4, the scale house/mobile office trailer without below grade space, will be complete with electricity, water, sanitary facilities, and telephone and internet service. The scale house office will be climate controlled and will include the scale control center which doubles as office space for the Scale Master.

3.9 EQUIPMENT MAINTENANCE AND REPAIR SHOP

The equipment maintenance and repair shop will be a steel frame building complete with electricity, water, sanitary facilities, and telephone and internet service. The equipment maintenance and repair shop will include an office space, the parts room, and a service area. The service area will be complete with machines, tools, equipment and supplies for the comprehensive maintenance and repair of heavy equipment, small tools and machines used in the site operations.

Five tanks of petroleum liquids will be kept onsite for fueling and maintenance of equipment. An 8,000 gallon diesel tank and 300 gallon gasoline tank will be located outside of the equipment maintenance and repair shop, while a 1,500 gallon waste oil tank, 500 gallon hydraulic oil tank, and 500 gallon motor oil tank will be located inside. These tanks will be constructed, installed, maintained, and inspected under a valid petroleum bulk storage registration according to 6 NYCCR Parts 612-614. The valid registration certificate must be kept current and displayed onsite at all times. Monthly inspections of these tanks are required to detect any abnormalities, deficiencies, or leaks in accordance with NYCCR Part 613.6 and records of the inspections must be made available to the NYSDEC upon request. An inspection form is provided in Appendix A.

The operator or carrier must employ practices for preventing transfer spills and accidental discharges. Prior to transfer, the operator or carrier must determine that the receiving tank has available capacity to receive the volume of petroleum to be transferred. The operator or carrier must monitor every aspect of the delivery and take immediate action to stop the flow of petroleum when the working capacity of the tanks has been reached or an equipment failure or emergency occurs. Since the total capacity of the storage tanks is greater than 1,320 gallons, the facility is considered non-transportation-related facility, and partakes in the storing, use, and consumption of oil. A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed according to the requirements of 40 CFR 112. The SPCC Plan provides additional information regarding the operation and maintenance of the petroleum liquids storage tanks.

3.10 EQUIPMENT

The equipment listed in Table 3-1 will be used to complete tasks related to site operations and construction related activities. Routine maintenance of all equipment and machinery will be handled on site, including certain major repair work. Some major repairs requiring special tools will be completed by local private repair services.

TABLE 3-1: EQUIPMENT LIST AND INTENDED USES

Equipment	Intended Uses
Landfill Compactor	• Spreading and compacting solid waste; • Spreading and compacting cover soil; • General maintenance of landfill roadways; and, • Can be used in emergency situations to respond to fire and unauthorized waste contingencies.
Bulldozer	• Serves as backup for spreading solid waste; • Spreading and compacting cover soils; • General maintenance of landfill roadways; • Facility construction; and, • Can be used in emergency situations to respond to fire and unauthorized waste contingencies.
Front End Loader	• Loading cover soils; • Facility construction; and, • Can be used in emergency situations to respond to fire and unauthorized waste contingencies.
Pickup truck	• Transportation for personnel between facilities; • Transportation to obtain parts; • Transport welding equipment; • Transportation of injured personnel to medical care facilities; and, • Four wheel drive vehicles can be used for snow removal.
Water Truck	• Dust and fire control; • Achieve required moisture/density during construction of secondary soil liner.
Dump Truck	• Hauling cover material; and, • Facility construction.
Excavators/Backhoe	• Excavating soil for baseliner construction and landfill operations; • Loading for trucks with cover soils for landfill; and, • Can be used in emergency situations to respond to fire, unauthorized wastes and other hazards.
Fuel Truck	• Transport fuel, oil and lubricants.
Tractor with Disks	• Re-working construction soils to add water or dry out.
Soil Compactors	• Compacting construction soils; • General maintenance of landfill roadways.
Road Sweeper	• Cleaning of paved landfill roads and Dodge Road in the vicinity of the SWMF.

Table 3-2 lists the health and safety equipment and other routine monitoring equipment to be made available at the site. Site vehicles will be equipped with fire extinguishers that may be used in the event of an emergency incident. All fire extinguishers will be maintained in conformance with State and local fire codes and regulations. In addition and as appropriate, certain vehicles will be equipped with roll bars and safety cages to prevent injuries to equipment operators.

TABLE 3-2: HEALTH AND SAFETY MONITORING EQUIPMENT

Equipment	Intended Uses
Self Contained Breathing Apparatus	• Confined space entry and activities where air monitoring readings or atmospheric conditions warrant an upgrade to Level B PPE.
Escape Tripod	• Confined space entry.
Body Harness	• Confined space entry.
Oxygen/Lower Explosive Limit Meter	• Monitoring ambient atmosphere conditions for confined space entry and waste excavation activities.
H_2S Meter	• Monitoring Hydrogen Sulfide Levels and monitoring during waste excavation activities.
Flame Ionization Detector	• Gas Monitoring

- All employees working on the landfill or performing construction activities are required to wear safety shoes and reflective/high visibility outerwear as a minimum.
- Supplemental Personal Protective Equipment (PPE) is available for employees who are working in areas that require a greater level of protection.
- Backups for the Health & Safety and gas monitoring equipment are available from Sealand. Additional equipment can be obtained from Dival Safety Equipment.
- All Health & Safety and gas monitoring equipment will be stored onsite in the scale house office.
- Only properly trained personnel are authorized to use any Health and Safety Monitoring Equipment. All equipment will be operated in accordance with the manufacturers operational procedures and O&M Manual or any Project HASP prepared for specific project.

4 OPERATIONAL CONTROLS

4.1 HOURS OF OPERATION

The SWMF will normally accept waste and recyclables six days per week, between 7:00 am to 5:00 pm Monday through Friday, and between 7:00 am and 2:00 pm on Saturday. Employees will typically begin site preparations between 5:30 am and 6:00 am, and complete daily closure activities between 5:00 pm and 6:00 pm Monday through Friday and between 2:00 pm and 3:00 pm on Saturday. The SWMF will be closed on six holidays. If an emergency arises the SWMF may operate outside these hours to appropriately address the situation. In the event such an emergency event occurs, the Region 9 Solid Materials Engineer will be contacted at the first available opportunity.

4.2 SIGNS

Signs will be posted at various points around the site to provide safety and guidance information. The following lists the signage at select sites:

The Site Entrance:

- Stop signs at main entrance gate;
- Posted: No Trespassing, No Hunting;
- Identify hours of operation;
- Inform of wastes that will and will not be accepted and inform drivers that loads will be subject to inspection at random;
- Speed Limit: 15 mph; and,
- SWMF Safety Rules

Scale House:

- Stop signs before scale;
- Inform that MSW and hazardous wastes will not be accepted;
- Residential Drop-off Area guidance map/arrow;

- Recycling Operation guidance map/arrow; and,
- Active landfill section map/arrow.

Maintenance and Repair Shop:

- Maintenance and Repair Shop Identification;
- Eye Protection Requirement at each entrance;
- Employee only entrance; and,
- Clearance at vehicle entrances.

CDPO:

- Identification of Recycling Operation;
- Eye Protection Requirement; and,
- Reflective Clothing Requirement.

4.3 Access and Traffic Flow Control

Traffic flow and access to the various areas and operations at the site are controlled primarily by signage. If needed (e.g., during periods when peak waste traffic flow combines with intermittent site construction activities), spotters will be positioned at key points of traffic intersection.

Traffic speed will be controlled by speed limit and stop signs posted strategically across the site. Directions to first time drivers of waste hauling vehicles or other vehicles that cross the scale will be provided by the Scale Master.

The access roadways on the site will provide a significant amount of space for the queuing of incoming and exiting vehicles. Temporary access and queuing roads for waste hauling vehicles will be constructed as close as is practicable to the working face.

Upon entering the sight the hauler will enter the scales. Once weighed, the driver will be notified if the load will be taken to the CDPO or the landfill. If routed to the CDPO, the driver will follow the route designated and proceed to the C&D Processing area. If the driver is routed to the landfill,

he will proceed along the landfill access road following the signs or spotters to the landfill tipping area by the working face.

4.4 SWMF USAGE RULES AND REGULATIONS

The SWMF will be operated and maintained in conformance with the rules, regulations and guidance set forth by the NYSDEC, notably including Subpart 360-7: Construction and Demolition Debris Landfills regulations.

Specifically, operation of the SWMF will be in accordance with the application documents and Special Conditions set forth in the applicable permits. Access control, operations, maintenance, inspection, monitoring, record keeping and reporting shall be in conformance with the requirements of the NYSDEC. Only authorized wastes will be disposed at the Facility as described in Section 5.

5 WASTE QUANTITIES, TYPES AND HANDLING PROCEDURES

5.1 WASTE QUANTITIES

The approved design capacity is defined as the average daily tonnage received at the facility for disposal during the quarter in which the most waste was received. The approved design capacity for the double lined landfill is 1,000 tons per day. The waste volume afforded by the proposed landfill is approximately 5,345,000 cubic yards, with a site life of approximately 13 years. The CDPO is intended to process an average of 90 tons of wood waste per day and an average of 240 tons of non-wood waste per day. It is estimated that the yard waste composting operation will manage up to 400 tons of yard waste per year.

5.2 WASTE TYPES

All wastes received for disposal, as well as all operational procedures employed at the landfill, will be in compliance with the operating permit for the site, the C&D Waste Management Facility Guidelines, the 6 NYCRR Part 360 Regulations and other pertinent regulations for the management of solid wastes in the State of New York.

Typical wastes expected to be managed by the facility include, but are not limited to:

- Bricks, concrete, and other masonry materials;
- Soil, rock, and other debris from land clearing;
- Drill cuttings from oil and gas exploration/production;
- Waste soil generated by oil and gas drilling operations;
- Wood (including painted, treated and coated wood and wood products);
- Wall coverings;
- Plaster;
- Drywall;
- Plumbing Fixtures;
- Insulation;
- Roofing shingles and other roof coverings;
- Asphaltic pavement;
- Glass;
- Plastics that are not sealed in a manner that conceals other wastes;

- Empty buckets ten gallon or less in size and having no more than one inch of residue remaining on the bottom;
- Electrical wiring and components containing no hazardous liquids; and,
- Piping and other metals that are incidental to the waste.

Also, waste contained in an illegal disposal site may be considered C&D debris if the department determines that such waste is similar in nature and content to C&D debris.

Specific waste streams that will not be accepted for disposal include:

- Putrescible waste;
- Hazardous waste, including waste exhibiting a toxic characteristic;
- Liquid wastes, sludge, or other waste with a solids content less than 20%;
- Radioactive waste;
- Lead acid batteries;
- Medical waste;
- Friable asbestos;
- Source separated yard waste;
- Containers larger than 10 gallon capacity which have not been rendered incapable of holding liquids and crushed;
- Whole tires;
- White goods or discarded vehicles;
- Authorized waste not transported by a properly permitted hauler;
- Electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers;
- Fluorescent light bulbs;
- Carpeting;
- Furniture;
- Appliances;
- Corrugated container board;
- Containers of any size having more than one inch of residue remaining on the bottom;
- Drums; and,
- Fuel tanks.

Specifically excluded from the definition of construction and demolition debris is solid waste (including what otherwise would be construction and demolition debris) resulting from any processing technique, other than that employed at a NYSDEC-approved C&D debris processing facility, that renders individual waste components unrecognizable, such as pulverizing or shredding.

5.3 Receipt and Monitoring of Incoming Waste

All incoming waste hauling vehicle traffic will be received at the scale house. Trucks and commercial vehicles will be stopped at the scale house, assessed for applicable fees and contents of load, and directed to the active working area of the landfill or the CDPO. Tarps of other waste coverings must be removed so the waste can be visually screened. Small private vehicles are directed to the Residential Drop Off Area.

Procedures for receiving vehicles at the scale house will be as follows:

- All vehicles drive onto the scale for weighing;
- Municipal, commercial, and private haulers maintaining accounts with Sealand will have registered account numbers and tare weights. The Scale Master records the account number and gross vehicle weight, and subtracts the tare weight from the total vehicle weight to determine the weight of material. When tare weights are not available, the vehicle is re-weighed before departing the site;
- All weigh tickets are signed by the driver of the vehicle. The Scale Master gives one copy of the ticket to the driver and copies are retained for compiling the monthly statements, and the database summarizing waste receipts; and,
- The Scale Master files the ticket.

Signs posted at the entrance of the SWMF will inform users of the types of wastes that are not accepted for disposal. SWMF personnel are instructed as to the type of waste acceptable for disposal, and are responsible for the identification and rejection of unacceptable loads delivered to the site. Facility personnel involved in any aspect of the waste handling operation are required to report the receipt of solid waste not authorized by the NYSDEC to the Site Manager and Waste Approval Coordinator.

Routine waste inspection activities include screening before waste is deposited at the working face, and after the waste has been discharged from the truck. In addition, at least one waste collection vehicle will be chosen at random on a weekly basis for inspection of its contents by the Site Manager. A waste screening area will be established near the working face or the landfill. The randomly selected waste load will be deposited in the waste screening area. Heavy equipment will be used to spread the waste for inspection purposes. The Site Manager may also use hand-held equipment such as rakes and shovels to pick through suspect material. Photo documentation of unacceptable waste is advisable. All waste should be cleared from the waste screening area within 24 hours. The results of the weekly inspections will be recorded (see Appendix A; Weekly Waste Inspection Form) and maintained on file at the site.

Should an unacceptable waste load be encountered before the waste has been deposited at the working face, the Waste Approval Coordinator will be notified, all pertinent information associated with the load will be recorded on a Waste Rejection Form (appendix A), and the vehicle will be required to leave the Facility. A written incident report and the Waste Rejection Form will be filed onsite along with results from routine screening of waste. Incident reports and waste rejection forms will be appended to the quarterly reports to the NYSDEC. The originator of the waste will be issued a notice regarding the incident reminding them of the types of waste that are and are not acceptable at the facility along with a warning to help prevent reoccurrence. Waste from repeat offenders will no longer be accepted. Should delivery of unacceptable waste loads become an issue, Sealand reserves the right to modify the fee structure to penalize customers who deliver unacceptable loads to the facility.

In the event an unacceptable waste load has been deposited at the waste screening area or the working face, or a spill or other release has occurred, the onsite equipment will, if possible, remove and segregate the waste. The NYSDEC and; if appropriate, the Chautauqua County Department of Health, will be contacted. If required, an approved disposal facility would be contacted to properly dispose of any material in accordance with NYSDEC approved procedures.

Segregated unauthorized solid waste will be adequately secured and contained to prevent leakage or contamination of the environment. The Site Manager is responsible for ensuring that the unauthorized waste is removed from the property as promptly as is practicable, and for maintaining

a record of the unauthorized waste received, its temporary disposition onsite, and its final offsite disposal location.

5.4 Residential Drop Off Area

Residents and customers with small vehicles or waste loads may utilize the residential drop off area during regular business hours. At no time will small or private vehicles be allowed to enter the landfill or working face area.

5.5 Working Face

5.5.1 Grade Control

Sealand intends to use Global Positioning System (GPS) equipment controllers for site construction, landfill construction, and waste placement and tracking operations. Survey control points located throughout the site will be used for grade control. Additional control points will be established as required to properly operate the GPS.

Top of waste grading plans will form the basis for generating an electronic three-dimensional surface model file, which in turn will be uploaded to GPS equipment controllers fitted to select bulldozers, and solid waste compactors that operate at the working face. Top of waste surface models will provide a high degree of grade control when filling operations continue near the outside slopes and peak elevations of the approved grading plan. When operating in the interior of the approved airspace, the GPS controllers will provide valuable information to monitor and control the rate and degree of initial compaction. Using this GPS system, Sealand will achieve a high confidence level that the approved grading plans are accurately built in the field in the most efficient manner.

5.5.2 Waste Grading and Compaction

The landfill will be brought to grade by the construction of cells, composed of the daily receipt of waste and cover material. Incoming waste will be spread and compacted on the prepared landfill base or on a preceding lift of waste at the working face.

A working face consists of two sub areas: the tipping area where vehicles will deposit their waste loads, and the compaction area where landfill compactors will spread and compact the waste. The

two sub areas of a working face are required to accommodate over the road waste hauling vehicles, which cannot easily maneuver in soft, irregularly graded areas as are commonly found near the area where fresh waste is being pushed, graded to the working face contours and compacted. In addition, the use of a tipping area creates a much safer condition for the drivers. The tipping area will be designated adjacent to the compaction area by the Site Manager on a daily basis with the objective of establishing sufficient "solid ground" on a nearly level plane so that waste hauling vehicles can back in and pull away safely and efficiently without assistance. Waste deposited by these vehicles will be pushed to the compaction area by solid waste compactors or bulldozers.

The Site Manager will determine the size of the working face based on the incoming waste rate, the current waste disposal tonnage trends, the type of waste being managed, site and weather conditions, proximity to outside slopes or other site elements, and in consideration of any other waste handling information that may be provided by the Waste Approval Coordinator.

Waste is commonly spread in layers two feet in thickness prior to compaction, except for the first lift placed above the liner system, which requires a minimum five foot thickness and other special considerations as discussed in Section 5.5.3. Soil screening berms are proposed to be located along the property boundary. Upon each additional lift of waste placed above the perimeter screening berms, an approximate ten to 13 foot high berm constructed of waste material will first be placed at the outside limit of fill forming the final outside slope of the landfill. The outside slope will be soil covered by the end of the day, and the interim cover of a minimum of 12 inches of soils and six inches of topsoil will be placed. Weather permitting, the topsoil will be planted with grass and herbaceous vegetation, creating a visual barrier that progressively screens views of the waste placement operation. With the exception of the outside slope, placement of solid waste will generally begin at the low end of the cell, with daily placement generally perpendicular to the overall cell fill progression alignment.

In any area where discretionary or intermediate cover soil has been placed, it will be stripped from the waste surface to be buried, and this cover material will be stockpiled adjacent to the working face for reuse as appropriate. The removal of discretionary or intermediate cover soils will enhance the overall permeability of the waste fill; which in turn, will contribute to minimize surface leachate seeps and perched leachate conditions. Removal of the discretionary or intermediate

cover soil will also help in directing liquids to the leachate collection and removal system, and gases to the landfill gas collection and control system.

The following conditions will be adhered to during waste placement operations:

- The working face width will be restricted to the smallest area practicable based upon peak daily incoming waste rate and other conditions as described above;
- Lift height will be a maximum of ten feet;
- Waste will be spread and compacted in layers not to exceed two feet in thickness with each layer compacted with a minimum of three passes of the landfill compactor;
- For waste placement operations above the perimeter screening berms, each lift must begin with construction of the outside slope to maintain screening;
- Maximum working face slope will be no greater than three horizontal to one vertical (3H:1V) during fill placement within two lifts above the composite baseliner;
- Under no circumstances shall waste fill be pushed from the top edge of the lined perimeter embankment to the floor of the landfill;
- The tipping area will be graded to provide for a relatively level and smooth surface; and,
- A minimum of 12 inches of cover will be applied to areas where no additional waste will be placed for 30 days.

The working face of the disposal area is the center of landfill operations. The traffic routing within the disposal area, the location of litter fences, and the operation of landfill equipment will be coordinated to help ensure proper filling operations at the working face. By minimizing the working face area, the landfill operators can minimize dust, litter, and odor issues.

5.5.3 Placement of the First Lift

Special precautions will be taken during the placement of the first lift of waste over the composite baseliner to avoid damage to the liner and leachate collection system. The procedures and precautions which must be taken are as follows:

- The first lift of waste placed over the baseliner system shall be a single layer placed at a minimum of five feet in compacted thickness and shall consist of select materials. The material shall be free of: fine grained wastes that may contribute to clogging of the drainage layer, large rigid objects, bulky waste, sharp objects, or any other material capable of damaging the baseliner system.
- The Site Manager will stage an employee on the landfill floor throughout the placement of the initial five foot lift to identify unacceptable wastes that may be present, and to assist in the removal of such materials from the first lift;
- Vehicular approach to the work area should be in a direction parallel to and between leachate collection pipes. No wheeled vehicles will travel over leachate collection pipes until the five-foot lift of select waste has been placed, and then only as necessary for placement and compaction of the first lift;
- Truck size shall be restricted to tandem and triaxle dumps capable of turning in relatively small areas. Only after sufficient area is available within the operating cell to tip larger transfer trucks will the size restriction be removed; and,
- Access roads shall maintain sufficient ramping thickness over the edge of the liner system and shall be constructed as close as practicable to the working face.

Ramps constructed for the purpose of access to the base areas shall avoid as much as possible all components of the leachate collection pipe network (i.e. laterals, headers, cleanouts and side risers). Ramps will be constructed and maintained to provide a minimum of five feet of separation above any component of the landfills baseliner system. Additional Geotextile will be placed over the liner system termination edge across the entire width of the ramp. The ramp(s) will be inspected during operations and monitored for rutting. Any deficiencies in the ramps will be repaired immediately, ensuring a minimum five-foot separation between the ramp surface and the baseliner system.

Special care shall be taken during placement of waste materials proximate to perimeter containment berms to avoid damage to the sideslope liner or berm structure, and to keep waste placement away from the top of the exterior berms. All waste placement activities will take place

within the inside edge of the perimeter berm. This is necessary to allow for proper containment of leachate and landfill gas, and future construction of the final cover system tie-in at perimeter berm locations.

The performance of the liner system after the placement of the first two lifts of waste fill, in part, will be evaluated by monitoring the flow from the secondary leachate collection and removal system. Since liquid in the secondary leachate collection and removal system may indicate leakage from the primary liner system, Part 360 regulations include an action limit of 20 gallons per acre per day (gpad) based on a 30-day average rate of flow in the secondary system. Procedures that will be implemented in the event of exceedances of the 20 gpad action limit are detailed in Section 7 of the Contingency Plan. Special maintenance/inspection procedures to evaluate the performance of the leachate collection and removal system after the first two lifts of waste have been placed are described in Section 8.3 of this Manual.

5.6 SEVERE WEATHER

Various inclement weather conditions will directly affect the operation of the SWMF and must be addressed. As part of the normal practice, the Site Manager will track next day and near future weather reports to assess the potential for weather related impacts on the operation. In the event severe weather conditions are predicted that may affect the operation, and/or an interruption of services is anticipated, the Site Manager will make appropriate arrangements which may include; for instance, notifying haulers to hold waste temporarily for later shipment.

Some of the possible climatic conditions, and the associated measures that can be taken to mitigate impacts, are described below.

5.6.1 Freezing Conditions

If excavation equipment cannot penetrate ground frost to obtain cover material, stockpiled material may be used instead. As a precautionary measure, stockpiling of cover soils should be accomplished before the onset of the winter months, if necessary.

If icy or freezing conditions create potentially dangerous operating conditions, the Site Manager will determine if it is necessary to either temporarily stop, or modify operations.

5.6.2 Heavy Rains

Control of surface water drainage by drainage channels, diversion swales, downchutes and sedimentation basins, coupled with the use of gravel wearing and travel surfaces for operational haul roads, is expected to provide continued access to the site during heavy rain and wet weather.

Runoff from intermediate, interim and final covered areas of the landfill will be directed away from the landfill to sedimentation basins through a series of temporary and permanent diversion swales, downchutes, culverts and drainage channels. The landfill will be graded to promote positive drainage away from active fill areas to the extent practicable. Temporary soil berms will be used to prevent storm water run-on from entering active areas where required. These same berms can also prevent runoff from the active areas leaving the landfill footprint.

In the case of heavy rains, the Site Manager may determine that it is necessary to either modify operations or temporarily suspend operations until improved weather conditions allow re-establishment of access and disposal operations. In the event of heavy rain, modifications to operating procedures may include:

- Minimizing the size of the work face;
- Moving the working face to a protected area;
- Modification of truck access to the working face; or,
- Cessation of non-essential earthwork, such as soil stockpiling.

During a heavy rainfall event, facility personnel will regularly check culverts, drainage channels and sediment basins for limbs or debris which may be blocking water flow.

5.6.3 Heavy Snowfall

If snowfall occurs overnight, the first personnel to arrive at the site are responsible for snow removal. Snow removal activities will start immediately upon arrival using the available onsite equipment to remove accumulated snow from access roads and operational areas. In the event of extremely heavy snowfall, the Site Manager will decide if it is necessary to modify or temporarily suspend operations until snow removal on access roads and the disposal areas permit continued operation.

As in the case of severe rainfall events, it may be determined necessary to minimize the size of the working face, modify truck access routes, relocate the working face to a more protected area and/or cease non-essential earthwork activities. It is expected that if a snowstorm occurred that was severe enough to suspend operations, waste collection and transport activities throughout the area would also likely be temporarily affected until an improvement in the weather conditions allowed for these services to continue. Once the severe storm conditions ended, site related equipment would be utilized to remove accumulated snow from access roads and operational areas. Snow banks resulting from snow removal activities should be arranged in a manner to promote adequate drainage away from roadway surfaces when melting occurs.

5.6.4 Electric Storms

The open area of a landfill is particularly susceptible to the hazards of an electric storm. If necessary, site activities will be suspended for the duration of the storm in order to safeguard field personnel. Refuge should be taken in the maintenance shop, field offices or in rubber-tired vehicles.

In the event of a power outage that may affect critical operations, The Senior Equipment Mechanic and other select supervisory and maintenance personnel will be trained in the manual procedure to start an emergency generator, and as part of this training these personnel are instructed not to energize the generator if power already exists on the circuit, or if inappropriate circuits could be inadvertently energized. The generator is to be started as soon as an extended power outage is confirmed by the Site Manager. The emergency generator will be inspected a minimum of two times per year, when among the maintenance checks, it is started to confirm its operational readiness.

5.6.5 Windy Conditions

The proposed operational method and sequence provides for a sheltered working face during much of the operation with the active portion of the fill generally proceeding in a direction away from the prevailing west-southwest winds.

Sealand will pro-actively implement a waste and litter management program designed to contain waste and windblown litter to the working face area. The litter management program includes load management, waste compaction, soil cover placement, and a fencing system. Load

management begins by identifying the nature of waste in each load to determine any special susceptibility to the waste becoming airborne. In the event a low density material, or other waste type that may be susceptible to becoming airborne, is accepted for disposal during high winds, the Site Manager will select a tipping area that is as sheltered from the wind as is practicable. Low density waste piles will be spread as soon as is practicable after dumping, and compacted into the preceding waste layer. Expedient covering of lightweight waste will be accomplished if such materials begin to blow from the working face area.

Since collection of windblown litter and paper is a routine part of site operations, in the event of severe litter problems at the site, facility personnel can work overtime hours to manually pick up blowing litter. Restriction of the working face to as small an area as is practicable will greatly assist in the control of litter, and even small amounts of cover material spread on the waste during ongoing landfill operations when wind presents an unusual problem will help contain any blowing debris.

Strategically placed downwind portable fencing will be used as needed to help control windblown litter and maintain the bulk of this material in the area of the working face. As the fill progression evolves, these portable fences can be repositioned as needed. In addition to the portable fencing, perimeter fencing will be installed in areas adjacent to the working face.

Landfill operations will be suspended by the Site Manager or his/her designee when winds reach a speed of 60 mph or do not allow for reasonable control of litter. Factors that are considered in determining whether to temporarily suspend operation below a wind speed of 60 mph include: the degree of exposure of the working face to prevailing wind, the nature of the waste being received (e.g. dense soil or lighter, dusty wastes), moisture conditions, and access.

5.7 LANDFILL INSPECTION

While site inspection is an ongoing responsibility, the landfill will be formally inspected by the Site Manager or his designated representative on a weekly basis for malfunctions, deterioration, operator errors, and fugitive discharges which may cause a release to the environment, or a threat to human health. Any problems encountered will be promptly remedied. Where a hazard is imminent or present, remedial action will be undertaken in accordance with the Contingency Plan.

The results of the formal inspections will be recorded in an inspection log that will be maintained at the site for a period exceeding seven years from the date of the last inspection. The log will contain the following information:

- Date and time of the inspection;
- Inspectors name;
- Description of inspection identifying the specific site features, area, equipment and/or structures inspected;
- Inspection observations; and,
- Date and description of any repairs or remedial actions taken as a result of the inspection.

Sample inspection forms are included in Appendix A of this Manual. Refer to Section 8 of this Manual for additional inspection items specific to the leachate management facilities and Section 9 for additional inspection items specific to the landfill gas collection and control system.

5.8 FIRE PREVENTION

5.8.1 General

All open fires and deliberate burning of C&D wastes is prohibited. Still, the possibility of a fire is a potential hazard associated with the daily operation at all solid waste management facilities.

For fires in the waste, the most probable cause is expected to be from a "hot load", where waste is delivered to the working face that already contains combusting materials. Such material may only be smoldering, but once spread and exposed to air, may burn more vigorously. A landfill fire may also occur due to the buildup of excess decomposition heat in the presence of organic material and air. Equipment exhaust or engine heat can also contribute to the buildup of heat in the waste mass. Over pulling on the active gas extraction system may increase the oxygen levels in the landfill and this may result in the potential for subsurface fires. Landfill personnel may also cause fire by inadvertently introducing flame to the waste.

5.8.2 Fire Prevention

The special waste approval process will screen for waste streams that may present the possibility of fire. The Scale Masters and the working face staff must be alert for the possibility of burning

solid waste in hot loads. No open flames or fires will be permitted on the landfill, and smoking is not permissible on the landfill at any time. To help reduce the possibility of engine heat or exhaust contributing to potential heating of the wastes, idling equipment should be staged on soil covered areas. Indications of possible burning waste include:

- An appearance of smoke, steam or heat;
- Burning odor;
- Radiating heat; or,
- Flame.

If indications of a potential fire are present, the fire control procedures outlined in Section 4.1.3 of the Contingency Plan will be implemented.

5.9 ODOR CONTROL

The decomposition of gypsum wall board in the C&D waste stream may produce offensive odor. Prevention of offsite odor problems begins with landfill personnel being cognizant of odors that may exist onsite in sufficient intensity or duration to potentially migrate offsite. To help ensure this vigilance, an assessment of onsite odors is part of daily operations (see Daily Operations Log in Appendix A). Further routine inspections for potential odor producing problems is also part of normal facility operations, such as weekly inspection of the landfill cover systems for erosion, cracks, leachate seeps, and vents that can become pathways for odors to escape from the landfill. Prompt repair of any potential odor-producing problem identified is required.

During normal landfilling operations, cover material will be the primary means of odor control in conjunction with the active landfill gas collection and control system which will be sequentially installed during ongoing operations. Application of cover materials should be more generous when weather conditions are favorable for odor generation or upon receipt of a particularly odiferous load, such as wet wastes. Weather conditions favorable for odor generation include periods of low barometric pressure, on days with no sun or wind, during temperature inversions, and for several days following significant precipitation events.

In addition, the following preventative procedures will be used, as appropriate, to assist in the control of facility related odors:

- Maintaining the active open area of the landfill as small as is reasonable;
- Orienting the tipping area and working face relative to wind direction;
- Maximize compaction of the waste mass in order to minimize landfill gas movement through the waste to the active working face;
- Performing routine preventative maintenance on leachate and landfill gas systems; and,
- Checking wind direction relative to sensitive receptors prior to undertaking activities that are known to generate odors, such as removal of aged waste from the existing landfill, and, if necessary, delay the activity until the wind direction is more favorable.

When excavating waste from the existing landfill for placement in the expanded facility, the potential for odor nuisance will be minimized by careful planning in terms of the sizing, timing, and location of excavation, the location of waste placement, and appropriate use of cover materials. Ambient air monitoring shall be conducted during excavation activity. The following additional measures will be taken when practicable to further assist in the control of related odors:

- Conduct excavation operations during the cooler winter months;
- Minimize size of active excavation areas to reduce amount of waste exposed to the atmosphere;
- Apply discretionary cover at the end of each working day;
- Minimize amount of time waste is exposed to the atmosphere;
- Use of lime-based products for cover materials;
- Stage odorous materials in locations where the potential for offsite migration is minimized; and,
- Manage potentially odorous leachate encountered during the excavation of existing waste by directing the leachate to a low point and pumping into a tank truck that will either haul leachate directly to the wastewater treatment plant or to the onsite leachate storage tank.

Recognizing that even with these odor best management practices in place there is the potential for offsite nuisance odors to arise, an Offensive Odor Action and Response Plan, as described in Section 4.5 of the Contingency Plan, was developed for use at the site should offsite odor complaints arise.

One of the most common issues that arise from composting is odor, with one of the main causes being compost material stored anaerobically. When practicable, the following techniques will be used to mitigate the potential for nuisance odors resulting from composting operations:

- Keeping windrow sizes and shape stable and uniform to promote adequate porosity;
- Maintaining proper site drainage;
- Maintaining a windrow moisture content below 65% ;
- Keeping pH below 8.5 to prevent nitrogen from being released as ammonia; and,
- Turning windrow material to maintain aerobic conditions.

Construction of uncovered windrows will lead to the creation of leachate from any precipitation or liquid interacting with the material. The potential for odor nuisance resulting from composting leachate will be minimized through the use of practicable management procedures, which include:

- Sloping the windrow area to 2 - 4% to encourage run-off without allowing increased erosion;
- Orient the windrows with the slope as opposed to across the to maximize the effectiveness of drainage;
- Using diversion channels to divert water entering the composting area;
- Prevent runoff from the windrows from directly entering any surface water; and,
- Position the windrows to provide drainage down the slope towards a leachate collection pond.

6 SITE DEVELOPMENT

The facility will progress through three distinct layouts over time; one for initial site preparation, an initial construction layout, and the final facility layout. A Phasing Plan has been prepared for the landfill, providing the following advantages:

- Manageable operational areas;
- Limited area for leachate generation;
- Facilitates access to and maintenance of the landfill; and,
- Facilitates orderly containment of the solid waste by reaching final grades as soon as is practicable.

The phased construction, fill progression and closure activities to be performed under each operational phase are illustrated on the Phasing Plan included as Sheet PD-10 in the Permit Drawings Set for the Carroll Landfill Expansion Application and herein as Appendix B. The existing landfill has been defined as Phase 1 through 3. The Phasing Plan shown on Sheet PD-10 includes four cells constructed and filled over an additional five phases, selected for illustration purposes.

The site preparation activity will focus on establishing the required stormwater controls in accordance with the site specific individual SPDES permit and SWPPP requirements. Upgradient diversion drainageways, ponds, temporary Sediment Basins, graded filters, drainage channels, and green infrastructure will be installed. Once the necessary stormwater controls are in place, clearing, grubbing and the first phase of excavation as described in the Engineering Report will commence.

The initial liner system construction will require the excavation of approximately 3.2 acres of jurisdictional wetland and approximately 1,200 linear feet of jurisdictional drainageway. Accordingly, the initial clearing, grubbing and first phase of excavation will take place outside those jurisdictional areas until such time no less than 1,500 feet of onsite mitigation drainageway and no less than 6.4 acres of offsite wetland mitigation has been constructed per the mitigation plan. Once the mitigation drainageway and wetland areas are constructed, Sealand will continue

initial clearing, grubbing and excavation into the onsite jurisdictional drainageway and wetland areas.

The sequential Phasing Plan intends to provide a logical and smooth transition between operational phases. Undoubtedly, a greater or lesser number of the phases of development could be identified; however, the final fill volume, closure timeframes and the final geometry would be identical. The actual construction areas and fill areas will be determined by Sealand based on market conditions.

The areas shown for each stage in the Phasing Plan illustrates the maximum areas in that phase for the given operation. It is likely that due to practical matters associated with access and drainage, construction will occur in subsequent phases before reaching the maximum grade elevations in any one phase.

The Daily Operations Log (Appendix A) will be maintained throughout land disposal operations, recording information on the approximate location and elevation of the waste placed by date received. Daily placement information will also be generated from GPS equipment controllers mounted on the landfill compactors. GPS software receives signals from the controllers and plots their position on a site grading plan in real time. This method of waste tracking will provide a 3-dimensional location of waste placement activity for each day of operation by showing areas of the landfill that are not sufficiently compacted. A log of daily screen shots will be kept on file with the Daily Operations Log at the scale house and maintained electronically.

Prior to filling over areas where daily, intermediate or interim cover had previously been placed, the cover soil will be removed and re-used to the extent practicable. All reclaimed cover that shows any sign of waste contamination will remain inside the landfill containment system. Contaminated recovered soil will be reserved for discretionary cover use within the landfill containment and leachate collection system.

7 COVER MATERIAL MANAGEMENT PLAN

7.1 GENERAL

The operation and closure of the landfill requires the following types of cover soils:

- Discretionary Cover – A minimum of six-inches of compacted or alternate cover materials applied as needed to control vectors, fires, odors, blowing litter and scavenging;

- Intermediate Cover – A minimum of 12-inches of compacted cover material applied and maintained on all landfill surfaces where no additional solid waste has been or will be deposited within 30 calendar days. This intermediate cover soil layer must provide the same functions as the discretionary cover layer;

- Interim Cover – A minimum of 12-inches of compacted low permeability soil overlain by six-inches of soil suitable to maintain vegetative growth planted with a suitable seed mixture placed where waste will not be disposed for 12 months or more; and,

- Final Cover – Final cover consists of a layered system that is placed on any surface of the landfill that has settled to final grade, consisting of the following components in ascending order;

    - Prepare subgrade;
    - 12-inches of intermediate cover soils;
    - Geocomposite landfill gas venting layer;
    - 18-inch soil liner (only on slopes less than 25%);
    - 40-mil (nominal) textured liner low- density polyethylene (LLDPE) geomembrane liner;
    - Geocomposite infiltration drainage layer (on slopes 25% or greater and overlapping five feet onto the flatter top grades);
    - 10 oz non-woven cushion geotextile (in areas without a geocomposite infiltration drainage layer);

- 24-inch minimum barrier protection soil layer;
- 6-inch minimum layer of soil suitable to sustain vegetative growth;
- Vegetation; and,
- Surface water and erosion controls.

Onsite soils will be used to meet the requirements for discretionary, intermediate, interim and final cover soils throughout the site life. Alternate discretionary cover materials (ADiC) as approved by the NYSDEC will be used to supplement routine cover needs. The material specifications and construction methods for each of the items for the operational and final cover systems are discussed in the following sections.

7.2 DISCRETIONARY COVER

Discretionary cover can consist of the onsite soils, NYSDEC approved ADiC materials, and processed C&D materials and will be placed on an as needed basis to control vectors, fires, odors, blowing litter and scavenging. Processed C&D material from the CDPO used as discretionary cover will include a combination of soil, stone and wood materials less than one inch in size.

The anticipated permeability of this layer is estimated to range from approximately 1×10^{-1} cm/sec for processed C&D to 1×10^{-5} cm/sec or lower for the onsite soil. To enhance the permeability of the waste fill overall, discretionary cover soils will be removed from the working face prior to the placement of additional waste when practicable. The discretionary cover soil will be tracked in by a bulldozer and is estimated to achieve a dry density approximately 80 to 85 percent of the material's maximum dry density as determined by the Modified Proctor Test. No quality control testing of the discretionary cover is required.

Discretionary cover will be spread in one lift to the required six inch thickness by a bulldozer. The bulldozer may grade the material down from the top of the working face or up from the toe of the slope, depending on where the trucks hauling the cover material can best deposit their loads.

7.3 INTERMEDIATE COVER

Intermediate cover will consist of onsite soil free from organic material, refuse, metal, wood or other objectionable material that may be compressible, or cannot be readily compacted. The

intermediate cover layer has no permeability or density specification. The anticipated permeability of the intermediate soil layer is estimated to be in the range of approximately 1 x 10^{-4} to 1 x10^{-5} cm/sec or slightly lower. The intermediate cover soil will be tracked in by a bulldozer and is estimated to achieve a dry density approximately 80 to 85 percent of the material's maximum dry density as determined by the Modified Proctor Test. Testing of the intermediate cover soil is not required.

This soil layer will spread in one lift to the required 12-inch thickness by a bulldozer. The bulldozer can push the cover material down from the top, or up from the toe of the slope, depending on where the trucks hauling the cover material can deposit their loads. A portion of the intermediate cover layer will be reclaimed prior to the placement of additional waste in order to conserve soil and to minimize the potential for perched leachate within the waste mass. Soil reclaimed will be used as discretionary or intermediate cover.

7.4 INTERIM COVER

Interim cover will consist of twelve inches of compacted low permeability soil free from organic material, refuse, metal, wood or other objectionable materials, and three inches of soil suitable for vegetative growth. The lower lift of interim cover may be placed at any time grades are appropriate, and the soil suitable for vegetative growth can be placed just prior to seeding to provide vegetative cover for erosion control. Interim cover is placed on any portion of the landfill where waste will not be placed for 12 months or more. Interim cover will also be placed on outside slopes at the end of each working day when filling is occurring at the design limit of waste. The interim cover layer has no permeability or density specification. Onsite soils will be used for the interim cover layer.

The low permeability component of the interim cover soil will be tracked in by a bulldozer and is estimated to achieve a dry density approximately 80 to 85 percent of the material's maximum dry density as determined by the modified Proctor test. Testing of the interim cover soil is not required. The low permeability soil layer will be spread in one lift to the required 12-inch thickness by a bulldozer. The bulldozer can push the cover material down from the top or up from the toe of the slope, depending on where the trucks hauling the cover material can best deposit their loads.

Three inches of soil suitable to sustain vegetative growth will be placed above the low permeability soil layer. This layer has no permeability or density specification. The anticipated permeability of the soil suitable to sustain vegetative growth is estimated to range from approximately 1×10^{-4} to 1×10^{-5} cm/sec. This layer will be spread and tracked in by a bulldozer, and no testing of this soil layer for density or permeability is required.

A portion of the interim cover layer will be reclaimed prior to the placement of additional waste to conserve soil and to minimize the potential for perched leachate within the waste mass.

7.5 FINAL COVER

The final cover system construction will commence once the waste has settled to a final grade and waste disposal activities cease in the area of placement. At that time, the subgrade soil surface will be fine graded and prepared for the soil liner or geocomposite landfill gas venting layer, as required by the Technical Specifications. Since the upper plateau area includes a minimum slope of four percent, special care must be taken in order to promote the drainage of surface water. Prior to placing the final cover system, these areas should be checked monthly for areas that may promote the ponding of surface water. Small areas with slight settlement can be repaired by placing additional soil in low areas and regrading for proper drainage. If large or deep settlements are identified, the Site Manager will determine if additional measures are required.

The 18 inch thick soil liner will be placed on the upper plateau where the slopes are less than 25%. This soil layer will achieve a permeability less than 1×10^{-7} cm/sec, and will be placed, sampled and tested in accordance with the requirements of the Technical Specifications. The 40-mil textured LLDPE geomembrane will be placed immediately above the 18-inch soil liner or the geocomposite landfill gas venting layer. On the 3H: 1V side slopes, a geocomposite infiltration drain will be placed above the geomembrane to promote stability by preventing the buildup of excess hydraulic head in the barrier protection soil layer. The geomembrane will be overlain by a cushion geotextile where the infiltration drain is not present.

The geocomposite infiltration drain and cushion geotextile will be overlain by the 24 inch barrier protection soil layer, which shall be free of organic materials, refuse, rubble, metal, wood or other objectionable materials that may be compressible or cannot be readily compacted. The lower six-

inches shall be reasonably free of stone to help protect the underlying geosynthetics. The barrier protection soil layer has no permeability specification; however, the anticipated permeability of this layer is estimated to range from approximately 1×10^{-4} to 1×10^{-5} cm/sec, or slightly lower. The barrier protection soil layers will be placed in lifts with a maximum compacted thickness of 12-inches by mechanical spreaders and compacted with a kneading type compactor to effectively break soil clods, and to achieve a minimum dry density as determined by the Project Engineer. Field soil moisture and density measurements shall be performed if required by the Project Engineer.

The barrier protection soil layer will be covered with six inches of soil suitable to sustain vegetative growth. This layer has no permeability or density specification. The anticipated permeability of this layer is estimated to range from approximately 1×10^{-4} to 1×10^{-5} cm/sec. This layer will be tracked in by a bulldozer, and no testing of this soil layer for density or permeability is required. The soil suitable to sustain vegetative growth will be spread in one lift to the required six inch thickness by a bulldozer. The bulldozer can push the soil down from the top or up from the toe of the slope, depending on where the trucks hauling the soil can deposit their loads.

8 LEACHATE MANAGEMENT

8.1 GENERAL

The site wide leachate management system includes the double composite baseliner system with a network of embedded leachate collection laterals and headers, sideriser leachate pumping stations, a network of double-wall and single-wall forcemain headers, leachate metering and sampling stations, valve boxes, leak detection risers, and a 161,000 gallon above ground leachate storage tank at the leachate load out facility.

The landfill liner systems provide for the initial element of leachate management for the expanded landfill. The double liner system consists of the following components, in ascending order:

- Prepared subgrade;
- Geocomposite pore water drain and/or subsurface drains (where shown on the applicable construction drawings);
- 24-inch minimum low permeability soil liner;
- 60 mil (nominal) High Density Polyethylene (HDPE) textured geomembrane liner;
- Geocomposite drainage layer with embedded 4-inch diameter SDR-17 perforated HDPE leachate collection pipe;
- 12-inch minimum structural fill layer (only on slopes of 25% or less);
- Geosynthetic Clay Liner (only on slopes of 25% or less);
- 60 mil (nominal) textured HDPE geomembrane liner;
- Geotextile cushion;
- 8-inch diameter SDR-17 perforated HDPE primary leachate collection pipe; and,
- 24-inch minimum ¾-inch rounded stone drainage layer.

Upon NYSDEC approval, Sealand intends to recirculate leachate over the double-lined landfill. Generally, leachate will be hauled by tanker from the storage tank loadout facility up to an operational stage of the landfill where at least ten to twenty feet of waste has been placed. The

leachate will be introduced into the surface of solid waste just placed and/or into permeable zones constructed within the waste.

Excess leachate will be transported to an offsite treatment facility for disposal. The primary treatment facility is the Jamestown Wastewater Treatment Plant, operated by the Jamestown Board of Public Utilities. Additionally, the Village of Westfield's Water Pollution Control Facility will be utilized. Letters of commitment to accept leachate from the Carroll Landfill by those facilities are presented in Appendix C.

8.2 LEACHATE COLLECTION AND CONVEYANCE

The site preparation plan and phasing plan shown on Sheet PD-10 and in Appendix B provides a phased liner construction and waste placement strategy that intends to control and limit leachate generation. In addition, temporary stormwater diversion will be afforded by the strategic placement of geomembrane flaps, the detail of which is shown on Sheet PD-19, to limit tributary runoff draining to newly constructed cells. The geomembrane flaps will be placed to divert runon such that no more than three-acres of open landfill will be tributary to the leachate sump for more than 14 days. Leachate minimization practices will continue during operations by placement of intermediate cover on completed slopes during the active filling stages, and final cover during the closure and post-closure stages.

A submersible leachate pump will be located in a collection sump at the low point in the base grading configuration. Pressure transducers will be installed to measure head levels, and programmable logic controllers will read the heads to enable and de-energize pumps and activate high level alarms. When leachate levels reach the top of the slope of the lined sump, the pump will automatically be enabled and leachate will be transferred through the force main system to the onsite storage tank. The pump can also be manually operated from the control panel. Flow meters are used to measure the quantity of leachate delivered to the leachate storage tank.

The leachate controls at the sump are designed to minimize routine accumulation of leachate over the base elevation of the liner. If leachate reaches a level one foot above the top of slope of the sump, an alarm will inform site personnel of the high liquid level, and action will be taken to investigate and resolve the situation.

Leachate generated in the landfill will be conveyed through a HDPE forcemain pipe system to the leachate loadout facility. The leachate loadout facility provides for leachate metering and off loading to over the road tank trucks that fill-up in a contained ramp area that will direct any spillage back to the storage tank. At this location, leachate flow is directed from the landfill into the 161,000 gallon above ground storage tank for temporary storage, or directly to an awaiting over the road truck for off-site treatment and disposal. Daily records for quantities of leachate removed from the site for treatment will be recorded on the Daily Operations Log (see Appendix A) and maintained in the scale house office.

8.3 LEACHATE RECIRCULATION

The techniques used to apply leachate to the landfill are expected to affect the dosing rate. Various methods have been researched that would provide a viable means of applying leachate to the landfill. Based on that review and an assessment of site specific conditions, Sealand will apply the leachate through the process of direct application, as described below. The volume of leachate recirculated each day will be recorded on the Daily Operations Log (see Appendix A) and maintained in the scale house office.

8.3.1 Direct Application

The direct application method consists of applying leachate to the surface of the landfill at the active working face, or a controlled dosing area with porous discretionary cover. Direct application may be accomplished by discharge from the valve of a tank or vacuum truck or by spray bar. The operator or driver will closely monitor the dosing rate to help maintain that rate below the point where ponding and/or overland flow occurs.

Potentially, the direct application method may be limited by certain weather conditions. Direct application during periods of high winds will be avoided to reduce the potential for offsite odors. The presence of excessive snow cover or frozen ground may also limit Sealand's ability to promote seepage into the waste mass.

8.3.2 Dosing at the Working Face

Application of leachate at the working face provides for an efficient means of distributing the liquids evenly to the solid waste, promoting the most efficient use of field capacity and improving the initial level of waste compaction.

At the working face, the preferred location for application of the leachate, the initial unsaturated permeability of the waste is estimated to be no less than 1×10^{-3} cm/sec, equivalent to 75,900 gallons for an 8,600 square foot fill area. The field capacity of the waste is expected to be at least 60,000 gallons per day; therefore, the waste characteristics at the working face are not expected to limit the practical application rate. That rate will more likely be controlled by:

- The logistics of maneuvering and spotting the leachate hauling vehicle;
- The amount of rainfall in any given day;
- The physical limitations of the equipment to discharge the materials; and,
- The moisture absorbing capacity of the daily waste receipts.

8.3.3 Dosing Previously Placed Waste

The rate of leachate application in the controlled dosing area with porous cover will be more limited than can be achieved at the working face. The permeability of solid waste previously incorporated into the landfill will be lower than the freshly placed waste, and is a function of a variety of factors such as its age, composition and density.

8.4 Leachate Collection System Maintenance and Reporting

8.4.1 General

Details of the leachate collection pipe network, leachate sump, forcemain and leak detection risers are shown in the Permit Drawings. A full discussion of the design of the leachate collection system is presented in Section 4.5.3 of the Engineering Report.

A summary of the leachate collection system maintenance program and schedule is provided in Table 8-1. If any of the inspections described herein detect abnormal operations, unusual flow patterns or signs of damage to any of the system components, repair efforts will be undertaken as soon as is practicable to rectify the situation.

8.4.2 Pipe Cleaning

Cleaning of the leachate collection pipe network will be accomplished by a combination of jetting and flushing via non-perforated clean-out riser pipe that will be located on the ends of lateral and header pipes.

TABLE 8-1: SCHEDULE OF LEACHATE MANAGEMENT FACILITIES

Item	Activity Frequency	Reporting Frequency[1]
Record Leachate Quantities:		
Total removed for off-site treatment	Daily[2]	Quarterly
Leachate flow from sump	Daily	Quarterly
Total Recirculated	Daily	Quarterly
Inspect to observe condition and possibility of obstructed pipes:		
Leachate collection sump	Weekly	--
Metering/ valve chambers	Weekly	--
Pump station/ truck loading facility	Weekly	--
Leachate storage tank	Weekly	--
Leak Detection System:		
Check forcemain leak detection risers for presence of leachate	Weekly	Annually
Check storage tank leak detection risers for presence of leachate	Weekly	Annually
Storage Tank:		
Record liquid level in leachate tank	Daily	Quarterly
Inspect secondary containment/remove accumulated water	Weekly	Annually
Drain and clean leachate tank	Biennial	Biennial
Cleaning of leachate collection pipe network	Annually	Annually
Visual inspection of leachate collection pipe network with pipe camera	Every 5 years	Every 5 years
Maintenance of submersible pumps	By Manufacturer	Annually

Notes:
1. Reporting frequency column indicates frequency of reporting to NYSDEC.
2. "Daily" means every day that staff is onsite (i.e., weekends and holidays excluded).

In the jetting process water is pumped through a hose connected to a special nozzle which directs a high-pressure stream of water in several directions; the force of the water is used both to propel the nozzle through the line, to dislodge materials which may accumulate in the pipe, and to promote flow of the suspended materials to the sump for removal. Flushing operations are supplemental and are intended to introduce large volumes of water to the pipe from the upgradient end to wash larger accumulations of sediment to the sump where it can be removed from the system. Cleanout risers specified for the upgradient ends of the pipes are flushing points, while those on the down gradient ends are jetting points. The jetting and flushing of the pipe network will require a suitably

specified submersible “trash pump” be placed in the sump during cleaning operations to agitate and remove wash water and entrained solids from the pipe network.

The proposed leachate collection pipe network cleaning program will serve as a regular inspection of the collection system. The first cleaning will take place immediately after construction is completed to confirm the placement of the drainage layer did not damage the pipe. The second cleaning will take place after the first two lifts of waste (about 15-feet) have been placed. This second cleaning will confirm that the placement of waste above the drainage layer did not damage the pipe. In the event some damage occurred, it will still be possible to repair the pipe system. A report summarizing the results of these initial maintenance activities will be available within 30 days of completion of each of the first and second cleanings.

Periodic maintenance will consist, at a minimum, of jetting or flushing of the leachate collection pipe network on an annual basis. Where accessible by a pipe camera, visual inspection of the leachate collection system pipe will be completed, at a minimum, once every five years. This activity will be documented and any evidence of clogging or system failure will be recorded. Absent material issues, confirmation of these cleaning and inspection efforts will be provided to the Regional Solid Materials Engineer in the Annual Report. If clogging or damage in any part of the leachate collection system is verified by the routine maintenance and inspection program, the problem will be assessed, corrective action, at least preliminary, will be determined, and reported to the NYSDEC within seven days. Corrective action may involve increasing the cleaning frequency or changing the method of cleaning (i.e. mechanical methods).

8.4.3 Leachate Sump

The proposed leachate sump pump is a submersible dewatering pump, suitable for continuous duty. Sealand will maintain spare pumps onsite in the equipment maintenance and repair shop as a contingency in case of pump failure. Pump maintenance and servicing will be completed in accordance with the recommendations of the manufacturer.

The sump riser will be visually inspected on a weekly basis to observe the condition of the sump and riser pipe, and to note any unusual flow patterns or other signs that may suggest the possibility of obstructed pipes or other abnormal conditions. A leachate meter reading will be recorded every working day on the Daily Operations Log (See Appendix A).

8.4.4 Leachate Storage Tank and Loadout Facility

The level of leachate within the storage tank will be recorded every working day along with volume estimates for the amounts of leachate recirculated and hauled offsite for treatment. This information is recorded on the Daily Operations Log (See Appendix A). The leachate storage tank will be drained for cleaning and maintenance every other year. The leachate loadout pad trench drain and sump will be drained, flushed, and cleaned during this biennial effort, at a minimum, or more often to maintain operations. Records of this cleaning and maintenance effort will be kept on file at the site, and confirmation of the cleaning and maintenance will be provided to the Regional Solid Waste Engineer in the Annual Report.

8.4.5 Secondary Containment and Leak Detection Systems

The leak detection points (i.e., monitoring risers for the forcemains and storage tank) will be inspected on a weekly basis.

The double-contained portion of the forcemain will be inspected for leakage at the leak detection risers located at low points in the pipe system. Operation of the single-contained individual forcemains within the lined landfill cells will be monitored by regular inspection of the system including review of flow meter data to identify abnormal conditions such as a broken or an obstructed forcemain. If necessary, jetting, repair, or replacement of the forcemain in question would be performed.

Procedures for inspecting the leak detection monitoring risers along the common forcemain and adjacent to the storage tank are summarized below:

- In leak detection risers that can be pressurized by leakage due to surcharging, first check the pressure gauge to confirm near atmospheric pressure in the containment pipe. In the event of excess pressure, open the pressure relief valve to drain leachate to a staged tank truck;
- Once near atmospheric pressure is confirmed, open detection riser threaded end cap and check for the presence of liquid in the containment pipe sump;
- Measure the depth of the liquid (if any), record and obtain a sample;
- Test the sample for pH, specific conductivity, color, and odor, and record the results;

- Pump out liquid and transfer into aboveground storage tank;
- If no liquid is present, note observation; and,
- Replace threaded end cap.

The aboveground leachate storage tank secondary containment stormwater collection sump will be inspected on a weekly basis and after all precipitation events. The liquid in the sump will be visually inspected for the presence of leachate. Non-contaminated liquids in the sump will be pumped to either the temporary sediment basin in the CDPO during initial operations, or to Sediment Basin 2 during long term operations as shown in the Permit Drawings.

The primary leachate storage tank design includes steel floor panels. The steel floor will sit on a permeable layer of compacted coarse sand. The sand is underlain with a 60-mil HDPE containment liner. The leak detection mechanism for the tank is a perforated pipe embedded within the sand layer just above the geomembrane liner. Any leakage from the primary tank will collect in this pipe and will function as a leak detection weep. The weep's isolation valve will be slowly opened to check for leakage on a weekly basis. The presence or absence of leakage will be recorded on the Weekly Leachate Collection System Inspection Form (See Appendix A). The presence of leachate shall be taken as evidence of a leaking tank. If no leakage is detected, the valve will be closed and the event will be recorded on the Weekly Leachate Collection System Inspection Form.

In the event the leak detection weep contains leachate, the valve will be immediately closed and the possible leak will be reported to the NYSDEC. Sealand will conduct an investigation to isolate and identify the location of the leak. The immediate area of the leachate tank will be visually inspected frequently for any evidence of environmental degradation until the issue is resolved. If this occurs, the NYSDEC will be notified immediately. To minimize the potential for environmental degradation, the weep is located in close proximity to the stormwater sump. If there is a significant leak in the leachate storage tank, the recirculation pump in the stormwater sump will pump the leachate back into the storage tank.

After the source of the leak is repaired, the weep will be checked daily for leachate until the NYSDEC notifies Sealand to resume weekly inspections. The inspector will also check the

flexible all weather seal, which is located at the base of the storage tank and above the sand layer, to help to ensure it is in working condition to prevent the piping of the compacted coarse sand and potential subsidence of the storage tank subbase.

9 LANDFILL GAS MANAGEMENT

9.1 LANDFILL GAS COLLECTION AND CONTROL SYSTEM OPERATION

The landfill gas collection system will be installed as landfilling operations progress. The horizontal collection system is installed in layers with a vertical separation of 40 feet and a horizontal separation of 200 feet. Landfill gas will also be pulled off the cleanout risers and sideslope laterals in the primary leachate collection system. A minimum of 20 feet of waste must be in place above the first levels of horizontal collector before the system can be brought on line.

The best management practice is to operate the system at a vacuum that will cause the system to recover landfill gas at the rate it is produced in the waste mass, such that a slightly negative pressure gradient is maintained within the landfill to minimize air intrusion. The rate at which the waste produces gas varies largely based on composition and age, among other factors. Individual collectors are equipped with valves to help regulate vacuum pressure in separate zones of the landfill. The landfill gas collection field must be routinely monitored and adjusted to compensate for the changing gas production conditions in the landfill. Efficient operation of the collection system requires judgment and a level of site-specific experience. In general, this well-field balancing is achieved by making small adjustments in valve position based on the measured oxygen content in the well, and knowledge of the well's performance history. Oxygen content above 2.5% typically indicates significant air intrusion and the need for valve adjustment.

The extraction and control system will include a knockout pot, which removes moisture from the landfill gas, a blower to apply vacuum to the system, H_2S control units, an enclosed flare, a control panel, a landfill gas analyzer, flow meter, and various valves, sample ports and lines. Condensate drains are connected to the blower, the knockout pot, and the H_2S control units to transport the condensate by gravity to the leachate management system.

To remove H_2S, the landfill gas control system will include a SulfaTreat Adsorber Vessel arrangement that consists of two reactor beds in a lead-lag configuration. This lead-lag arrangement will allow continuous operation of the system without downtime for media change out. The lead unit provides the primary treatment while the lag unit polishes H_2S and acts as the lead vessel's backup. When the lead unit is exhausted, the lag unit will become the lead unit and after the media is replaced in the other vessel, the prior lead unit will become the lag unit. Initially,

the extraction system will bypass the H_2S control unit until concentrations of H_2S begin to approach permit limits. The initial startup procedure for the H_2S control unit can be found in Appendix D of this Manual.

The enclosed flare will provide primary treatment for the landfill gas. Combustion of the landfill gas within the flare will control greenhouse gas emissions, control odors from reduced sulfur containing compounds other than H_2S, and reduce trace compounds found in landfill gas. Pretreatment of the landfill gas to reduce H_2S concentrations will reduce the creation of secondary sulfur dioxide emissions from the flare. Combustion temperature within the flare will be maintained in the optimal range (1,400ºF to 1,600ºF) by controlling LFG flow and air inlet dampers. Control of the flare system is largely automatic and will be operated per the manufacturer's user manual.

9.2 LANDFILL GAS COLLECTION AND CONTROL SYSTEM MAINTENANCE

Once the system is online, the wellheads will be monitored monthly for oxygen content, carbon dioxide content, percent balance gas, temperature, percent methane, static pressure, flow rate, and valve position. The Monthly readings will be recorded on the Monthly Landfill Gas Wellhead Readings Form (See Appendix A). Each valve will be manually fully opened and closed a minimum of three times before resting at the proper valve position. This step is taken to ensure the value is fully operational and to redistribute the sealing compound around the plug.

During the monthly recordings, the inspector will note any gas odor around the wellhead. The detection of odor, areas of localized settlement or distressed vegetation around the wellhead, compromised cover, well heaving, audible evidence of air leaks, and/or any damage to the wellhead itself will be recorded in the notes section of the form.

Additional maintenance activities for the landfill gas collection field will include testing of valve seals and replacement of flex hosing and monitoring ports that could degrade over time. Maintenance of the collection field will also include the identification of degraded horizontal collectors and the eventual replacement with vertical landfill gas wells. Since fresh boreholes into the waste will present the opportunity for significant air intrusion, installation of a new vertical

well should only occur after the vacuum on the existing horizontal collectors in the area of the new well has been turned off.

The H_2S control units will be monitored for H_2S concentration, oxygen content, percent methane, carbon dioxide content, percent balance gas, temperature, pressure, and flow rate at the inlet and the outlet of each SulfaTreat reactor vessel. Readings will be recorded daily on the Daily Landfill Gas/SulfaTreat System Readings (see Appendix A). If there is a notable difference between the readings and their normal levels, an investigation for the cause of the system upset will ensue. The condensate knockout, blower, SulfaTreat vessels, and associated equipment will be inspected on a daily and weekly basis, and the results of the inspection will be recorded in the space provided on the Daily Self Inspection Form and Weekly Landfill Inspection Form (Appendix A). Maintenance of the blower, landfill gas analyzers, flow meters, etc. shall be carried out in accordance with the manufacturer's instructions.

The H_2S control units will be cleaned and have their media exchanged as conditions require. The SulfaTreat change-out procedure is presented in Appendix D of this Manual. The wash water from the change-out procedure will be directed into the leachate management system. Once a year the condensate drains are to be flushed to remove any sediment build-up.

Proper maintenance of the enclosed flare will be covered in the manufacturer's user manual, and will include, at a minimum, the following daily observations. The control panel will be checked for any alarms or system malfunctions. Any such alarms will be documented and cleared. The flare temperature and gas flow rate and damper positions will be recorded. The pressure in the pilot fuel tank and the differential pressure across the flame arrestor will be recorded as well. Daily observations will be documented on the Daily Landfill Gas/Flare Readings (see Appendix A). The flare and its associated equipment will be inspected on a daily and weekly basis, and its condition recorded in the spaces provided on the Daily Self Inspection Form and Weekly Landfill Inspection Form (Appendix A). Weekly inspection will include checking the internal refractory lining of the flare for heat of other damage.

9.3 EXPLOSIVE GASES

In general, the generation of explosive gases in a C&D landfill is significantly less than in a municipal solid waste landfill. However, management of the landfill gas system includes monitoring of the percent methane, the most abundant explosive gas in landfilled wastes, monthly within the collection field and daily on the landfill gas header at the control units.

Oxygen content and gas temperature are also monitored at the same locations and frequencies. Should conditions become ideal for a fire or explosion, or if an underground fire has ignited, this monitoring programming will assist in the detection of such a problem. High percent methane by itself is not problematic, but combined with high oxygen content and an ignition source, the probability of hazardous conditions increases. As stated earlier, oxygen content in the landfill gas system should be minimal (< 2.5%). High landfill gas temperatures (> 140ºF) may indicate an internal fire or thermal oxidation is occurring, has recently occurred, or is imminent. Should either of these conditions indicate the risk of a fire, the valves of the landfill gas collection wells in close proximity to the readings in question should be closed as soon as practicable. If a fire occurs, probable downtime and the repair or replacement of the landfill gas infrastructure may be necessary. General rules regarding fire prevention and contingency measures are found in Section 5.8 of this manual and Section 4.1.3 of the Contingency Plan, respectively.

10 ENVIRONMENTAL MONITORING

10.1 SITE WIDE ENVIRONMENTAL MONITORING PLAN

The environmental monitoring program conducted at the site addresses groundwater, surface water and leachate monitoring. The site wide program is described in detail in the Environmental Monitoring Plan.

Additional environmental monitoring for stormwater outfalls is prescribed by the Carroll Landfill SWPPP in accordance with the requirements of the Individual SPDES Permit issued by the NYSDEC.

11 RECORD KEEPING AND REPORTING

11.1 RECORD KEEPING

Table 11-1 presents a summary of the inspection, maintenance and recordkeeping requirements for the site. The results of inspection and maintenance activities will be recorded, and these records will be maintained in company files. Select information will be reported to NYSDEC as presented in Section 11.2. The remaining records will be available for review at the scale house office. All records will be available to the NYSDEC upon request for a period of at least 10 years.

TABLE 11-1: INSPECTION, RECORDKEEPING AND MAINTENANCE SCHEDULE FOR LANDFILL OPERATIONS

Item	Activity Frequency
Log of solid waste received including waste type, quantity, origin and/or hauler and date received.	Daily
Location and elevation of each day's operation on a site grading plan (GPS screenshot).	Daily
Record of all unauthorized wastes received and their final disposition.	As Necessary
Record of self-inspections.	Weekly
Random waste vehicle inspection.	Weekly
Police site including buffers for litter.	Daily
Police facility entrance road area for mud, dust and litter.	Daily
Inspect truck scale for debris, ice and damage.	Daily
Equipment maintenance activities performed.	Daily
Clean/grade landfill access road.	As Necessary
Maintain site access roads.	As Necessary
Clean leachate storage tank to maintain design capacity.	As Necessary/Biennial
Perform inspection of petroleum bulk storage tanks.	Monthly
Inspect stormwater collection/conveyance system.	After storm events

Notes:

1. All site facilities, environmental controls and monitoring systems to be checked for damage at least weekly, inspected prior to forecasted major storms and after severe inclement weather.
2. See Table 8-1 for inspection, operation and maintenance schedules of leachate management facilities.

11.2 REPORTING

Sealand will prepare and submit Quarterly Reports and an Annual Report to summarize the operation, maintenance, and monitoring activities the site.

11.2.1 Quarterly Reports

A quarterly report will be prepared and submitted to the Regional Office of the NYSDEC. These quarterly reports will be submitted on forms provided by the NYSDEC[1] and will also include the following supplemental information:

- Results from the groundwater, surface water, and leachate sampling events;
- A review of the groundwater and surface water analytical data indicating exceedances of applicable State water quality criteria and trigger parameters, as well as any discernable trends in the data;
- Leachate volume data obtained during the previous quarter, including volume collected and volume disposed;
- Amount of groundwater removed from the pumped groundwater removal system;
- Amounts and dates of liquid removal from leak detection monitoring risers for the leachate tank and forcemain;
- Leachate chemical characterization data review;
- Incident reports from receipt of unacceptable wastes including Waste Rejection Forms filed during the quarter; and,
- Results from routine screening of waste performed in the given quarter.

11.2.2 Annual Report

In accordance with the Part 360 Regulations, an Annual Report will be submitted to the NYSDEC on forms provided by the NYSDEC no later than 60 days after the first day of January of each year. This report will also include, as a minimum, the following information:

[1] After the first year of sampling and analysis, Sealand may, in accordance with subparagraph 360-7.4(a)(4)(iv), petition the NYSDEC for a modification of the environmental sampling program to a semi-annual basis.

- The total quantity of solid waste disposed in tons for the calendar year from January 1 to December 31. This information will be presented by waste type and reported in tons per day and tons per quarter;
- The remaining site life and capacity in cubic yards for the existing constructed landfill and the remaining capacity and site life for areas permitted, but not yet constructed;
- Any changes to the fill progression plan;
- An estimate of the in-situ density of the solid waste;
- A compilation and evaluation of all water quality and leachate quality data collected throughout the year;
- The quantity of leachate collected and treated at each wastewater treatment facility;
- Any changes from the approved reports, plans specifications, or permit conditions will be identified, including the rationale and justification for each change;
- Unusual events or accidents at the site and the response taken by site personnel;
- Annual adjustments to closure and post-closure care cost estimates and financial assurance documents;
- Amounts of C&D debris processed by the CDPO and the ultimate destination of the quantities of material;
- Amount of salvaged recyclables;
- Amount and type of beneficially used waste utilized as ADiC; and,
- Summary and records of any unauthorized wastes received and their final disposition.

APPENDIX A

Reporting Forms

CARROLL LANDFILL

TRAINING PROGRAM DATA SHEET

Date:

_____

Job Title:

_____

Instructor(s):

_____

Individual Trained:

_____

Description of Training:

_____

_____

_____

_____

Instructor's Signature(s):

_____

_____

Employee's Signature:

_____

Signatures on this form serve to verify that the training described above has been given on the specified date and successfully completed by the employee.

CARROLL LANDFILL

DAILY OPERATIONS LOG

Date:_____ Weekday:_____ Recorded By: (print) : _____

Temp:_____(ºF) Wind Speed:_____(mph) Wind Direction:_____ Precipitation:_____(in.)

Leachate Information

(All leachate measurements to be taken at approximately the same time each day.)

Time of Measurement:_____ AM/PM
Total Storage Capacity:_____161,000 (gal)
Current Leachate Stored:_____(gal)
Remaining Storage Capacity:_____(gal)
Leachate Recirculated:_____(gal)

Leachate hauled off site:_____(gal)
Tank Leak Detection Clear: ____Y ____N
Hauler:_____
Destination:_____

Landfill

1. Working Face – Section _____ Area _____
   Notes:_____

2. Methods for the control of litter (If any) _____
   Notes:_____

3. Odor check, odor ranking of 1 to 5. (1 being Non-Detect, 5 being extreme)
   - North-West corner (Pt. 1) _____
   - North-East corner (Pt. 2) _____
   - South-West corner (Pt. 3) _____
   - South-East Corner (Pt. 4) _____
   - Office (Pt. 5) _____
   - Leachate tank location (Pt. 6) _____
   - Other _____

Periodic Inspections (Indicate which periodic inspections, if any, occurred on this day.)

- Daily Self Inspection Inspected By:_____
- Weekly Landfill Inspection Inspected By:_____
- Weekly Waste Inspection Inspected By:_____
- Weekly Leachate Collection System Inspection
  Inspected By:_____
- Monthly Petroleum Bulk Storage Tank Inspection
  Inspected By:_____

Waste Rejection (Indicate waste rejections, if any, that occurred on this day.)

- Waste Rejection Inspected By:_____

Other Activities

- _____

All of the above is true and correct to the best of my knowledge

*Signature:*_____

CARROLL LANDFILL

DAILY SELF INSPECTION FORM

Date:_____ Time:_____ Inspector:_____

Weather:_____ Temperature:_____^{o}F Wind: (Speed/Direction) _____

Site appearance - exterior: neatness? vector control? windblown waste?	GOOD	FAIR	POOR
Site appearance - interior: neatness? vector control? windblown waste?	GOOD	FAIR	POOR
Conditions of onsite roads: potholes? mud? dust? snow removal? unsafe conditions?	GOOD	FAIR	POOR
Conditions of offsite roads: mud? dust? signs of abnormal wear?	GOOD	FAIR	POOR
Condition of scale bed and seals	GOOD	FAIR	POOR
Condition of facility signs	GOOD	FAIR	POOR
Site security conditions: gates, locks, lighting, fencing	GOOD	FAIR	POOR
Condition of operating equipment	GOOD	FAIR	POOR
Condition of emergency equipment : first aid kits, spill kits, fire extinguishers	GOOD	FAIR	POOR
Condition of stormwater drainage system	GOOD	FAIR	POOR
Condition of cover system: erosion? cracks? leachate breakouts?	GOOD	FAIR	POOR
Condition of leachate load out facility	GOOD	FAIR	POOR
Condition of leachate storage facility: leachate leakage? stormwater sump?	GOOD	FAIR	POOR
Condition of landfill gas extraction and control systems	GOOD	FAIR	POOR

Inspection Observations:

_____
_____
_____
_____
_____
_____

Date/Description of any repairs/remedial actions required:

_____
_____
_____
_____
_____
_____

CARROLL LANDFILL

WEEKLY LANDFILL INSPECTION FORM

Day	SU [ ]	M [ ]	T [ ]	W [ ]	TH [ ]	F [ ]	S [ ]
Weather	Sunny [ ]	Clear [ ]	Overcast [ ]	Rain [ ]	Snow [ ]		
Temperature	<32 [ ]	32-50 [ ]	50-70 [ ]	70-85 [ ]	>85 [ ]		
Wind	0-5 mph [ ]	6 -15 mph [ ]	15 -25 mph [ ]	> 25 mph [ ]			
Humidity	Dry [ ]	Moderate [ ]	Humid [ ]				

Inspection Items	**Disposition of Item**	**Satisfactory/ Unsatisfactory**	**Action Taken/Required and Comments**
1. Condition of Site • Detectable Odor • Litter/Windblown Wastes • Vectors			
2. Active Disposal Areas			
3. Site Access			
4. Vegetation and Final Cover • Erosion Issues • Leachate Breakouts • Bare Spots			
5. Discretionary Cover			
6. Intermediate Cover • Erosion Issues • Leachate Breakouts			
7. Leachate Management System (Including Leachate Storage and Load Out Area)			
8. Landfill Gas Management System			
9. Site Drainage			
10. Sediment Basins			
11. Groundwater Monitoring Wells			

Inspected By: _____ Date of Inspection: _____

CARROLL LANDFILL

WEEKLY WASTE INSPECTION FORM

Date:_____ Weekday:_____ Inspector Name(print):_____

Temp: _____^{o}F Wind Speed:_____(mph) Wind Direction:_____

HAULER

Company Name: _____ Address: _____

Telephone #: _____ _____

Driver Name (Print): _____

LOAD

Weight (in tons): _____ Generator of Waste: _____

Scale Ticket Number: _____ Generator's Description: _____

Placement Location: _____

Unloading and Spreading Equipment Used:

_____

_____

Equipment Operator: _____

Waste Description:

_____

_____

Does the Driver's Waste Description Match the Actual Load as Described Above? [ ] No [ ] Yes

Is Remedial Action Required? [ ] No [ ] Yes

If Yes, What Remedial Action Was Taken?

_____

_____

Pictures Taken? [ ] No [ ] Yes

Video Taken? [ ] No [ ] Yes

*Inspector Signature:*_____ *Driver Signature:*_____

CARROLL LANDFILL

WASTE REJECTION FORM

Site Manager (print):_____Date:_____ Time:_____

Temp: _____^{o}F Wind Speed:_____(mph) Wind Direction:_____

HAULER INFORMATION

Company Name: _____ Telephone: _____

Address: _____ Driver's Name: _____

_____ Truck I.D: _____

LOAD INFORMATION

Weight (in tons): _____

Scale Ticket Number: _____

Waste Disposition onsite: _____

Temporary Waste Disposition onsite: _____

Final Waste Disposal Location offsite: _____

Description of Waste: _____

_____

Generator of Waste: _____

Comments:

_____

_____

Pictures Taken? [ ] No [ ] Yes

Video Taken? [ ] No [ ] Yes

Inspector's Name: _____ Inspector's Signature: _____

Site Manager's Signature: _____

Driver's Signature: _____

CARROLL LANDFILL

MONTHLY PETROLEUM BULK STORAGE TANK INSPECTION

Inspected By: _____ Date: _____

Facility Inspector Address: _____

Facility Registration #:_____ Tank ID#:_____

The purpose of this form is to inspect exterior surfaces of tanks, pipes, valves, and other equipment for leaks and maintenance deficiencies.

Identify:

Deficiency	**Yes**	**No**	**Location/Description**
Cracks			
Areas of Wear			
Corrosion and Thinning			
Excessive Settlement of Structures			
Separating or Swelling of Tank Insulation			
Malfunctioning Equipment			
Structural and Foundation Weaknesses			
Poor Maintenance and Operating Practices			

Inspect:

System	**Deficiency**
Leak detection system	
Cathodic protection monitoring equipment	
Other monitoring or warning systems	

CARROLL LANDFILL

Necessary Repairs:

Area of Concern	Necessary Repairs

Is a valid registration certificate displayed onsite? _____

Are the design capacity, working capacity, and identification number marked on the tank and at the gauge? _____

Are there any spills, leaks, or discharges of petroleum detected? _____

Time of Discovery: _____

If so, report to the DEC within 2 hours of discovery by calling the telephone hotline (518) 457-7362.

I hereby certify that this inspection has been performed in a manner consistent with the requirements of NYCRR Part 613.6: _____

(Inspector's Signature)

CARROLL LANDFILL

WEEKLY LEACHATE COLLECTION SYSTEM INSPECTION FORM

Date:_____ Time:_____ Inspector:_____

Weather:_____ Temperature:_____°F Wind: (Speed/Direction) _____

Leachate Collection System:

Leachate Collection Sump **GOOD FAIR POOR**

Metering/Valve Chambers **GOOD FAIR POOR**

Pump Station/Load Out Facility **GOOD FAIR POOR**

Leachate Storage Tank **GOOD FAIR POOR**

Observations: _____

_____

_____

_____

_____

Leak Detection System:

Is liquid present in the Force Main leak detection risers **YES NO**

Is liquid present in the Storage Tank leak detection riser **YES NO**

Observations: _____

_____

_____

_____

_____

Leachate Tank Secondary Containment

Presence of cracks, spalling, staining or deterioration **YES NO**

Presence of accumulated water **YES NO**

Observations: _____

_____

_____

_____

_____

CARROLL LANDFILL

YARD WASTE RECEIPT LOG

Unprocessed Pile Start Date: _____

Date	Dropped Off By	Received by (Initials)	Composition (TONS / CY)				Total (TONS / CY)
			Leaves	Grass Clippings	Wood Waste	Other (Specify)	
TOTALS (TONS / CY):							

Pile Processed and Windrowed On (Date): _____ **Windrow #: _____**

Approximate Volume of Clean Wood Waste Separated Out Prior to Composting:_____cy

CARROLL LANDFILL

COMPOST DISTRIBUTION TRACKING FORM

WINDROW SUMMARY **Windrow #: _____**

Date Finished Compost Pile Created: _____ Compost Age at Time Finished Pile Created: _____ mon

Windrow Creation Date: _____ Total Compost Curing Duration: _____ mon

Unprocessed Pile Stat Date: _____

DATE	DISTRIBUTED TO	QUANTITY TAKEN (TONS / CY)	REPORTED USE

Date Finished Compost Pile Exhausted: _____ **Total Process Duration: _____months**

CARROLL LANDFILL

COMPOST AREA DAILY INSPECTION FORM/OPERATING LOG

Date:_____ Time:_____ Inspector:_____

Weather:_____ Temperature:_____°F Wind: (Speed/Direction) _____

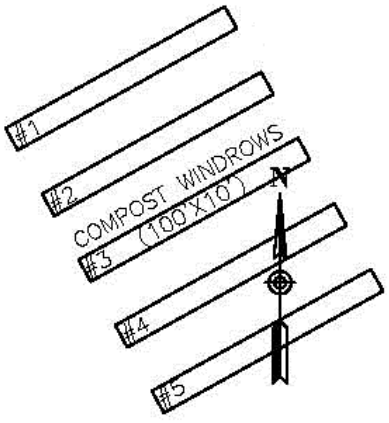
WINDROW #		#1	#2	#3	#4	#5
Temperature (°F) /Moisture Content	Location 1					
	Location 2					
	Location 3					
	Location 4					
	Location 5					
Foul Odors?		YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
Evidence of Vectors?		YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
Misted? If yes, approx. volume water added.		YES/NO _____gal	YES/NO _____gal	YES/NO _____gal	YES/NO _____gal	YES/NO _____gal
Turned?		YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
Complete/Moved to Finished Pile? If yes, approx. volume of finished compost.		YES/NO _____cy	YES/NO _____cy	YES/NO _____cy	YES/NO _____cy	YES/NO _____cy

*If Windrow is not active, draw a line down the column.

Operational Problems and Complaints:_____
_____
_____

General Condition/Deficiencies:_____
_____
_____

Corrective Actions Taken:_____
_____
_____



CARROLL LANDFILL

WEEKLY C&D PRODESSING AREA INSPECTION FORM

Date:_____ Time:_____ Inspector:_____

Weather:_____ Temperature:____^{o}F Wind:(Speed/Direction) _____

CDPO appearance, neatness, vector control	GOOD	FAIR	POOR
Condition of CDPO wearing course	GOOD	FAIR	POOR
Site drainage, ponded water, structures	GOOD	FAIR	POOR
Receiving and storage area	GOOD	FAIR	POOR
Roof shelter salvaged materials storage	GOOD	FAIR	POOR
Unprocessed material stockpiles	GOOD	FAIR	POOR
Processed material stockpiles	GOOD	FAIR	POOR
Process equipment	GOOD	FAIR	POOR
Recycling area	GOOD	FAIR	POOR

Inspection Observations: _____

_____

_____

_____

_____

_____

Date/Description of any repairs/remedial actions required: _____

_____

_____

_____

_____

_____

CARROLL LANDFILL

DAILY CDPO RECEIPT LOG

Date	Dropped Off By	Received by (Initials)	Material Description	Total (TONS / CY)
TOTALS (TONS / CY):				

Recorded By:_____

CARROLL LANDFILL

CDPO ONSITE DISTRIBUTION TRACKING FORM

DATE	DISTRIBUTED TO	QUANTITY TAKEN (TONS / CY)	REPORTED USE

Recorded By:_____

CARROLL LANDFILL

CDPO OFFSITE DISTRUBUTION TRACKING FORM

Material Transported:

_____
_____
_____
_____
_____

Quantity Transported:_____ Tons

Released for Transport By: (Print) _____
(Signature) _____
(Date) _____

Hauler:_____ (Company Name)
_____ (Company Address)
_____

Delivered to Destination By: (Print) _____
(Signature) _____
(Date) _____

Material Destination: _____ (Recipients Name)
_____ (Address of Recipient)
_____

Received By: (Print) _____
(Signature) _____
(Date) _____

This form must be signed and returned to Carroll Landfill by the recipient within two weeks of date of receipt as per 6 NYCRR 360-16.4(I)(1).

CARROLL LANDFILL

DAILY LANDFILL GAS/SULFATREAT SYSTEM READINGS

Date	Time	Monitoring Point	H_2S (ppm)	% O_2	% CH_4	% CO_2	% Balance Gas	Temp (°F)	Static Pressure (in. WC)	Flow Rate (scfm)
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								
		Inlet								
		Lead Outlet								
		Lag Outlet								

CARROLL LANDFILL

DAILY LANDFILL GAS/FLARE READINGS

Date	Time	Alarms Indicated (Yes or No)			Flare Temperature	Gas Flow	Damper Positions (% Open)		Flame Arrestor Differential Pressure	Pilot Fuel Tank Pressure	Comments
		Flare Low Temp	Flame Alarm	Low Vacuum	(Deg. F)	(SCFM)	1	2	(in. W.C.)	(psig)	
			-								

CARROLL LANDFILL

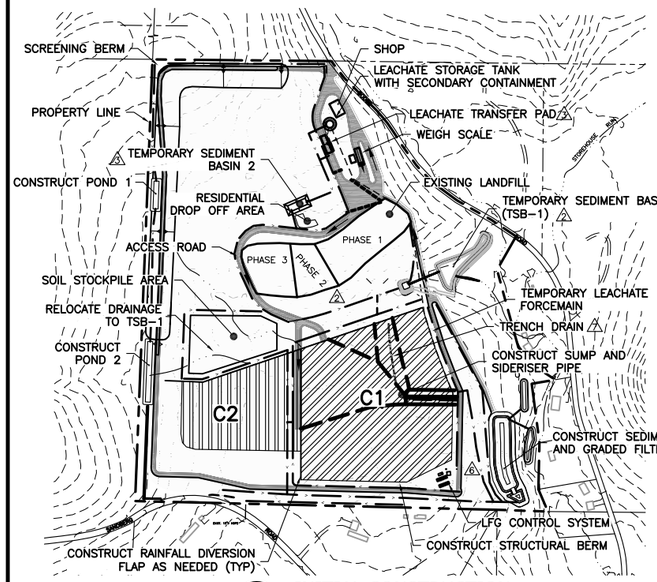
MONTHLY LANDFILL GAS WELLHEAD READINGS

Weather Conditions:_____ Date:_____ Time:_____

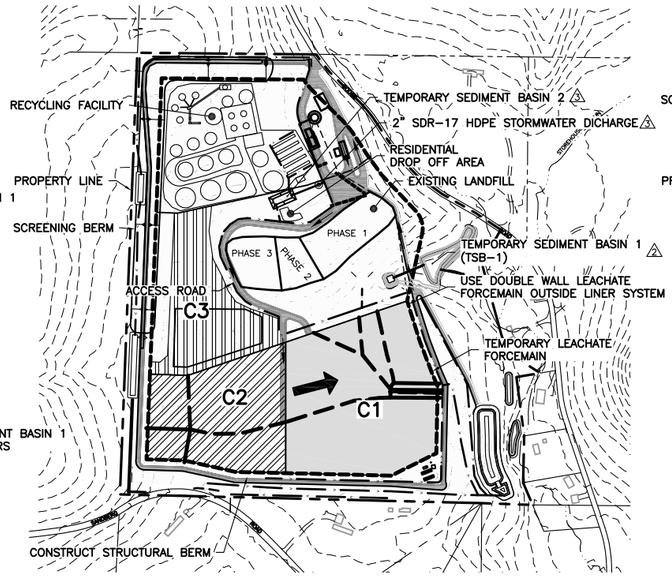
Monitoring Point	% O_2	%CO_2	% Balance Gas	% CH_4	Temp (°F)	Vacuum Pressure (in. WC)	Flow Rate (scfm)	Valve Position		Notes
								Initial	Adjusted	

APPENDIX B

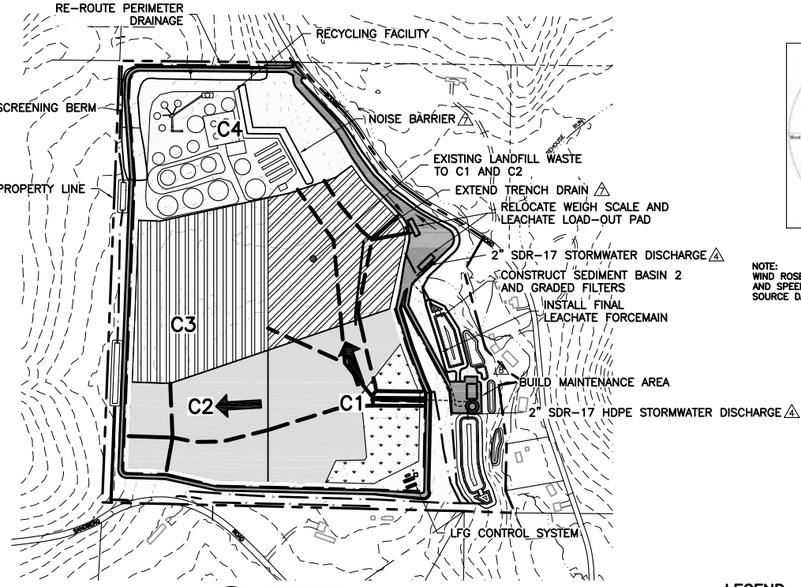
Phasing Plan



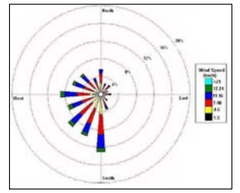
1 INITIAL CONSTRUCTION
Scale: 1"=300'



2 PHASE 4
Scale: 1"=300'



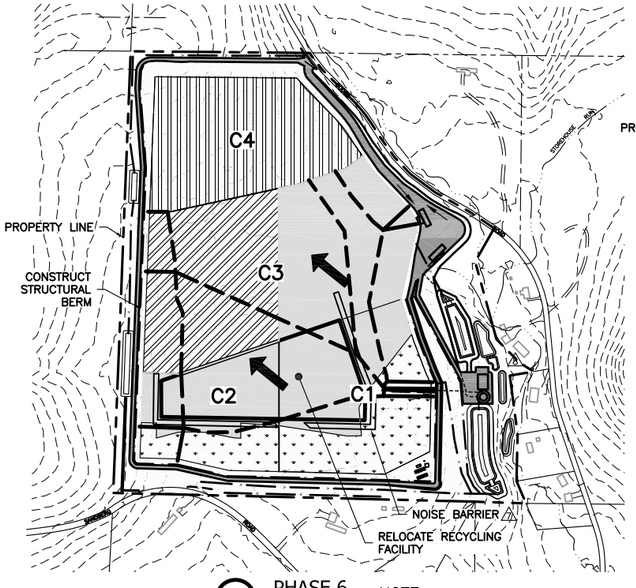
3 PHASE 5
Scale: 1"=300'



WIND ROSE

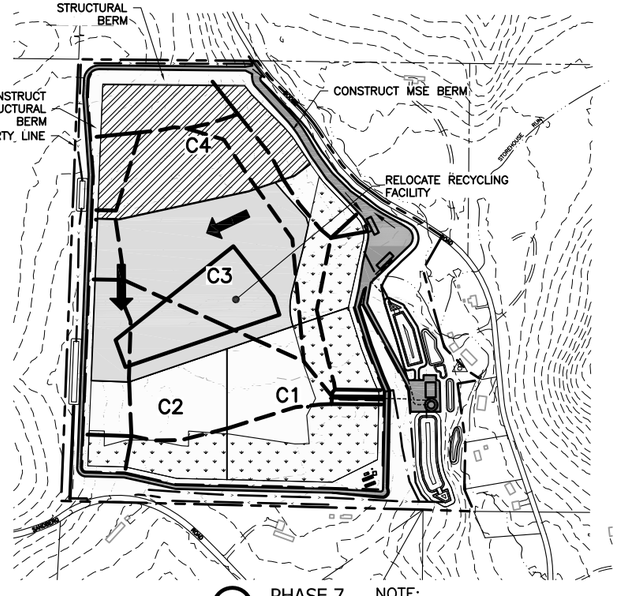
NOTE:
WIND ROSE REPRESENTS THE AVERAGE ANNUAL WIND DIRECTION AND SPEED DATA COLLECTED BY NOAA, JAMESTOWN, NEW YORK
SOURCE DATES: 1973 TO 2003

N



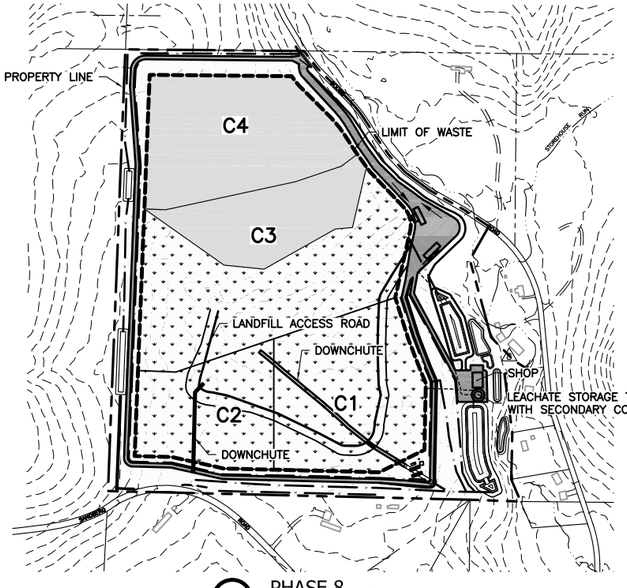
4 PHASE 6
Scale: 1"=300'

NOTE:
RECYCLING FACILITY TO BE RELOCATED SEQUENTIALLY DURING PHASE 6 TO ACCOMMODATE PROGRESS OF LANDFILLING IN CELL 1 AND 3, AND BORROW AREA IN CELL 4.



5 PHASE 7
Scale: 1"=300'

NOTE:
RECYCLING FACILITY TO BE RELOCATED SEQUENTIALLY DURING PHASE 7 TO ACCOMMODATE PROGRESS OF LANDFILLING IN CELL 3 AND CELL 4.



6 PHASE 8
Scale: 1"=300'

LEGEND:

- BORROW AREA
- LINER CONSTRUCTION
- ACTIVE LANDFILLING
- FINAL COVER
- DIRECTION OF INITIAL FILL PLACEMENT
- DRAINAGE CHANNEL FLOW DIRECTION
- LEACHATE FORCEMAIN
- ACCESS ROAD
- LD1 LEAK DETECTION POINT
- PRIMARY LEACHATE COLLECTION PIPE
- PRIMARY LEACHATE CLEAN OUT PIPE

NOTE:
1. THE SIZE OF THE LANDFILL CELLS SHOWN HEREON ARE FOR ILLUSTRATION PURPOSES TO SHOW FILL SEQUENCING. THE ACTUAL SIZE AND NUMBER OF CELLS WILL BE DEPENDENT ON WEATHER AND MARKET CONDITIONS.
2. SEE PD-9 FOR FINAL GRADING AND DRAINAGE PLAN

NO.	REVISION	BY	DATE
8	UPDATED NOTE	SJD	9/12/16
7	UPDATED GRADED FILTER 4	SJD	9/12/16
6	ADDED TRENCH DRAIN AND NOISE BARRIER	TPP	10/02/15
5	ADDED LFG PAD AND DRAINAGE	TPP	10/02/15
4	REVISED FINAL COVER PLACEMENT PROGRESSION	TPP	5/14/15
3	ADDED DRAINAGE PHASE 5 TANK AND TRANSFER PAD TO FOREBAY SB 1 AND 2	TPP	3/06/15
2	ADDED DRAINAGE TO INITIAL PHASE TANK AND TRANSFER PAD TO TEMPORARY SEDIMENT BASIN 2	TPP	3/02/15
1	ADDED INITIAL CONSTRUCTION RETENTION BASIN	TPP	6/06/14
0	ADDED PLCRS PIPING AND SUBGRADE DRAIN IN PHASES	TPP	7/01/14

DAIGLER ENGINEERING, P.C.
CIVIL & GEO-ENVIRONMENTAL ENGINEERING
2620 GRAND ISLAND BLVD. GRAND ISLAND, NEW YORK 14072
(716) 773-6872 (716) 773-6873 FAX
JAMES A. DAIGLER, P.E.
NYSPE NO. 061689

DATE: March 2014

SCALE: 1"=300'

REDUCED PRINT - Drawing at half-scale

PREPARED FOR: SEALAND WASTE, LLC.			PHASING PLAN
DES. BY:	DRW. BY:	CHK. BY:	CARROLL LANDFILL EXPANSION APPLICATION
DWG. PD-10 CARROLL-PHASING.dwg	TOWN OF CARROLL	CHAUTAUQUA COUNTY	STATE OF NEW YORK

SHEET PD-10

G:\Sealand\02-0104 Carroll Landfill\Permit Drawings\2016 REVISIONS\PD-10 CARROLL-PHASING.dwg 11/21/2016 3:39 PM

APPENDIX C

Leachate Treatment Facilities

JAMESTOWN BOARD OF PUBLIC UTILITIES

PO Box 700
Jamestown, NY 14702-0700
Phone (716) 661-1653
Fax (716) 665-2785

ELECTRIC
DISTRICT HEAT
WATER
WASTEWATER
SOLID WASTE

August 9, 2016

Allyson M. Zurawski, E.I.T.
Daigler Engineering, P.C.
2620 Grand Island Blvd.
Grand Island, New York 14072

Dear Allyson,

Pending sampling and laboratory analysis to ensure compliance with local pretreatment limits, the Jamestown Wastewater Treatment Plant, SPDES # NY0027570 which expires 6/1/2020, will enter into a contractual agreement for the treatment of leachate generated at the Jones-Carroll Construction and Demolition Debris Landfill in the Town of Carroll, New York, if the permit application is approved by NYSDEC. I have attached a copy of the City of Jamestown's pretreatment limits for your reference. The hauler will be billed at the 2016 rate of $0.0113 per gallon, or $11.30 per 1,000 gallons. Please call this office (716) 661-1653 or (716) 450-2334 prior to start of deliveries to check with me on our wastewater plant's capacity.

Our hours for accepting deliveries are limited to 7:00 AM to 6:00 PM, Monday through Friday, and 7:00 AM to noon on Saturday. We do not accept deliveries on Sunday.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

Keith Vanstrom
Chief Operator
Jamestown WWTP

D. No Class I permit shall be issued any time allowing the discharge of industrial process wastewaters to the sanitary sewer system when any of the pollutant characteristics exceed the limits specified below. These concentrations shall be applied to wastewater effluents at a point just prior to discharge to the City sewer system. Samples shall be obtained as 24 hr. composites unless otherwise specified in the User's permit.

Substance	Effluent Concentration Limit (mg/l)
Arsenic	1.00
Cadmium	0.30
Chromium (Hexavalent)	2.00
Chromium (Total)	4.00
Copper	1.25
Lead	0.30
Manganese	5.00
Mercury	0.004
Nickel	0.90
Selenium	0.20
Silver	0.20
Zinc	3.00
Cyanide (Total)	0.65
Fluoride	6.00
Phenol	0.50

*All concentrations listed for metallic substances shall be as "Total Metal" which shall be defined as the value measured in a sample acidified to a pH value of less than 2 without prior filtration.

Section 7 - Federal Pretreatment Standards

A. All pretreatment standards issued by EPA to industries in specific Standard Industrial Classification (SIC) categories shall have the same force of law as the local sewer ordinance. The General manager of the Board of Public Utilities shall notify all affected Uses of the applicable reporting requirements under 40 CFR 403.12.

B. No sewer use permit shall be issued for any discharge which does not conform to the requirements of any specific EPA pretreatment standard, providing that such standard has been in effect at least eighteen (18) months prior to the effective date of the requested permit.

In those cases where EPA pretreatment standards are issued either: (1) after a sewer use permit is granted for an existing discharge or, (2) less than eighteen (18) months prior to the requested effective date of a new sewer use permit, the applicant shall be granted an interim sewer use permit which will become null and void eighteen (18) months from the date of the published pretreatment standard. If, by the expiration of the interim sewer use permit, the discharge does not copy with the published pretreatment standard, no additional sewer use permit will be issued and the continued discharge of wastes shall become unlawful.

Section 8 - Local Pretreatment Option

A. The admission into the public sewers of any waters or wastes that contain the following shall be subject to review by the General Manager of The Board of Public Utilities:

1. A five-day BOD greater than three hundred (300) parts per million by weight, or
2. More than three hundred fifty (350) parts per million by weight of suspended solids, or
3. An average daily flow greater than five (5) percent of the average daily sewage flow of the receiving treatment plant, or
4. Characteristics which exceed any of the limitations established in Article VI, Section 6.

B. After proper review, the General Manager of the Board of Public Utilities may:

1. Require pretreatment to an acceptable condition for discharge to the public sewers, prior to the issuance of a permit.
2. Require control over the quantities and rates of discharge as a condition of the permit.
3. Require payment to cover the added cost of handling and treating the wastes as a condition of the permit.

C. Where pretreatment and/or equalization are required, plans and specification for such equalization and/or pretreatment facilities shall be subject to the review and approval of the General Manager of the Board of Public

GRAPE JUICE CAPITAL OF THE WORLD

The VILLAGE OF WESTFIELD

23 ELM STREET
WESTFIELD, NEW YORK 14787
(716) 326-4961
FAX (716) 326-4987

July 18, 2016

Allyson M. Zurawski, E.I.T.
2620 Grand Island Blvd.
Grand Island, New York 14072

RE: Leachate Disposal from
Jones-Carroll Landfill

Dear Ms. Zurawski:

The Village of Westfield intends to sign a letter of intent to enter into a contractual agreement to accept leachate from the Jones Caroll Landfill at the Village of Westfield Water Pollution Control Facility, SPDES Permit #NY-0021334, in accordance with all applicable State and Federal Regulations, specifically 6 NYCRR Part 360-203(k) and 6 NYCRR Part 364. Our SPDES Permit expired in 2013, and we have been operating from that since. Our renewal has been in processing by DEC since that point. We expect a new permit to be issued in the next few months. We will pursue a letter of intent if the permit application is accepted.

Our facility is capable of accepting 100,000 gallons per day of leachate and has storage capacity which could be utilized in an emergency. It is expected that you will notify us 24 hours in advance of any deliveries of leachate. Please forward, to my attention, any current test results you have on your leachate.

Please call with any questions at 716-326-3932.

Sincerely,

Andrew Thompson
Chief Operator
Village of Westfield WPCF

Waste Treatment Corporation

Business Office: P O Box 558
Washington, PA
724 228-9674

Plant: 341 W Harmar Street
P O Box 1550
Warren, PA 16365
814 726-1500

03/04/2015

Samuel Daigler
Diagler Engineering Inc.

Mr. Samuel Daigler,

Waste Treatment Corporation would like to thank you for the opportunity to revisit your Carroll NY landfill leachate project. At this time Jamestown NY BPU can only accept 16,500 gallons (3 loads) per day for disposal. Westfield NY treatment plant would be used as a secondary disposal facility only if needed because of additional transportation costs, but can accept larger volumes of water. Prices quoted are based on utilizing vacuum tractor trailers capable of transporting approximately 5,500 gallons per load.

WTC would be capable of hauling 3 loads per day per truck per truck to Jamestown NY BPU AT .0645 cents per gallon with a 2 load minimum. WTC would be capable of hauling 2 loads per day per truck to the Westfield NY treatment facility at .10 cents per gallon with a 2 load minimum. These prices include transportation, disposal, and the necessary New York State road permits and fuel surcharges.

WTC would recommend a leachate holding tank large enough to hold multiple loads, and installed in ground to prevent freezing during the winter months.

We appreciate the opportunity to provide a quote and look forward to working with you. If you need additional information, please contact Rich Gorton at the Plant address above, rgorton@waste-treatment.net or via cell (814) 688-5960

Thank You,
Waste Treatment Corporation

Richard Gorton

Rich Gorton
Plant Manager

Enclosures

RG/mhs

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF MATERIALS MANAGEMENT

PART 364
WASTE TRANSPORTER PERMIT NO. PA-419

Pursuant to Article 27 ,Titles 3 and 15 of the Environmental Conservation Law and 6 NYCRR 364

PERMIT ISSUED TO:

WASTE TREATMENT CORPORATION
PO BOX 1550
341 W HARMAR STREET
WARREN, PA 16365

PERMIT TYPE:

☐ NEW
☐ RENEWAL
■ MODIFICATION

CONTACT NAME:	STEVEN ARNOLD	EFFECTIVE DATE:	07/09/2016
COUNTY:	OUT OF STATE	EXPIRATION DATE:	**02/05/2017**
TELEPHONE NO:	(814)726-1500	US EPA ID NUMBER:	PAD981037856

AUTHORIZED WASTE TYPES BY DESTINATION FACILITY:

The Permittee is Authorized to Transport the Following Waste Type(s) to the Destination Facility listed :

Destination Facility	Location	Waste Type(s)	Note
ADVANCED DISPOSAL SERVICES	KERSEY , PA	Non-Hazardous Industrial/Commercial Asbestos Petroleum Contaminated Soil Waste Tires Sludge from Sewage or Water Supply Treatment Plant	
Chautauqua Landfill	Ellery , NY	Non-Hazardous Industrial/Commercial Petroleum Contaminated Soil Waste Tires Sludge from Sewage or Water Supply Treatment Plant	
G & H OIL COMPANY, INC.	WARREN , PA	Non-Hazardous Industrial/Commercial	OIL WATER
JAMESTOWN WWTP	JAMESTOWN , NY	Non-Hazardous Industrial/Commercial Grease Trap Waste Septage only (residential) Residential Raw Sewage including Portable Toilet Waste Non-Residential Raw Sewage or Sewage-Contaminated Wastes Sludge from Sewage or Water Supply Treatment Plant	Leachate
WASTE TREATMENT CORPORATION	WARREN , PA	Non-Hazardous Industrial/Commercial Petroleum Contaminated Soil Grease Trap Waste Septage only (residential)	

*** AUTHORIZED WASTE TYPES BY DESTINATION FACILITY LISTING (continued on next page) ***

NOTE: By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the Environmental Conservation Law, all applicable regulations, and the General Conditions printed on the back of this page.

ADDRESS: New York State Department of Environmental Conservation
Division of Materials Management - Waste Transporter Program
625 Broadway, 9th Floor
Albany, NY 12233-7251

AUTHORIZED SIGNATURE: _____ Date: 07/08/16

WASTE TRANSPORTER PERMIT

GENERAL CONDITIONS

The permittee must:

1. Carry a copy of this waste transporter permit in each vehicle to transport waste. Failure to produce a copy of the permit upon request is a violation of the permit.

2. Display the full name of the transporter on both sides of each vehicle and display the waste transporter permit number on both sides and rear of each vehicle containing waste. The displayed name and permit number must be in characters at least three inches high and of a color that contrasts sharply with the background.

3. Transport waste only in authorized vehicles. An authorized vehicle is one that is listed on this permit.

4. Submit to the Department a modification application for additions/deletions to the authorized fleet of vehicles. The permittee must wait for a modified permit before operating the vehicles identified in the modification application.

5. Submit to the Department a modification application to add a new waste category or a new destination facility, or to change the current waste or destination facility category. The permittee must wait for a modified permit before transporting new waste types or transporting to new destination facilities.

6. Submit to the Department a modification application for change of address or company name.

7. Comply with requirements for placarding and packaging as set forth in New York State Transportation Law as well as any applicable federal rules and regulations.

8. Contain all wastes in the vehicle so there is no leaking, blowing, or other discharge of waste.

9. Use vehicles to transport only materials not intended for human or animal consumption unless the vehicle is properly cleaned.

10. Comply with requirements for manifesting hazardous waste, regulated medical waste, or low-level radioactive waste as set forth in the New York State Environmental Conservation Law and the implementing regulations. Transporters who provide a pre-printed manifest to a generator/shipper/ offeror of regulated waste shall ensure that all information is correct and clearly legible on all copies of the manifest.

11. Deliver waste only to transfer, storage, treatment and disposal facilities authorized to accept such waste. Permittee must demonstrate that facilities are so authorized if requested to do so.

12. Maintain liability insurance as required by New York State Environmental Conservation Law.

13. Maintain records of the amount of each waste type transported to each destination facility on a calendar-year basis. The transporter is obligated to provide a report of this information to the Department at the time of permit renewal, or to any law enforcement officer, if requested to do so.

14. Pay regulatory fees on an annual basis. Non-payment may be cause for revocation or suspension of permit.

15. This permit is not transferrable. A change of ownership will invalidate this permit.

16. This permit does not relieve the permittee from the obligation to obtain any other approvals or permits, or from complying with any other applicable federal, state, or local requirement.

17. **Renewal applications must be submitted no less than 30 days prior to the expiration date of the permit to:**

New York State Department of Environmental Conservation
Division of Materials Management, Waste Transporter Program
625 Broadway, 9th Floor
Albany, NY 12233-7251

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF MATERIALS MANAGEMENT

PART 364
WASTE TRANSPORTER PERMIT NO. PA-419

Pursuant to Article 27 ,Titles 3 and 15 of the Environmental Conservation Law and 6 NYCRR 364

PERMIT ISSUED TO:

WASTE TREATMENT CORPORATION
PO BOX 1550
341 W HARMAR STREET
WARREN, PA 16365

PERMIT TYPE:

☐ NEW
☐ RENEWAL
▩ MODIFICATION

CONTACT NAME:	STEVEN ARNOLD	EFFECTIVE DATE:	07/09/2016
COUNTY:	OUT OF STATE	EXPIRATION DATE:	**02/05/2017**
TELEPHONE NO:	(814)726-1500	US EPA ID NUMBER:	PAD981037856

AUTHORIZED WASTE TYPES BY DESTINATION FACILITY: (Continued)
The Permittee is Authorized to Transport the Following Waste Type(s) to the Destination Facility listed :

Destination Facility	Location	Waste Type(s)	Note
WASTE TREATMENT CORPORATION	WARREN , PA	Residential Raw Sewage including Portable Toilet Waste Non-Residential Raw Sewage or Sewage-Contaminated Wastes Sludge from Sewage or Water Supply Treatment Plant	
WESTFIELD WPCF	WESTFIELD , NY	Non-Hazardous Industrial/Commercial	Leachate

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF MATERIALS MANAGEMENT

PART 364
WASTE TRANSPORTER PERMIT NO. PA-419

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341 W HARMAR STREET
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CONTACT NAME:	STEVEN ARNOLD	EFFECTIVE DATE:	07/09/2016
COUNTY:	OUT OF STATE	EXPIRATION DATE:	**02/05/2017**
TELEPHONE NO:	(814)726-1500	US EPA ID NUMBER:	PAD981037856

AUTHORIZED VEHICLES:

The Permittee is Authorized to Operate the Following Vehicles to Transport Waste:

(Vehicles enclosed in <>'s are authorized to haul Residential Raw Sewage and/or Septage only)

11 (Eleven) Permitted Vehicle(s)

PA AE93813
PA AF16052
PA AF83752
PA AG00259
PA AG01649
PA AG25834
PA AG25968
PA PT68212
PA PT7652E
PA PT9972L
PA PT9986R
End of List

APPENDIX D

H_2S Control Unit – Start Up/Change Out

SULFATREAT®
Startup Procedure

After following standard safety procedures and any site-specific procedures, the SULFATREAT startup is performed as follows:

1. It is strongly recommended that the internal reactor vessel measurements — ID and bed depth — *not* the overall vessel height, etc., be verified, so that product loading is consistent with the Estimated Performance Sheet (EPS).
2. Prior to any loading, it is necessary to make an internal and external inspection of the reactor vessel. This is to verify that there will be no chance for the gas to bypass the SULFATREAT bed. In other words, there should be no pipes or hollow devices in the vessel that could allow the gas to travel without contacting the SULFATREAT product.
3. There are two types of vessel bed supports that can be used. One has a support grid permanently installed about 2 in. below the throat of the lower manway. The other uses a level bed of washed gravel, ceramic balls, or pawl rings. The bed support must be leveled.
4. Securely place a 4-mesh 316 SS screen or expanded metal on top of support grid.
5. Securely place a 40-mesh 316 SS screen on top of the 4-mesh screen.
6. Place filter foam (available from SULFATREAT) on top of the bed support so that the flat edge is firmly set against the vessel walls and not lapped or folded. Filter foam is shipped with about 2-in. diameter excess to ensure a press fit. Hand-fill about 6 in. of SULFATREAT through the lower manway or slowly load the first super sack of SULFATREAT from the top and level it to ensure that the filter foam remains flat and firmly secured during subsequent loading.
7. Close and secure the bottom manway.
8. Through the top manway, load the remaining SULFATREAT to the level as stated in the EPS, being sure to keep the product 1 to 2 ft below the top (inlet) gas pipe; this gives the gas room for good distribution before flowing down through the product. During the latter stages of loading, level off the cone of the filled product bed and continue loading until finished. Level the SULFATREAT after loading all of the sacks as specified by the EPS.

9. SULFATREAT may fluff on loading. The initial height may be 5 to 10% higher than stated in the EPS. Verify the amount of the SULFATREAT load to be as given in the EPS by double-counting the empty SULFATREAT bags and entering the count in the operating log. Close and secure the top manway.
10. Pressure up the vessel slowly so that the initial maximum gas velocity does not exceed the EPS stated velocity. When operating in lead/lag design, bypass of the lag vessel is recommended (treating through the lead bed only) until breakthrough occurs in the lead bed.

Upon operational startup, record the required measurements: H_2S, H_2O, temperature, pressure and flow rate of each bed (if applicable). This data should be recorded on some routine basis (daily, weekly, biweekly, etc.) so that any problems that might develop can be identified and corrected in a timely manner.

SULFATREAT
A Business Unit of M-I L.L.C.
A Smith/Schlumberger Company
17998 Chesterfield Airport Road, #215
Chesterfield, Missouri 63005
Tel: 636·532·2189
Toll-free: 800·726·7687
Fax: 636·532·2764
E-mail: info@SULFATREAT.com

MI-02403 3/03 Litho in U.S.A.

SULFATREAT®
Changeout Procedure

Before beginning the SULFATREAT changeout procedure, be certain that all internal vessel hydrogen sulfide levels have been reduced to safe limits before opening the manways. Ensure that all necessary safety precautions, including the installation of blinds, have been taken to avoid the possibility of sour gas entering the vessel while it is being unloaded and reloaded. If using a two-vessel system, divert all flow to the lag vessel.

The changeout procedure must be performed in this order:

1. Blind-flange the inlet and outlet piping.
2. Open the top manway.
3. Install a trough extending from the lower manway to a suitable dumpster or other bulk container lined with polyethylene film to prevent water from draining onto the location.
4. Remove the bottom manway.
5. A volume of water approximately equal to the bed volume may be required to clean out a typical vessel. Systems are available for recycling water during changeout where a limited water source exists or disposal problems may occur.

   A fire hose nozzle, or 5-ft x 1-in. pipe, round-swaged to ¼ in., at 25+ GPM and 150 psi is suitable for washing the material from the area inside the manway as the initial unloading step, if the material is not agglomerated. An initial volume of water is used at first to fill up the bottom void area. As soon as this area is cleaned out, install a 90° ell on the wash pipe with the ¼-in. round nozzle pointing up.

   Between 10 and 20 ft of material can be removed with the nozzle placed at the level of the manway. Splashing of material will occur as chunks of reacted SULFATREAT are washed loose and fall to the bottom. These chunks could be heavy enough to cause injury; use care and do not place head, arms or hands inside vessel until all material is removed. If the vessel has an internal coating, care must be taken not to damage it.
6. To remove any remaining material or material that has become agglomerated, a high-pressure water source must be used. This system must be capable of delivering a minimum of 25 GPM at 3,500 psi. Observe above-mentioned safety guidelines when proceeding.
7. When material is no longer being removed by washing from the bottom, finish washing from the top of the vessel through the top manway.
8. The cleanout bin should be monitored to ensure that the water level does not reach the top of the bin. If this does happen, stop the procedure and allow the water to drain off.
9. After flushing all of the material from the vessel and the material trapped below the support, remove, wash and inspect the existing filter foam. Reinstall it if it is not damaged, but replace it with new foam, if any damage is visible.
10. Drain excess water from the bottom of the tower. Flush the vessel thoroughly with fresh water until the drain runs clear.

    Pump excess water from the bulk container and allow the reacted SULFATREAT to dry. Dispose of the spent material in a manner that is in keeping with local regulations.
11. Replace filter foam carefully to ensure a tight seal around the inside edge of the reactor.
12. Refer to the Startup Procedure for the initial loading.
13. Close and secure the bottom manway.

14. Load the specified amount of SULFATREAT through the top manway. Do not load above the upper head seam. Leave a clear disengaging space.
15. Close and secure the top manway.
16. Remove the blind flanges.
17. Pressure up slowly. High initial velocities could result in short-term, off-spec gas on startup.
18. Return vessels to service. In the case of two reactor vessels piped in lead/lag fashion, the lag vessel is now the lead vessel.
19. Manpower and equipment requirements are site-specific.

Note: High-pressure water is the preferred method for cleanout. If it is not used, the vessel should be filled with water and drained before using an alternate method.

SULFATREAT
A Business Unit of M-I L.L.C.
A Smith/Schlumberger Company
17998 Chesterfield Airport Road, #215
Chesterfield, Missouri 63005
Tel: 636·532·2189
Toll-free: 800·726·7687
Fax: 636·532·2764
E-mail: info@SULFATREAT.com

MI-02402 3/03 Litho in U.S.A.

APPENDIX E

Site Specific Health and Safety Plan

HEALTH AND SAFETY PLAN

CARROLL LANDFILL
CARROLL, NEW YORK

SEALAND WASTE, LLC

Prepared on behalf of:

Sealand Waste, L.L.C.
85 High Tech Drive
Rush, New York 14543

Prepared by:

DAIGLER ENGINEERING P.C.
1711 Grand Island Blvd.
Grand Island, New York 14072-2131

September 2013

HEALTH AND SAFETY PLAN

CARROLL LANDFILL
CARROLL, NEW YORK

SEALAND WASTE, LLC

Prepared on behalf of:

Sealand Waste, L.L.C.
85 High Tech Drive
Rush, New York 14543

Prepared by:

DAIGLER ENGINEERING P.C.
1711 Grand Island Blvd.
Grand Island, New York 14072-2131

September 2013

HEALTH AND SAFETY PLAN
Carroll Landfill

Sealand Waste, LLC

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1 INTRODUCTION

1.1 GENERAL

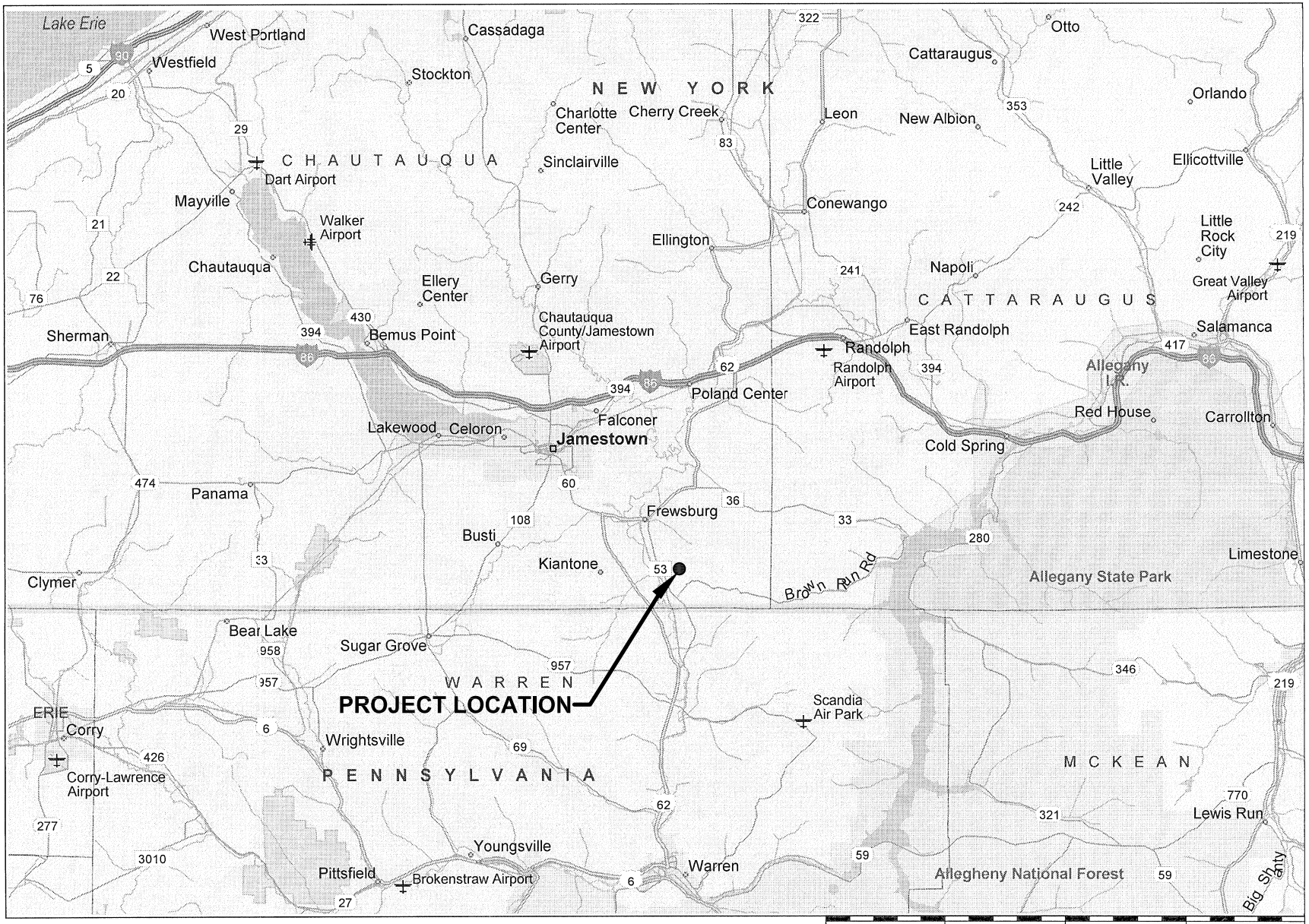
This document addresses the health and safety requirements for personnel involved in construction and operational activities at the Carroll Landfill located in the Town of Carroll, Chautauqua County New York. The site is located on Dodge Road approximately one mile north of the New York/Pennsylvania State line, as shown in Figures 1 and 2.

1.2 SITE DESCRIPTION

The Carroll landfill site is a parcel of property with a total area of 53.3 acres. The property was originally the site of a small surface mine; however, on depleting the saleable mineral resources, permits were issued by the NYSDEC and the Town for development of the construction and demolition debris (C&D) landfill. At this time, the existing three-acre landfill has been closed and is estimated to contain approximately 50,000 to 60,000 cubic yards of waste. Other areas of the site are undeveloped, or were used for stockpiling of metal scrap for resale, and cover soil borrow areas. A metal pole building houses tools and equipment for minor repairs to landfill equipment.

Activities will involve the use of potentially dangerous tools and equipment (e.g. excavators, bulldozers, chain saws, etc.) for the purpose of roadway construction, drainage structure installation, excavation for landfill liner installation or borrow soils, waste handling and compaction, C&D processing, yard waste composting, soils handling, and earthwork associated with the approximate 35-acre landfill expansion. Ancillary and support facilities are to include a scale house, access roadways, leachate storage facility, maintenance building, and stormwater management basins and related structures.

In support of landfill operations, the proposed solid waste management facility will also include a C&D processing operation and yard waste composting to manage source separated yard waste delivered to the site. Other ancillary operations will include the excavation and placement of onsite structural fill soils, the screening of onsite soils for liner and leachate collection system construction, and the import of drainage aggregate for a portion of the primary leachate collection system drainage layer.

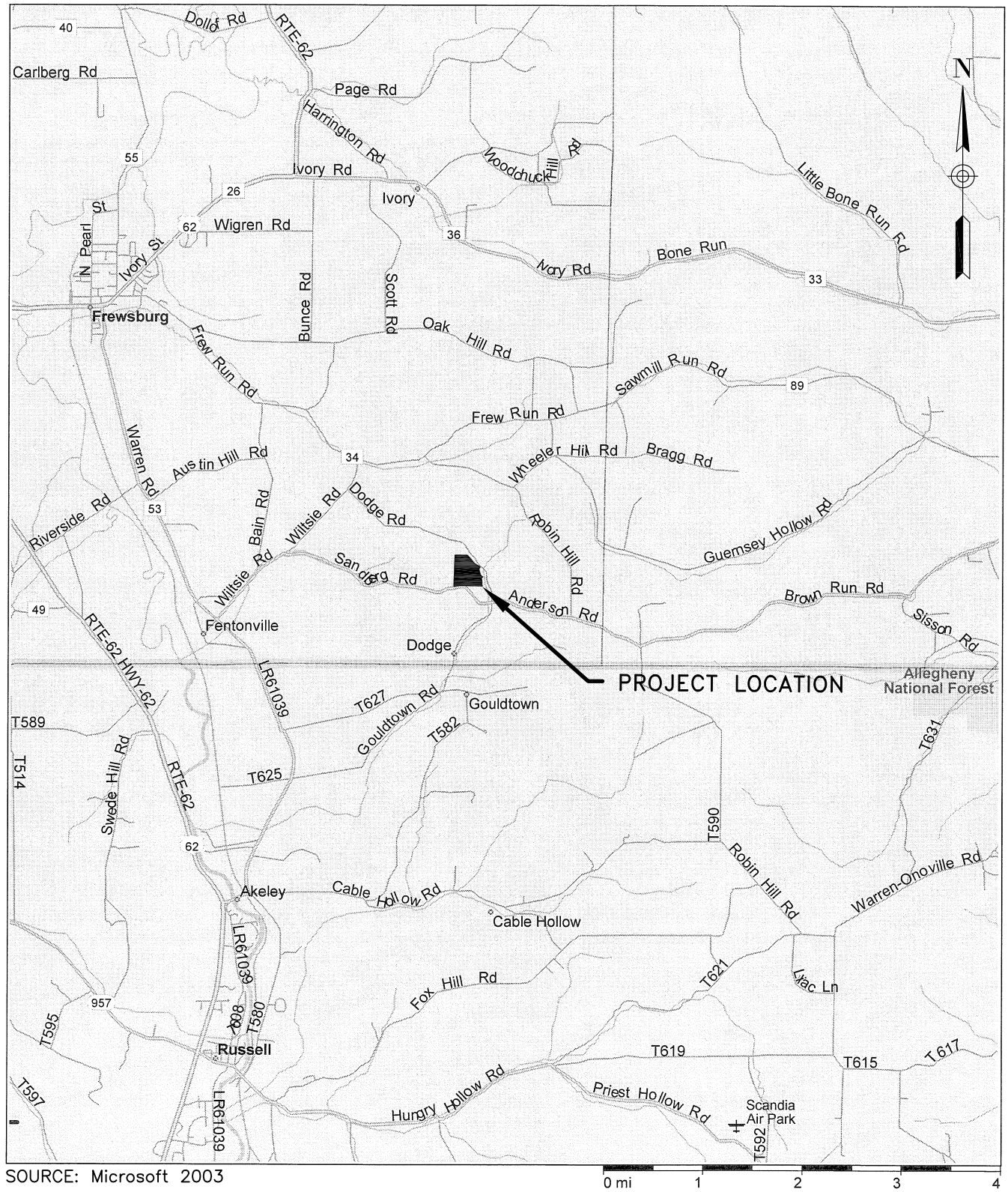


SOURCE: Microsoft 2003

DAIGLER ENGINEERING P.C.
engineering · science · design
1711 GRAND ISLAND BLVD. GRAND ISLAND, NEW YORK 14072

SEALAND WASTE, LLC		REGIONAL MAP	FIGURE 1
SCALE: As Shown	REVISION # 0	CARROLL LANDFILL EXPANSION	
October 2010	TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK

Q:\Sealand\02-0104 Carroll Landfill\Project Management\Fig 1-Carroll Regional Map.dwg 10/25/2010 11:27 AM



Q:\Sealand\02-0104 Carroll Landfill\Project Management\Fig 2-Carroll Vicinity Map.dwg 10/19/2010 12:38 PM

DAIGLER ENGINEERING P.C.
engineering · science · design
1711 GRAND ISLAND BLVD. GRAND ISLAND, NEW YORK 14072

VICINITY MAP

CARROLL LANDFILL EXPANSION

SEALAND WASTE, LLC			FIGURE 2
TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK	
October 2010	SCALE: As Shown	REVISION # 0	

1.3 OBJECTIVES AND CONTENT OF THE HEALTH AND SAFETY PLAN

The activities addressed by this plan include the following:

- Land clearing and site access development;
- Exploratory drilling activities;
- Test pit excavation;
- Landfill construction
- General landfilling operations;
- Relocation of existing C&D waste to a composite lined landfill; and,
- Soil, waste, surface water and leachate sample collection.

This Health and Safety Plan (HASP) describes the hazardous substances and conditions known or suspected to be present on the site, and specifies precautions to ensure that they do not adversely impact the health or safety of personnel conducting field activities. It is also intended to ensure that the procedures used during these field activities meet acceptable professional standards to protect the health and safety of workers, the surrounding community, and the environment. This plan incorporates by reference the applicable requirements of the Occupational Safety and Health Administration in 29 CFR Parts 1910 and 1926, NYSDEC 6 NYCRR Part 360 Solid Waste Management Facilities regulations, and others as appropriate.

The requirements and guidelines in the HASP are based on a review of available site-specific information and an evaluation of potential hazards. They have been developed to minimize the potential for exposure of personnel to site hazards. These requirements will be periodically reviewed and updated, as necessary, by the Site Health and Safety Officer (SHSO) in response to changing conditions or new operations onsite.

All personnel working at the Carroll Landfill facility must become familiar with this HASP and abide by its requirements. Since every potential health and safety hazard encountered at a site cannot be anticipated, it is imperative that personnel be equipped and trained to respond promptly to a variety of possible hazards.

2 RESPONSIBILITIES

Personnel at the site may share the responsibilities described below, or any one individual may assume the responsibilities of another, all as coordinated by the Site Manager.

2.1 SITE MANAGER

The Site Manager is responsible for all aspects of the construction and operations at the Carroll Landfill Facility. Inquiries regarding all procedures and technical/regulatory issues are to be addressed to this individual. The Site Manager will ensure periodic review this HASP is completed and that modifications are incorporated as needed. It is also the Site Manager's responsibility to ensure that all affected parties are informed of any changes to the plans and documents by mandating a safety training module be included in the annual refresher training or by holding a special session of safety training, if required. The Site Manager will maintain copies of each employee's signed HASP acceptance form (Attachment B). Any time a revision to this document is issued, a new acceptance form must be collected from each employee.

The Site Manager is ultimately responsible for ensuring all site conduct is performed in accordance with the requirements and procedures in this plan. To facilitate this responsibility the Site Manager must appoint a SHSO.

2.2 SITE HEALTH AND SAFETY OFFICER

The SHSO is responsible for coordinating health and safety issues, including communication of safety related requirements to all personnel (including contractors and subcontractors). The SHSO is responsible for performing the routine monitoring identified in the HASP, and will be responsible for addressing changes in the HASP as needed.

Specifically, the SHSO's duties include the following:

- Implementing and enforcing the requirements of this HASP;
- Stopping work, as required, to ensure personal safety and protection of property, or in cases of life or property-threatening safety noncompliance;
- Thoroughly investigating all accidents at the site;

- Promptly documenting and reporting all injuries/illnesses to the Site Manager via an Accident Report Form and verify corrective actions completed (Attachment A);
- Posting emergency telephone numbers, routes to medical facilities, and arranging emergency transportation to medical facilities, if necessary;
- Verifying that all site personnel, contractors, and subcontractors have appropriate and current medical clearance and training;
- Maintaining personal protective equipment (PPE) inventory and ensuring proper PPE is onsite and available to all appropriate personnel;
- Reviewing and maintaining required health and safety documentation;
- Establishing evacuation routes and meeting place prior to commencement of work activities;
- Conducting all health and safety related employee training, including site-specific health and safety orientations, safety training modules during the annual refresher training, and special secessions of safety training for all appropriate personnel prior to a change in operations;
- Designating alternate personnel to assist in performing these duties, as well as other duties that may arise related to health and safety and emergency response;
- Modifying this HASP in accordance with changes to the operational conditions;
- Calibration and maintenance of monitoring equipment, including air quality monitors;
- Performing all routine monitoring tasks; and,
- Reporting deviations in this plan to the Site Manager.

2.3 CONTRACTORS AND SUBCONTRACTORS

All contractors and subcontractors must understand and comply with the requirements established in this HASP. All contractors and subcontractors must attend and participate in the site-specific health and safety orientation (Section 8) and all other site safety meetings as needed. Contractors and subcontractors must provide the Site Manager with a copy of their HASP, which

at a minimum must address the requirements of this plan. Subcontractors may agree to implement the HASP of the contractor they are working under.

2.4 SITE PERSONNEL

All site personnel must participate in the site-specific safety orientation which entails at a minimum that they read and acknowledge their understanding of this HASP by signing the acceptance form included in Attachment B. Site personnel must abide by the requirements of the plan and cooperate with the SHSO in ensuring a safe work area. Site personnel must practice common sense and judgment with a focus on being aware and alert to conditions that may present the potential for injury. A "buddy system" should be practiced that ensures no one individual is working alone in an isolated area without the ability to communicate (i.e. radio/walkie-talkie communication) with others. Site personnel must immediately report any of the following to the SHSO:

- All accidents and injuries;
- Unexpected or uncontrolled release of chemicals;
- Symptoms of chemical exposure;
- Unsafe or malfunctioning equipment; and,
- Changes in conditions that may affect the health and safety of site personnel.

Table 2-1 identifies the personnel responsible for the oversight and implementation of this HASP.

TABLE 2-1: RESPONSIBLE PERSONNEL

Title	Designated Person	Contact Information
Site Manager	TBA	
Site Health and Safety Officer (SHSO)	TBA	
SHSO Designated Alternate	TBA	

3 SITE HAZARDS

3.1 JOB HAZARD ASSESSMENT

A job hazard assessment is necessary to identify potential safety, health, and environmental hazards associated with activities onsite. Because of the ever changing nature of conditions on a developing landfill site, the SHSO must routinely inspect work areas on a routine basis to identify potential new hazards that may harm site personnel, the community, or the environment. The SHSO must be aware of these changing conditions and discuss them with the Site Manager whenever these changes may impact the health and safety of personnel, or the completion of the task at hand.

3.2 GENERAL HAZARDS

The general hazards for this site include the use of power tools, proximity to operational heavy equipment, manual materials handling, and other manual, physically taxing tasks. The physical hazards of working in close proximity to heavy equipment include minor to serious joint and/or skeletal injuries, and potentially life threatening injuries by impact or crushing, etc. Many of the proposed activities also present eye, contusion, and laceration hazards. The presence of thick mature vegetation, including those with spikes and barbs, poses a potential scratching, abrasion, and puncture hazard to the eyes, especially during the initial site preparation activities.

The unimproved site and work areas under construction present a significant potential for "slip, trip, and fall" hazards from scattered debris and irregular walking surfaces. Wet ground areas and wet weather may cause muddy, and/or slick walking surfaces and unstable waste/soil conditions. Slippery work surfaces can increase the likelihood of back injuries, slips, falls and other accidents. Due to the use of heavy equipment, excessive noise may present the potential for hearing damage in the event of close working quarters. General environmental hazards also include working for prolonged periods in hot or cold weather conditions.

3.3 HAND AND POWER TOOLS

All tools are manufactured with safety in mind however serious accidents can occur. Personnel must be aware of hazards associated with the different types of tools that will be used, and the safety precautions necessary to avoid and/or manage those hazards. For example, simple hand

tools from axes to wrenches, although non-powered, can pose hazards resulting from misuse and improper maintenance. Some examples include:

- Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees;
- If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker;
- A wrench must not be used if its jaws are sprung, because it might slip; and,
- Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.

Power tools can be extremely hazardous when improperly used, causing serious injury. Personnel who use hand and power tools can be exposed to the hazards of falling, flying, abrasive and splashing objects, severe laceration or exposure to harmful dusts, fumes, mists, vapors, or gases.

At no time shall site personnel operate a power tool with the manufacturers safety features disabled or removed.

3.4 HEAVY EQUIPMENT HAZARDS

Many people are seriously injured or killed on construction sites each year by mobile heavy equipment including backhoes, excavators, cranes, grading and surfacing machinery, loaders, bulldozers, tractors and the like. Main causes of serious injury and death include the following:

- Workers on foot are struck by equipment, usually when it's backing up or changing direction;
- Equipment rolls over and kills the operator while on a slope or when equipment is loaded or unloaded from a flatbed/lowboy truck;
- Operators or mechanics are run over or caught in equipment when the brakes aren't set, equipment is left in gear, wheel chocks are not used, or the equipment and controls aren't locked out; and,

- Workers on foot or in a trench are crushed by falling equipment loads, backhoe buckets, or other moving parts.

3.5 LAND CLEARING HAZARDS

Land clearing hazards are primarily associated with the use of power tools, proximity to heavy equipment movement, a significant potential for "slip, trip, and fall" hazards from scattered debris and irregular walking surfaces, and wet ground conditions resulting in muddy, and/or slick walking surfaces. The potential for falling debris also presents a physical hazard of injury and entrapment.

3.6 EXCAVATION HAZARDS

Excavation and trenching has long been recognized as one of the most hazardous operations in the construction industry. Excavations are dangerous places and all excavation must be properly planned, managed and supervised. Entry of personnel into site excavations presents additional potential hazards including: cave-ins; uneven/slippery surfaces; the possibility of liquids or gases being admitted into the space during occupancy; or the physical isolation of individual(s) when in need of rescue. Even without entry, excavations present significant falling hazards and the removal and stockpiling of materials presents hazards from falling debris.

3.7 NOISE HAZARDS

Exposure to noise over the OSHA action level can cause temporary impairment of hearing; prolonged and repeated exposure can cause permanent damage to hearing. The risk and severity of hearing loss increases with the intensity and duration of exposure to loud noise. In addition to damaging hearing, noise can impair voice communication, thereby increasing the risk of accidents.

3.8 HEAT STRESS

Wearing PPE may put project personnel at increased risk of heat stress. Heat stress ranges from transient heat fatigue to serious illness and death. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is one of the most common and potentially

serious illnesses experienced during field operations, alertness to the symptoms and knowledge of preventive measures are vital.

3.9 HAZARDOUS ATMOSPHERES

When handling waste materials or performing activities such as routine maintenance on the leachate or landfill gas systems, the possibility exists for flammable, oxygen deficient, or toxic atmospheres to be present. A flammable atmosphere can be caused by the presence of landfill gas, an oxygen enriched atmosphere (above 21%) or other flammable gas, vapor or dust in the proper mixture. If a source of ignition is introduced into a space containing a flammable atmosphere, an explosion will result. An oxygen deficient atmosphere has less than 19.5% available oxygen, and must not be entered without an approved supplied air or self-contained breathing apparatus (SCBA). A toxic atmosphere contains compounds present at concentrations sufficient to cause illness or death. Compounds found in landfill gas or emitted from buried wastes or leachate can create a toxic atmosphere.

3.10 CHEMICAL/SUBSTANCE HAZARDS

Potential chemical and substance hazards associated with and active C&D landfill include eye and skin contact with soil, waste, or leachate containing chemical constituents and inhalation or ingestion of dust and chemical compounds. Contact with petroleum based fuel, motor, and hydraulic oils used and stored onsite also present the potential for chemical and substance exposure. Exposure to these constituents may cause skin, eye, and respiratory irritation or more serious injury. Ingestion of waste, soil, or leachate may cause nausea, vomiting or other symptoms. A breakdown of some of the individual contaminants that may be found in a construction and demolition debris landfill and their side effects can be found in Table 3-1. Proper PPE, as discussed in Section 5, must be worn at all times while onsite. The contaminants listed in Table 3-1 represent the most hazardous (i.e., lowest REL) substances suspected at significant concentrations.

Values reported on Table 3-1 are defined by the National Institute for Occupational Safety and Health (NIOSH) as follows:

- Time Weighted Average (TWA) is the cumulative average concentration over a 10 hr/day, 40 hr/wk to which a worker can be safely exposed; and,
- Immediately Dangerous to Life or Health (IDLH) is the concentration which represents the maximum level from which one could safely escape within thirty minutes.

Note that the REL listed for vinyl chloride is from the OSHA standards in 29 CFR . NIOSH had a policy on carcinogens that called for no detectable level limits. Although NIOSH has begun to assign RELs and IDHLs to carcinogens under a new policy, some pollutants, including vinyl chloride, have not yet been assessed.

TABLE 3-1: CHEMICAL HAZARD INFORMATION

Substance (CAS)	Route	Symptoms of Exposure	Treatment	TWA (NIOSH)	IDLH (NIOSH)
Acrylonitrile (107-13-1)	Inh Abs Ing Con	Irritate eyes, asphyxia, headache, sneezing, nausea, vomiting, lassitude, dizziness, skin vesiculation, dermititis	Eye: Irr. Immediately Skin: Water wash immediately Breath: Resp. support Swallow: Medical attention immediately	1 ppm Ca	85 ppm Ca
Benzene (71-43-2)	Inh Ing Con Abs	Irritate eyes, nose, respiratory system, giddiness, headache, nausea, fatigue, staggered gait, anorexia, lassitude, bone marrow depression, carcinogenic	Eye: Irr. Immediately Skin: Soap wash immediately Breath: Resp. support Swallow: Medical attention immediately	0.1 ppm Ca	500 ppm Ca
Caron Monoxide (630-08-0)	Inh Con	headache, tachypnea, nausea, lassitude, dizziness, confusion, hallucinations, cyanosis; depressed S-T segment of electrocardiogram, angina, syncope	Eye: Frostbite Skin: Frostbite Breath: Resp. support	35 ppm	1200 ppm
Hydrogen Sulfide (7783-06-4)	Inh Con	Eye Irritation, Slight conjunctivitis, respiratory tract irritation, dizziness, blurred vision, nausea, shortness of breath, headaches	Eye: Frostbite Skin: Frostbite Breath: Resp. support	10 ppm (ceiling, not to exceed limit)	100 ppm
Methyl Mercaptan (74-93-1)	Inh Con	irritation eyes, skin, respiratory system; narcosis; cyanosis; convulsions; liquid: frostbite	Eye: Irr. Immediately (liquid) /frostbite Skin: Water flush immediately/ frostbite Breath: Resp. support	0.5 ppm (ceiling, not to exceed limit)	900 ppm
1,1,2,2,-Tetra-chloroethane (79-34-5)	Inh Abs Ing Con	nausea, vomiting, abdominal pain, tremor fingers, jaundice, hepatitis, liver tenderness; dermatitis; leukocytosis, kidney damage	Eye: Irr. Immediately Skin: Soap wash immediately Breath: Resp. support Swallow: Medical attention immediately	1 ppm Ca	100 ppm Ca
Vinyl Chloride (75-01-4)	Inh Con	Lassitude, abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities, liquid: frostbite	Eye: Frostbite Skin: Frostbite Breath: Resp. support	1 ppm (OSHA) Ca	Not been deter-mined

Key:

Inh = Inhalation
Ing = Ingestion
Abs = Skin Absorbtion
Con = Skin Contact
Ca = Potential Occupational Carcinogen
Irr = Irrigate

4 HAZARD CONTROL PROCEDURES

4.1 GENERAL PRACTICES

All personnel working at the site must read and understand the HASP and adhere to the requirements thereof. Their review and understanding of the HASP, as well as their commitment to the requirements of the HASP must be documented by signing the acceptance form included in Attachment B. The Site Manager will maintain a file of signed HASP acceptance forms. In addition, the following general practices apply:

- At least one copy of this HASP will be kept in each of the following onsite locations: the scale house and the employee break room;
- Legible and understandable precautionary labels that comply with the hazard communication standard must be affixed prominently to tightly closed containers of contaminated scrap, waste, debris, PPE, and clothing;
- Food, beverages, or tobacco products must not be present or consumed outside of designated areas;
- Emergency equipment and all PPE will be staged in a readily accessible area; and,
- Visitors to the work area are allowed only at the discretion of the Site Manager and/or the SHSO.

4.2 HAND AND POWER TOOLS

Personnel are responsible for the safe condition of tools and equipment used and are responsible for properly using and maintaining tools. Personnel must use caution to ensure that saw blades, knives, or other tools are directed away from traffic areas and other individuals working in close proximity. Blades and knives must be sharp as dull tools can be more hazardous than those that are sharp.

Appropriate PPE (e.g., safety goggles, gloves, etc.) must be worn due to hazards that may be encountered while using portable power tools and hand tools. Safety requires that ground and footing areas where tools are used be kept as clear, free of debris, and dry as possible to prevent accidental slips with or around dangerous hand tools. Around flammable substances, sparks

produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

Personnel who use hand and power tools where there is a potential to be exposed to falling, flying, abrasive, and splashing objects, harmful dusts, fumes, mists, vapors, or gases must obtain and don personal equipment necessary to protect them from the hazard.

Nearly all hazards associated with the use of power tools can be prevented by following five basic safety rules:

1. Keep all tools in good condition with regular maintenance;
2. Use the right tool for the job;
3. Examine each tool for damage before use;
4. Operate according to the manufacturer's instructions; and,
5. Provide and use the proper protective equipment.

The following additional general precautions must be observed by power tool users:

- Never carry a tool by the cord or hose;
- Never yank a cord or hose to disconnect it from the receptacle;
- Keep cords and hoses away from heat, oil, and sharp edges;
- Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits, and cutters;
- All observers should be kept at a safe distance away from the work area; and,
- Secure work, freeing both hands to operate the tool.

4.3 HEAVY EQUIPMENT OPERATION

Basic guidelines personnel must follow to help ensure safe operation of heavy equipment include:

- Only trained and experienced operators shall operate heavy equipment;

- Do not operate heavy equipment when drowsy, intoxicated, or taking prescription medication that may affect performance;
- Inspect and maintain equipment to ensure it is in good working order;
- Do not stress or overload equipment, or operate equipment at its performance limits;
- Use only heavy equipment that has rollover protective structures (ROPSs) and seat belts;
- Use only flatbed/lowboy trucks and ramps that are suitable for transporting heavy equipment;
- Maintain a copy of the operating manual on all machinery or ensure this information is available to the operator.
- Identify the hazards of overhead and underground power lines and utilities and establish procedures for working around them. Before excavation begins, use the one-call system;
- Ensure the manufacturer's safety features are in working condition;
- Establish a limited access zone and/or a swing radius for each piece of equipment;
- Provide training on equipment hand signals; and,
- Ensure workers do not enter blind spots of the equipment without first signaling the operator.

Before leaving equipment unattended, the operator must ensure:

- All buckets, blades, etc. are on the ground;
- Transmission is in neutral;
- Engine is off; and,
- Equipment is secure against movement.

All access roadway surfaces must be constructed and maintained to accommodate the safe movement of equipment and vehicles. Operators must never attempt to get on or off moving equipment, and no passengers must be allowed to ride on the equipment. Seat belts shall be provided on all equipment.

All heavy equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in a reverse direction. The horn shall be maintained in an operative condition. All personnel working on the site must wear brightly colored or reflective vests to increase visibility. Personnel working on the ground in the vicinity of heavy equipment must maintain visual contact with the operator at all times, or must signal the operator when leaving his line of sight.

4.4 EXCAVATION

4.4.1 General

Safe excavation practice includes inspection of the excavation by a competent person focusing on conditions that can create unsafe conditions including ground cracking, voids, subsidence, seepage, oxygen deficiency, and events that affect ground stability including heavy rains, harsh frost, and equipment or soil stockpiles too close to the edge of an excavation. If the excavation appears unsafe it is likely unsafe.

Personnel entry into an excavation will be minimized; but when required, the protective system requirements of 29 CFR 1926 Subpart P, related to excavations, will be implemented, including OSHA standards for maximum spacing of ladders, ramps, or other means of safe egress. The SHSO or his duly qualified representative shall make daily inspections of the excavation. Any trench excavation with a potential for cave-in into which persons will enter to perform work or make observations must be shored, sloped, or otherwise made safe for entry. A registered Professional Engineer (P.E.) licensed in New York State must design the shoring or sloping system. The design must be present at the site and the system must be installed as designed.

The SHSO or his designee will determine the existence and location of all underground pipes, electrical power lines, or other items known to be present before excavation begins.

All excavation activity must be performed from a stable ground position. All loose soil and waste material present on the slope that could pose a hazard by falling or rolling from the face of the excavation must be removed or stabilized by the excavator. Orange litter fence or other suitable, brightly colored fence or barricade shall be installed at the top of the excavation if left in a dangerous condition where pedestrian traffic may occur. The ground surface at the top of

the excavation must be kept clear of any encumbrances that may create a tripping hazard, or that may fall into the excavation.

4.4.2 Confined Spaces and Hazardous Atmospheres

An excavation may be a confined space if it meets certain conditions. A confined space is a space that is large enough and so configured that an individual can enter and performed assigned work, has limited means for entry or exit, and is not designed for continuous occupancy. A confined space may also have one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere;
- Contains a material that has the potential for entrapping, engulfing, or suffocating an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or,
- Contains any other recognized serious safety or health hazard.

Confined space entry is only allowed under a valid Confined Space Entry Permit.

In areas where an individual may be overcome by oxygen-deficient, flammable or toxic atmospheres, at least one additional person shall be present. This individual will be positioned such that they will be unaffected by any likely incident and have proper rescue equipment on hand to be able to assist the other(s) in case of emergency. Communication (visual, voice, or signal) shall be maintained between both or all individuals present.

The Site Manager will designate the persons who have active roles in entry operations (e.g., authorized entrants, attendants, entry supervisors, or persons responsible for testing or monitoring the atmosphere in the confined space) and will confirm the duties of each employee. The SHSO will develop and implement procedures for summoning rescue and emergency services, for rescuing entrants from confined spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.

Emergency rescue equipment including breathing apparatus, a safety harness and line, or a basket stretcher, must be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed individuals shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

4.4.3 Waste Reclamation

Continuous air monitoring will be performed concurrently with visual inspection of waste materials as described in detail in Section 7 of the HASP. Decisions on PPE for the chemical hazards will be based on measurements taken before and during work activities.

If hazardous waste is suspected or encountered during any excavation, the excavator operator must move the material around the subject waste with great caution to minimize the potential to disturb and disburse the waste. The excavator will attempt to expose the hazardous waste to allow inspection. The hazardous waste must be approached from an upwind direction and the individuals inspecting the material must wear PPE consistent with the suspected hazard. Continuous air monitoring will be performed concurrently with visual inspection of the material.

The inspection must gain as much information as possible about the potential hazardous waste. The inspector(s) should look for and document:

- Physical characteristics of the material (e.g. texture, color, odor, etc.);
- Symbols, words, or other marks on any drum indicating its contents are hazardous (e.g. explosive, corrosive, toxic, or flammable); and,
- Symbols, words, or other marks on any containers indicating that it contains discarded chemicals, reagents, or other potentially dangerous materials in small volume, individual containers.

4.5 FALLING DEBRIS

Personnel shall not be permitted underneath loads handled by lifting or excavating equipment. Labor and supervision shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials, and operators shall remain in the cabs of vehicles being loaded or unloaded. Stockpiles of spoilage materials and excavation equipment must be kept at least two feet back from the edge of excavation to prevent debris from falling into the excavation.

4.6 HEAT STRESS

The following measures may be used to help control heat stress:

- Workers will be advised of the dangers and potential indicators of heat stress;
- Workers will be encouraged to drink water and electrolyte replacement solutions at periodic intervals during the day;
- Adequate rest periods shall be provided; and,
- Employees must remove impermeable garments during rest periods.

4.7 HEARING CONSERVATION

All personnel must wear hearing protection with a Noise Reduction Rating (NRR) of at least 20 dBA when noise levels exceed 85 decibels (dBA). Whenever possible, equipment that does not generate excessive noise levels will be selected for this project. If the use of noisy equipment is unavoidable, barriers or increased distance will be used to minimize worker exposure to noise, wherever possible.

4.8 ELECTRIC SHOCK

Safe work practices must be followed to prevent electric shock or other injuries resulting from either direct or indirect contact with electrically energized equipment or circuits. Lockout/tagout procedures must be followed whenever personnel may be exposed to an energy source that poses a hazard.

Before employees may be exposed to, or work on or near live circuits or energized equipment, these units must be de-energized unless the Site Manager can demonstrate that de-energizing

introduces additional or increased hazards, or is unfeasible due to equipment design or other limitations. Live circuits or equipment that operates at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

The circuits and equipment to be worked on or relocated must be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout/ tagout procedures. Capacitors and high capacitance elements must be discharged, short-circuited and grounded if they might endanger personnel. Stored non-electrical energy (hydraulic, pneumatic, etc.) in devices that could re-energize electric circuit parts must be blocked or relieved to prevent accidental activation.

Before any circuit or equipment is considered de-energized or worked on as de-energized, a qualified person must verify that the equipment cannot be restarted, and must test circuit elements and electrical equipment to verify that they are de-energized. The test must also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed.

If exposed live circuits are not de-energized, other safety related work practices must be used to protect employees who may be exposed to the electrical hazards. Such work practices must protect employees against contact with energized circuit parts directly with any part of their body or through some other conductive object. The work practices that are used must be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts.

Only qualified persons may work on exposed circuits or equipment that has not been de-energized. The qualified person must be capable of working safely on energized circuits and must know the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

4.9 LIFTING

Using proper lifting techniques may prevent back strain or injury. The fundamentals of proper lifting include:

- Consider the size, shape, and weight of the object to be lifted. Two persons must lift an object if it cannot be lifted alone safely;
- Hands and the object should be free of dirt or grease that could prevent a firm grip;
- Gloves must be used, and the object inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces;
- Fingers must be kept away from points that could crush or pinch them, especially when putting an object down;
- Feet must be placed far enough apart for balance. Footing should be solid and the intended pathway should be clear;
- The load should be kept as low as possible, close to the body with the knees bent;
- To lift the load, grip firmly and lift with the legs, keeping the back as straight as possible;
- A worker should not carry a load that he or she cannot see around or over; and,
- When putting an object down, the stance and position are identical to that for lifting; the legs are bent at the knees, and the back is straight as the object is lowered.

4.10 SEVERE WEATHER

In the event of rain or thunderstorm or high winds in the area, the SHSO must be alert to the danger to the field crew. Work must be suspended if lightning is observed within one mile of the work site, or if winds in excess of 50 miles per hour are present. All equipment (e.g. excavators) must be lowered to its idle position. Site workers will take refuge in a safe area until the rain, lightning, or high wind danger has passed.

5 PERSONAL PROTECTIVE EQUIPMENT

5.1 GENERAL

PPE is required to safeguard project personnel from various hazards. Varying levels of protection may be required depending on the level of contaminants and the degree of physical hazard. This section presents the various levels of protection and defines the conditions of use for each level.

5.2 LEVELS OF PROTECTION

The levels of PPE are categorized as level A, B, C, or D, based on the degree of protection required. Conditions that necessitate Level A are not expected onsite and this level will not be discussed further. The following is a brief summary of the remaining three levels, plus a modified level D that may be used on the site. These categories serve as guidelines for PPE selection, there may be variations based on perceived or identified hazards.

It is anticipated that typical site conditions will require only Level D safety equipment consisting of safety glasses, high visibility vest, gloves and foot protection. A hard hat is also required during any activity where overhead materials may cause injury, including excavation and loading and unloading of wastes and other materials. Should PPE protection above Level D be deemed necessary for any project or operation it may be necessary to establish physical boundaries to exclude access to those not aware of the PPE required. Further if Level C or B is necessary, appropriate decontaminations procedures will also need to be established. Project-specific HASPs or revisions to this HASP will be required to include such information.

5.2.1 Level D Protection

The minimum level of protection that will be required of site personnel will be Level D, which will be worn as the initial protection level for project operations. The following equipment will be used:

- Safety work boots with toe and sole protection, American National Safety Institute (ANSI) approved;
- Protective Work Gloves;

- Safety Glasses;
- Highly visible/reflective vest, shirt, or coat;
- Hard hat, ANSI approved (if necessary); and,
- Hearing protection (if necessary).

5.2.2 Modified Level D Protection

Modified Level D PPE will be used when airborne contaminants are not present at levels of concern, but site activities are causing an increased potential for skin contact with subsurface liquids, wastes and soils. Modified Level D includes basic level D protection, as listed in 5.3.1, plus, a combination of the following as determined by the SHSO:

- Face shield (when projectiles or splashing leachate pose a hazard);
- Tyvek suit (polyethylene-coated when contact with leachate is possible), ankles and cuffs taped to boots and gloves;
- Chemical resistant gloves; and,
- Chemical resistant Neoprene boots, latex booties or PVC boots over safety toe shoes.

5.2.3 Level C Protection

Level C protection will be used for site operations when air-monitoring instruments indicate an upgrade from Level D protection is necessary. This action level is typically taken as one half the NIOSH TWA or the OSHA Permissible Exposure Limit (PEL). Action levels for contaminants typically associated with C&D waste are provided in Table 7-1. Level C protection will be required when the airborne concentrations of measured contaminants reach their associated action levels for an upgrade in protection level.

The following equipment may be used for Level C protection:

- Modified Level D protective equipment as listed in section 5.3.2 with the following upgrades:
    - Half mask, air purifying respirator (APR) with acid gases/organic vapors cartridge and high efficiency particulate air (HEPA) filter which are NIOSH/Mine Safety and Health Administration (MSHA) approved; and,

- Polyethylene coated Tyvek suit, ankles and cuffs taped to boots and gloves.

5.2.4 Level B

Level B protection will be required if the type and atmospheric concentration of substances have been identified that require a high level of respiratory protection, the atmosphere contains less than 19.5% oxygen or the presence of unknown vapors or gases is suspected. Level B provides a maximum respiratory protection through the use of supplied air or self-contained breathing apparatus (SCBA).

The following PPE may be used for Level B protection:

- Level C protective equipment as listed in section 5.3.3 with the following upgrades:
  - Positive pressure, full face-piece self contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved);
  - Hooded chemical resistant clothing; and,
  - Chemical resistant outer gloves, over surgical type inner gloves.

5.2.5 Selection of PPE

The proper selection of PPE should appropriate for the conditions excepted. The need to exercise caution in the performance of work is made more acute due to restrictions and mobility, peripheral vision, and communication caused by the personal protective equipment. For these reasons, over protection can actually lead to more accidents than they might prevent.

Equipment for personal protection will be selected based on the potential for contact with potentially hazardous materials, work area conditions, ambient air quality, and the judgment of SHSO. The PPE used will be chosen to be effective against the compound(s) suspected of being present. If what is specified by this HASP and what is staged at the jobsite is deemed inappropriate by the SHSO for the conditions encountered in the field, work shall stop immediately and the Site Manager must be notified of the situation.

5.3 Personal Protective Equipment Donning Procedures

The following procedures should be followed when donning protective equipment:

- Inspect equipment to ensure it is in good condition;
- Don protective suit (if used) and gather suit around waist;
- Put on outer boots;
- Don inner gloves (if used);
- Don top half of protective suit and seal (as necessary);
- Don respiratory protection (if necessary) and conduct a positive/negative pressure tightness check;
- Don eye and head protection (as necessary);
- Don outer gloves and tape at glove/suit unction (as necessary); and,
- Check all closures and observe wearer to ensure fit and durability of protective gear.

5.4 PROTECTIVE EQUIPMENT FAILURE

If an individual experiences a failure or other alteration of PPE that may effect its protective ability, the person is to leave the work area immediately. The Project Manager or SHSO must be notified and, after reviewing the situation, is to determine the effect of the failure on the continuation of the on-going operations. If the Site Manager or SHSO determines that the failure affects the safety of the workers, the work site, or the surrounding environment, workers are to be evacuated until corrective actions have been taken. The SHSO will not allow re-entry until the equipment has been repaired or replaced and the cause of the failure has been identified.

5.5 RESPIRATORY PROTECTION

Respiratory protection is an integral part of employee health and safety for projects with potential airborne contamination. Choosing the proper respiratory equipment involves three basic steps:

1. Determining the hazard and its extent;
2. Selecting equipment that is certified for the function; and,
3. Assuring that the device is performing the intended function.

The respiratory protection program for this site will consist of the following:

- All project personnel who may use respiratory protection must have been medically certified as being capable of wearing a respirator within the past 12 months;
- Only clean and well maintained, NIOSH-approved respirators are to be used on this site;
- Respirators will be inspected, and a positive/negative pressure test will be performed prior to each use;
- All project personnel who may use respiratory protection will be clean-shaven. Mustaches and side burns are permitted, but must not contact the sealing surface of the respirator;
- If respirators are used, the respirator cartridge is to be properly disposed of at the end of each work shift, or when load-up or breakthrough occurs;
- After each use, the respirator will be wiped with a disinfectant, cleansing wipe. When used, the respirator will be thoroughly cleaned at the end of the work shift. The respirator will be stored in a clean plastic bag.

The two basic types of respirators are supplied air respirators (SAR) and air purifying respirators (APR). Air supplied respirators are designed to provide breathable air from a clean source, while air purifying respirators use filters or sorbents to remove harmful substances. Air supplied respirators typically include SCBA and cascade bottle supplied air systems. Air purifying respirators can be full or half face and use cartridges and filters that conform to a consistent color standard required by OSHA. The APR filter cartridges appropriate for most conditions expected at this site are Compound Yellow/Purple; Acid Gases/Organic Vapors Cartridges in combination with HEPA Filter (e.g., NIOSH/MSHA TC-23C-210 and TC-23C-212). These cartridges are approved for organic vapors, chlorine dioxide, hydrogen chloride, and sulfur dioxide, dust, fumes, and mists with a TWA less than 0.05 mg/m^3, asbestos, radionuclides, and radon daughters. Protection from hydrogen sulfide is for escape only.

6 SITE CONTROL

6.1 SITE ENTRY

All personnel entering the site are required to sign in at the scale house. The sign in sheet will record each person's name, time they entered and left the site, company they represent and area they are to be working or person they are visiting. In emergencies, the SHSO will use this sign in sheet to determine how many people are onsite and where they are located.

6.2 SITE ORIENTATION AND HAZARD BRIEFING

No persons will be allowed onsite without an escort or first being given a site orientation and hazard briefing. This orientation will be presented by the SHSO, and will consist of a review of applicable sections of this HASP.

6.3 SITE COMMUNICATIONS

There is no cellular service at the site. Walkie-talkies will be used for communication between site workers during onsite activities. In the event of an emergency, a vehicular horn can be used to sound the S.O.S. Morse code distress signal (i.e., three short beeps, followed by three long beeps, and then three more short beeps) until contact is established.

6.4 EMERGENCY ENTRY AND EXIT

People who may enter the site on an emergency basis will be briefed of the hazards by the SHSO. All hazardous activities will cease in the event of an emergency, and any sources of emissions will be controlled, if possible. People exiting the site because of an emergency will gather in a safe area for a head count. The SHSO is responsible for ensuring that all people who enter the site have exited in the event of an emergency.

7 SITE MONITORING

7.1 AIR MONITORING

Unidentified organic vapors or explosive gases may be present in the landfill. This air-monitoring program is designed consistent with known or expected exposure to the hazardous substances listed in Table 7-1 and the properties of those substances.

Air monitoring will be employed prior to initiating intrusive operations, such as excavation, or maintenance on leachate collection system or other enclosed spaces where landfill gases may accumulate. A photoionization detector (PID) will be used to measure background concentrations of total volatile organic compounds. Should organic vapor levels be measured above 1 ppm with the PID, benzene and vinyl chloride will be quantified with the use of Sensidyne detector tubes. In addition, a four gas meter will be used to measure concentrations of hydrogen sulfide, as well as, carbon dioxide, oxygen, and lower explosive limit (LEL). PPE will be donned as specified in Section 5.0 if readings are at or exceed the action levels presented in Table 7-1. Employee breathing zones will continue to be monitored until the operation has been completed to ensure that the conditions do not warrant a modification of PPE requirements.

7.2 MONITORING EQUIPMENT MAINTENANCE AND CALIBRATION

All direct reading instrumentation calibrations should be conducted under the approximate environmental conditions in which the instrument will be used and outside areas of contamination potential. Instruments must be calibrated before and after use, noting the reading(s) and any adjustments that are necessary.

All air monitoring equipment will be maintained and calibrated in accordance with the specific manufacturers' procedures. Preventive maintenance and repairs will be conducted in accordance with the respective manufacturers' procedures. When applicable, only manufacturer-trained and/or authorized personnel will be allowed to perform instrument repairs or preventive maintenance. If an instrument is found to be inoperative or suspected of giving erroneous readings, the SHSO is responsible for immediately removing the instrument from service and obtaining a replacement unit. If the instrument is essential for safe operation during a specific activity, that activity must cease until an appropriate replacement unit is obtained. The SHSO

will be responsible for ensuring a replacement unit is obtained and/or repairs are initiated on the defective equipment.

TABLE 7-1: AIRBORNE CONTAMINANT ACTION LEVELS

Parameter	Reading	Action
Oxygen	19.5% to 22%	Normal operations, continue routine breathing zone monitoring
	< 19.5%	Upgrade to Level B
	> 22%	Explosion hazard - stop work, move upwind, ventilate area
LEL	< 10%	Normal operations, continue monitoring
	> 10%	Explosion hazard - stop work, move upwind, ventilate area,
Hydrogen Sulfide	0 ppm to 2 ppm	Normal operations, continue routine breathing zone monitoring
	2 ppm to 10 ppm	Continue breathing zone monitoring and implement hydrogen sulfide specific Sensidyne/Gastec tubes.
	10 ppm to 50 ppm	Upgrade to level C, increase monitoring Frequency
	> 50 ppm	Upgrade to Level B Report situation to PM
VOCs	0 ppm to 1 ppm	Normal operations, continue routine breathing zone monitoring
	1 ppm to 5ppm	Continue breathing zone monitoring and implement benzene and vinyl chloride with specific Sensidyne/Gastec tubes.
	5 ppm to 50 ppm	Upgrade to level C, increase monitoring Frequency
	> 50 ppm	Upgrade to Level B Report situation to PM
Benzene	0 ppm to 0.1 ppm	Normal operations, continue routine breathing zone monitoring
	0.1 ppm to 1.0 ppm	Upgrade to level C, increase monitoring Frequency
	> 1.0 ppm	Upgrade to Level B Report situation to PM
Vinyl Chloride	0 ppm to 0.1 ppm	Normal operations, continue routine breathing zone monitoring
	0.1 ppm to 1.0 ppm	Upgrade to level C, increase monitoring frequency
	> 1 ppm	Upgrade to Level B

8 EMPLOYEE TRAINING

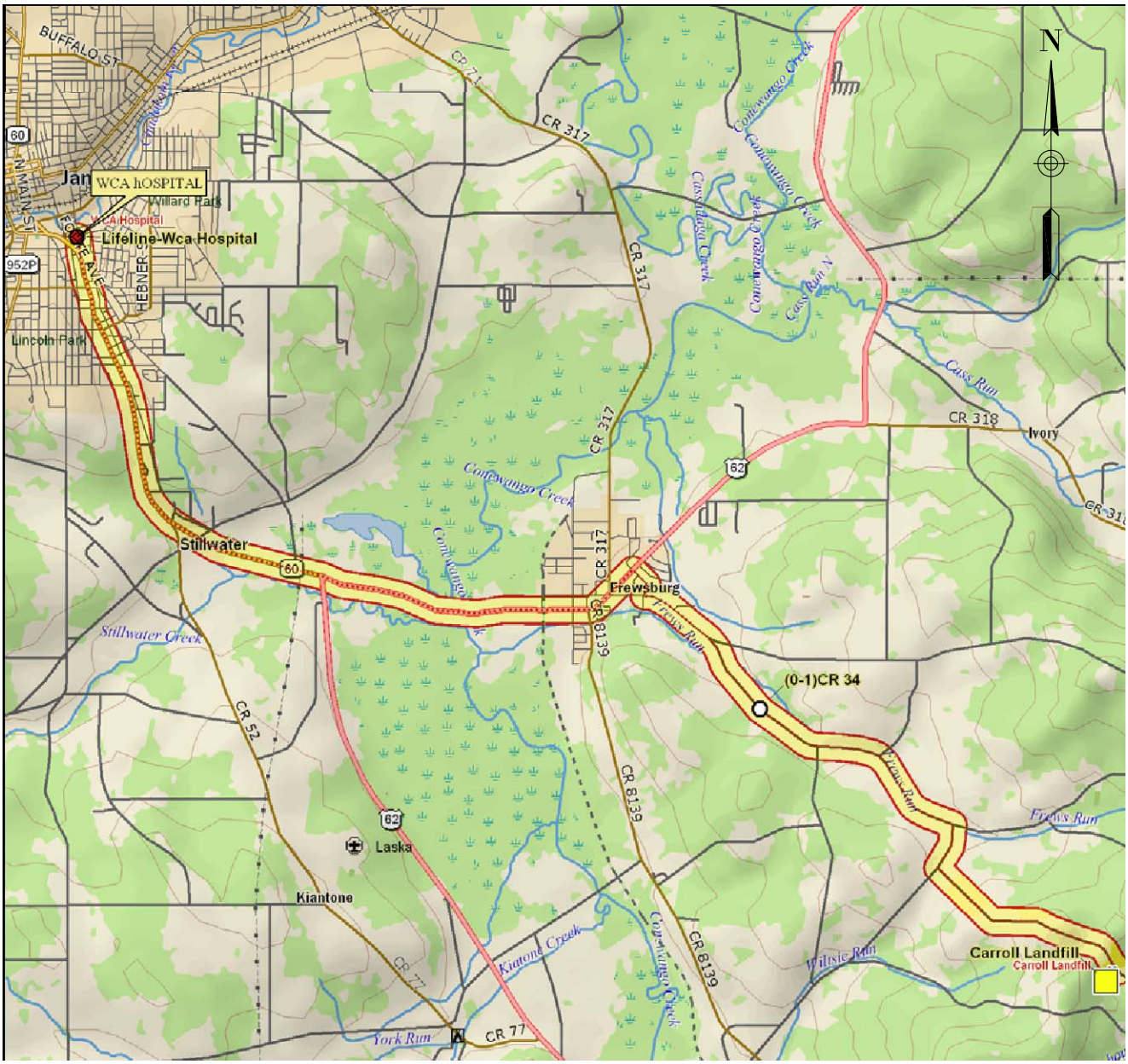
All personnel working on the site must have completed site-specific health and safety orientation. This can be accomplished through a briefing and review of this HASP before work begins. Each employee must have a signed HASP acceptance form on file documenting that site-specific health and safety orientation has been received. Annual refresher training for all employees will include a safety training module. Any revisions to this HASP that have been made during the year will be discussed during the annual refresher training unless the change IS significant enough to warrant a special session of safety training. A new signed HASP acceptance form must be collected from every employee following all reissues of this HASP.

Special sessions of safety training will also be held prior to initiating any new operation identified as having unique health and safety hazards. These special sessions will cover the work to be accomplished, the hazards anticipated, the protective clothing and procedures required to minimize work area hazards, and emergency procedures.

9 FIRST AID AND MEDICAL TREATMENT

All persons must report any job-related near-miss incident, accident, injury, or illness to the SHSO. The SHSO or his designee will administer first aid. Injuries and illnesses requiring medical treatment must be documented. The SHSO must conduct an accident investigation as soon as emergency conditions no longer exist, and first aid and/or medical treatment have been ensured. The Site Accident Report Form (Attachment A) must be completed within 24 hours after the incident.

If first aid treatment is required, first aid kits kept in site vehicles will be utilized. If treatment beyond first aid is required, the injured should be transported to the nearest hospital depending on the seriousness of the injury. Directions to the nearest hospital, WCA Hospital in Jamestown, New York are provided in Figure 3. If there is any doubt as to the injured worker's condition, call 911. It is best to have the local paramedic or ambulance service examine and transport the worker.



		Dist	Turn		Road	Exit	Total Time	Total Dist
			Start	at	Carroll Landfill		00:00:00	0.00 mi
			Go straight (WNW)	on	Dodge Rd		00:00:00	0.00 mi
	in	1.59 mi	Turn right (NNE)	on to	Wiltsie Rd		00:02:05	1.59 mi
	in	0.33 mi	Turn left (NW)	on to	CR 34 (Frew Run Rd)		00:02:31	1.92 mi
	in	2.93 mi	Go straight (NNE)	on to	Carroll St		00:07:53	4.85 mi
	in	0.08 mi	Keep left (NW)	on	Carroll St		00:08:12	4.93 mi
	in	0.15 mi	Turn left (W)	on to	US 62 (Ivory St)		00:08:47	5.08 mi
	in	2.41 mi	Keep right (NW)	on to	SR 60		00:12:43	7.48 mi
	in	3.20 mi	Keep right (N)	on to	Foote Ave		00:18:32	10.68 mi
	in	0.16 mi	Finish	at	Lifeline-Wca Hospital		00:19:10	10.84 mi

DAIGLER ENGINEERING P.C.
engineering · science · design
1711 GRAND ISLAND BLVD. GRAND ISLAND, NEW YORK 14072

DIRECTIONS TO WCA HOSPITAL

CARROLL LANDFILL EXPANSION - HEALTH AND SAFETY PLAN

SEALAND WASTE, LLC

TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK
June 2011	SCALE: Not To Scale	REVISION # 0

FIGURE 3

10 EMERGENCY PROCEDURES

10.1 GENERAL

The SHSO will establish evacuation routes and assembly areas for each work area. All personnel entering the work area will be informed of these routes and assembly areas. If necessary, a plan will be outlined, marking the evacuation routes and will be posted at conspicuous locations.

Each work area will be evaluated for the potential for fire, explosion, chemical release, or other catastrophic events. Unusual events, activities, chemicals, and conditions will be reported to the Site Manager and/or the SHSO immediately.

10.2 EMERGENCY RESPONSE

If an incident occurs, the following steps will be taken:

- The SHSO or his designee will evaluate the incident and assess the need for assistance;
- The SHSO or his designee will ensure the Site Manager is notified promptly of the incident;
- The SHSO will call for outside assistance as needed;
- The SHSO will act as liaison between outside agencies and work-site personnel; and,
- The SHSO will take appropriate measures to stabilize the incident scene.

10.3 FIRE

In the case of a fire at the work area, the SHSO or his designee will assess the situation and direct fire-fighting activities. Site personnel will attempt to smother the fire with soil, or through the use of fire extinguishers. In the event of a fire that personnel are unable to safely extinguish, the local fire department will be summoned. The SHSO will notify the fire department after-the-fact regarding fires successfully extinguished.

10.4 SPILL

If a spill occurs, the following steps will be taken:

- Evacuate immediate area of spill;
- Report the spill to the SHSO. The SHSO will determine whether it is necessary to call the New York State Department of Environmental Conservation (NYSDEC) Spill Hotline or otherwise report the spill to the NYSDEC;
- Conduct air monitoring to determine needed level of PPE;
- Don required level of PPE and prepare to make entry to apply spill containment and control procedures;
- No entry will made unless atmosphere is less than 10% LEL; and,
- Absorb or otherwise clean up the spill and containerize the released material, sorbent, and affected soils.

10.5 MEDICAL EMERGENCY

All employee injuries must be promptly reported to the SHSO. The SHSO will:

- Ensure that the injured employee receives prompt attention;
- Contact 911 or WCA Hospital if employee requires medical attention;
- Notify the Site Manager of the incident
- Initiate an investigation of the incident; and,
- Document the incident on the Site Accident Report Form (Attachment A).

10.5.1 First Aid – General

In the event first aid is warranted:

- Survey the scene. Determine if it is safe to proceed. Protect yourself from exposure before attempting to rescue the victim;
- Do a primary survey of the victim. Check for airway obstruction, breathlessness, and pulse. Assess likely routes of chemical exposure by examining the eyes, mouth, nose, and skin of the victim for symptoms;

- Radio the scale house to contact 911 on the landline and maintain radio contact until the response team arrives. Provide the location, telephone number used, caller's name, what happened, number of victims, victims' conditions, and assistance already being provided;
- If there is not immediate access to a radio, send a co-worker to the scale house with the necessary information or use a vehicle horn as described in Section 6.3. If unassisted and you suspect unresponsiveness due to suffocation, then begin cardiopulmonary resuscitation (CPR) for at least one minute before attempting to radio for help;
- If no pulse, perform CPR, start with 30 chest compressions at a rate of about 100 per minute; and,
- Do a secondary survey of the victim. Check vital signs and do a head-to-toe exam. Continue CPR, if necessary, until professional help arrives.

Note that performing rescue breaths is not considered as critical as chest compressions, therefore, unless trained and confident that CPR is being administered effectively, it is no longer recommended to suspend CPR to check the airway and administer rescue breathing.

Treat other conditions as necessary. If the victim can be moved, transport to a location away from the work area where the ambulance can gain access.

10.5.2 First Aid – Inhalation

Any employee complaining of symptoms of chemical overexposure as described in Table 3-1 will be removed from the work area and transported to WCA Hospital for examination and treatment.

10.5.3 First Aid – Ingestion

Call an ambulance and consult the poison help hotline for advice. If available, refer to the MSDS for information and induce vomiting, if recommended. If unconscious, keep the victim on his side and clear the airway, in case vomiting occurs. Transport the worker to WCA Hospital for examination and treatment.

10.5.4 First Aid - Skin Contact

Site personnel who have had skin contact with contaminants will wash-up. Personnel will remove any contaminated clothing, and then flush the affected area with water. The worker

should be transported to the WCA Hospital if there is any sign of skin reddening, irritation, or if a medical examination is requested.

10.5.5 First Aid - Eye Contact

Site personnel who have had contaminants splashed in their eyes, or who have experienced eye irritation while in a contaminated zone, must immediately utilize an eyewash. Do not decontaminate prior to using the eyewash. Remove whatever protective clothing is necessary to use the eyewash. Exit the immediate work area and flush the eye for at least 15 minutes. Arrange for prompt transportation to the WCA Hospital.

10.5.6 Reporting Injuries and Illnesses

All injuries and illnesses, however minor, will be reported to the SHSO. The SHSO will complete an accident report and place it the employee file. Any injury, which requires treatment beyond standard first aid, must be treated at WCA Hospital.

10.6 EMERGENCY RESPONSE AGENCIES AND CONTACTS

Agency/Organization	Emergency Number
Fire	
Fire Department (volunteer)	911 (Emergency)
Police	
Local Police Department	(716) 569-5365 or 911
Chautauqua County Sheriffs Department	(716) 753-2131
New York State Police, Troop A Zone 3	(716) 285-1354
Medical	
Ambulance Service	911 (Emergency)
WCA Hospital, Jamestown, New York	(716) 487-0141
Poison Help Hotline	1-800- 222-1222
Chautauqua County Health Department, Jamestown Office (Environmental)	(716) 661-8110
State Emergency Response Contacts	
NYSDEC Region 9, Buffalo	(716) 851-7220
Spill Hotline	1-800-457-7362
New York State Department of Health, Environmental	1-800-458-1158
New York State Department of Transportation, Region 5	(716) 847-3291
Federal Emergency Response Contacts	
Environmental Emergency Protection Agency (EPA) Region II	
Air and Waste Management Division	(212) 264-2302
Emergency and Remedial Response	(212) 264-8674

Attachment A
Site Accident Report Form

DAIGLER ENGINEERING P.C.
1711 Grand Island Blvd.
Grand Island, New York 14072-2131

Site Accident Report

File Name: Carroll landfill-HASP Site.docx
Revised: September 2, 2010

Client:		**Project No.::**	
Project Name:		**Today's Date:**	
Project Location:			
Date of Accident:			
Injured Person:			
H & S Officer:			

Description on Accident/Injury (be specific):

Extent of Injury:

First Aid/Treatment Administered:

Cause of Incident:

Preventative Measures Administered:

Recommendations:

Witnesses:
Name:_____ **Signature:**_____

Name:_____ **Signature:**_____

Report MUST be filed with-in 5 days to the Site Health and Safety Officer and Project Manager

Attachment B
Employee HASP Acceptance Form

Employee Health and Safety Plan Acceptance Form

I the undersigned have received a copy of **Daigler Engineering's "Site Specific Health and Safety Plan for Carroll Landfill"** pertaining to general site activities. I have read this Health and Safety Plan in its entirety and agree to abide by this plan and agree to implement safe work practices for the benefit of myself and others onsite.

Name: _____
(Signature)

_____
(Print)

Dated: _____