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FINAL HELIPAD CLEANUP WORK PLAN NAS BRUNSWICK ME
11/1/2012
H&S ENVIRONMENTAL

Final
**HELIPAD CLEANUP
WORK PLAN**

**FORMER NAVAL AIR STATION
BRUNSWICK, MAINE**



Prepared by:

**Department of the Navy
Naval Facilities Engineering Command
BRAC Program Management Office - Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112-1303**

November 2012

H&S Environmental, Inc.



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Submitted to:

**Department of the Navy
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4911 South Broad Street
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**Contract No. N40085-10-D-9404
Contract Task Order No. 0009**

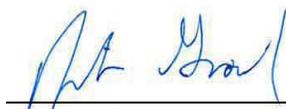
November 2012



Patrick Schauble, P.E.
Program Manager

11/26/12

Date



Jennifer Good, P.G.
Project Manager

11/26/12

Date

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ACRONYMS AND ABBREVIATIONS

AHA	Activity Hazard Analysis
BOL	Bill of Lading
BRAC	Base Realignment and Closure
CIH	Certified Industrial Hygienist
CTO	Contract Task Order
DoD	Department of Defense
ELAP	Environmental Laboratory Accreditation Program
H&S	H&S Environmental, Inc.
MCL	maximum contaminant level
MEDEP	Maine Department of Environmental Protection
MIDLANT	Mid-Atlantic
MRRA	Midcoast Regional Redevelopment Authority
MS	matrix spike
MSD	matrix spike duplicate
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NELAC	National Environmental Laboratory Accreditation Conference
NIRIS	Naval Installation Restoration Information Solution
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational and Safety Health Administration
PCB	polychlorinated biphenyl
PGM	Program Manager
PJM	Project Manager
POC	Point of Contact
RAG	remedial action guideline
RSL	regional screening level
QA	quality assurance
QC	quality control
SHM	Safety and Health Manager
SOP	standard operating procedure
SOW	Statement of Work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SSL	soil screening level
TAL	target analyte list
TCL	target compound list
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
UPL	upper prediction limit
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

H&S Environmental, Inc. (H&S) has prepared this Helipad Cleanup Work Plan for the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic (MIDLANT) under Contract Number N40085-10-D-9404, Contract Task Order (CTO) No. 0009. This Work Plan describes the means, methods, and procedures that will be utilized for soil remediation on the concrete helipad and surrounding soil berms located at the Former Naval Air Station (NAS) Brunswick, Maine.

The following documents were used as a basis for this Work Plan:

- Tetra Tech's *Site Investigation Report for Four Areas of Potential Interest and Supplemental Groundwater Characterization of Buildings 225 and 252, Naval Air Station Brunswick, Brunswick, Maine* dated April 2011.
- U.S. Army Corps of Engineers (USACE) Safety and Health Requirements Manual, EM385-1-1 dated 2008.
- U.S. Environmental Protection Agency (USEPA) Office of Solid Waste: *RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment* dated August 2002.

This document is applicable to services performed by H&S as the prime contractor as well as any subcontractors under H&S' control.

1.1 Site Background

The Former NAS Brunswick is located south of the Androscoggin River between Brunswick and Cooks Corner, Maine as depicted on **Figure 1**. The former base lies at the head of a peninsula with tidal areas nearby. The former base consisted of 3,094 acres of land of which approximately 75 percent was forested areas, grassland, miscellaneous shrubland, marsh, and open water. The remaining 25 percent consisted of office buildings, barracks, recreational facilities, base housing, hangars, repair shops, and other facilities, as well as paved areas including flight ramps and runways.

Prior to operational closure in May 2011, NAS Brunswick was an active base owned and operated by the Federal government through the Department of the Navy. The primary mission of NAS Brunswick was flight operations related to anti-submarine warfare. Under the Base Realignment and Closure (BRAC) Program, the Navy is currently in the process of accomplishing environmental studies and cleanup to support property transfer requirements. The Helipad is a circular concrete pad approximately 120 feet in diameter located on the northeast end of the Former NAS Brunswick, along the western edge of closed Taxiway 8, southeast of the new fuel farm and approximately 500 feet east of Building 660, as depicted in **Figure 2**. According to former NAS personnel, the Helipad was formerly used as a sandblasting area. Based on a recent inspection, no visible blast media or paint chips are apparent. Two low soil berms (an "inner" and "outer" berm) are present which encompass approximately two-thirds of the pad. The concrete pad is cracked, and some soil is present in a slight depression near the

center of the pad. In addition, the area currently has a pile of brush and woodchips on its surface. Photographic documentation of the Helipad Area is presented as **Appendix A**.

Samples were previously collected to characterize soils in and around the Helipad. Soil samples collected on the pad itself were concentrated in low points such as cracks and the central depression and were collected within a 1-foot by 1-foot area. All other surface soil samples were collected from 0 to 1 foot below ground surface (bgs). Samples were analyzed for Target Compound List (TCL) polychlorinated biphenyls (PCBs) by USEPA SW-846 Method 8082 and for Target Analyte List (TAL) Metals by USEPA SW-846 Methods 6010C and 7471B. Sample logs from the Helipad Area indicate that surface soil generally consists of fine to medium sand with silt and organic matter, which is similar to Upper Sand surface soil (Tetra Tech 2011)

Laboratory analytical results from the above-referenced sampling event indicate that numerous metals and PCB Aroclor-1254 were detected in surface soil samples collected at the Helipad Area. Concentrations of analytes exceeding minimum screening criteria are presented geographically in **Appendix B** and included 10 metals and Aroclor-1254. With the exception of arsenic, all concentrations were less than USEPA and Maine residential criteria. Arsenic concentrations ranged from 2.5 to 12 mg/kg and averaged 6.1 mg/kg, exceeding USEPA and Maine residential criteria, although the site-wide average concentration only slightly exceeded the Former NAS Brunswick background upper prediction limit (UPL) of 5.6 mg/kg for Upper Sand surface soil. Other metals concentrations were less than residential criteria, but concentrations of nine metals (arsenic, barium, cadmium, chromium, cobalt, iron, lead, thallium, vanadium, and zinc) exceeded USEPA maximum contaminant level (MCL)- or risk-based soil screening levels (SSLs) and/or minimum ecological criteria. Concentrations of Aroclor-1254 in three of 15 collected samples exceeded USEPA's MCL-based groundwater protection SSL but were less than the residential regional screening level (RSL) and Maine Department of Environmental Protection (MEDEP) remedial action guideline (RAG) (Tetra Tech 2011).

For metals with 95-percent UPL background values as minimum screening criteria, concentrations detected in the soil samples described above were generally less than or only slightly greater than background values or exceedances were infrequent. Other metals and Aroclor-1254 had infrequent exceedances of EPA's protection-of-groundwater SSLs, but EPA and Maine residential criteria were not exceeded (Tetra Tech 2011). However, MEDEP expressed concern of a potential for higher contaminant concentrations in the bermed soils due to possible localized accumulations of paint chips from former sand blasting operations. In order to address this concern, the Navy agreed to perform soil removal activities of the bermed soil as well as surficial soil on the Helipad itself.

1.2 Project Objectives

The primary objective of this project is to perform soil removal activities at the Helipad Area at the Former NAS Brunswick.

Specific tasks include:

- Project Plans
- Mobilization/Demobilization
- Removal of branches, woodchips, and debris from the Helipad to nearby forested area
- Removal of soil berms and soil accumulated on the Helipad
- Collection and analysis of soil samples
- Waste Management (handling, temporary staging, characterization, and offsite transportation and disposal)
- Site Restoration

2.0 ORGANIZATION AND RESPONSIBILITIES

2.1 Organizational Structure and Staffing

Mr. Patrick Schauble, P.E. will serve as the Program Manager (PGM). Mr. Schauble and/or his delegates represent H&S in all matters related to the project.

Ms. Jennifer Good, P.G. will serve as the Project Manager (PJM) and as the Point of Contact (POC) for this task. Ms. Good is responsible for the execution of the project in accordance with the requirements contained in the SOW, this Work Plan, and the Site Safety and Health Plan (SSHP).

Mr. Edward Kearney, CIH will serve as the Safety and Health Manager (SHM). Mr. Kearney is a Certified Industrial Hygienist (CIH) whose Safety and Health responsibilities include oversight of the development and approval of the SSHP and providing Safety and Health technical assistance to the PJM and Site Safety and Health Officer (SSHO).

Mr. Victor LeClerc will serve as the SSSH and Site Superintendent (SS). As SSSH, Mr. LeClerc is responsible for coordinating and ensuring consistent application of safety and health practices and procedures for all staff, regardless of organizational affiliation. The SSSH is responsible for the implementation of the SSHP to ensure that the planned work objectives reflect adequate safety and health considerations. As SS, Mr. LeClerc is responsible for ensuring that all field activities are conducted in conformance with the requirements contained in this Work Plan. The SS is also responsible for ensuring that subcontractor submittals are prepared and submitted on time and will also coordinate all field activities to be performed by the subcontractor, with direct oversight by the PJM.

Mr. John Hudacek or Ms. Stacey Lee will serve as the alternate SSSH / SS.

2.2 Subcontractors

H&S will procure qualified subcontractors to perform onsite construction tasks, including, but not limited to, site preparation, soil excavation, environmental compliance, site restoration, and waste staging, handling, characterization, transportation, and disposal. The subcontractors will be responsible for submitting the necessary documentation regarding materials to be used for approval by H&S and NAVFAC. The subcontractors will be responsible for obtaining and complying with any required applicable permits.

The anticipated subcontractors on this project include the following:

- EQ Northeast, Inc. of Wrentham, MA as the excavation and waste handling subcontractor responsible for excavating, transporting and disposing of soil and other waste off-site.
- TestAmerica of Burlington, VT as the laboratory subcontractor responsible for the analysis of soil and waste characterization samples.

3.0 REGULATORY CONSIDERATIONS

3.1 Safety and Health Requirements

H&S employees will follow, at a minimum, the standards established by the U.S. Occupational Health & Safety Administration (OSHA), USACE Safety and Occupational Health Manual, EM 385-1-1, and applicable H&S' Corporate Safety and Health Program provisions, whichever is more stringent. Health and Safety measures are detailed in H&S' SSHP; in accordance with FAR 52.236-13, the plan is site-specific and includes an activity hazard analysis (AHA) for all tasks performed. The SSHP will be strictly followed and immediately accessible to all workers at the site at all times during this project.

3.2 State and Local Requirements

H&S will comply with state and local requirements applicable to the work to be performed under the Contract. Components of the work related to these requirements include, but are not limited to, the following:

- Notification will be made to Maine Dig Safe no less than 72 hours but no greater than 30 days prior to performing any intrusive activity including soil excavation.
- Former NAS Brunswick BRAC representatives will be consulted to determine what, if any, permits (work, excavation, or other) are required for this project. In addition, site access and security will be coordinated with the Navy BRAC PMO office at Former NAS Brunswick. The NAS Brunswick onsite BRAC representative for this project is:

Robert Leclerc, P.E.
Navy Caretaker Site Office
Brunswick, Maine 04011
207-406-2290

- Waste characterization samples will be collected in order to properly profile waste.
- Handling, staging, characterization, transporting, and disposal of waste generated as a result of this project will be performed in accordance with applicable Federal, State, and local regulations.
- Waste will be transported by a licensed hauler to an appropriately licensed disposal facility.
- Due to the small area of the project, Erosion and Sedimentation Control permitting or coverage under the General National Pollutant Discharge Elimination System (NPDES) Permit for Construction is not anticipated.

4.0 PROJECT EXECUTION

4.1 Project Management, Administration, and Coordination

The PJM, Ms. Jennifer Good, P.G., will manage this project. She will utilize project support for safety management, cost and schedule, accounting, procurement, contract administration, and quality control from H&S' internal resources. Key members of the project staff for this task order are identified in Section 2.1, including the SSHO/SS. Field staffing during all onsite work activities will include the SSHO/SS on a full-time basis. The PJM will make periodic site visits to monitor the progress of the work for overall quality and project reporting.

The PJM will maintain responsibility for overall task order performance, lead contact with the client regarding project contractual and financial matters, and will share responsibility for safety and quality performance with the field team.

The following project plans and submittals will be prepared for this project:

- Site Specific Health and Safety Plan
- Helipad Cleanup Work Plan
- Helipad Cleanup Closeout Report

All plans and submittals will be prepared in internal draft, draft and final format and submitted as per the deliverable schedule matrix.

Upon acceptance of this Work Plan detailing methods to be utilized, the H&S PJM will coordinate site access with the appropriate entities for execution of this project. This will include, but is not limited to, the BRAC PMO office.

4.2 Pre-Construction Site Visit

H&S will coordinate and attend a Pre-Construction site visit prior to commencement of field work. The purpose of the Pre-Construction site visit will be to review the Work Plan with project personnel and determine logistics and organizational details of the field execution. Key members of the H&S field team will be present, including the PJM and SSHO/SS, as well as the excavation and waste handling subcontractor. During this time, H&S will also identify, with the BRAC representative, the area which will be used for the temporary staging of waste material generated during the project. Site security, excavation permitting, laydown areas, and other local requirements which may pertain to the planned work tasks will also be discussed.

4.3 Mobilization and Site Preparation

Prior to mobilizing to the site, a review of the existing utilities in the area will be performed with a representative from the BRAC PMO office to identify any potential utility concerns. The required Maine Dig Safe notification (72 hours in advance) will be performed.

Overhead utilities will also be identified and avoided during excavation activities. A minimum buffer of 10 feet will be maintained between excavation equipment and overhead wires.

After all pre-mobilization submittals have been approved and the Pre-Construction Site visit has been completed, H&S will mobilize required labor, equipment, and materials to the job site including the SSHO/SS and excavation subcontractor.

During the initial mobilization of equipment to the project site, each piece of equipment will be fully inspected to ensure compliance with EM 385-1-1 and other pertinent requirements. The BRAC PMO office will be informed of the scheduled arrival of equipment and invited to be present during the initial inspection, a copy of which will be maintained at the project site. The equipment anticipated to be used at this project site includes:

- CAT 312 excavator
- Rubber tire skid steer
- 10 wheel roll-off straight truck
- 20 cubic yard steel sealed, lined and covered roll-off containers
- Miscellaneous small tools and materials

The site will be comprised of four separate areas:

- Material Lay Down Area
- Waste Management Area
- Access Road
- Excavation Area

A site layout map presenting approximate locations of soil piles, erosion controls, areas described above, etc. is included as **Figure 3**.

4.4 Environmental Protection and Erosion Control

4.4.1 Site Maintenance

All operations will be conducted in a manner to minimize the impact on the surrounding environment. At the completion of work operations each day, all areas of the project site will be inspected and any debris or rubbish will be collected for proper handling. The active work area will be cordoned off with “caution tape” and appropriate signage in an effort to communicate the existing dangers to personnel transiting the areas adjacent to the work zone. In addition, the Waste Management Area will be secured with temporary fencing and appropriate signage.

4.4.2 Decontamination

All project tasks will include appropriate decontamination procedures. During operations at the site, strict oversight will be maintained to prevent the cross-contamination of the site. This will include utilizing removal of dry, gross contamination at the source. Excavator and loader buckets will be decontaminated by broom cleaning and any visible dirt chunks will be collected

and transported to the Waste Management Area. All materials generated during the decontamination operation will be containerized and properly disposed of, as described below.

4.4.3 Erosion Controls

Temporary silt fencing, hay bales, or straw wattles will be installed surrounding the area of disturbance. Disturbed areas will be seeded following soil removal activities and silt fencing / straw wattles will be removed after vegetation is established, as described in Section 4.8 below. Due to the small size of this project, a construction entrance is not practical. The work area is readily accessible through existing roads. Sweeping will be performed if necessary to remove any sediment from site roadways.

Dust control measures will be employed daily as needed. A wetting system consisting of a water truck and sprayer will be set up and maintained, if needed, for dust control. At the end of each work day, additional dust control containment measures will be implemented, including covering of any stockpiled materials with plastic sheeting where soil is exposed to wind.

4.4.4 Spill Control and Fluid Management

Material Storage

All materials brought to the site will be stored in accordance with Federal, State, and local requirements. All materials will be accompanied by a Material Safety Data Sheets (MSDS) which will be kept on file at the project site and available for review by all personnel on the site.

Labeling

All materials will be labeled properly in accordance with OSHA and DOT regulation. Compliance with OSHA Hazard Communication (29 CFR 1910.1200) will be maintained.

Inspection

All material storage locations on the Site will be inspected daily and inspections and any deficiencies/corrective actions will be noted on the Daily Report. Materials will be verified to be stored in the proper locations, labels intact, and MSDSs available. Some areas which will require daily inspections are:

- Parking Area
- Waste Management Area
- Heavy Equipment & Site Vehicles
- General Site Area

Storage of Oils and Miscellaneous Chemicals

All miscellaneous chemicals and oils will be stored in an approved, rated steel cabinet designed for the storage of potentially hazardous materials. The storage cabinet will be locked during non-working hours. All materials as well as the exterior of the storage cabinet will be marked in accordance with applicable regulations.

Fuel Storage

A small, licensed and inspected, (100-gallon) fuel storage cell mounted in a crew truck will be utilized to refill equipment while on site. During all refueling operations, equipment will be de-energized prior to beginning fueling operations. An appropriate quantity of absorbent materials and storage containers will be maintained on site to address unforeseen occurrences.

Transportation

Each vehicle used in the transportation of materials to or from the Site will be maintained in good working condition and free from any defects that may lead to a release of materials. During the loading of material, steps will be taken to avoid the spillage of materials. Roll-off containers and drums will be staged on heavy plastic sheeting prior to loading to contain any spillage of material. Areas around the containers and between the vehicles will also be inspected for evidence of any spills. All loads will be stabilized, secured, and covered prior to leaving the Site.

Spill Control

Spill Response

All project personnel will be trained to identify and begin corrective action should an unplanned event occur at the Site. Documentation of this site specific training will be maintained as part of the project file. In all instances, the SS will immediately inform the onsite representatives, including the NAS Brunswick BRAC representative, of the situation and work together to ensure all corrective actions and notifications are made in an acceptable manor.

Small Spill

In the event of a small spill, appropriate actions will be taken to prevent the spill from reaching groundwater, surface water or drains.

Actions will include:

- Verification of spilled material, volume and hazards.
- Determine appropriate response procedures including PPE (see MSDS or Chemical Data Sheet).
- Assess quantity and size of the spill to determine the level of response to contain and clean it up.
- Confine or contain spill with booms, pads, or berm.
- Neutralize spill with appropriate agents (if safe/possible).
- Notify the NAS Brunswick BRAC representative, SSHO/SS, and PJM.
- Spilled material will be collected including absorbent material and placed in appropriate containers. All hazardous material shall be disposed of in accordance with all applicable hazardous waste regulations and client requirements, as described below.

Large Spill

A volume equal to or greater than State or Federal reportable quantity (RQ) and/or those beyond the capabilities and resources of on-site personnel defines large spills. Appropriate remedial actions will be conducted according to State and Federal Regulations.

Actions will include:

- Verification of spilled material, volume and hazards.
- As safe to do so, confine the spill to the smallest area possible using booms, pads, berms or any other effective material.
- Assess type and extent of damages and injuries to personnel; take appropriate first aid steps if necessary.
- Notify the NAS Brunswick BRAC representative, SSHO/SS, and PJM.
- The NAS Brunswick BRAC representative will report the spill to the MEDEP at 207-822-6300 during normal business hours or the Department of Public Safety at 800-482-0777 during non-office hours.
- In the event the additional emergency clean-up assistance is needed, assistance from off-site response contractors may be requested.
- All emergency equipment will be decontaminated prior to being put back into service. Expendable or damaged supplies will be immediately replaced.

4.5 Soil Removal / Excavation

As mentioned in Section 1.1., a brush pile and pile of wood chips are present on the concrete surface of the Helipad, measuring approximately 69'L x 29'W x 2'H and 25'L x 14'W x 4'H, respectively (as depicted in photographs in **Appendix A**). A skid steer will be used to push brush and wood chips into the woods adjacent to the Helipad.

Minimal clearing and grubbing will be performed to access any portions of the soil berms that are located within the woods area. Removed vegetation will be staged and disposed of with soil in roll-off containers. Removal of mature trees is not anticipated or deemed necessary.

An excavator will be used to remove the identified soil berms and a skid steer will be used to assist with excavation by moving soils to the Waste Management Area. Soil will be removed to grade in a single lift if possible. Up to 65 tons of soil will be removed, and all excavated soils will be placed in lined 20-yard roll-off containers situated on plastic sheeting in the Waste Management Area. Approximately three to four 20-yard roll-off containers are anticipated. No concrete excavation or subsurface soil excavation is planned. A visual inspection will be performed to determine when native soil or non-berm related soil is reached, to the extent practical.

The concrete Helipad will be swept "broom clean" to the extent practical. A sweeper will be used as an attachment to the skid steer. Surficial soil will be removed from the concrete pad until visually clean.

Waste characterization samples of materials in the roll-off containers will be collected as detailed below.

4.6 Sampling

Various sampling activities will be performed including the collection of waste characterization samples and collection of in situ soil samples after removal of soils with elevated contaminant concentrations.

4.6.1 Waste Characterization Sampling

Sampling and analysis of the excavated soils will be conducted prior to waste transportation and disposal so that it can be accurately profiled. Waste material will be sampled in accordance with the standard operating procedures (SOPs) outlined in **Appendix C** and analyzed in accordance with USEPA SW-846 analytical methods. Analytical results will be used to profile the solid waste stream and obtain acceptance at a suitable licensed disposal facility.

A stainless steel trowel will be used to collect discrete, representative samples from each roll-off container. These samples will be composited in a stainless steel bowl to obtain one composited waste characterization sample. Because samples to be analyzed for VOCs cannot be composited in the field, a discrete sample from the material in each roll-off container will be collected to be composited by mass at the laboratory into Toxicity Characteristic Leaching Procedure (TCLP) VOC soil samples.

All equipment utilized for sample collection will be disposable; therefore, no decontamination of sampling equipment or collection of rinsate blanks are required.

Waste characterization samples will be analyzed for parameters detailed in **Table 1**. Analytical methods, sample holding times, and required sample containers and preservatives for each parameter to be quantified are also summarized in **Table 1**. Based on previously collected samples, it is not anticipated that waste soils will be classified as hazardous.

4.6.2 Soil Sampling

After excavation and removal of the contaminated soil, surface soil samples will be collected from the Helipad Area to assess site conditions following soil removal activities. Samples will be collected at regular intervals in a radial pattern around the Helipad; a total of five soil samples will be collected from the edge of the concrete pad, five soil samples will be collected from what was formerly the inner berm area, and five soil samples will be collected from what was formerly the outer berm area. No soil samples will be collected from the concrete helipad itself, as all loose material will have been removed from the concrete pad. Samples will be located equidistance within the removed berms. At each location, soil will be collected from an approximately 3x3 inch area from a depth of 0-6 inches. Approximate soil sampling locations are depicted on **Figure 3**.

All sampling activities will be performed in accordance with the sampling SOP presented in **Appendix C** and analyzed in accordance with USEPA SW-846 analytical methods. GPS locations of the soils samples will be determined using a Trimble Geo XH or equivalent, with an accuracy of less than 30 cm, as specified in **Appendix D**.

Quality assurance / quality control (QA/C) will consist of the collection of field duplicates at a rate of 10% and matrix spike / matrix spike duplicate (MS/MSD) samples at a rate of 5%. All equipment utilized for sample collection will be disposable; therefore, no decontamination of sampling equipment or collection of rinsate blanks are required.

Surface soil samples will be analyzed for TAL metals and TCL PCBs, as detailed in **Table 2**. Analytical methods, sample holding times, and required sample containers and preservatives for each parameter to be quantified are also summarized in **Table 2**. Laboratory detection limits for specific analytes are presented in **Table 3**.

4.6.3 Analytical Laboratory Information

Soil samples and waste characterization samples will be submitted to TestAmerica of Burlington, VT, a National Environmental Laboratory Accreditation Conference (NELAC), Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) certified, laboratory.

Laboratory information is as follows:

TestAmerica Burlington
30 Community Drive, Suite 11
South Burlington, VT 05403
Phone: 802.660.1990
Fax: 802.660.1919
Contact: Rick Carr
Laboratory Certification Numbers: 2011011 (State of Maine), ADE-1492 (DoD ELAP)

4.6.4 Sample Identification

All samples will be identified using a unique sample tracking number designated by an alphanumeric code identifying the site, sample medium, location, and date. Any other pertinent information regarding sample identification will be recorded in the field logbooks. The alphanumeric (A-N) coding to be used in the sample system is described below.

AAAA - AAAA - AA - AAAA or NN - MMDDYYYY
(Installation ID) - (Site ID) - (Medium) - (Number) - (Date)

Where:

- Installation Identifier: NASB
- Site Identifier: Site Name (i.e. Helipad)
- Medium Identifier: SS for soil samples, SD for sediment (waste characterization) samples

- Number Identifier: Two digit sample number for a given area (e.g. 01, 02, 03).
- Date: All samples will be dated to identify the associated sampling period.

4.6.5 Sample Collection Documentation

A project-specific field logbook will be used to keep daily records of significant events, observations, and measurements. The field logbook also will be used to document all sampling activities. Logbook entries will be made with indelible ink to provide a permanent record, and any errors in the logbook will be verified, crossed through, and initialed by the person discovering the error. The field logbooks are intended to provide sufficient data and observations to reconstruct events that occurred during project activities. The following items are examples of information that may be included in a field logbook:

- Name, date, and time of entry
- Names and responsibilities of field crew members
- Name and titles of any site visitors
- Descriptions of field procedures, and problems encountered
- Samples collected at each location
- Sample identification numbers of all samples collected
- Date and time of collection
- Sample collector
- Sample collection method
- Decontamination procedures (if applicable)
- Weather conditions
- Site observations
- Site sketches
- Health and Safety issues including personal protective equipment
- Log of photographs

4.6.6 Field Sample Handling and Chain-of-Custody Procedures

Prior to sample collection, sample containers will be labeled with the sample location number, sampler's name, date, and analytical fraction. Following collection, samples will be placed on ice in a secure cooler or in a box, as applicable, and attended by H&S personnel or placed in locked vehicles or designated storage areas until shipment to an off-site laboratory. Samples will be shipped to the laboratory in coolers packed with bubble wrap, or equivalent packing material, to cushion the samples and prevent breakage. Ice will be added to the coolers to maintain the required temperature (4° C) of the samples. A container filled with water and labeled "temperature blank" will be included in each cooler. The temperature of this blank will be measured by the laboratory upon sample receipt to verify acceptable sample preservation temperature. The coolers will be taped and sealed with a signed custody seal to ensure that chain of custody is maintained. Samples will be shipped to the laboratory to ensure that maximum sample holding times are not exceeded.

Custody of samples must be maintained and documented at all times to ensure the integrity of each sample from collection through analysis. Chain of custody begins when samples are collected in the field and is maintained by storing the samples in secure areas until custody can be passed on. All samples will be delivered to the laboratory accompanied by a chain-of-custody form that will describe the sample identifiers, dates and times of sample collection, analytical parameters, and persons responsible for the sample integrity. The chain-of-custody form is a two-part form: the original accompanies the samples to the analytical laboratory, and the copy will be archived in the project files.

The condition of the shipping cooler/box, custody seals, coolant, integrity and condition of the samples and presence and accuracy of the chain-of-custody documentation will be recorded by the laboratory upon sample receipt.

4.7 Waste Management (Handling / Staging, Characterization, and Disposal)

4.7.1 Waste Handling / Staging and Characterization

Solid wastes generated from the excavation and decontamination procedures will be staged and secured in the Waste Management Area prior to proper offsite transportation and disposal at a licensed facility as discussed below.

Waste characterization samples will be collected as described above in Section 4.6.1. Upon receipt and review of the sampling results, a waste profile and sample shipping documentation will be prepared and submitted to the contract representative for review, acceptance, and signature prior to transporting the waste material from the project site, as described below. All loads will be stabilized, secured, and covered for transport off site.

4.7.2 Waste Disposal

Upon receipt of waste characterization analytical results and completion of an acceptable profile, EQ Northeast, a Maine-licensed transporter, will transport generated waste to an approved disposal facility / landfill. Waste is assumed to be non-hazardous and non-Toxic Substances Control Act (TSCA)-regulated. H&S will coordinate signing of waste manifests and / or bill of lading (BOLs) with the BRAC office at Former NAS Brunswick and will submit return copies of these waste manifests to the BRAC office.

The proposed disposal facility that will be utilized for this project is:

State of Maine - Juniper Ridge Landfill
Operated by New England Waste Services of Maine, LLC
2828 Bennoch Road
Alton, ME 04468
Phone: (207) 394-4371
#S-020700-WD-N-A

EQ Northeast's transporter permits and the disposal facility's operating permit are included in **Appendix E**.

4.8 Site Restoration

The Helipad work area will be restored to match surrounding conditions to the extent practical. This includes filling ruts, repairing erosion, removing debris and waste materials generated as a result of construction activities, and reseeding and vegetating as required to match preconstruction conditions. If needed, up to two inches of topsoil or clean fill may be laid down and the area reseeded using Northeast seed mix and covered with straw/cellulose to establish vegetation. Top soil or clean fill will either be certified as clean or analytical testing will be performed to ensure fill is suitable.

The PJM will conduct a site inspection prior to demobilization to ensure any punch-list items are properly addressed.

Erosion controls will be left in place until vegetation is established, and will be inspected once during the off season to ensure potential erosion issues have been addressed. A follow-up inspection will be performed in the spring to ensure vegetation has been established.

4.9 Demobilization

H&S will demobilize equipment and personnel from the site upon completion of site restoration activities and final inspection.

4.10 Work Completion Documentation

H&S will prepare a daily report for each day onsite including a brief narrative of what was accomplished, site conditions, subcontractors on site, issues encountered, or changes to this Work Plan. Significant deviations or field change decisions made in execution of this Work Plan will be documented, including the rationale for the decisions and approvals obtained by the Navy prior to the deviation/field change.

H&S will also provide photographic documentation of conditions before, during, and after excavation and restoration work.

Upon completion of all field activities, a Closeout Report will be prepared to document all field activities and analytical data. The report will summarize closure activities and observations, present analytical results in a tabular format, and illustrate sample locations on site figures. All supporting documentation, such as sample logs, chains-of-custody, analytical reports, daily reports and photographs, will be included as appendices to the report. Soil sample data will also be uploaded to the Naval Installation Restoration Information Solution (NIRIS) database and electronic data deliverables (EDDs) will be submitted to MEDEP in accordance with MEDEP requirements.

5.0 PROJECT SCHEDULE

It is anticipated that field work will be conducted in late October 2012 / early November 2012. Mobilization, soil removal / excavation activities, collection of soil samples, site restoration, and demobilization are anticipated to take up to five working days. Generated waste will be disposed of immediately following receipt of waste characterization results. Submittal of the Closure Report is anticipated to occur by January 2013.

6.0 REFERENCES

- Tetra Tech, NUS. 2011. *Site Investigation Report for Four Areas of Potential Interest and Supplemental Groundwater Characterization of Buildings 225 and 252, Naval Air Station Brunswick, Brunswick, Maine*. April.
- U.S. Army Corps of Engineers. 2008. *Safety and Health Requirements Manual, EM385-1-1*.
- U.S. Environmental Protection Agency Office of Solid Waste. 2002. *RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment*. August.

TABLES

Table 1
Waste Characterization Sampling Summary
Helipad Area
Former Naval Air Station Brunswick, Maine
Fall 2012

Analytical Parameter	Matrix	US EPA SW-846 Method	Container Type	Preservative	Holding Time
Complete TCLP -VOCs -SVOCs -Metals (including Hg) -Pesticides -Herbicides	Soil / Sediment	1311	1 x 2oz (TCLP VOCs); 1 x 8oz (TCLP non-volatiles)	cool 4 deg C	TCLP ICP Metals: 6 months to TCLP Leach, 6 months to analyze. TCLP Mercury: 28 days to TCLP Leach, 28 days to analyze. TCLP Volatiles: 14 days to leach, 14 days to analyze. TCLP SVOCs: 14 days to leach, 7 days to extract, 40 days to analyze. Pesticides: 14 days to extract, 40 days to analyze. Herbicides: 14 days to extract, 40 days to analyze.
Corrosivity (pH)	Soil / Sediment	9045C	1 x 4oz	cool 4 deg C	Analyze immediately
Reactivity (Sulfide/Cyanide)	Soil / Sediment	9034/9012A	1 x 4 oz	cool 4 deg C	14 days
Ignitability	Soil / Sediment	1030 or 1010	1 x 4 oz	cool 4 deg C	14 days
PCBs	Soil / Sediment	8082	1 x 8 oz	cool 4 deg C	14 days to extract, 40 days to analyze.

Notes:

HCl = hydrochloric acid

H2SO4 = sulfuric acid

PCB = polychlorinated biphenyl

SVOC = semi-volatile organic compound

TAL = target analyte list

TCL = target compound list

TCLP = Toxicity Characteristic Leaching Procedure

TOC = total organic carbon

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

Table 2
Soil Sampling Summary
Helipad Area
Former Naval Air Station Brunswick, Maine
Fall 2012

Analytical Parameter	Matrix	US EPA SW-846 Method	Container Type	Preservative	Holding Time	No. Routine Samples	QA/QC Samples		Total No. Samples
							Field Duplicates	MS/MSDs	
TAL Metals (including mercury)	Soil	6010C/7471B	1 x 8 oz	cool 4 deg C	ICP Metals: 6 months Mercury: 28 days	15	2	1/1	19
TCL PCBs	Soil	8082	1 x 8 oz	cool 4 deg C	14 days to extract, 40 days to analyze.	15	2	1/1	19

Notes:

TAL = target analyte list

TCL - target compound list

PCB = polychlorinated biphenyl

MS/MSD = matrix spike / matrix spike duplicate

QA/QC = quality assurance / quality control

Table 3
Project Quantitation Limit Goals and Laboratory Detection Limits
Helipad Area
Former Naval Air Station Brunswick, Maine
Fall 2012

Analyte	CAS Number	Project Quantitation Limit Goal (mg/kg)	Laboratory Detection Limits	
			LOQ (mg/kg)	LOD (mg/kg)
TAL Metals analyzed by SW-846 Method 6010C except mercury (Method 7471B)				
ALUMINUM	7429-90-5	2570	10	0.3
ANTIMONY	7440-36-0	0.09	1	0.15
ARSENIC	7440-38-2	0.0004	0.6	0.08
BARIUM	7440-39-3	110	10	0.1
BERYLLIUM	7440-41-7	5.3	0.25	0.0014
CADMIUM	7440-43-9	0.12	0.25	0.007
CALCIUM	7440-70-2	NA	40	7.4
CHROMIUM	7440-47-3	0.097	1	0.01
COBALT	7440-48-4	0.77	2.5	0.013
COPPER	7440-50-8	9.3	1.5	0.094
IRON	7439-89-6	1830	10	1.2
LEAD	7439-92-1	3.7	0.5	0.037
MERCURY	7439-97-6	0.19	0.033	0.0061
MAGNESIUM	7439-95-4	NA	25	0.27
MANGANESE	7439-96-5	60	2.5	0.17
NICKEL	7440-02-0	12.7	2.5	0.012
POTASSIUM	7440-09-7	NA	50	1.5
SELENIUM	7782-49-2	0.17	1.5	0.15
SILVER	7440-22-4	1.4	1.5	0.047
SODIUM	7440-23-5	NA	50	1
THALLIUM	7440-28-0	0.47	1	0.11
VANADIUM	7440-62-2	0.18	2.5	0.042
ZINC	7440-66-6	15.3	2.5	0.052
TCL PCBs analyzed by Method SW-846 8082A				
AROCLOR-1016	12674-11-2	0.13	0.033	0.0047
AROCLOR-1221	11104-28-2	0.00007	0.033	0.0028
AROCLOR-1232	11141-16-5	0.00007	0.033	0.0047
AROCLOR-1242	53469-21-9	0.073	0.033	0.0045
AROCLOR-1248	12672-29-6	0.073	0.033	0.0049
AROCLOR-1254	11097-69-1	0.037	0.033	0.002
AROCLOR-1260	11096-82-5	0.073	0.033	0.0062
AROCLOR-1262	37324-23-5	0.16	0.033	0.02
AROCLOR-1268	11100-14-4	0.16	0.033	0.02

Notes:

TAL = target analyte list

TCL = target compound list

PCB = polychlorinated biphenyl

LOD - limit of detection

LOQ = limit of quantitation

NA = not applicable

(1) Project Quantitation Limit Goal taken from *WORK PLAN, AREAS OF POTENTIAL INTEREST SCREENING INVESTIGATIONS, MERCURY DISPOSAL AREA, WEST FIRE FIGHTER TRAINING AREA, HELIPAD AREA AND FORMER BUILDINGS 7 AND 10 NAS BRUNSWICK ME* (Tetra Tech 2010)

FIGURES

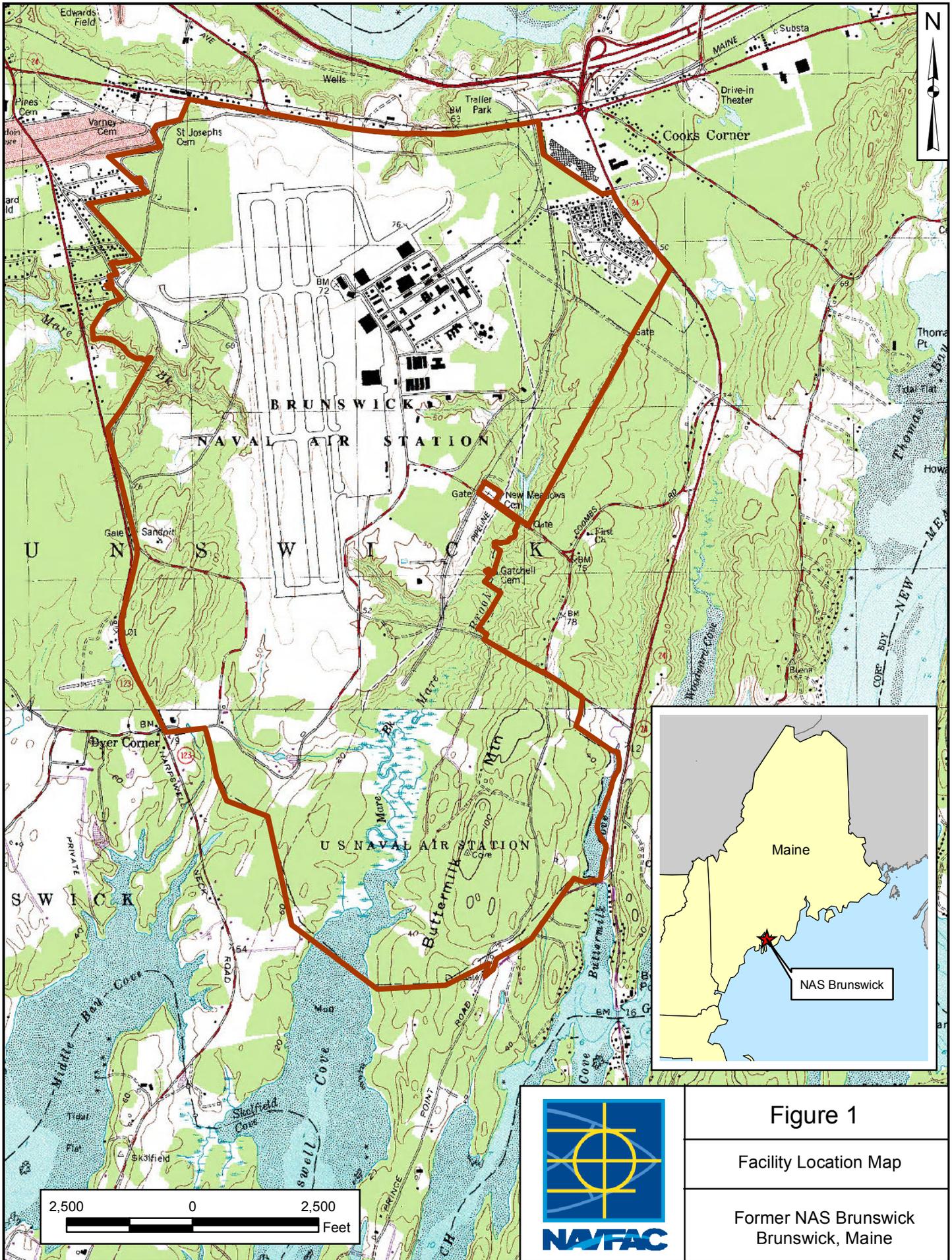


Figure 1

Facility Location Map

Former NAS Brunswick
Brunswick, Maine

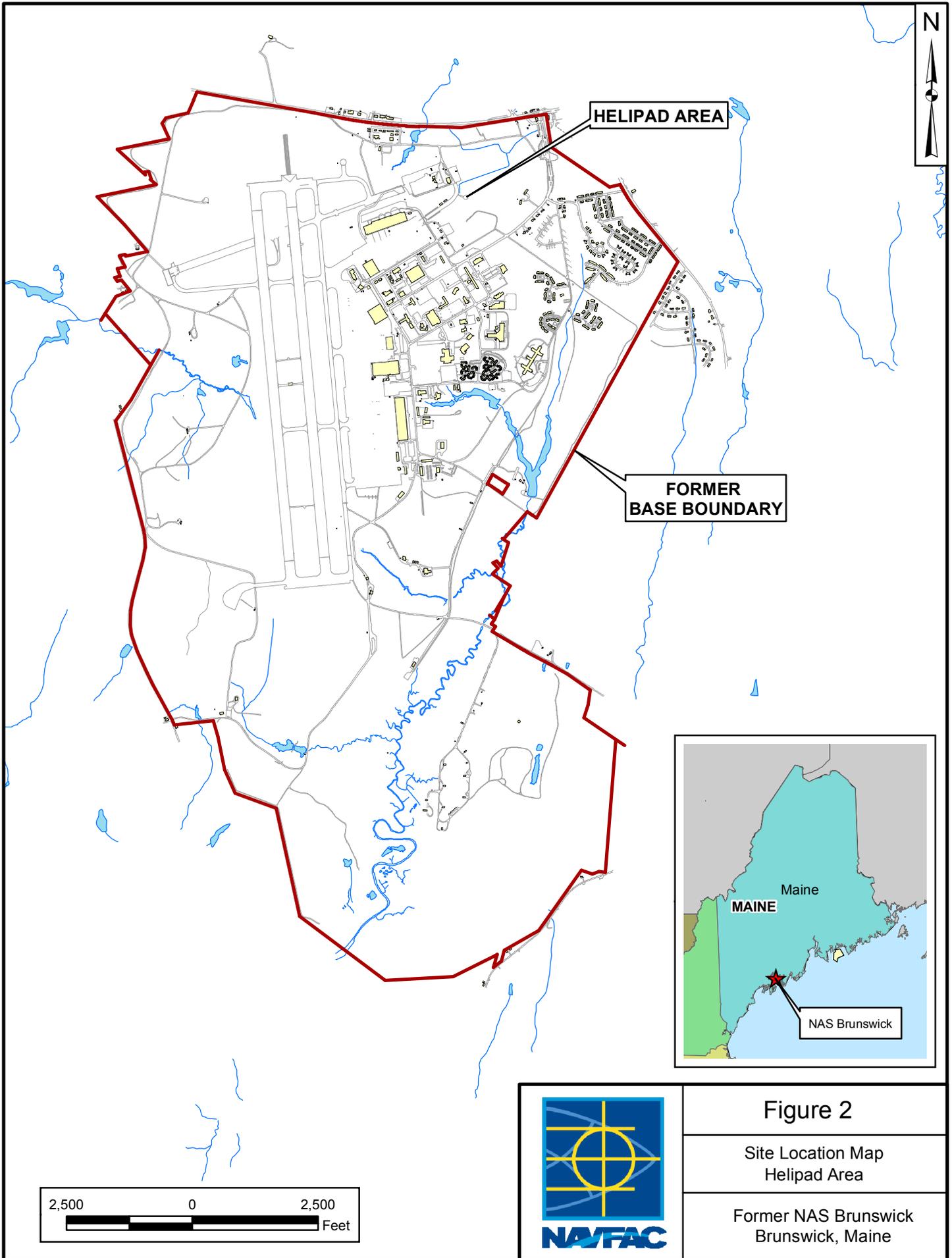
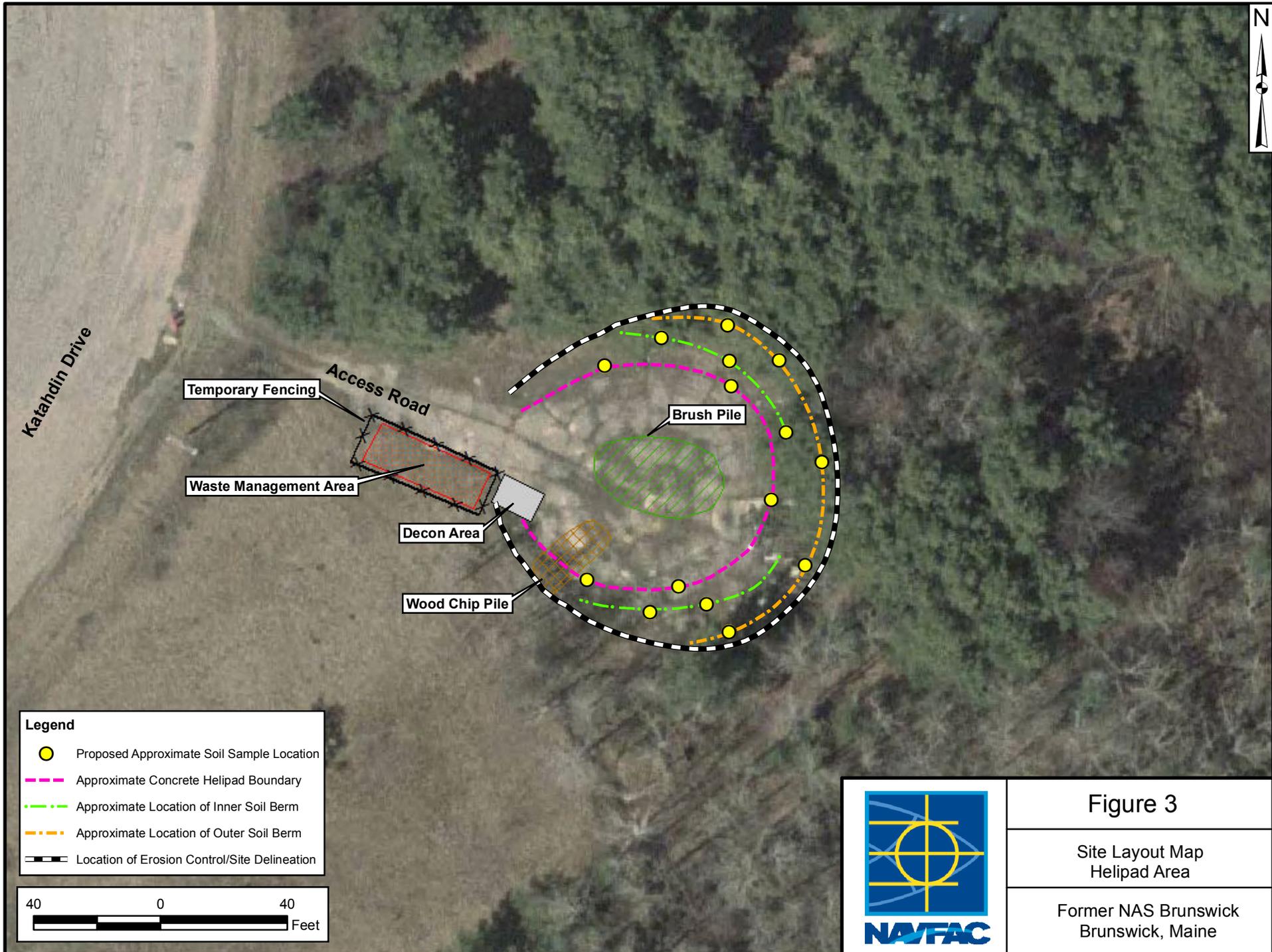


Figure 2

Site Location Map
Helipad Area

Former NAS Brunswick
Brunswick, Maine



APPENDIX A

PRECONSTRUCTION SITE PHOTOGRAPHS

**PRECONSTRUCTION SITE PHOTOGRAPHICS
HELIPAD AREA
FORMER NAS BRUNSWICK, MAINE
JULY 2012**



Katahdin Drive and Helipad Access Road



Helipad Access Road



Helipad Access Road / Overall Site View



Helipad Area – Overall Site (looking east)

**PRECONSTRUCTION SITE PHOTOGRAPHICS
HELIPAD AREA
FORMER NAS BRUNSWICK, MAINE
JULY 2012**



Helipad Area – Overall Site (looking west)



Brush Pile (looking east)



Brush Pile (looking west)



Wood Chip Pile (looking west)

**PRECONSTRUCTION SITE PHOTOGRAPHICS
HELIPAD AREA
FORMER NAS BRUNSWICK, MAINE
JULY 2012**



Concrete Helipad Surface (looking east)



Concrete Helipad Surface (looking west)



Eastern Edge of Concrete Pad



Soil Berm

**PRECONSTRUCTION SITE PHOTOGRAPHICS
HELIPAD AREA
FORMER NAS BRUNSWICK, MAINE
JULY 2012**



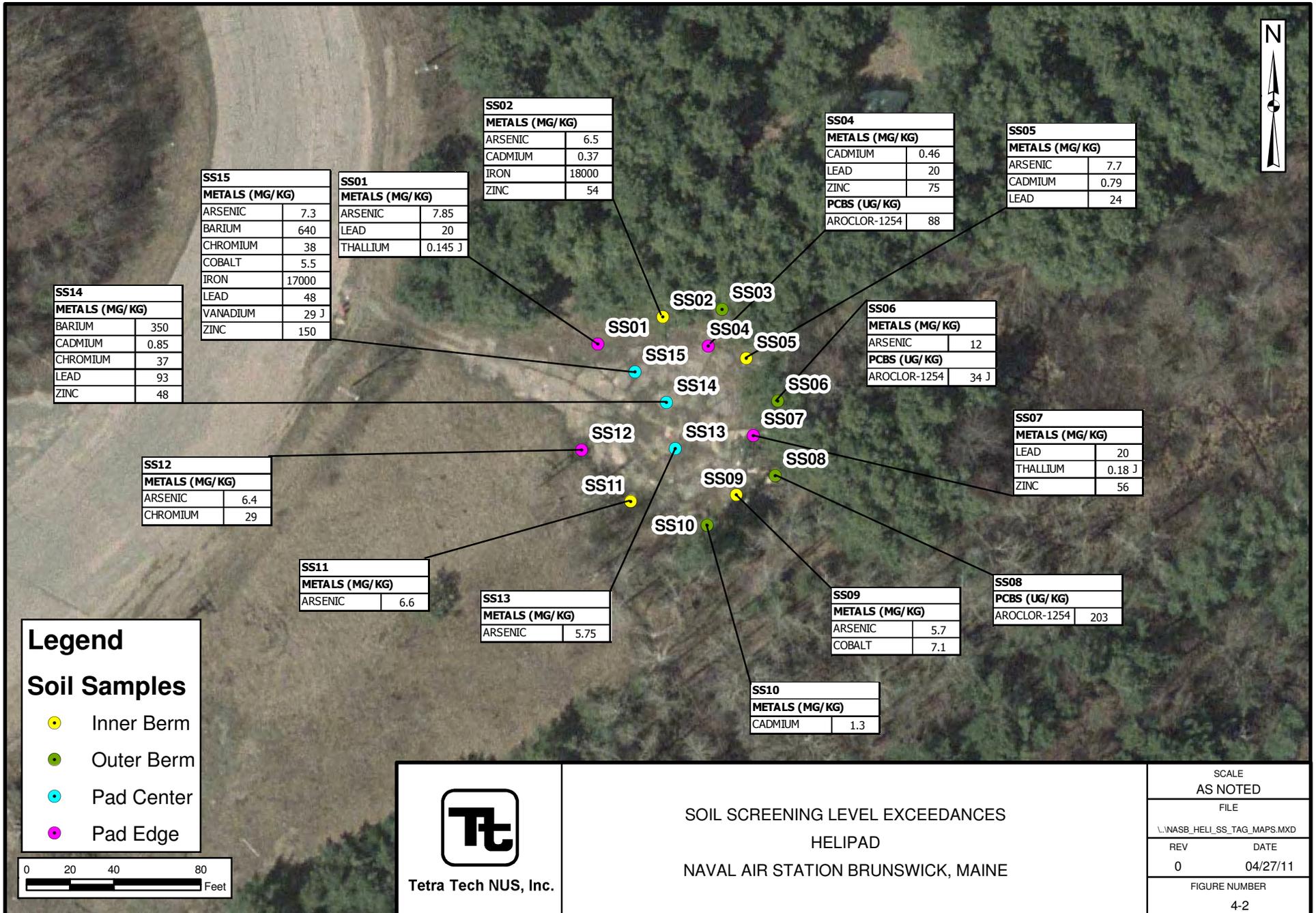
Soil Berm



Soil Berm

APPENDIX B

**SOIL SCREENING LEVEL
EXCEEDANCES – APRIL 2011**



SS14

METALS (MG/KG)	
BARIIUM	350
CADMIUM	0.85
CHROMIUM	37
LEAD	93
ZINC	48

SS15

METALS (MG/KG)	
ARSENIC	7.3
BARIIUM	640
CHROMIUM	38
COBALT	5.5
IRON	17000
LEAD	48
VANADIUM	29 J
ZINC	150

SS01

METALS (MG/KG)	
ARSENIC	7.85
LEAD	20
THALLIUM	0.145 J

SS02

METALS (MG/KG)	
ARSENIC	6.5
CADMIUM	0.37
IRON	18000
ZINC	54

SS04

METALS (MG/KG)	
CADMIUM	0.46
LEAD	20
ZINC	75
PCBS (UG/KG)	
AROCLOR-1254	88

SS05

METALS (MG/KG)	
ARSENIC	7.7
CADMIUM	0.79
LEAD	24

SS06

METALS (MG/KG)	
ARSENIC	12
PCBS (UG/KG)	
AROCLOR-1254	34 J

SS12

METALS (MG/KG)	
ARSENIC	6.4
CHROMIUM	29

SS11

METALS (MG/KG)	
ARSENIC	6.6

SS13

METALS (MG/KG)	
ARSENIC	5.75

SS10

METALS (MG/KG)	
CADMIUM	1.3

SS09

METALS (MG/KG)	
ARSENIC	5.7
COBALT	7.1

SS07

METALS (MG/KG)	
LEAD	20
THALLIUM	0.18 J
ZINC	56

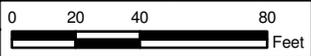
SS08

PCBS (UG/KG)	
AROCLOR-1254	203

Legend

Soil Samples

- Inner Berm
- Outer Berm
- Pad Center
- Pad Edge



Tetra Tech NUS, Inc.

SOIL SCREENING LEVEL EXCEEDANCES
HELIPAD
NAVAL AIR STATION BRUNSWICK, MAINE

SCALE
AS NOTED

FILE

\\NASB_HELL_SS_TAG_MAPS.MXD

REV	DATE
0	04/27/11

FIGURE NUMBER

4-2

APPENDIX C
SOIL SAMPLING SOP

H&S Field SOP

SOIL SAMPLE COLLECTION

Soil samples may be collected using a variety of methods and equipment depending on the depth of the desired sample, the type of sample required (disturbed vs. undisturbed), and the soil type. Near-surface soils may be easily sampled using a spade, trowel, and scoop. Sampling at greater depths may be performed using a hand auger, continuous flight auger, a trier, a split-spoon, or, if required, a backhoe.

Collection of Surface Soil Samples

Collection of samples from near-surface soil can be accomplished with tools such as spades, shovels, trowels, and scoops. Surface material is removed to the required depth and a stainless steel or plastic scoop is then used to collect the sample. This method can be used in most soil types but is limited to sampling at or near the ground surface. Accurate, representative samples can be collected with this procedure depending on the care and precision demonstrated by the sample team member. A flat, pointed mason trowel to cut a block of the desired soil is helpful when undisturbed profiles are required. Tools plated with chrome or other materials should not be used. Plating is particularly common with garden implements such as potting trowels.

1. Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
2. Using a pre-cleaned, stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
3. For samples not requiring volatile analysis, transfer the sample directly into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval or location into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.
4. Samples requiring volatile analysis will be collected using a TerraCore® sampler or equivalent so as not to lose volatiles during sample collection.

Sampling at Depth with Augers and Thin Wall Tube Samplers

This system consists of an auger, or a thin-wall tube sampler, a series of extensions, and a "T" handle. The auger is used to bore a hole to a desired sampling depth, and is then withdrawn. The

sample may be collected directly from the auger. The following procedure is used for collecting soil samples with the auger:

1. Attach the auger bit to a drill rod extension, and attach the "T" handle to the drill rod.
2. It may be advisable to remove the first three to six inches of surface soil for an area approximately six inches in radius around the drilling location.
3. Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
4. After reaching the desired depth, slowly and carefully remove the auger from the hole. When sampling directly from the auger, collect the sample after the auger is removed from the hole and proceed to Step 10.
5. Remove auger tip from the extension rods and replace with a pre-cleaned thin wall tube sampler. Install the proper cutting tip.
6. Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Do not scrape the borehole sides. Avoid hammering the rods as the vibrations may cause the boring walls to collapse.
7. Remove the tube sampler, and unscrew the drill rods.
8. Remove the cutting tip and the core from the device.
9. Discard the top of the core (approximately 1 inch), as this possibly represents material collected before penetration of the layer of concern. Place the remaining core into the appropriate labeled sample container. Sample homogenization is not required at this point.
- 10. If volatile organic analysis is to be performed, insert the dedicated modified plastic 10-ml syringe into the core in order to obtain a cohesive sample, transfer the sample into an appropriate, labeled sample container using the syringe, and secure the cap tightly. Samples to be analyzed for total VOC compounds are collected from freshly exposed soil. Approximately 5 grams of sample is obtained using the syringe. A modified plastic syringe is used to gather the soil plugs or solid material sample. (The modified syringe has had the front end sliced off and uses a plunger without lubricant.) If the plastic syringe is used, then field personnel extrude these soil plugs into vials containing preservatives (sodium bisulfate solution or methanol) for total VOC analysis. Vials will be pre-weighed and pre-preserved in the laboratory. Samples in vials are re-weighed after the sample aliquots are added to obtain the net sample weights at the laboratory. All weights must be recorded to within 0.2 g. **Note: VOC samples can not be composited and homogenized in the field. If a composite sample is required, a separate VOC****

sample must be collected from each sub-sample location in a glass jar with minimal headspace and sent to the laboratory for compositing.

11. For additional analyses, place the remainder of the sample into a stainless steel or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.
12. If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow steps 3 through 11, making sure to decontaminate the auger and tube sampler between samples.
13. Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.
14. Decontaminate auger using the appropriate method.

Quality Assurance/Quality Control

There are no specific quality assurance (QA) activities which apply to the implementation of these procedures. However, the following QA procedures apply:

1. All data must be documented on field data sheets or within site logbooks.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

References

U.S. EPA Environmental Response Team, 2000. *Standard Operating Procedures. Soil Sampling (SOP 2012)*. February.

APPENDIX D

TRIMBLE GEO XH SPECIFICATIONS

KEY FEATURES

Real-time H-Star technology for decimeter to subfoot accuracy in the field

High-resolution VGA display for crisp and clear map viewing

Bluetooth and wireless LAN connectivity options

1 GB onboard storage plus SD slot for removable cards

Windows Mobile version 6.1 operating system

Rugged handheld with all-day battery



THE PERFECT SOLUTION FOR HIGH-ACCURACY ASSET MANAGEMENT

For high-accuracy GIS data collection and asset relocation, the Trimble® GeoXH™ handheld is the perfect integrated solution. Engineered with Trimble H-Star™ technology, the GeoXH handheld delivers decimeter (10 cm / 4 inch) to subfoot (<30 cm) accuracy when you need it, making it the ideal device for electric and gas utilities, water and wastewater services, land reform projects, and other applications where on-the-spot positioning is crucial.

The GeoExplorer® 3000 series combines a Trimble GPS receiver with a rugged handheld computer, built for all-day use and packed with connectivity options. Technology this clever has never been more convenient.

Subfoot accuracy when you need it

When your GIS database requires the highest levels of accuracy, the GeoXH handheld is the answer. Using revolutionary Trimble H-Star technology, the GeoXH handheld delivers real-time subfoot accuracy with the internal antenna, and decimeter accuracy with an optional Trimble Tornado™ external antenna. Back-office data processing is eliminated, streamlining asset inventories and as-built mapping jobs.

Need to relocate assets in the field? The GeoXH handheld has you covered. Buried and hidden assets can be tracked down with ease, as the real-time high accuracy gets you straight to the point. Cables and pipes can be excavated without wasted effort or risk of damage to nearby assets. When you postprocess with Trimble office software you can be confident of achieving decimeter level accuracy with greater consistency at longer baselines, in tougher environments, and with shorter occupations.

Packed full of power

With a powerful 520 MHz processor, 128 MB RAM, and 1 GB of onboard storage, the GeoXH handheld is a high performance device designed to work as hard as you do. The handheld gives you all the power you need to work with maps and large data sets in the field, and its high resolution VGA display allows for crisp and clear viewing of your data.

The GeoXH handheld is powered by the industry-standard Windows Mobile® version 6.1 operating system so you can choose a

software solution designed for your field requirements, whether off-the-shelf or purpose-built.

The Windows Mobile 6.1 operating system includes familiar Microsoft® software, including Word Mobile, Excel Mobile, and Outlook® Mobile, giving you all the tools you need for a seamless exchange of data between the field and the office.

Get the data you need, when you need it

With the GeoXH handheld you have the flexibility to work exactly the way you want to. Use the built-in wireless LAN connection to access your organization's secure network and get the most up-to-date information. You can also wirelessly connect to other devices such as Bluetooth®-enabled laser rangefinders and barcode scanners for convenient cable-free solutions that keep you productive in the field. Cellular connectivity can be added to the GeoXH handheld via the TDL 3G cellular modem. Connecting via wireless LAN or Bluetooth, the TDL 3G provides continuous network/internet access to real-time map data, web-based services, Trimble VRS™ corrections, and live update of field information.

Built for the field

The GeoXH handheld has an integrated battery, good for a full day's work; simply charge the battery overnight and you're ready to go again. The GeoXH handheld will last the distance, and its rugged design can take a lot of punishment. Rain, hail or shine, it's built to keep working, whatever the weather throws at you.

When accuracy is critical

Rugged design and powerful functionality are the hallmarks of the GeoExplorer series. And now with H-Star technology providing decimeter to subfoot accuracy in real time, the 3000 series GeoXH handheld is your ultimate solution for high-accuracy asset management.

When accuracy is critical, the GeoXH handheld delivers—with unprecedented efficiency and reliability, when and where you need it.

GEOEXPLORER 3000 SERIES GEOXH HANDHELD

STANDARD FEATURES

System

- Windows Mobile 6.1 (Classic edition)
- VGA display (480 x 640), sunlight-readable color touchscreen
- Integrated Bluetooth 1.2 wireless technology
- Integrated 802.11b/g wireless LAN
- Ergonomic cable-free handheld
- Rugged and water-resistant design
- All-day internally rechargeable Li-ion battery
- Marvell 520 MHz XScale processor
- 128 MB RAM
- 1 GB non-volatile Flash data storage
- Sealed SD/SDHC card slot
- Integrated speaker and microphone

GPS

- Integrated high-performance GPS/SBAS¹ receiver and L1/L2 antenna
- H-Star technology for subfoot (<30 cm) real-time accuracy or decimeter (10 cm / 4 inch) accuracy after postprocessing
- Decimeter accuracy is also available in real-time with the optional external Tornado antenna
- RTCM and CMR real-time correction support
- TSIP and NMEA² protocol support
- Trimble EVEREST™ multipath rejection technology

Standard Software

- GPS Controller for control of integrated GPS and in-field mission planning
- GPS Connector for connecting integrated GPS to external ports
- Microsoft Office Mobile
- Transcriber (handwriting recognition)

Standard Accessories

- Support module
- AC Power supply with International adapter kit
- USB data cable
- Stylus (x 2)
- Screen protectors (2-pack)
- Quick Start Guide
- Getting Started CD
- Hand strap
- Pouch

OPTIONAL FEATURES

Optional Software

- Trimble TerraSync™ software
- Trimble GPSCorrect™ extension for Esri ArcPad software
- Trimble GPS Pathfinder® Tools Software Development Kit (SDK)
- Trimble GPS Pathfinder Office software
- Trimble GPS Analyst™ extension for Esri ArcGIS Desktop software
- Trimble TrimPix™ Pro system

Optional Accessories

- TDL 3G cellular modem accessory
- Power/serial clip (9-pin RS-232 serial connector and power input)
- Vehicle power adaptor³
- Null modem cable³
- Backpack kit
- Hard carry case
- Tornado antenna
- 2 meter range pole
- Range pole bracket
- Trimble GeoBeacon™ receiver
- Anti-glare screen protectors (2-pack)

TECHNICAL SPECIFICATIONS

Physical

Size	21.5 cm x 9.9 cm x 7.7 cm (8.5 in x 3.9 in x 3.0 in)
Weight	0.81 kg (1.79 lbs) with battery
Processor	520 MHz Marvell PXA-270 XScale processor
Memory	128 MB RAM and 1 GB internal Flash storage
Battery	Internal 7500 mAh lithium-ion 27.8 Watt-hours, rechargeable in unit

Power usage

Low (no GPS or backlight)	1.8 Watts
Normal (with GPS and backlight ⁴)	3.2 Watts
High (with GPS, backlight ⁴ , Bluetooth, and wireless LAN) ⁵	4.3 Watts

Environmental

Operating temperature	-20 °C to +60 °C (-4 °F to 140 °F)
Storage temperature	-30 °C to +70 °C (-22 °F to 158 °F)
Casing	Dust-proof and resistant to heavy wind-driven rain per IP 65 standard Slip-resistant grip, shock and vibration resistant
Drop	1.2 m (4 ft) MIL-STD-810F, Method 516.5, Procedure IV

Input/Output

Expansion	SD card slot (SD or SDHC storage cards)
Display	8.9 cm (3.5 in) VGA (480 x 640 pixel) TFT, 16 bit (65,536) colors LED backlight
Interface	Touch screen, 10 hardware control keys, power status LED Audio system events, warnings, and notifications Soft Input Panel (SIP) virtual keyboard and handwriting recognition software
Audio	Microphone and speaker, record and playback utilities
I/O	USB 1.1 client via support module Serial via optional 9-pin RS-232 power/serial clip adaptor
Radios ⁶	Bluetooth 1.2, Wireless LAN 802.11b/g

GPS

Channels	26 (12 L1 code and carrier, 12 L2 carrier, 2 SBAS)
Integrated real-time	SBAS ¹ (dual-channel tracking)
Update rate	.1 Hz
Time to first fix	.30 seconds (typical)
Protocols	Data output: TSIP, NMEA-0183 v3.0 (GGA, VTG, GLL, GSA, ZDA, GSV, RMC) ² Real-time corrections: RTCM 2.x, RTCM 3.0, CMR, CMR+

Accuracy (HRMS)⁷ after differential correction

Real-time positioning	H-Star ⁸ with internal antenna (within a VRS network, or <80 km) . . . Subfoot (<30 cm)
H-Star ⁸ with optional Tornado antenna	Short baseline (within a VRS network, or <30 km) 10 cm Long baseline (30–80 km) Subfoot (<30 cm)
Code corrections (SBAS ¹ or external correction source)	Submeter
Postprocessed positioning	H-Star horizontal accuracy 10 cm + 1 ppm ⁹ Carrier postprocessed accuracy with 45 minutes tracking satellites . . . 1 cm + 2 ppm ¹⁰ Code postprocessed 50 cm

- 1 SBAS (Satellite Based Augmentation System). Includes WAAS available in North America only, EGNOS available in Europe only, and MSAS available in Japan only.
- 2 NMEA output of real-time H-Star corrected data is not supported.
- 3 Power/serial clip also required.
- 4 With backlight at default setting (50% brightness).
- 5 Power draw will vary depending on radio usage.
- 6 Bluetooth and wireless LAN type approvals are country specific. GeoExplorer 3000 series handhelds have Bluetooth and wireless LAN approval in the U.S. and in most European countries. For further information please consult your local reseller.
- 7 Horizontal Root Mean Squared accuracy, 1-sigma (68%). Except in conditions where most GPS signals are affected by trees, or buildings, or other objects. Except when using VRS corrections, accuracy varies with proximity to base station by +1 ppm for code postprocessing and real-time.
- 8 H-Star specified accuracy is typically achieved within 2 minutes. Requires data to be collected using Trimble field software.
- 9 The following factors increase the availability of decimeter (10 cm / 4 inch) accuracy after H-Star postprocessing: longer elapsed time tracking uninterrupted L1/L2 carrier phase data, use of the optional external Tornado antenna, tracking of more satellites with L2 measurements, shorter distance to the base station(s), and use of more (than one) base stations for postprocessing.
- 10 45 minute carrier capability applies only to the GPS Pathfinder Office software and is limited to 10 km from the base station.

Specifications subject to change without notice.



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APPENDIX E

**WASTE HAULER PERMITS AND DISPOSAL
FACILITY OPERATING PERMIT**

EQ NORTHEAST, INC.
State Hazardous Permits

STATE	TYPE	PERMT #	EXPIRES	PERMITTED SINCE
Alabama	Haz.	MAD084814136	11/29/2013	1984
Arkansas	Haz Waste	H-615	06/19/2012	1990
Arizona	Haz. Regis.	HWR-12310	03/01/2013	1996
California	Haz	5876	12/31/2012	2009
Quebec	430 Regis	R-567590-6	05/31/2013	1999
Quebec	IGIF Regis.	1161515490	Perm.	1999
Ontario	Ex. Prov. Licen	1279764	Perm.	1998
Ontario	Haz Waste	A800913	Perm.	1998
Ontario	CVOR	108-664-361	06/08/2013	1992
Ontario	Operating Lic.	110288	Perm,	1993
Quebec	Haz	7610-06-01-0176411	07/21/2014	1984
Colorado	Haz.	HMP-02401	08/17/2012	1995
Connecticut	Asbestos	000339	05/31/2013	2000
Connecticut	Haz	CT-HW-30	06/30/2013	1983
Delaware	Haz	DE-HW-364	06/30/2014	1990
Delaware	Solid Waste	DE-SW-0364	06/30/2013	1992
Florida	Haz.	MAD084814136	08/01/2012	1992
U.S. D.O.T.	.Haz Reg.	060106003007OQ	06/30/2015	1992
Iowa	Trip Permit.			N/A
Idaho	Trip Permit			N/A
Illinois	Haz Permit	SWH Permit # 1715	01/01/2013	1985
Indiana	None Req			N/A
Kansas	Haz @ used Oil	MAD084814136	12/31/2012	1986
Kentucky	Haz Regis.	MAD-084-814-136	Perm.	1990
Louisiana	None Req.			N/A
Massachusetts	Haz.	71	12/31/2013	1981
Massachusetts	VID Card	#71	12/31/2012	1981

EQ NORTHEAST, INC.
State Hazardous Permits

STATE	TYPE	PERMT #	EXPIRES	PERMITTED SINCE
Maryland	Haz	HWH-182	10/31/2012	1995
Maine	Haz/Oil	HWT-029,WOT-072	04/12/2013	1985
Maine	Non-Haz	Truck Specific	03/08/2013	1992
Michigan	LIW	LIW-0157372- MI	03/08/2013	1987
Michigan	Haz Alliance	UPW-0157372-OH	01/01/2013	1987
Minnesota	Haz Alliance	UPW-0157372-OH	01/01/2013	1995
Missouri	Haz Waste	H-1807	03/28/2013	1994
Missouri	Business	F00635706	04/30/2013	2005
Mississippi	None Req.			N/A
Montana	None Req.			N/A
North Carolina	None Req.			N/A
Nebraska	None Req.			N/A
New Hampshire	Haz	TNH-0356	06/30/2013	1985
New Jersey	Non-Haz	NJDEP SW 16195	06/30/2013	1985
New Jersey	Haz	NJDEP HW06879	06/30/2013	1984
New Mexico	Haz Regis.	# 0800441	12/08/2012	1997
Nevada	Haz Alliance	UPW-0157372-OH	01/01/2013	1995
New York	Trade Waste	TW 3609	01/31/2013	2010
New York	Haz	MA-025	05/31/2013	1989
Ohio	Haz Alliance	UPW-0157372-OH	01/01/2013	1989
Oklahoma	Haz Alliance	UPW-0157372-OH	01/01/2013	1994
Oregon	None. Req.			N/A
Pennsylvania	Haz.	PA-AH 0224	04/30/2013	1986
Pennsylvania	Non Haz.	WH3971	03/31/2013	2003
Rhode Island	Haz	RI-312	06/30/2013	1984
South Carolina	Haz and Solid	MAD084814136	06/24/2012	1983
Tennessee	Haz-Per	Mad 08-481-4136	01/31/2013	1986

EQ NORTHEAST, INC.**State Hazardous Permits**

STATE	TYPE	PERMT #	EXPIRES	PERMITTED SINCE
Texas	Haz-Regis	41795	Perm.	1991
U.S. EPA	Registration	MAD 084814136	Perm.	1977
Utah	None Req.			N/A
Virginia	Haz.	MAD084184136	05/04/2019	1988
Vermont	Haz and Solis	MAD084184136	06/30/2013	1985
Washington	None Req.			N/A
West Virginia	Haz Alliance	UPW-0157372-OH	01/01/2013	1995
Wisconsin	Haz Permit.		09/30/2012	1992
Wyoming	None Req.			N/A

IN THE MATTER OF

STATE OF MAINE, ACTING THROUGH THE) SOLID WASTE ORDER
STATE PLANNING OFFICE)
OLD TOWN, PENOBSCOT COUNTY, MAINE)
VERTICAL INCREASE and)
ADDITIONAL WASTE STREAMS)
#S-020700-WD-N-A)
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Pursuant to the provisions of Resolve 2003, Chapter 93; 38 M.R.S.A. Section 1301 et seq.; and 06-096 CMR Chapter 400 et seq., Solid Waste Management Regulations, effective September 6, 1999, the Department of Environmental Protection ("Department") has considered the application of the State of Maine, acting through the State Planning Office, with its supportive data, staff review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. APPLICATION SUMMARY

- A. Application: The State of Maine, State Planning Office ("SPO" or "the applicant") is applying for an amendment to the original license for the West Old Town Landfill ("WOTL" or "the landfill"); SPO seeks to increase the approved final elevation of the landfill without increasing the horizontal footprint of the landfill, and to dispose of additional waste streams in the landfill.
- B. History: The WOTL was licensed by the Board of Environmental Protection on July 28, 1993 as a 15-cell generator-owned landfill for the disposal of pulp and papermaking residuals generated at the Fort James Operating Company's mill in Old Town. Summaries of information on the siting and design of the landfill are contained in the landfill license, DEP #S-020700-7A-A-N ("the original license"). The licensed footprint of the WOTL, including the accessory structures, is approximately 68 acres; it sits on a parcel of land approximately 780 acres in size.

In summary, the landfill is situated on an area of deep glacial till soils with an average fines content of 58% passing the No. 200 sieve. The average till thickness is approximately 30 feet, and after excavation and grading to the proposed base grades of the landfill a minimum of 10 feet of soil above bedrock will remain in all areas. The bedrock consists of

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metasediments that are generally competent and occasionally fractured; there was no mapped or observed faulting in the bedrock beneath the site. The site does not overlay, or lie adjacent to, a mapped significant sand and gravel aquifer, nor a mapped high-yield bedrock zone. The proposed facility was found not to cause an unreasonable threat to a significant sand and gravel aquifer, or to a fractured bedrock aquifer. The closest water supply well is located approximately 1500 feet west of the site across a bog and stream, and on the other side of a topographic ridge. The landfill was located on the property in an area where seepage gradients and the site's topography hydraulically isolate it from the regional ground water systems and existing water supplies.

The landfill began operation in December 1996, and cells 1 and 2 have been developed. In addition to the wastes from the Old Town Mill, bottom ash from the Lincoln Pulp and Paper Mill in Lincoln, Maine and burn pile ash from the City of Old Town's transfer station are licensed for disposal in the landfill. Fort James Operating Company is a wholly owned subsidiary of Georgia-Pacific Corporation ("GPC"). The landfill has a composite liner system, and leachate is stored in a pond with a double liner system. Approximately 300,000 tons of waste has been disposed in the landfill. No complaints from the public about any aspect of the landfill's operation were received by the Department prior to the submission of this application.

In April 2003 GPC shut down 2 tissue machines and 13 converting lines at its Old Town Mill. Through negotiations with the Office of the Governor, GPC agreed to continue operation of its mill in Old Town, Maine under certain conditions. One of the conditions was that the State of Maine purchase the company's West Old Town Landfill, and provide disposal capacity for the mill's wastes for a 30 year period. In June 2003, following a public hearing before the Legislature's Natural Resources Committee, the Maine Legislature passed Resolve 2003, Chapter 93 ("the Resolve"). The Resolve authorized SPO to purchase the WOTL from Fort James Operating Company, and to enter into any contracts necessary for the operation of the landfill; however, the landfill will continue to be owned and controlled by the State. SPO initiated a competitive bid

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process to select a long-term operator for the landfill. On August 18, 2003, SPO notified Casella Waste Systems, Inc. ("Casella") that it had been selected to be the long-term operator of the landfill, pending successful negotiation of mutually agreeable terms. Actual operations will be by NEWSME Landfill Operations, LLC ("NEWSME Operations"), a company in which New England Waste Services of ME, Inc., a Casella subsidiary, holds the sole membership interest. In accordance with the intent of the Resolve and the terms of the State's Request for Proposals ("RFP"), the operation of the landfill will remain revenue-neutral to the State.

SPO, Fort James Operating Company and GPC signed a purchase and sales agreement, dated November 20, 2003, for transfer of the ownership of the West Old Town Landfill from Fort James Operating Company to SPO; the purchase and sales agreement was executed on February 5, 2004. In addition, SPO and Casella signed an Operating Services Agreement ("OSA") on February 5, 2004. The purchase and sales agreement and the OSA state that the pulp and paper mill wastes currently licensed for disposal in the landfill will continue to be disposed in the landfill for at least 30 years, and that SPO will seek permits to expand the capacity of the landfill. Under the terms of the OSA between SPO and Casella, Casella will pay all costs associated with development, operational and closure/post-closure activities at the landfill.

On October 21, 2003, following public notice as required by 06-096 CMR Chapter 2, the Department issued conditional approval for the transfer of the licenses for the WOTL from Fort James Operating Company to the SPO (DEP #S-020700-WR-M-T and #L-019015-TH-C-T); the transfer became effective when the sale of the landfill to SPO occurred on February 5, 2004. No appeals were filed from this approval.

- C. Summary of Proposal: SPO proposes to increase the licensed final elevation of the landfill from 270 feet (which would be about 60 feet above the original ground surface) to 390 feet. This vertical increase would result in the disposal capacity of the landfill being increased from the original estimate of 3.3 million cubic yards to an estimated 10 million

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cubic yards. In addition to the wastes currently disposed in the landfill (sludge from Fort James' Old Town Mill and ash from Lincoln Pulp & Paper), SPO proposes to dispose of the waste streams generated in Maine that are currently accepted for disposal at the Pine Tree Landfill in Hampden, Maine. These waste streams are the following: construction and demolition debris; the residues (ash, front-end process residue and oversized bulky wastes) generated by municipal solid waste ("MSW") incinerators located in Maine; a limited amount of MSW bypass from the incinerators; water/wastewater treatment plant sludge; and smaller amounts of miscellaneous non-hazardous wastes. The proposed vertical increase is expected to provide disposal capacity for approved waste streams for up to 15 years. After construction of a new cell is completed during the summer of 2004 and the additional wastes begin coming to the facility, the applicant estimates approximately 450,000 tons of waste per year will be disposed in the landfill; in the future, that quantity is estimated to potentially increase to 540,000 tons per year. In accordance with the RFP and the OSA between SPO and Casella, waste that is generated outside Maine will not be accepted at the landfill.

The applicant proposes to modify the approved design of the facility by using clay as the earthen part of the composite liner instead of glacial till; by placing a foot of compacted clay beneath the undeveloped portions of the landfill's footprint; by eliminating liner penetrations associated with the leachate removal system and instead installing leachate collection sumps and removal pumps above the liner system; by adding an above-ground storage tank to be used as the primary leachate containment system; and by installing an active gas extraction system as the landfill is developed. To increase the capacity of the landfill, an elevated soil berm will be constructed around the perimeter of the landfill, with the interior toe of the berm within the currently licensed solid waste boundary. The western portion of the berm will be mechanically stabilized using reinforcing geogrids.

The proposal is described in an application dated October 2003 and submitted to the Department on October 30, 2003, and includes several additional submittals prepared in response to comments on the application.

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The application was accepted for processing on November 21, 2003. In addition to meetings held with municipal officials to discuss traffic impacts associated with the facility, a public informational meeting on the application was held on January 21, 2004. A written summary of the questions asked and the answers provided during the public informational meeting is part of the record. A draft license was made available to the public on February 17, 2004. The Department received written comments on the draft license and also participated in a public informational session on February 24, 2004; written comments submitted during that session are included in the record. The Department held 2 days of public sessions on the proposed project on March 29 and 30, 2004. Testimony under oath was accepted, and the sessions were recorded and transcribed. The transcriptions and copies of written comments submitted at these sessions are included in the record. The record was closed to receipt of comments on the application at the close of the last session held on March 30, 2004. The Department prepared a written summary of comments received throughout the processing of the application; this summary is included in the record. The application was reviewed by staff of the Department's Bureau of Remediation and Waste Management, staff of the Maine Department of Transportation, and the outside consulting firm Terrence J. DeWan & Associates. Mr. DeWan's firm provided the review of the updated visual impact assessment through a contract with the Department.

The Department finds that the applicant has provided a plan for all aspects of the development of the additional landfill capacity within the licensed footprint. As is typical, the applicant has not provided the detailed design packages required for construction. The applicable detailed design packages required by the Solid Waste Management Regulations ("Rules") and any information specifically described in the finding of facts below must be reviewed and approved by the Department prior to construction of the individual cells and any new ancillary structures for the landfill.

The Department received numerous comments from the public on the application, and on the State's transaction with GPC as a whole. Many of these comments, both in opposition to and in support of the transaction, were received on aspects of the transaction that are outside the purview of

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the Department's authority, and thus the Department cannot make findings of fact or conclusions of law on these issues. These aspects included the following issues: the legislative process, ending in the Resolve that authorized the purchase of the landfill; the RFP and bidding process that resulted in the selection of Casella as the operator of the landfill; the terms of the Purchase and Sales Agreement between GPC and the State of Maine, acting through the State Planning Office; the terms of the OSA between SPO and Casella; the establishment and duties of the Citizens Advisory Committee established by the Resolve; the host community benefits offered by SPO and/or Casella; the effect of the project on property values in the area; and the 80,000 pound weight limit on trucks using I-95, which results in heavy trucks using local roads.

The Department finds that this application for a vertical increase in the final elevation of the existing landfill is not an expansion of the landfill because solid waste will not be disposed beyond the boundaries previously licensed by the Department for solid waste disposal in the original license. The Department recognizes that under the terms of the RFP and the OSA, an application to the Department for an expansion of the landfill is required to be submitted. However, the applicant has not submitted an application for expansion or yet discussed its plans for submission of an expansion application; and thus no comments relating to development of the landfill facility beyond the vertical increase described in this application can be considered at this time.

2. PUBLIC PARTICIPATION

The Department received timely requests for a public hearing from the following 5 persons: the Town of Alton, Bruce Sidell, Oscar Emerson, William Lippincott, and the Maine Peoples Alliance. 06-096 CMR Chapter 2.7 states, in part, that "A request for a public hearing on an application must be received by the Department, in writing, no later than 20 days after the application is accepted for processing." The application was accepted for processing on November 21, 2003; thus, the 20 day period ended on December 11, 2003. On January 28, 2004, the Department notified all 5 persons that their requests did not include conflicting technical information, and thus their requests were denied because they failed to

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meet the standard for a public hearing in 06-096 CMR Chapter 2.7. The Department also received a timely request from the City of Brewer that the Board of Environmental Protection assume jurisdiction of the project and hold a public hearing; the City of Brewer withdrew its request on January 28, 2004 after its concerns with the traffic impacts associated with the project were addressed.

As noted in Finding of Fact #1.C, above, many comments were received by the Department that cannot be considered because they fall outside the Department's purview.

The majority of the remaining comments from people opposed to the project focused on issues related to traffic movement, ground water quality, visual impact of the facility, odors, the types of wastes to be accepted at the facility and Casella's civil and criminal record.

The majority of the remaining comments from people supporting the project focused on it being an existing and operating, well-sited landfill, and Casella's excellent records of operating facilities in their areas. Commentors also note that area residents' concerns were addressed during the original siting and licensing of the landfill, that operation of the landfill to date has not been problematic, and that the landfill will provide needed disposal capacity for the state.

As noted in Finding of Fact #1.C, above, the Department participated in several public meetings on the project: meetings were held on December 8, 2003 and December 16, 2003 with municipal officials to discuss the traffic impacts from the project; public informational meetings were held on January 21, 2004, February 24, 2004, March 29, 2004 and March 30, 2004.

Where applicable, comments on the project that are within the Department's purview are addressed in the appropriate findings of fact, below. In addition, a written summary of comments received throughout the processing of the application is included in the record.

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3. DESCRIPTION OF SPO/CASELLA RELATIONSHIP

As described in Finding of Fact #1.B., above, the State of Maine SPO is the owner of the landfill and the applicant for this application. SPO advertised an RFP to operate the landfill. At the conclusion of that process, Casella was selected to be the long-term operator of the landfill. Actual operations will be by NEWSME Operations, a company in which a Casella subsidiary holds the sole membership interest. The terms and conditions of NEWSME Operations' operation of the landfill are established by the OSA, dated February 5, 2004, between SPO and Casella.

While SPO retains control of the landfill, in accordance with the Resolve and the OSA, Casella/NEWSME Operations will pay all costs associated with the development, operation, closure and post-closure care of the landfill. In addition, Casella/NEWSME Operations will establish and maintain financial assurance for the landfill sufficient to meet the closure and post-closure care provisions of the Rules, assume liability for the landfill under both the current (including past actions by GPC) and future conditions, and assure that adequate disposal capacity is provided for the wastes currently disposed in the landfill for a 30 year period.

Condition #6 of the order transferring the landfill licenses (DEP #S-020700-WR-M-T, dated October 21, 2003) from Fort James Operating Company to SPO requires that if Casella or a subsidiary of Casella is replaced as the operator, prior to finalization of a new OSA SPO must submit to the Department for its review and approval information on the financial capacity of the new operator, information on the financial assurance to be provided by the new operator consistent with Chapter 400.11 of the Rules or successor regulations in effect at that time, and information on the technical ability of the new operator.

The Department finds that in many instances the responsibility for submittals required by this license are placed on Casella/NEWSME Operations (or a successor operator) by the OSA. Therefore, reference to the applicant in this license refers to both SPO and Casella/NEWSME Operations (or a successor operator).

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4. FINANCIAL CAPACITY

- A. Funding for development, operation, closure and post-closure care of the facility: Under the provisions of the RFP and the OSA, Casella/NEWSME Operations is required to fund future development and operation of the landfill, and closure and post-closure care of the landfill. The application includes a letter demonstrating that monies are available to fund the construction proposed for 2004; thereafter evidence of financial capacity for construction costs is proposed to be demonstrated prior to each subsequent construction activity. Funds to cover facility operations and maintenance will be generated from facility tipping fees. Financial assurance will be provided as described in Finding of Fact #4.B, below. The Department finds that the applicant has demonstrated that it has the financial capacity to undertake the proposed project consistent with the State's environmental standards and laws with regards to the construction planned for 2004 and the operation of the landfill. The Department further finds that the applicant must demonstrate financial capacity for costs associated with construction of each additional cell; the information must be included in the detailed design package as required in Finding of Fact #11, below.
- B. Financial Assurance: Casella/NEWSME Operations affirmed in a letter dated October 22, 2003 that it will initially fund a closure/post-closure care account through a trust account funded by a surety bond. In accordance with Chapter 400.11 of the Rules, the financial assurance mechanism will be submitted to the Department for its review and approval; the amount of the financial assurance will be based on the costs of a third party closing any developed areas of the landfill that have not received final cover, and conducting post-closure care and maintenance of the facility for at least 30 years after closure of the facility, in accordance with the Rules. The amount of financial assurance necessary to meet these requirements, and any changes in the financial assurance mechanism, will be calculated and adjusted annually during the operational period, and reported in the annual report for the facility. The Department finds that Casella/NEWSME Operations, as the operator of the facility and as required by the OSA, will provide financial assurance sufficient to ensure

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that funds are available to pay for the anticipated costs of compliance with all facility closure, post-closure maintenance, and post-closure monitoring requirements for a period of at least 30 years after closure of the facility, provided the financial assurance package submitted to the Department for its review and approval meets requirements of the Rules and Casella/NEWSME Operations updates it in accordance with the Rules on an annual basis.

5. TECHNICAL ABILITY

- A. Description of Experience: The applicant provided information demonstrating the technical ability of both SPO and the selected operator, Casella, its subsidiary NEWSME, and NEWSME Operations. The application describes SPO's experience in siting, designing and licensing the Carpenter Ridge Landfill. It also describes the solid waste expertise of Casella and its subsidiaries, and its consultants and legal counsel. The application indicates the personnel currently responsible for operations at the Pine Tree Landfill in Hampden, Maine will be responsible for fulfilling the operating services contract at this landfill; the Pine Tree Landfill is consistently operated in substantial compliance with its licenses and the Rules.

The applicant retained a number of consultants in developing the application. Sevee & Maher Engineers, Inc. ("SME"), a firm specializing in waste management issues, was the primary consultant for the project. The applicant also retained SMRT, Inc. to prepare the visual impact portion of the application; Richard E. Wardwell, P.E., Ph.D. for work on the geotechnical aspects of the application; Sanborn Head & Associates for work on the active gas management system for the landfill; Eaton Traffic Engineering to prepare the traffic assessment portion of the application; Acentech Incorporated to prepare the section of the application that addresses potential noise impacts; and Odor Science & Engineering, Inc. for work on odor control measures for the facility.

The Department finds that the combination of SPO and NEWSME Operations personnel and the consultants retained by the applicant have

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the technical ability to develop the project in a manner consistent with State standards and laws.

- B. Civil/Criminal Disclosure Statement: The applicant provided civil and criminal disclosure statements prepared in accordance with Chapter 400.12 of the Rules for SPO and Casella, including its subsidiaries and the individuals required to disclose under that regulation, in the transfer application approved by the Department on October 21, 2003; the Department did not require the applicant to provide another copy of that information in this application.

The Department received comments from the public on alleged environmental violations by Casella. Department staff ("staff") requested that Casella respond to the listing of violations; Casella provided information on each of the alleged violations. Letters from municipal and county officials praising Casella's management of many of the facilities listed in the comments have been submitted. Staff also contacted environmental enforcement staff in states where the violations were alleged to occur and discussed the list provided by the public. Staff comments that based on those conversations, and the submittals from Casella and the municipal and county employees, there is no reason to withhold this license due to Casella's civil or criminal record. Staff's evaluation of the nature, substance and severity of the violations, and state and local officials' assessment of Casella's willingness to correct violations demonstrate that, where Casella is found to have violated regulatory or license criteria, it will complete any required corrective actions.

The Department finds that the applicant filed an accurate Criminal/Civil Record, prepared in accordance with Chapter 400.12 of the Rules. The Department finds that the applicant has shown that past violations of certain environmental laws, as described in the application, will not prevent SPO from owning and controlling, and NEWSME Operations from operating, the landfill as proposed in this application in compliance with Maine laws and regulations in that Casella/NEWSME Operations has conducted the required corrective actions to resolve its previous violations.

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6. TITLE, RIGHT OR INTEREST

The Department finds that the applicant has provided evidence of its interest in this project by submitting a copy of the purchase and sales agreement, dated November 20, 2003, between SPO and Fort James Operating Company. The closing on the transfer of the landfill property occurred on February 5, 2004. In accordance with Condition #2 of the transfer order (DEP #S-020700-WR-M-T, dated October 21, 2003), SPO submitted a copy of the deed to the landfill property within 30 days of its entry in the Penobscot County Registry of Deeds.

7. GEOLOGY AND HYDROGEOLOGY

A detailed description of the geology and hydrogeology of the site is contained in the original license; a summary of the siting characteristics is found in Finding of Fact #1.B, above. As confirmed during preparation of the application, the geologic and hydrogeologic characteristics of the site have not changed since the issuance of the original order and thus are not subject to the siting criteria of these Rules; however, in accordance with the Rules, the application addresses any impact the existing facility is having on water quality, affirms that groundwater flow directions and the upward seepage gradients have not changed in a significant way that would invalidate the landfill design assumptions, provides a calculation of time of travel to sensitive receptors from the bottom of the landfill and the leachate storage system, and includes a contaminant transport analysis.

- A. Groundwater Flow Directions: Attachment 8 of the application includes a review of all groundwater data that has been collected at the site from 1991 when the original application was filed through September 2003. The applicant's consultant for this review, SME, reviewed the available groundwater information, and concluded that the phreatic groundwater surface has not significantly changed since the original application. Groundwater passing beneath the landfill continues to remain within the landfill property prior to discharge. Based on the orientation of bedrock foliation, it is suggested that the primary horizontal direction of groundwater flow in the bedrock is more or less the same direction as the interpreted direction of horizontal flow in the overburden. Groundwater in

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the bedrock continues to be interpreted as discharging into the stream along the westerly side of the landfill, due to the presence of a topographic hill south of the stream which significantly reduces the possibility of groundwater movement beyond it. The review of the information on vertical seepage gradients indicates groundwater continues to migrate downward in the upper portions of the site and tends overall to migrate upwards in the lower portions of the site.

All staff comments on the groundwater flow information for the site have been addressed. Based on the additional information submitted in support of the application on November 21, 2003, staff agree with SME's conclusions on groundwater flow directions and vertical seepage gradients.

The Department finds that the findings in the original license regarding the direction of groundwater flow have not changed as a result of the construction and operation of the existing landfill.

- B. Existing Groundwater Quality: As noted in Finding of Fact #7.A, Attachment 8 of the application includes a review of all water quality data that has been collected at the site from 1991 when the original application was filed through September 2003. The site is currently monitored by 12 groundwater monitoring wells; the results from the 12 monitoring wells were analyzed for statistically significant increases. Nine of the 12 wells were found to have one or more parameters that varied over time based on the statistical analyses; of these 9 wells, SME concluded that only one, MW-204, was potentially affected by leachate. SME concluded the changes found in the other 8 wells were caused by well installation trauma or a source other than leachate in the groundwater, based on its review of the parameters for which a statistically significant change was found. With regards to the water quality changes noted in MW-204, SME noted that the well is a shallow till well located immediately adjacent to the leachate pond and the manhole used for emptying of the leachate pond for annual inspection. SME concluded the changes in MW-204 were likely attributable to small leachate spills in the vicinity of the manhole and leachate pond during emptying of the leachate pond for annual

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inspections, rather than directly into groundwater from the landfill or the leachate pond. SME's basis for its conclusions are described in detail in the application.

Staff conducted a comprehensive review of all water quality information available for the site, including the same historic water quality results compiled by GPC's water quality sampling consultant that were reviewed by SME in the application, the data gathered by the consultant GPC hired to perform a baseline analysis of conditions on the property just prior to its purchase by SPO, and data gathered from monitoring wells installed in January and February 2004 to resolve the source of changes in groundwater quality discussed during the review of the application. In an initial review memorandum dated December 16, 2003, staff noted that the water quality changes have occurred in 3 monitoring wells: MW-204, MW-223B, and MW-302. Staff agreed that the sources of changes noted in these wells could be those operational issues identified by SME in its report, but that the applicant had not provided sufficient evidence to conclude the landfill or the leachate pond were not the sources.

In response to the initial staff review memorandum, the applicant and GPC provided additional information concerning operational anomalies at the site, and 7 additional groundwater monitoring wells were installed by the applicant at the facility. Five of the wells are located between the landfill boundary and the leachate pond, and 2 of the wells are located downgradient of the leachate pond and/or in the vicinity of manhole #1. Staff oversaw the installation of the wells by the consultant, and staff took independent split samples from the wells. Up to 4 rounds of data have been collected from the new wells. Additional samples from the landfill underdrain, the leachate pond underdrain, and the leak detection system for the leachate pond were also taken during this period. Based on the information in Attachment 8 of the application and the new information gathered during review of the application, staff comment that, within the limitations of the data, a leak in the landfill liner system is not the source of the water quality changes noted in the initial staff memorandum regarding this project. Staff comment that the sources of the water quality changes are likely due to operational practices related to leachate

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management, such as the small surface spills documented to have occurred in the past. Staff recommend several operational changes which will eliminate the release of leachate. The applicant has agreed to the changes. Staff further recommend that additional investigations be conducted in Spring 2004 to monitor the performance of the facility's existing detention ponds, and that the ponds be included in the surface water quality monitoring program for the facility. The applicant submitted on April 1, 2004 a workplan for the additional investigation in the areas of the detention ponds; the workplan is under review by staff. Staff comment that the approved workplan should be revised to address staff recommendations and implemented as approved.

The Department finds that the subtle changes in groundwater quality observed in monitoring wells MW-204, MW-223B and MW-302 do not appear to be caused by leakage through the landfill liner system. The Department also finds that the applicant must submit to the Department for review and approval changes to the operations manual that address all staff recommendations; complete the investigation in the areas around and beneath detention ponds 1 and 2 in accordance with the workplan approved by the Department; and include the ponds in the surface water quality monitoring program for the facility. The Department further finds that the facility is not contaminating groundwater in that no primary drinking water standards have been exceeded, and no statistically significant changes in measured parameters indicating a deterioration in water quality have been demonstrated through an assessment monitoring program.

The Department received many comments from the public in reaction to staff's initial memorandum regarding the water quality assessment; no independent information on water quality was submitted by the public. The Department finds that, as noted in this finding, the comments on existing water quality have been addressed by the additional information gathered during the review process. The Department also received comments from the public on the hydrologic connection between the landfill and the City of Old Town's drinking water supply. As described in Finding of Fact #1.B, above, the facility is hydraulically isolated from

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private drinking water supplies in the area of the landfill. The City of Old Town's public drinking water supply is wells located in Stillwater and along Spring Street; there is no direct hydraulic connection between these wells and the groundwater beneath the landfill. The Department finds that the landfill does not pose an unreasonable threat to the public drinking water supply.

- C. Existing Surface Water Quality: Attachment 8 also includes a review of the surface water quality data that has been collected at the site from 1991 when the original application was filed through September 2003. There are 3 surface water monitoring points (SW-1, SW-2 and SW-3) along the unnamed stream on the westerly boundary of the facility. The report notes that there were no apparent or significant changes in water quality at these locations. This stream is the sensitive receptor for the landfill; see Finding of Fact #7.D, below. Although labeled as a surface water monitoring location, SW-4 is actually the sampling manhole for the cells 1 and 2 underdrains; the report notes that the data from this monitoring point is comparable to upgradient monitoring locations. There are 3 surface water monitoring points along the entrance road into the landfill (SW-AR1, SW-AR2 and SW-AR3); the results from these locations also show no changes in water quality data over time. Staff concur with the applicant's conclusions regarding the historical surface water quality monitoring results.

The Department received comments from the public that baseline testing for biological indicators of water quality should be done at the site.

The Department finds that the facility is not contaminating surface water. The Department further finds that baseline surface water quality was established in accordance with the Rules before the landfill was developed and that the Rules do not include provisions for biological indicators testing.

- D. Updated Time of Travel Calculations and Contaminant Transport Analysis: Updated time of travel calculations for the landfill prepared in accordance with the Rules are found in Section 7 of the application. Using

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available water level information collected at the site since 1991, the applicant calculated groundwater time-of-travel from the bottom of the landfill liner systems to the sensitive receptor for the site – the unnamed stream along the westerly boundary. The updated contaminant transport analysis, also prepared in accordance with the Rules, assesses the potential for an unreasonable threat to the unnamed stream at the westerly boundary of the landfill, and identifies operational and monitoring measures that would be utilized to ensure protection of the stream if contaminants were released to groundwater beyond the engineered systems.

The report modeled contaminant transport from within 3 areas of the landfill, the leachate storage tank, and the leachate force main in hypothetical failure scenarios. The results demonstrate that even under the unrealistic failure scenarios required to be modeled, the sensitive receptor in the vicinity of the landfill will not be threatened.

In response to initial staff comments on the time-of-travel calculations and contaminant transport analysis, SME recalculated some of the travel time analyses and hypothetical leachate containment system failure analyses for the entire flow path to the unnamed stream to the west, using the groundwater velocities in the bedrock submitted in the original application. Staff comment that the revised calculations show that the regulatory time frames are met.

The Department received comments from the public that the bedrock underneath the landfill is “cracked”. The Department finds that the entire State of Maine is underlain by fractured bedrock. The Rules require a detailed evaluation of underlying fractured bedrock aquifers to determine that a facility will not pose an unreasonable threat to an underlying fractured bedrock aquifer.

The Department finds that the applicant has demonstrated that the time of travel to the sensitive receptor for the landfill is greater than 6 years, and greater than 3 years for the proposed leachate force main and storage tank. The Department also finds that the contaminant transport analysis demonstrates that contaminant releases from the area within the solid

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waste boundary or the leachate management system will not pose an unreasonable threat to sensitive receptors.

8. WATER QUALITY MONITORING

The proposed environmental monitoring plan ("EMP") for the facility was prepared in accordance with the Rules and is found in Appendix H of the application. The applicant proposes to continue monitoring groundwater at the existing 12 monitoring wells, surface water at the existing 6 monitoring points, the underdrains for the landfill and the leachate pond at the existing 2 surface water points, and leachate quality. Monitoring will be done 3 times per year, using low flow methodology. The applicant proposed to continue monitoring for the existing detection monitoring list for the landfill, plus sulfide during the spring and fall sampling events, and for parameters on the expanded list for the landfill during the summer sampling event. The EMP describes the sampling procedures to be used, the quality assurance/quality control program, the submission of the data to the Department, and procedures for the abandonment of wells.

Staff proposed several revisions to the EMP to clarify that the EMP will require ongoing revisions as the facility is developed. Although the results from the new groundwater monitoring wells described in Finding of Fact #7.B, above, appear to corroborate the applicant's conclusions as to the source of the slight changes in existing water quality, staff recommend that assessment monitoring be initiated at monitoring wells MW-204, MW-302, MW-223B, MW-212 and MW-303 during the Spring 2004 sampling event and that new monitoring locations in the area of the detention ponds be added to the assessment monitoring program after their installation. Staff further recommend that the 3 new clusters of monitoring wells proposed in the application be installed in Spring 2004, and that new monitoring wells #DP-4, #P-04-02 and #P-04-04 and the 2 existing detention ponds be included in the detection monitoring program. Staff further recommend that the underdrain for the landfill be added to the EMP for the facility; all landfill underdrain discharge locations should be monitored monthly for the field parameters in Appendix A, Column 1 of Chapter 405 of the Rules, and be sampled 3 times per year for the facility's suite of detection parameters at the same time as the other monitoring locations.

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Staff also comment that the existing underdrains for the landfill and the leachate pond are directed through manholes where water quality monitoring can be conducted. The system allows for the removal of the water into the leachate containment system instead of discharge into the stormwater structures if the water quality results indicate it should not be discharged. Staff recommended, based on investigations done in January and February 2004 that the underdrain for the leachate pond be routed into the leachate pond. A pump has been installed in manhole #MH 7 and this underdrain discharge is being directed to the leachate pond. Staff also recommend that the underdrain for the existing leachate pond be sampled weekly throughout 2004, and an analysis of the results be included in the 2004 annual report for the facility.

The Department finds that the applicant has proposed an EMP prepared in accordance with the Rules. The Department further finds that the applicant must update the EMP on an ongoing basis as recommended by staff, beginning with the submittal of the 2003 Annual Report. The Department also finds that assessment monitoring must be initiated at existing monitoring wells MW-204, MW-302, MW-223B, MW-212 and MW-303 during the Spring 2004 sampling event; that the new monitoring locations in the area of the detention ponds be included in the assessment monitoring program beginning with the Summer 2004 sampling event; and that the new monitoring wells #DP-4, #P-04-02 and #P-04-04 and the 2 existing detention ponds must be included in the detection monitoring program in addition to the 3 new clusters of monitoring wells proposed in the application to be installed in Spring 2004. The Department also finds that the underdrain for the landfill must be added to the EMP for the facility; all landfill underdrain discharge locations must be monitored monthly for the field parameters in Appendix A, Column 1 of Chapter 405 of the Rules, and be sampled 3 times per year for the facility's suite of detection parameters at the same time as the other monitoring locations. The Department also finds that the underdrain for the leachate pond has been routed into the leachate pond, and that the leachate pond underdrain water quality must be sampled weekly throughout the rest of 2004 and an analysis of the results be included in the 2004 annual report for the facility. The Department also finds that the proposed construction at the facility will not affect the ability to monitor water quality at the facility site.

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9. LANDFILL DESIGN

- A. Summary of Current Design: The design of the facility is described in the original license and the construction documentation for cells 1 and 2. Cells 1 and 2 of the landfill have been developed; a temporary geomembrane intermediate cover has been placed on cell 1 and cell 2 is currently operational. The approved composite liner system for these cells consists of, from top to bottom, a 15-inch drainage sand leachate collection system with perforated collection pipes (underlain by a drainage geocomposite in cell 2); an 80-mil textured high-density polyethylene ("HDPE") geomembrane; a geosynthetic clay liner ("GCL"), and 24 inches of recompacted glacial till with a maximum hydraulic conductivity of 3×10^{-6} cm/sec. A groundwater underdrain system consisting of a 6-ounce non-woven geotextile, 12 inches of drainage sand with collection pipes, and another 6-ounce non-woven geotextile underlies most areas under these cells. Leachate is conveyed by gravity to a leachate storage pond located outside the western boundary of the landfill. Leachate is transported from the pond via a force main to a loading rack where it is loaded into tank trucks for transport and subsequent treatment and disposal at the Old Town Mill's wastewater treatment facility. The pond has a double liner system, consisting of two 80 mil HDPE geomembranes, with a drainage geocomposite and sand leak detection layer in between. The secondary geomembrane is underlain by a GCL and 2 feet of recompacted glacial till with a maximum hydraulic conductivity of 3×10^{-6} cm/sec. Landfill gas is passively vented to the atmosphere.
- B. General Description of Proposed Design: As noted above, cells 1 and 2 have already been developed. The waste currently in these cells will be excavated and mixed with incoming waste to improve the geotechnical stability characteristics of the existing sludge (see Finding of Fact #10.A, below) and then cells 1 and 2 will be refilled. The leachate collection, liner, and underdrain system for cells 1 and 2 will continue in service. Cells 3 through 8 will be located on the base grade for the landfill, and cells 9, 10 and 11 will be developed over cells 1 through 8. To accommodate the proposed vertical increase in the final elevation, a berm

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will be constructed around the perimeter of the landfill as it is developed. The berm will be constructed entirely of soil, except for the western portion of the berm which is proposed to have mechanically stabilized exterior grades. The landfill will be developed in a sequential manner as shown on the cell development plan for the facility.

All base grade cells will include a liner system overlain by a leachate collection system. The original liner system has been modified through the use of compacted clay rather than compacted glacial till for the soil component of the composite liner system. Instead of the pipe liner penetrations currently used to convey leachate from cells 1 and 2 (which will be removed and repaired as part of cell 4 construction), cells 3 through 8 will have leachate collection sumps and pumps located above the liner system. A groundwater underdrain system will underlie the liner system for cells 3 through 8. Gas produced by the landfill will be burned off initially through the use of passive flares. When the gas produced is of sufficient quantity and quality to support combustion, an active gas extraction system will be installed as described in Finding of Fact #9.E. The cells will be developed sequentially, and intermediate or final cover will be placed as the cells are filled. The leachate from the landfill will be conveyed through a force main to a new above-ground storage tank with the existing leachate pond used only as a backup system. The stored leachate will be emptied into tank trucks for transport to the Old Town Mill's wastewater treatment plant. In the future, the leachate may be transported to the City of Old Town's wastewater treatment plant via a new sewer line along Route 43, after studies of the treatment plant, and any necessary upgrades identified in the studies, are completed and if the City of Old town approves the acceptance of the leachate. As described more fully in this finding and in Finding of Fact #11, below, detailed design packages will be submitted to the Department for review and approval prior to each construction project at the facility.

The Department received comments from the public regarding bioreactor (wet cell) landfills. Commentors suggested that the Department require that landfill cells constructed under this license utilize wet cell technology. The Department finds that the applicant did not propose and the Rules do

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not require an applicant to consider the use of wet cell technology. Furthermore, the United States Environmental Protection Agency published a Final Rule in the Federal Register on March 22, 2004 entitled Research, Development, and Demonstration Rule (RD&D) for municipal solid waste landfills. The effective date of this rule is April 21, 2004. This rule addresses design and operational criteria variances that are necessary in order to develop information on bioreactor landfills. The applicant has provided correspondence dated April 5, 2004 documenting its willingness to explore the feasibility of wet cell or bioreactor technology.

- C. Liner System and Perimeter Berm: The liner system proposed for the base grade cells of the landfill will consist of, from top to bottom: a leachate collection layer consisting of 12 inches of drainage sand with perforated HDPE collection pipes over a drainage geocomposite; an 80-mil HDPE textured geomembrane; a GCL; and one foot of compacted clay with a maximum hydraulic conductivity of 1×10^{-7} cm/sec. The liner system will be underlain by an additional foot of compacted clay with a maximum hydraulic conductivity of 1×10^{-7} cm/sec. Three internal leachate sumps will be constructed to collect all leachate generated by both the existing and new cells. The existing leachate transport pipes that penetrate the liner system to convey leachate to the storage pond will be removed and the liner repaired and tested. The landfill liner will be underlain by a groundwater underdrain system consisting of twelve inches of sand with perforated HDPE collection pipes. The underdrain system is designed with groundwater quality monitoring sumps.

As noted previously, a berm is proposed to be constructed around the perimeter of the landfill. The berm is required to achieve the increase in the final elevation of the landfill. It will be constructed entirely of soil, except for the western portion where it is proposed to have mechanically stabilized exterior grades due to wetland setback limitations. The interior of the berm will have 3 horizontal to 1 vertical sideslopes. The exterior sideslopes where the berm will be constructed entirely of soil will have 2 horizontal to 1 vertical grades. The mechanically stabilized earthen ("MSE") portions of the berm will have 1 horizontal to 3 vertical

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sideslopes. The height of the berm will vary from 19 feet along the western side to 30 feet along the eastern side of the landfill. The top surface of the berm will be approximately 44 feet wide. A 20-foot wide access road, surface water drainage ditches and the valve houses for the leachate pumping stations will be located on the top of the berm. The berm will be constructed in phases concurrent with cell development. Geotechnical analyses of the berm, for both short- and long-term conditions, demonstrate that it will remain stable with the appropriate factors of safety; see Finding of Fact #10.C, below.

Staff comment that all issues raised in initial review memoranda regarding the liner system and the perimeter berm have been satisfactorily resolved, provided that the detailed design packages to be submitted prior to each construction project address all staff recommendations regarding the design, the technical specifications, and the construction quality assurance plan as agreed to in SME's January 22, 2004 responses to the comments provided in 3 initial engineering review memoranda by staff.

The Department finds that the liner system and the perimeter berm proposed by the applicant are designed in accordance with the Rules, provided that the detailed design packages to be submitted to the Department for review and approval prior to each construction project address all staff recommendations on the design, the technical specifications, and the construction quality assurance plan as agreed to in SME's January 22, 2004 responses to the comments provided in 3 initial engineering review memoranda by staff.

- D. Leachate Collection, Conveyance and Storage System: The leachate collection system for the base grade cells will consist of a 12-inch layer of drainage sand (drainage stone on the top 10 feet of the sideslopes) with perforated leachate collection pipes, a drainage geocomposite, several leachate collection inlets, and tee connections on the leachate collection system cleanouts. The inlets and tee connections will help facilitate leachate drainage during operations, including the development of upper lifts. Pressure transducers will be placed within each base grade cell in order to monitor the performance of the leachate collection system.

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Leachate will be collected within the perforated pipes, directed to sumps, and pumped through a double-walled force main to an above ground storage tank. The existing leachate storage pond will be used for back-up storage capacity with the leachate flows pumped directly to it if the leachate storage tank is full.

The applicant proposes to construct a new 81-foot diameter by 25-foot high above-ground tank with a capacity of 900,000 gallons for the storage of leachate generated by the landfill. The tank will be underlain by a leak detection system and a secure secondary containment structure sized to contain 110 percent of the maximum tank storage capacity. An assessment of the quantity of leachate anticipated to be generated by the landfill was completed. Based on a comparison with data from another facility, SME concluded that the modeling parameters used to estimate leachate provided a good representation of actual leachate generation rates. The anticipated leachate production rates during the period identified as having the highest leachate volume were used to size the leachate collection, conveyance and storage structures. From the storage tank, leachate will be loaded into tank trucks and transported to the Old Town Mill's wastewater treatment facility.

Staff comment that all issues raised in initial engineering review memoranda regarding the leachate collection, conveyance and storage systems have been satisfactorily resolved, provided the detailed design packages submitted to the Department for review and approval prior to each construction project address all staff recommendations regarding the design, the technical specifications, and the construction quality assurance plan as agreed to in SME's January 22, 2004 responses to the comments provided in 3 initial engineering review memoranda by staff.

The Department finds that the applicant has proposed leachate collection, conveyance and storage systems designed in accordance with the Rules, provided that the detailed design packages to be submitted to the Department for review and approval prior to each construction project address all staff recommendations regarding the design, the technical

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specifications, and the construction quality assurance plan as agreed to in SME's January 22, 2004 responses to the comments provided in 3 initial engineering review memoranda by staff.

- E. Gas Management System: The applicant proposes to install an active gas extraction system within the landfill. The primary purpose of the system is to control emissions of landfill gas from the landfill to provide compliance with current Title V New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements. A secondary benefit of the system is the control of potential landfill odors. The system will be installed sequentially during site development.

The active gas extraction system will consist of vertical gas extraction wells, and may be supplemented by horizontal collector pipes as needed, along with the associated header and lateral piping to transport the gas to a blower and flare station. The blower and flare station will be constructed near the area where the leachate storage tank is proposed to be located. Condensate from the gas management system will be pumped directly into the leachate management system, both at the cell 4/5 leachate collection sump and the leachate storage tank.

Staff comment that the active gas extraction system was sized, and the installation timing of the components proposed, in part, on the projected disposal rates in the application. To ensure the effectiveness of the active gas extraction system, staff comment that each year's annual report should include an evaluation of the of the sizing and the installation timing of the system components over the reporting period, and an evaluation of the effectiveness of the system based on the quantities and types of wastes projected for the next year.

In response to staff comments, the applicant has committed to an accelerated schedule for installation of the active gas extraction system. During initial operations in cell 3, the applicant proposes to install passive flares. The location and number of passive flares will be included in the detailed design package for cell 3 submitted to the Department for review

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and approval. The applicant proposes to monitor the passive flare locations for gas flow rate, and concentrations of methane, carbon dioxide, and oxygen. Once the monitoring data shows that the gas is of a sufficient quality and quantity to support combustion with an active gas management system, the applicant will finalize the design of the active gas management system, including a schedule for installation of the system. Furthermore, the applicant proposes to install gas collection infrastructure to provide the ability to collect gas generated from solid waste in place for 12 months or longer through either vertical extraction wells or horizontal collectors, or a combination thereof.

The applicant will install temporary connections to the active gas management system components at the time of construction if the necessary infrastructure is not in place to accommodate the planned permanent connections. The applicant also proposes to use a portable blower and flare unit if the permanent blower and flare station has not been constructed at the time it is initially needed.

In response to staff comments regarding access to the well-heads on areas that have received intermediate cover, the applicant stated that soil intermediate cover will be utilized as the primary option. This will allow operating personnel to have safe access to the well-heads to monitor and balance the well-field. The applicant further stated that temporary geomembrane tarps will be a secondary option, and acknowledged that protection of the well-heads and safe access provisions, particularly during the winter months, will be necessary if temporary geomembrane tarps are utilized. Staff comment that well-head protection and access provisions need to be submitted to the Department if temporary geomembrane tarps are utilized for intermediate cover.

The applicant proposes to submit the operating plan for the gas management system with the appropriate annual report. Staff comment that the operational procedures for the gas management system, inclusive of monitoring, record-keeping, and reporting procedures for both the well-field, and the blower and flare unit, should be submitted with the detailed design package for construction of the system.

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The Department finds that the applicant has demonstrated that the active gas extraction system proposed for phased construction in the landfill is designed to reduce fugitive emissions of landfill gas and control odors associated with the landfill, provided the detailed design package to be submitted to the Department for review and approval prior to each phase of construction addresses staff recommendations regarding the design, the technical specifications, and the construction quality assurance plan as agreed to in Sanborn Head & Associates' ("SHA") submittal dated January 21, 2004 and the applicant's letter dated February 4, 2004, provided the active gas system operating plan, inclusive of monitoring, record-keeping and reporting procedures, is submitted for review and approval with the detailed design packages; provided that each year's annual report includes an evaluation of the of the sizing and the installation timing of the active gas system components over the reporting period, and an evaluation of the effectiveness of the system based on the quantities and types of wastes projected for the next year; and provided plans are submitted to the Department for review and approval detailing the provisions to be utilized to protect the well-heads and provide safe access to the well-heads if temporary geomembrane tarps are utilized for intermediate cover.

- F. Closure Design: The applicant proposes to construct a phased final cover system throughout the operational life of the landfill as areas of the landfill with no plans for future waste placement are filled to final grade. The proposed cover system will meet the applicable requirements of the Rules for a secure landfill that govern at the time of closure. Prior to the placement of final cover on any area, the applicant will submit the detailed design package and supporting information on the design required by the applicable requirements in Chapter 401.5 of the Rules to the Department for review and approval. The Department finds that the applicant has proposed to apply a phased final cover system in accordance with the Rules, provided the detailed design packages for the placement of phased final cover are reviewed and approved by the Department prior to each application of final cover. The Department further finds that the applicant must submit to the Department for its review and approval a final closure

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plan for the landfill, prepared in accordance with the Rules in effect at that time, and complete final closure of the landfill in accordance with the approved final closure plan. As required by the Rules, the final closure plan must include a post-closure monitoring and maintenance plan covering a period of at least 30 years following closure. The Department also finds that the post-closure monitoring and maintenance plan must be revised throughout the post-closure period to comply with any changes in the post-closure monitoring and maintenance requirements of the Rules. The Department further finds that post-closure monitoring and maintenance requirements do not automatically cease after 30 years; they must continue to be met until the Department approves their cessation.

10. SETTLEMENT AND GEOTECHNICAL STABILITY

- A. Test Plot Program: GPC has been conducting a pilot project at the existing landfill since October 1999. The purpose of the project is to evaluate the short-term stability of the sludge in the field, and to evaluate operational issues associated with the initial loss of shear strength in the sludge. The consultant for the pilot project is Richard E. Wardwell, P.E., Ph.D. ("REW"). The applicant retained REW to evaluate the settlement and stability aspects of this application in part because of his working knowledge of the characteristics of the sludge already disposed in cells 1 and 2 of the landfill. Based on the Department's recommendations, due to geotechnical stability concerns, the applicant proposed to remove the existing sludge and mix it with other incoming wastes (including new sludge from the Old Town Mill) in order to improve its geotechnical characteristics.

Originally the applicant proposed to mix no more than 15% of the existing and new sludge by volume into the incoming waste. Stability of the waste at this percentage would meet the regulatory criteria, but it was predicted to take several years to complete the mixing process and require a large operating area. The large operating area would result in greater leachate production and an increase in potential odor generation. The applicant now proposes to determine the optimum ratio at which the existing sludge can be mixed with the incoming waste and still achieve deposit stability by

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constructing an initial test plot in the existing, unused area of cell 2. The test plot construction is expected to take at least 6 weeks to complete, and will require a total of approximately 98,000 cubic yards of waste. Of this amount, approximately 60% of the waste will be diverted from the Pine Tree Landfill in Hampden and the remaining 40% will be existing and new sludge. It is important for the test plot program to operate through the spring thaw period because this has been observed to be the most biologically and chemically active time in the existing sludge. As a result, the amount of waste delivered to the landfill for mixing with the sludge will exceed the projected rate of filling at the landfill for this time period.

The test plot is proposed to consist of 3 sections; in each of the 3 sections the existing sludge will be mixed with incoming waste at different ratios (20%, 40% and 60% sludge to other wastes). The test plot has been designed to mimic actual operating conditions and will provide necessary information on the operating criteria that will be used to effectively run the landfill. In addition to gathering data for the stability evaluation through instruments installed in the test plot, air monitoring (oxygen, methane, and hydrogen sulfide) will be conducted. Based on the findings of the test plot program, the need to re-assess geotechnical stability will be evaluated, a finalized geotechnical monitoring plan for the facility will be prepared, the operating requirements for cell 3 will be finalized, and an odor control plan for sludge excavation and mixing will be prepared. All of the above will be submitted to the Department for review and approval.

The Department finds that the use of the proposed test plot program to determine the optimum rate at which the existing sludge can be excavated and mixed with incoming waste will result in a stable landfill configuration provided operations are conducted in accordance with approved recommendations from the program. The Department further finds that it is acceptable for the applicant to divert the necessary quantity of any waste delivered to PTL to the WOTL for use in the test plot within the time frame needed for completion, as outlined in the description of the test plot program proposal.

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- B. Settlement Analysis: Short and long-term settlement was analyzed to assure that load and non-load related strains associated with primary compression and waste decomposition will not be detrimental to the performance of the proposed liner, leachate collection, underdrain, and final cover system. Liner, leachate collection, and underdrain system settlement was evaluated considering the elastic deformation of the subgrade soils. Cover system settlement was estimated from the projected secondary compression of the mixed solid waste using coefficients that have been observed for similar waste streams at a similar facility. The Department finds that the applicant demonstrated that the landfill liner, leachate collection, underdrain, and final cover systems will maintain their integrity and performance at the maximum predicted settlements.
- C. Geotechnical Stability Analysis: Geotechnical stability analyses for the proposed vertical increase at the landfill were completed in accordance with the Rules. The stability assessment analyzed potential failure planes through the foundation soils and along liner and cover system interfaces. The minimum required factors of safety were achieved for all identified critical failure planes. The need to re-assess geotechnical stability will be evaluated once the findings of the test plot program described in Finding of Fact #10.A, above, are available. Stability of the MSE berm was also evaluated and the minimum required factors of safety were achieved. The Department finds that the applicant has demonstrated that the landfill, including the MSE berm, will meet or exceed the minimum required factors of safety during construction, operation and the post-closure periods under both static and seismic conditions, provided an appropriate ratio of sludge to other incoming waste is chosen and approved by the Department through an evaluation of the findings of the test plot program.
- D. Settlement and Stability Monitoring Plan: After completion of the test plot program described in Finding of Fact #10.A, above, the applicant will prepare and submit to the Department for review and approval a proposed geotechnical monitoring plan that will include the proposed waste mixing procedures for cells 1, 2 and 3 as well as routine operational stability monitoring. The applicant also proposes periodic settlement monitoring of completed cells to determine site specific compression coefficients, and

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monitoring and observations of the final cover system, to confirm that total and differential strains are within tolerable limits. The Department finds that the applicant has proposed to provide a plan to monitor stability and settlement during construction, operational and post-closure periods, and report the results to the Department, including an interpretation of the results by a qualified geotechnical engineer. The Department also finds that the applicant proposes to prepare and submit the geotechnical monitoring plan for the landfill to the Department for review and approval once the findings of the test plot program have been evaluated.

11. CONSTRUCTION

The landfill, and some of the proposed ancillary structures, will be constructed over time, as capacity is needed. New cells will be constructed by a general contractor who can demonstrate familiarity and experience with the various aspects of landfill construction, and by subcontractors with specialized experience in the installation of geosynthetics.

The applicant has prepared a preliminary construction quality assurance (“CQA”) plan that establishes the requirements for CQA testing and installation oversight of all construction materials to assure that the design specifications and performance requirements are achieved during construction. Geosynthetics and soil components will be tested, certified, and inspected by qualified CQA personnel independent of SPO, NEWSME Operations and any contractor hired for the project.

CQA personnel will provide on-going, thorough project documentation during construction. Daily and weekly reports will be prepared and provided to the Department. A final construction report will be prepared and submitted for Department review and approval within 45 days of the conclusion of each construction project.

Following installation of the leachate collection system, the applicant proposes to conduct an electric leak location survey of the geomembrane liner to assure that it was not damaged during overburden placement. Electric leak location is an innovative quality assurance technology developed to detect any breaches in the

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geomembrane after placement of the protective layer (once the greatest potential for damage to the geomembrane has passed). It is accomplished by impressing a voltage across the geomembrane then scanning the surface for current flow. The geomembrane is an insulator and will not allow current to pass through it unless a hole is present. If a hole is found, it will be exposed, repaired, and retested before the liner system is placed into service.

The applicant has prepared preliminary construction contract documents as part of the application. Prior to construction of each cell, the applicant will provide the Department for review and approval a detailed design package which will include design details and calculations, a complete set of project specific construction contract bid documents, including drawings, technical specifications, contract administrative documents, and the construction quality assurance plan for that project.

The applicant proposes to initiate construction of the test plot program described in Finding of Fact #10.A, above, shortly after approval of this application is received. The test plot construction is anticipated to take at least 6 weeks to complete. The findings of the test plot program will then be used to evaluate the need for additional geotechnical stability analyses, to finalize the operating requirements for cells 1, 2 and 3, to finalize a geotechnical monitoring plan for the facility, and to develop an odor control plan for sludge excavation and mixing operations. Staff comment that all recommendations regarding the construction, operation, and monitoring of the test plot have been adequately addressed, provided the work is completed as described in REW's work plan as revised in REW's submittal dated January 16, 2004.

The detailed design package for cell 3, and the new leachate storage tank and ancillary structures, are expected to be submitted to the Department for review and approval in Spring 2004. It will include the technical specifications, construction drawings, construction quality assurance plans, and construction monitoring and documentation provisions required by the Rules. It will include all information recommended by staff during review of the application, as agreed to in SME's submittal dated January 22, 2004 and as responded to in staff memoranda dated January 26, 28, and 30, 2004.

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Construction of cells 4 through 11, inclusive of the leachate management system for the cells, is expected to proceed sequentially. The applicant proposes to submit to the Department for review and approval the detailed design package for each of these cells at least 6 months prior to the date planned for initiation of operation. Each detailed design package will include the technical specifications, construction drawings, a construction quality assurance plan, and the construction monitoring and documentation provisions required by the Rules. Each detailed design package will include all information recommended by staff during review of the application as agreed to in SME's submittal dated January 22, 2004 and as responded to in staff memoranda dated January 26, 28 and 30, 2004. Staff further comment that, if the Rules applicable to any aspect of construction of the landfill cells change during the development of the landfill, the applicant should be required to address the new design requirements in the subsequent detailed design submittals.

Construction of the perimeter berm, including the MSE berm, is expected to proceed sequentially as the landfill cells are developed. A detailed design for the construction of the perimeter berm in the area of cell construction will be included in the detailed design package submitted for construction of the individual cells. Staff comment that all issues identified in the review of the application have been satisfactorily addressed, provided all recommendations in staff memoranda are addressed as agreed to in SME's submittal dated January 22, 2004 and as responded to in staff memoranda dated January 26, 28 and 30, 2004. Staff further comment that, if the Rules applicable to any aspect of construction of the perimeter berm change during the development of the landfill, the applicant should be required to address the new design requirements in the subsequent detailed design packages.

Construction of the active gas extraction system is expected to occur on an annual basis. The details for the following year's installation are proposed to be described in the annual report for the facility, and in detailed design packages provided to the Department for review and approval prior to construction. Staff comment that all issues identified in the review of the application have been satisfactorily addressed, provided all recommendations in the staff memoranda are addressed as agreed to in SHA's submittal dated January 21, 2004 and the applicant's letter dated February 4, 2004, provided the active gas system

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operating and monitoring plans are submitted with the detailed design package, and provided plans are submitted detailing the provisions to be utilized to protect the well-heads and provide safe access to the well-heads if temporary geomembrane is utilized as intermediate cover. Staff further comment that, if the Rules applicable to any aspect of construction of the active gas extraction system change during the development of the landfill, the applicant should be required to address the new design requirements in the subsequent detailed design packages.

Construction of the phased final cover will occur as areas of the landfill are filled to the proposed final grade. Prior to the placement of final cover on any area, the applicant will submit to the Department for review and approval a detailed design package to include the detailed construction plans, technical specifications, a construction quality assurance plan, and supporting information on the design as required by the applicable provisions of Chapter 401.5 of the Rules. Staff comment that all issues identified in the review of the application have been satisfactorily addressed, provided all recommendations in staff memoranda are addressed as agreed to in SME's submittal dated January 22, 2004 and as responded to in staff memoranda dated January 26, 28 and 30, 2004. Staff further comment that, if the Rules applicable to any aspect of the placement of phased final cover change during the development of the landfill, the applicant should be required to address the new closure requirements in the subsequent phased final cover submittals. Staff comment that the applicant must also submit to the Department for its review and approval a final closure plan for the landfill, prepared in accordance with the Rules in effect at that time, and complete final closure of the landfill in accordance with the approved final closure plan. As required by the Rules, the final closure plan should include a post-closure monitoring and maintenance plan covering a period of at least 30 years following closure. The post-closure monitoring and maintenance plan should be revised throughout the post-closure period to comply with any changes in the post-closure monitoring and maintenance requirements of the Rules.

The Department finds that the applicant has addressed all aspects of the construction and closure of the proposed vertical increase of the landfill, provided detailed design packages are submitted to the Department for review and approval prior to the initiation of any construction project, and provided the various ongoing construction activities described in this finding are designed, constructed,

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monitored, operated, closed, and monitored and maintained during the post-closure period in accordance with the application, staff recommendations on the application and responses to staff recommendations submitted by the applicant and its consultants in submittals dated January 16, 2004; January 21, 2004; January 22, 2004; and February 4, 2004. The Department also finds that, as recommended in Finding of Fact #4.A, above, the applicant must include a demonstration of financial capacity for costs associated with construction of cells 4 through 11 as part of the detailed design packages for these cells. The Department further finds that, if the Rules applicable to any aspect of construction or post-closure care of the vertical increase of the landfill and its ancillary structures change during the development of the landfill, the applicant must address the new requirements in subsequent submittals.

12. OPERATIONS

The applicant proposes to continue using the current operations manual for the landfill until the completion of construction of cell 3. The current operations manual for the facility includes the detailed operating requirements specific to the GPC waste characteristics and generation rates. Until the time cell 3 is available for disposal, only the wastes currently approved for disposal will be landfilled, except during the construction of the test plot program described in Finding of Fact #10.A, above. Operational criteria specific to the test plot program have been reviewed and found to be acceptable by staff.

The applicant proposes to update the operations manual to reflect the proposed waste characteristics, generation rates, mixing requirements, and cell development sequence and provide it to the Department for review and approval prior to the commencement of waste placement in cell 3. A conceptual cell development plan for the proposed life of the landfill was included in the application; staff comment that all recommendations regarding the conceptual cell development plan have been adequately addressed provided the plan is revised as described in SME's January 22, 2004 submittal. The applicant proposes to provide a detailed cell development plan, covering the first 2 years of operations, for the landfill prior to the commencement of filling in cell 3, and provide it to the Department for review and approval. As required by the Rules, proposed revisions to the operations manual, including the annually updated cell development plan, will be included in

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the facility's annual report, and the operations manual will be revised to comply with any changes in the operating requirements in the Rules. The operations manual will again be updated and submitted to the Department for review and approval following completion of the test plot program and prior to the excavation of sludge from cells 1 and 2.

The hours of operation for the landfill are proposed to be 6 AM to 8 PM on weekdays and 8 AM to 4 PM on weekends, although Casella's contract with PERC requires that the landfill be available for disposal of its residues outside the normal business hours. The operations manual for the facility addresses basic functions such as the maintenance of the access road, and includes the many plans and provisions for the orderly operation of the landfill addressed throughout this order.

The Department finds that the operations manual was prepared in substantial accordance with the Rules, and that it provides the information necessary to enable supervisory and operating personnel, and persons evaluating the operation of the landfill, to determine the sequence of operation, policies and procedures for the landfill, as well as the monitoring, maintenance, inspection and legal requirements that must be met for the operation of the landfill on an ongoing basis, provided the operations manual is revised prior to the commencement of waste placement in cell 3 and as recommended by staff. The revisions to the operations manual must include the following information: the conceptual and detailed cell development plans; and changes made to address staff recommendations as agreed to in SME's January 22, 2004 submittal addressing staff memoranda. The operations manual must be updated again to incorporate changes needed to address the findings of the test plot program. All changes to the operations manual are to be submitted to the Department for review and approval, and implemented as approved by the Department.

13. ACCEPTABLE WASTES

- A. Waste Types and Sources: The landfill is currently licensed to accept pulp and paper mill wastewater treatment plant sludge from the Old Town Mill, smaller quantities of other special wastes from the Old Town Mill (lime wastes and grit, woodwaste and inert debris, soil and sawdust

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contaminated with non-hazardous process chemicals, virgin oily contaminated debris, sand from sandfilters, and non-hazardous sandblast grit), flyash from Lincoln Pulp and Paper, and burn pile ash from the City of Old Town's transfer station.

This application proposes to add the solid wastes approved for disposal at Pine Tree Landfill in Hampden that are generated in Maine, including solid waste from all 4 licensed incinerators, to the list of wastes acceptable for disposal in the landfill. The wastes proposed to be added would consist primarily of front-end process residue ("FEPR") from PERC in Orrington, Maine and Maine Energy in Biddeford, Maine; oversized bulky wastes; MSW bypassed from incinerators located in Maine; construction and demolition debris; ash from incinerators located in Maine; and water/wastewater treatment sludge. Small quantities of other miscellaneous non-hazardous waste streams are also listed in the application for disposal in the landfill. There are 34 wastes listed in the miscellaneous category; in total, they are anticipated to equal approximately 50,000 tons per year. In addition, Appendix K of the application includes a listing of the generator, type of solid waste and permit number of several individually permitted wastes currently approved at Pine Tree Landfill that the applicant proposes to accept at WOTL. The yearly quantity of solid waste to be accepted at the landfill is not expected to exceed 540,000 tons per year.

The applicant has committed to the same limitations on MSW accepted for disposal at WOTL as at Pine Tree Landfill. Department License #S-001987-WD-QA-M, issued to Pine Tree Landfill on February 26, 2002, limits the MSW Pine Tree Landfill is allowed to accept to unprocessed MSW bypass from the following sources: the PERC incinerator in Orrington and the Maine Energy incinerator in Biddeford; waste delivered under an interruptible contract with PERC; or waste delivered in excess of processing capacity at other MSW incinerators in Maine. An annual limit of 310,000 tons on the amount of unprocessed MSW destined for Maine Energy, and then incinerated at Maine Energy or bypassed to Pine Tree Landfill, was selected. This is not the annual amount of MSW anticipated to come to Pine Tree Landfill and/or the WOTL from Maine Energy; this

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is the maximum total amount of unprocessed MSW destined for Maine Energy that will be delivered to all 3 Casella owned or operated disposal facilities: Maine Energy, Pine Tree Landfill and WOTL. Unprocessed MSW from Maine Energy is only bypassed to a landfill for disposal during temporary shutdowns for repairs or maintenance, and when the amount of contracted waste exceeds the plant's capacity. Conditions #2 through 7 of that license specify the limitations and parameters under which Pine Tree Landfill can accept MSW from the Maine incinerators.

In accordance with the RFP and OSA, the applicant will not accept solid wastes generated from out-of-state sources at the WOTL. The applicant proposes to manifest all wastes brought to the facility for disposal, including those not required to be manifested by law. The Department finds that the monthly activity reports submitted to the Department must be designed to provide the data needed for determining the quantities of the various waste types, and their sources, delivered to the landfill. The Department further finds that the applicant must submit an application to the Department for review and approval prior to accepting for disposal any waste not listed in the application.

The Department received comments from the public regarding specific wastes and whether they would be regarded as in state or out of state waste. The Department responded that FEPR and ash from incinerators in Maine, as well as a limited amount of bypass, would be considered waste generated in Maine, but that waste delivered from out of state to another facility (such as a transfer station, or a compost facility if no processing occurs) for transfer to WOTL in its original form would be considered waste generated outside Maine. As noted above, the amount of bypassed MSW from the incinerators will be limited and the amount of MSW bypassed from Maine Energy, also owned by Casella, will in addition be tied to production at Maine Energy. The applicant has committed, in a letter dated March 9, 2004, that no out of state MSW will be bypassed to the landfill, and that waste from the tipping floor of any of the incinerators will not be transported to the landfill if it contains any out of state waste. The Department also received comments that the landfill would be required to accommodate MSW from the closure of existing municipal

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landfills due to Department violations; as noted above, MSW will be accepted only from the 4 incinerators in Maine. Additional sources of MSW would require Department review and approval prior to acceptance for disposal.

- B. Waste Characterization and Compatibility: The procedures for characterizing the solid wastes accepted at the landfill are identified in the Solid Waste Characterization Plan for the facility; the plan is located in Appendix K of the application and will be part of the facility's operations manual. The facility proposes to accept non-hazardous wastes for disposal using the same procedure as approved for Pine Tree Landfill. The wastes fall into 2 categories: those accepted on an ongoing basis under general permitting requirements for specific categories of wastes and those accepted under individual permits. Each waste required to be characterized by the Rules has a testing frequency, list of parameters to be tested for, and the acceptance criteria for each parameter, based on the requirements of Chapter 405 of the Rules. Copies of all analyses will be kept on file at the facility and may be viewed during normal business hours. The wastes proposed for disposal in the landfill have been demonstrated to be compatible with each other and the liner and leachate collection system components at Pine Tree Landfill; the same materials are proposed to be used in the construction of cells 3 through 11 at WOTL.

The Department received several comments related to the waste characterization process and its reliability in terms of keeping hazardous wastes out of the facility. The Department finds that the waste characterization plan proposed for use at WOTL provides adequate provisions for the testing of wastes coming into the landfill and a proven, reliable method of keeping hazardous waste from being disposed. The Department further finds that the proposed waste streams are compatible with each other and the components of the landfill system.

- C. Reporting Requirements: As described in Finding of Fact #13.A, above, the Department finds that a monthly summary of the wastes accepted for disposal will be submitted to the Department, and the monthly activity

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reports submitted to the Department must be designed to provide the data needed for determining the quantities of the various waste types, and their sources, delivered to the landfill. As found in Finding of Fact #13.A, above, the Department finds that the information on the source and quantity of MSW accepted for disposal is to be reported to the Department on both a monthly and an annual basis, as follows:

1. The monthly reports on the wastes accepted for disposal at the landfill shall include the amount and source of unprocessed MSW accepted for disposal;
2. The total amount of (a) unprocessed MSW incinerated at Maine Energy and (b) MSW bypassed from Maine Energy for disposal at the WOTL and at Pine Tree Landfill's Secure III Landfill Expansion shall not exceed 310,000 tons in any calendar year, unless changes in conditions or circumstances occur that cause the Department to revise this cap; and
3. In addition to the specific requirements of Chapter 401.4(D) of the Rules, the annual reports for the facility submitted to the Department shall include the amount of unprocessed MSW received at WOTL from each of the approved sources, including statements from the incinerators providing an estimate of the percentage of the MSW that originated outside Maine.

14. AIR QUALITY

- A. Fugitive Dust: To control fugitive dust from unpaved access roads, the applicant will apply water and/or calcium chloride to the road surfaces on an as-needed basis. The applicant also proposes to pave an additional portion of the access road from where it begins at Route 16 such that the first one-half mile of the road will be paved. If necessary to control dust, the applicant has also committed to pave an additional portion of the access road. The applicant has committed to daily cleaning of the paved surface using a street sweeper. The Department received comments on existing dust control methods and the potential for additional problems

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with fugitive dust emissions associated with the increased traffic at the landfill entrance. The Department finds that the dust control measures proposed by the applicant are sufficient to control fugitive dust. However, the Department also finds that if staff find that operation of the landfill as proposed unreasonably adversely affects air quality additional fugitive dust control measures will be required.

- B. Landfill Gas: The applicant proposes to install an active gas extraction system for control of fugitive emissions of gas generated by the landfill. Passive flares will be installed initially and monitored to determine when the gas quantity and quality is adequate to support combustion. At that time the detailed design of the active gas extraction system will be prepared and the system installed. (See Finding of Fact #9.E, above.) The Department finds that the applicant has proposed adequate measures to control fugitive emissions of gas from the landfill.
- C. Odor Control: The applicant proposes to use several mechanisms to control odors associated with the facility; an odor assessment, including proposed odor control mechanisms, prepared by Odor Science & Engineering, Inc., is included in Attachment 7 of the application. As fully described in Finding of Fact #9.E, above, one of the benefits of the proposed gas management system is the control of potential landfill odor. The applicant will also employ operational practices, including the use of a portable odor neutralizer system and minimization of the active working face of the landfill. Odors associated with the leachate will be minimized by the use of an above-ground leachate storage tank instead of the existing open leachate pond. The applicant has committed to odor training of its landfill personnel, the implementation of a community odor complaint response plan, and to the installation of perimeter hydrogen sulfide monitoring instruments. The applicant will also monitor odors during the sludge mixing test plot program, described in Finding of Fact #10.A, above, and will prepare a detailed odor control plan for sludge excavation and mixing operations following completion of the program and prior to full-scale operations.

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The Department received comments from the public that odors from the existing landfill have been a problem. Staff comment that, prior to the submission of this application, no odor complaints about this facility were received by the Department.

The Department finds that the applicant has proposed odor control mechanisms sufficient to control nuisance odors. However, the Department also finds that if staff find that operation of the landfill as proposed unreasonably adversely affects air quality additional odor control measures will be required. The Department further finds that the applicant must submit to the Department for review and approval the following information on the perimeter hydrogen sulfide monitoring program prior to implementation of the program: the number and locations of instruments, based on meteorological conditions; system security measures; monitoring program details and responsibilities; and reporting procedures.

15. TRAFFIC MOVEMENT

The parcel of land which includes the landfill is located between Routes 43 and 16. Although the landfill is located much closer to Route 43 than to Route 16, it is accessed from Route 16 by a road into the property that existed at the time of the original licensing. A large wetland exists between the landfill and Route 43; the applicant does not propose to change the access to the landfill from Route 16 to Route 43 now or in the future. The access road intercepts Route 16 approximately 600 feet west of I-95.

At the time this application was filed, approximately 16 trucks were hauling sludge from the Old Town Mill, ash from Lincoln Pulp & Paper, leachate from the landfill back to the Old Town Mill's wastewater treatment plant, and gravel during the peak hour; approximately one-half of these vehicles were hauling gravel to the landfill for use as daily cover.

Attachment 4 of this application contains a new traffic assessment prepared by Eaton Traffic Engineering in accordance with the Rules.

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With the increased use proposed by the applicant, approximately 30 total vehicles (9 of them passenger vehicles) will enter the landfill during the peak hour at the initial projected waste acceptance rate of 450,000 tons/year, and up to 35 total vehicles (still 9 of them passenger vehicles) will enter the landfill during the peak hour at the highest projected waste acceptance rate of 540,000 tons/year. These peak numbers include the current vehicles, except that the gravel deliveries will cease.

The total daily number of trucks anticipated to enter the facility on a daily basis is 108 at the 450,000 tons/year rate of waste acceptance. The total daily number of trucks at the 540,000 tons/year rate is 140 trucks per day. The existing daily trips into the landfill are estimated at 45-50 trips per day.

The trucks hauling wastes that are currently disposed at the landfill are expected to continue using the same haul routes; likewise, the trucks hauling leachate to the Old Town Mill's wastewater treatment plant will continue using the same routes.

A major haul route for transporting waste in trucks weighing over 80,000 pounds from Pine Tree Landfill to WOTL is identified in the application; the route includes roads within Hampden, Bangor, Brewer, Eddington, Bradley, Milford and Old Town. During the peak hour, the number of over 80,000 pound trucks is anticipated to be 7 at 450,000 tons/year and up to 10 at 540,000 tons/year. The major haul route identified for trucks and other vehicles weighing less than 80,000 pounds is I-95; the remaining new traffic associated with the project would use I-95 to deliver waste to the landfill, and all empty trucks would use I-95 on their return trip.

The Maine Department of Transportation ("MDOT") was asked to review the traffic section of the application; it reviewed high crash locations, roadway geometrics, traffic volumes and traffic signal progression along the identified route. The volume of traffic associated with the landfill falls far below the threshold for review of the project under MDOT's Chapter 305 "Rules and Regulations Pertaining to Traffic Movement Permits", effective May 20, 2000; that threshold is 100 or more passenger car equivalent vehicles during the peak hour. In a memorandum dated December 12, 2003 MDOT concluded that the route identified in the application was acceptable in terms of geometrics, traffic

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volumes, and economic feasibility, but that an alternative route identified in the MDOT memorandum as Alternative 1 was more desirable. The only difference in the two routes was the bridge used to cross the Penobscot River from Bangor into Brewer.

In response to numerous comments on traffic associated with the project, MDOT staff identified in a memorandum received by the Department on February 4, 2004 a total of 5 routes (plus I-95 for the less than 80,000 pound vehicles) that could safely accommodate the number, weight and types of vehicles transporting waste to and from the facility from the south or west. Each of the routes have minor deficiencies; however, since the drivers are likely to make their choices of routes depending on the time of day, day of the week or time of year, all of the routes are viable alternatives over which trucks now travel. MDOT noted that all of the identified routes can handle traffic generated by the landfill, and that the functionality of any of the 6 routes will not be negatively affected by the landfill's traffic.

MDOT also reviewed the Route 16/landfill access road intersection. It concluded that there is adequate sight distance for the posted speed of Route 16, and that no turn lanes are needed. No high crash locations within the immediate vicinity of the site were identified. MDOT did recommend that overhead lights be installed at the entrance to the facility to make it easier for trucks to locate the entrance.

As noted above, the Department received many comments from the public on the proposed haul route for the facility. Many commentors requested that the Department require that all haulers use I-95 to access the facility; other commentors expressed concern over increased traffic, and associated road damage and other safety and esthetic impacts, through their neighborhood.

The only change proposed to the 10,950 foot long, 24 foot-wide mostly gravel access road into the site is an extension of the paved section from the first 500 feet to the first one-half mile of the road. If necessary to control dust, the applicant has also committed to pave an additional portion of the access road. A scale, and a small scale house, are proposed to be constructed approximately 250 feet from the landfill perimeter security fence; parking will be provided at this location for only the scale house operator. The gravel parking area at the operations office

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will be expanded to approximately 4,000 square feet to provide parking for up to 20 cars. The perimeter access road for the landfill is proposed to be located on top of the perimeter berm described in Finding of Fact #9.C, above. Gravel maintenance roads will also be provided for access to the leachate pond pump station, the leachate storage tank and the blower and flare for the active gas extraction system.

The Department finds that the applicant has made adequate provisions for the safe and uncongested movement of traffic of all types into, out of, and within the facility, provided it installs overhead lights, or another effective lighting system, at the entrance to the facility to make it easier for trucks to locate the entrance. The Department further finds that it is outside its purview to require that waste haulers using this facility limit their truck weights to 80,000 pounds and use I-95 as the only haul route for the facility, and affirms MDOT's statement that there is an affirmative right for all individuals and entities, public and private, domestic or commercial, to travel on all State and State Aid Highways in Maine.

16. EXISTING USES AND SCENIC CHARACTER

- A. Visual Analysis: The original application included a visual impact assessment report prepared by Environmental Analysis and Design. In summary, the report concluded that the landfill would not have an unreasonable adverse effect on the scenic character of the area because of its limited viewshed, small visual magnitude and its low visual contrast.

Attachment 5 of this application contains an updated visual impact assessment report prepared by SMRT, Inc. in accordance with the Rules. The consultant evaluated the proposal in terms of unreasonable interference with views from established public viewing areas as well as other potential viewshed locations. The applicant states that the landfill will not be visible from an established public viewing areas as defined by the Rules or any new viewsheds. As predicted in the original application, people traveling on Route 43 in a northerly direction will be able to see the landfill along an approximately 3/8 mile long stretch; the view will last about 21 seconds if the viewer is driving the speed limit. The applicant

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has offered to plant a tree screen along this stretch if permission is granted by the landowner.

The Department received written comments from a Route 43 resident who owns property and a business off Route 43. The commentator noted that the landfill is currently visible from Route 43, in contradiction to the original visual assessment, and that the landfill would be visible from Route 43, Route 16, I-95 and at other points within Old Town if the Department did not limit the height of the landfill. He commented that the proposed final elevation would be 150 feet higher than the highest point in Old Town (Fairdale Hill, at 240 feet).

The Department retained Terrence J. DeWan & Associates, Inc. ("tjd&a") to perform an independent review of SMRT, Inc.'s updated assessment. Tjd&a's report, dated February 6, 2004, confirms the results of SMRT, Inc.'s assessment. It also makes several suggestions for making the updated visual impact assessment a stand-alone document, and for providing corroborative information on the conclusions reached in the SMRT, Inc. report. At staff's request, tjd&a also responded to written comments from the Route 43 resident. Although tjd&a agrees with some of the commentator's statements, tjd&a concludes that the proposed increase in the landfill's height will not unreasonably adversely affect the use of the resident's property or other existing uses in the area.

The Department finds that the design of the project continues to take into account the scenic character of the surrounding area, and that the development has been located and screened to minimize its visual impact, but that the visibility of the landfill would be lessened if the section of Route 43 where the landfill is visible is screened. The Department finds that the development will not have an unreasonable effect on the scenic character of the surrounding area, provided the results of a future visual analysis, performed when the final elevation of the landfill reaches 330 feet, agree with the projections provided in the application, and provided the applicant negotiates in good faith with the Route 43 landowner for permission to plant a tree screen in the location identified in the visual impact assessment.

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B. Noise: The original application included a noise study prepared by Acentech Incorporated (“Acentech”). In summary, the study demonstrated that the noise standards of the applicable Rules would be met by the implementation of several noise abatement measures during construction and operation, and that noise would be reduced by atmospheric adsorption and the proposed buffer strips around the facility. As a check on the actual noise levels from the facility, the Department placed Condition #7 in the original license. The condition required that noise studies be performed within the first month of operation, and again within the first month of operation of cell 4 of the landfill. The noise study performed when the landfill became operational demonstrated the facility was operating within the noise limits; cell 4 has not been developed.

The applicant retained Acentech to address noise impacts associated with the proposed facility. A copy of Acentech’s report is contained in Attachment 6 of the application. The noise study modeled the projected noise levels from the landfill operating equipment to the nearest property boundary and the nearest residence; the study demonstrated that the facility will comply with the 60 dBA day time noise standards of the Rules. Between 7 p.m. and 7 a.m., the 50 dBA night time standards of the Rules apply, and the applicant will limit the spreading and compacting equipment to 1 compactor and 1 dozer or loader if necessary to meet the noise standards. (The landfill is proposed to operate between 6 a.m. and 8 p.m. on weekdays.)

The Department finds that the noise study for the proposed facility indicates that it will not generate excessive noise at the property boundary or at any protected location as defined by the Rules. However, the Department also finds that the applicant must perform 2 additional noise studies to confirm the model used in the study: one within the first month of operation of cell 3, and the other within the first month of operation of cell 9. If the actual noise limits are above the limits in the Rules, additional noise measures must be promptly implemented to meet the requirements of the Rules.

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- C. Existing Uses and Conditions: The portions of the 780 acre parcel that are currently undeveloped will not be altered, and the current allowed uses of the property by the public described in Finding of Fact #24 of the original order will be allowed to continue. The Department finds that its original finding that the facility will not unreasonably interfere with existing uses and conditions, and has enhanced values in some areas, is not changed.

17. STORMWATER MANAGEMENT

The Department found in the original license that the project is not located on a floodplain. The applicant has provided an updated stormwater management plan for the proposed facility, prepared in accordance with the Rules and the three general objectives of the Department's *Stormwater Management for Maine: Best Management Practices* (MDEP, 2003): effective drainage, flood prevention and erosion control. The plan is contained in Section 5.7 of the application.

The proposed stormwater management measures, which include the erosion and sedimentation control plan for the facility (see Finding of Fact #18, below), will assure that peak runoff rates for the post-development conditions at the site will be equal to or less than the peak runoff rates for the site's pre-development (prior to 1991) conditions. A major consideration in the grading and layout of the landfill in the original application was the minimization of wetlands impact; the same consideration was applied to the vertical increase of the landfill proposed in this application. Existing drainage courses will be utilized where feasible; no surface water drainage outlet structures from the developed site will discharge concentrated flows directly onto abutting properties. Where necessary, the runoff from the developed site will discharge into detention or sedimentation basins that will attenuate peak flow rates to the unnamed tributary feeding Pushaw Stream, located at the lowest elevation of the facility. This runoff will be only from areas outside the landfill footprint and from landfill areas that have received final or intermediate cover material. Runoff from areas where waste is exposed or has received only daily cover is considered leachate and is handled within the leachate collection and conveyance systems.

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A drumlin oriented in a northwest to southeast direction effectively divides the 780-acre parcel into 4 major watersheds: northeast, northwest, southeast and southwest. The Department received comments from the public that the ditches on the Stagecoach Road contain runoff contaminated by the existing landfill. Staff comment that the Stagecoach Road is located in the northwest watershed of the parcel. The landfill is located in the southwest watershed of the parcel, and runoff from this watershed drains to a wetland area that serves as the headwater of an unnamed tributary that empties into Pushaw Stream, not towards the Stagecoach Road.

The Department has also received comments from the public that contaminated runoff from the landfill can flow into ditches along Route 43 and onto property across Route 43. Staff comment that water in the unnamed stream directly downgradient of the landfill has been consistently sampled at least 3 times per year since 1991; no changes in surface water quality have been observed. Staff also comment that no analyses or other documentation of contamination of ditches in either area was submitted to the Department.

Staff comment that all issues raised in the initial engineering review memorandum regarding the provisions for stormwater management have been satisfactorily resolved.

The Department finds that the facility's stormwater management plan will control run-on and run-off; and infiltrate, detain or retain water falling on the facility site during a storm of intensity up to and including a 25-year, 24-hour event such that the rate of flow of stormwater from the facility after construction does not exceed the rate of outflow of stormwater from the facility prior to construction of the facility. The Department also finds that the preponderance of the evidence indicates that runoff from the landfill is not impacting ditches along Route 43 or the Stagecoach Road.

18. EROSION AND SEDIMENTATION CONTROL

The application contains an erosion and sedimentation control plan prepared in accordance with the *Maine Erosion and Sedimentation Control Best Management Practices* (MDEP, 2003) and the requirements of the Rules. The plan is

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contained in Appendix F of the application. The plan includes the construction of two new stormwater detention ponds, several new drainage structures (ditches, catch basins and culverts), and it addresses the inclusion of terrace drainage swales and downchutes on the landfill cover system. To minimize erosion during construction and operation, both temporary and permanent erosion control measures will be used. All measures will be continuously monitored and all necessary maintenance will be performed to assure that the measures are functioning properly. In response to staff comments, the applicant confirmed that the design of construction-related erosion and sedimentation control systems will be included in the detailed design package for each phase of the landfill development. For all cells other than cell 3, which will utilize the existing sedimentation control structures, it is anticipated that water generated within the cell construction area will be contained within that landfill cell, thus allowing sediment to settle out within the cell before being pumped out. If necessary, additional sediment removal techniques will be employed.

The Department finds that ongoing construction of the proposed facility will not cause unreasonable sedimentation or erosion of soil, provided the erosion and sedimentation control plan is implemented as described in the application, and as amended during the review of the detailed design package submitted for the Department's review and approval prior to each phase of landfill construction.

19. RECYCLING AND SOURCE REDUCTION

The landfill will accept only solid waste that is subject to recycling and source reduction programs at least as effective as those imposed by State law. The recycling and source reduction programs included in the OSA will affect the region served by the landfill and the rest of the state, and includes several innovative recycling initiatives that will advance the State's solid waste management policy.

In signing the OSA, Casella agreed, in part, to use its best efforts to operate the landfill following the State's solid waste management hierarchy. Specific actions listed in the OSA include the following:

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- A. Implementation of a technology for recovery and recycling of all color glass containers so that glass does not require separation by color in order to be recycled;
- B. Work with the Municipal Review Committee (“MRC”), which represents over 160 municipalities that are limited partners in PERC and/or users of PERC, to:
 - 1. through Casella’s Fairfield County Recycling Division, analyze and develop the best collection, processing and marketing options for paper recycling;
 - 2. help develop organics recycling programs that enhance or expand current practices of MRC members;
 - 3. develop a program to collect, store and process (where applicable) universal wastes and mercury containing products; and
 - 4. develop programs to identify, collect and properly dispose of household hazardous wastes;
- C. Work with the MRC and appropriate research facilities to assess the viability of using Maine-developed ablation technology as a source of air emission control for biomass boilers combusting up to 50% clean wood from construction and demolition debris (“CDD”) as a fuel source, as proposed for new GPC biomass boiler; and
- D. Expand the CDD processing capability of Casella and its affiliates to achieve a decrease in CDD waste volume requiring disposal with a focus on recovering the clean CDD wood waste that would assist in meeting the biomass fuel commitment of the OSA. Other recyclable materials, including cardboard, aggregate and metals, would be separated and utilized in other applications.

The Department finds that the provisions of 38 M.R.S.A. §1310-N(5) and the Rules are not applicable to this application because it is not an application for a new landfill or an expansion of an existing landfill. (See Finding of Fact #1.C, above.) However, to address public comments on the need for additional

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recycling rather than additional disposal capacity, the applicant submitted a summary of the recycling initiatives included in its response to the RFP and in the OSA.

20. PROTECTED NATURAL RESOURCES

The original application, and the application submitted to the Army Corps of Engineers, included an extensive wetlands study of the property. The original licenses permitted the filling of 8.84 acres of wetlands, and contained a compensation plan for the activity. Condition #4 of the original license required that the original licensee submit annual reports on the restoration and enhancement projects in the compensation plan for a 3 year period; compliance with this condition has been demonstrated.

No additional wetland areas will be impacted by the proposed project. However, the reconstruction of the access road from the landfill berm to the existing leachate pump station, and the construction of the leachate force main will include construction activities within 75 feet of the upland boundary of the forested wetland to the west of the site, and thus the applicant will file Permit By Rule applications under the Department's Chapter 305, Sections 4 and 9, Regulations prior to this construction, and will comply with the standards in the regulations.

The Department finds that the proposed facility will not unreasonably adversely effect protected natural resources in that no new impact on protected natural resources will occur, provided that the applicant obtains, and complies with the standards of, permits-by-rule under 06-096 CMR Chapter 305.4 and 305.9.

21. SETBACKS AND BUFFERS

The setbacks to public roads, private residences, public and private water supplies protected natural resources, airports and the property boundary are not changed as a result of this proposal, and thus continue to exceed the setbacks set forth in the Rules. As required by Condition #9 of the original license, the 100 foot forested buffer between the western side of the facility between the landfill and the emergent wetland to the southwest of the facility will be maintained. The

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Department finds that Finding of Fact #22 of the original license, which sets forth required buffers, is not changed by this proposal.

22. UTILITIES

On site single-phase power is supplied from Route 16 via buried electrical lines. Potable water will continue to be provided by an on-site well. On-site sanitary wastewater treatment is provided by a licensed subsurface wastewater disposal facility. The applicant proposes to upgrade the facility from 113 gallons/day to 420 gallons/day; a copy of the HH200 form for the upgraded facility is contained in Attachment 10 of the application. As described in Finding of Fact #9.D, above, leachate will initially be trucked to the Old Town Mill's wastewater treatment plant, but may be transported via sewer line or truck to the City of Old Town Wastewater treatment plant in the future, if the necessary upgrades are made and the City of Old Town is willing. The Department finds that the applicant has provided for adequate utilities and the proposed facility will not have an unreasonable adverse effect on existing or proposed utilities in the municipality or area served by the utilities.

23. ALL OTHER FINDINGS OF THE ORIGINAL ORDER

The Department finds that all of the remaining Findings of Fact of the original license will be unchanged by the proposed amendment for a vertical increase, in that the horizontal footprint of the landfill will be unchanged by the proposal.

BASED on the above Findings of Fact, the Department CONCLUDES the following:

1. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards, provided an acceptable package for financial assurance is submitted and maintained, and provided evidence of financial capacity for construction of each cell is provided as part of the detailed design package submitted prior to each construction season.
2. The information submitted by the applicant and supplied by state and local officials regarding Casella's previous violations of certain environmental laws, as described in the civil and criminal record for SPO and Casella/NEWSME

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Operations, demonstrates that Casella has willingly conducted all required corrective actions; thus the civil and criminal record does not provide a basis to deny approval for SPO to own and control, and NEWSME Operations to operate, the landfill as proposed in this application in compliance with Maine laws and regulations.

3. The applicant has provided adequate evidence of title, right or interest in the parcel of property containing the existing landfill.
4. The proposed vertical increase of the landfill will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur in that the landfill is not located over a significant sand and gravel aquifer and the proposed vertical increase of the landfill does not pose an unreasonable threat to the quality of a significant sand and gravel aquifer which it does not overlie, or to an underlying fractured bedrock aquifer, in that soils under the landfill and the proposed design of the vertical increase, combined with the groundwater flow conditions, provide adequate protection to water quality.
5. The proposed vertical increase of the landfill will not pollute any waters of the State, contaminate the ambient air, constitute a hazard to health and welfare, or create a nuisance, provided the environmental monitoring plan for the landfill is updated in accordance with staff recommendations, and provided the landfill is constructed, operated, closed and monitored and maintained throughout the post-closure period in accordance with staff recommendations and the approved design and then-current operational standards, including reporting requirements. Compliance with the intent of the Solid Waste Management Regulations has been affirmatively demonstrated.
6. The applicant has adequately addressed the settlement and stability of the landfill, provided it monitors the facility in accordance with an approved settlement and stability monitoring plan that incorporates all recommendations made by staff.
7. The applicant has made adequate provisions for traffic movement of all types into, out of and within the development area, provided overhead lights, or another effective lighting system as approved by the Department, are installed at the

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entrance to the access road prior to the operation of cell 3. The traffic increases attributable to operation of the landfill will not result in unreasonable congestion or unsafe conditions on a road in the vicinity of the project.

8. The applicant has made adequate provisions for fitting the development harmoniously into the existing natural environment and the development will not adversely affect the existing uses, scenic character, or natural resources in the municipality or in neighborhood municipalities provided the landfill is properly operated, properly closed, and properly cared for after closure, all in accordance with then-current regulatory requirements; that the applicant obtains the necessary Natural Resource Protection permit-by-rules before construction of the MSE berm; and provided the results of future visual and noise analyses confirm the projections contained in the application.
9. The proposed change in the landfill will not cause unreasonable erosion of soil or sediment, nor inhibit the natural transfer of soil. The applicant has made adequate provisions for controlling erosion and managing stormwater, provided the approved stormwater management plan and erosion control plan are fully implemented.
10. The applicant has made adequate provisions for utilities, including water supplies, sewerage facilities, solid waste disposal and roadways required for the development, and the landfill will not have an unreasonable adverse effect on existing or proposed utilities in the City of Old Town, the Town of Alton, or the area served by those services.

THEREFORE the Department APPROVES the above noted application of the STATE OF MAINE, ACTING THROUGH THE STATE PLANNING OFFICE, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations.

1. The Standard Conditions of Approval, a copy attached as Appendix A.
2. The applicant shall take all necessary actions to ensure that its activities or those of its agents do not result in unnecessary or noticeable erosion of soils on site during construction or operation of the facility.

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3. Prior to May 15, 2004, the applicant shall submit a financial assurance package for closure and post-closure care to the Department for review and approval that meets requirements of the Rules. The applicant shall implement the approved package. The approved financial assurance package shall be updated on an annual basis by the applicant in accordance with the Rules.
4. The applicant shall complete the investigation in the areas around and beneath detention ponds 1 and 2 in accordance with the workplan approved by the Department.
5. The applicant shall update the EMP on an ongoing basis as recommended by staff, beginning with the submittal of the 2003 Annual Report. Monitoring of detention ponds 1 and 2, and monitoring wells #DP-4, #P-04-02, and #P-04-04 shall be added to the EMP. The 3 new well clusters proposed in the application shall be installed in locations approved by the Department, and added to the monitoring program for the facility. All landfill underdrain discharge locations shall be added to the monitoring program for the facility; they shall be monitored monthly for the field parameters in Appendix A, Column 1 of Chapter 405 of the Rules, and sampled 3 times per year for the facility's suite of detection parameters at the same time as the other monitoring locations.
6. The applicant shall initiate assessment monitoring in accordance with the Rules at monitoring wells MW-204, MW-302, MW-223B, MW-212 and MW-303 during the Spring 2004 sampling event. New wells installed in accordance with Condition #4, above, shall be included in the assessment monitoring program during the Summer 2004 sampling event.
7. The applicant shall continue to route the discharge from the leachate pond underdrain into the leachate storage pond until the Department authorizes a resumption of the surface discharge. The leachate pond underdrain water quality shall be sampled weekly throughout the rest of 2004 for field parameters including pH, specific conductivity and temperature, and an analysis of the results shall be included in the 2004 annual report for the facility. The analysis of the results shall include a proposal for future monitoring at this location, and the

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necessary changes to the EMP. After review and approval by the Department, the changes shall be incorporated into the EMP and implemented as approved.

8. The applicant shall construct the sludge mixing test plot in accordance with the proposed plan, as revised in accordance with staff recommendations. At least 60 days prior to landfilling of sludge from cells 1 and 2 with other waste outside of the test plot, the applicant shall propose to the Department for review and approval, based on the findings of the test plot program, a ratio of existing and new sludge to incoming waste to be placed in cells 1, 2 and 3, detailed procedures for mixing the waste streams, and an odor control and monitoring plan for sludge excavation and mixing operations.
9. At least 60 days prior to landfilling of sludge from cells 1 and 2 with other waste outside of the test plot, the applicant shall submit to the Department for review and approval, based on the findings of the test plot program, an updated geotechnical stability analysis and a finalized geotechnical monitoring plan for the landfill.
10. At least 45 days prior to the commencement of waste placement in cell 3, the applicant shall submit to the Department for review and approval an updated operations manual, including a finalized conceptual cell development plan for the life of the landfill and a detailed cell development plan for the next 2 years of operation. The updated operations manual shall address all staff recommendations as agreed to in SME's January 22, 2004 submittal addressing staff memoranda. The operations manual shall be updated again following completion of the test plot program and prior to excavation of sludge from cells 1 and 2. All changes to the operations manual for the facility are to be implemented as approved by the Department.
11. The applicant shall include in each of the facility's annual reports proposed revisions to the operations manual, including an annually updated cell development plan. Each year's annual report shall also include an evaluation of the sizing and the installation timing of the active gas extraction system components over the reporting period, and an evaluation of the effectiveness of the system based on the quantities and types of wastes projected for the next year.

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The operations manual shall be revised as conditions dictate and to comply with any changes in the operating requirements in the Rules.

12. Prior to the commencement of operations in cell 3, the applicant shall install overhead lights, or another lighting system that identifies the entrance road into the facility, at the entrance to the facility.
13. The applicant shall obtain prior to construction of the MSE berm, and comply with the standards of during construction, permits-by-rule under 06-096 CMR Chapter 305.4 and 305.9.
14. At least 60 days prior to the planned commencement of operations in cell 3, the applicant shall submit to the Department for review and approval the following information on the perimeter hydrogen sulfide monitoring program: the number and locations of instruments, based on meteorological conditions; system security measures; monitoring program details and responsibilities; and reporting procedures.
15. At least 6 months prior to the planned commencement of operation of new cells or other structures, the applicant shall submit to the Department for review and approval detailed design packages for each construction activity. The detailed design packages shall include a complete set of project specific contract bid documents, including construction drawings, technical specifications, contract administrative documents, construction monitoring and documentation provisions, construction quality assurance plans, erosion and sedimentation control plans, and the following information:
 - A. For the landfill cells other than cell 3, the perimeter berm, the leachate storage tank and the ancillary structures, the detailed design packages shall also address all staff recommendations regarding the design, the technical specifications, the construction drawings, and the construction quality assurance plan as agreed to in SME's January 22, 2004 responses to the comments provided in 3 initial engineering review memoranda by staff. In addition, the applicant shall include a demonstration of financial capacity for costs associated with the construction of each cell developed after cell 3.;

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- B. For the active gas extraction system, the detailed design package shall also address staff recommendations regarding the design, the technical specifications, the construction drawings, and the construction quality assurance plan as agreed to in SHA's submittal dated January 21, 2004 and the applicant's letter dated February 4, 2004. The detailed design package for the initial construction of the active gas extraction system shall also include the active gas system operating plan, inclusive of monitoring, record-keeping, and reporting procedures; and the provisions to be implemented to protect and provide safe access to the well-heads if temporary geomembrane tarps are proposed for intermediate cover; and
- C. For the phased final cover system, the detailed design package shall include the supporting information required by the applicable provisions of Chapter 401.5 of the Rules, and address the recommendations in staff memoranda as agreed to in SME's submittal dated January 22, 2004 and as responded to in staff memoranda dated January 26, 28 and 30, 2004.

If the Rules applicable to any aspect of the design and construction of the vertical increase of the landfill and its ancillary structures change during the development of the landfill, the applicant shall address the new requirements in subsequent submittals.

- 16. With regards to the acceptance of MSW for disposal, consistent with its proposal, the applicant:
 - A. shall not dispose of unprocessed MSW from any source other than bypass from the following sources: PERC incinerator in Orrington and the Maine Energy incinerator in Biddeford; waste delivered under an interruptible contract with PERC; or waste delivered in excess of processing capacity at other MSW incinerators in Maine;
 - B. shall not accept waste from an incinerator without verifiable authorization from either the owner/operator of an incinerator or from a regulatory entity with jurisdiction over the incinerator that a bypass has been called

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or, for holders of interruptible contracts, the contracts have been interrupted in accordance with the contractual provisions;

- C. shall limit the total amount of (a) unprocessed MSW incinerated at Maine Energy and (b) MSW bypassed from Maine Energy for disposal at the WOTL and at Pine Tree Landfill's Secure III Landfill Expansion to no more than 310,000 tons in any calendar year, unless changes in conditions or circumstances occur that cause the Department to revise this cap; and
 - D. shall notify the Department if waste deliveries in excess of processing capacity at MSW incinerators continue from a particular incinerator for a period exceeding 1 week, and provide such information as the Department may request to demonstrate that the deliveries are due to either planned outages or unplanned production problems.
17. The monthly activity reports submitted to the Department by the applicant shall provide the data needed to determine the quantities of the various waste types, and their sources, delivered to the landfill. The monthly reports on the wastes accepted for disposal at the landfill shall include the amount and source of unprocessed MSW accepted for disposal.
 18. Prior to accepting for disposal any waste not listed in the application, the applicant shall submit an application for the new waste to the Department for review and approval.
 19. The applicant shall include in the annual reports for the facility submitted to the Department, in addition to the specific requirements of Chapter 401.4(D) of the Rules, the amount of unprocessed MSW received at WOTL from each of the approved sources.
 20. If Department staff find that operation of the landfill as proposed unreasonably adversely results in unreasonable odors or fugitive dust emissions, the Department shall require additional odor control measures or fugitive dust control measures at the facility.

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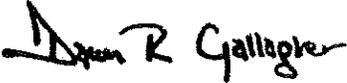
21. The applicant shall perform 2 additional noise studies in accordance with the provisions of the Rules: one within the first month of operation of cell 3, and the other within the first month of operation of cell 9. The results of each of the noise studies shall be submitted to the Department for its review and comment within 2 weeks of completion. If the actual noise levels are above the limits prescribed in the Rules, additional noise measures shall be implemented to meet the requirements of the Rules within 1 month of the submittal of the noise study.
22. The applicant shall conduct a future visual analysis, performed when the final elevation of the landfill reaches 330 feet, and demonstrate that the results agree with the projections provided in the application. If that demonstration cannot be made, the applicant shall propose alternative mechanisms for meeting the visual impact standards of the Rules within 1 month of the date of the visual analysis.
23. The applicant shall negotiate in good faith with the Route 43 landowner for permission to plant a tree screen in the location identified in the visual impact assessment.
24. The applicant shall submit the detailed construction plans for the placement of phased final cover to the Department for its review and approval at least 90 days prior to each application of final cover. In addition, the applicant shall submit to the Department for its review and approval a final closure plan for the landfill, prepared in accordance with the Rules in effect at that time, and complete final closure of the landfill in accordance with the approved final closure plan. The final closure plan shall include a post-closure monitoring and maintenance plan covering a period of at least 30 years following closure. The post-closure monitoring and maintenance plan shall be revised throughout the post-closure period to comply with changes in site conditions or any changes in

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the post-closure monitoring and maintenance requirements of the Rules. Post-closure monitoring and maintenance shall continue until the Department approves its cessation.

DONE AND DATED AT AUGUSTA, MAINE THIS 9th DAY
OF April, 2004.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: 
Dawn R. Gallagher, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

Date of initial receipt of application: October 30, 2003
Date application accepted for processing: November 21, 2003

Date filed with Board of Environmental Protection:

XCD51106/cwd

APPENDIX F

**RESPONSE TO DRAFT COMMENTS AND
ASSOCIATED APPROVAL**

Responses to Comments
Provided by Maine Department of Environmental Protection
Draft Helipad Cleanup Work Plan
Former Naval Air Station Brunswick
Brunswick, Maine

Reviewer: Claudia Sait, MEDEP
Date: 2 November 2012
Respondent: H&S Environmental, Inc.
Date: 9 November 2012

Comment #	Location	Comment	Response
1	General	Please notify MEDEP at least two weeks prior to implementing this work plan to allow staff to visit the work site if schedules allow.	Agreed. MEDEP will be notified at least two weeks prior to initiating fieldwork.
2	Section 4.4, Spill Control, Large Spill	Please add that either the contractor/sub-contractor or the care taker's office will report the spill to the Maine Department of Environmental Protection at 207 822-6300 during normal business hours or the Department of Public Safety at 800-482-0777 during non-office hours.	A sentence indicating that the NAS Brunswick BRAC representative will report the spill to the MEDEP at 207-822-6300 during normal business hours or the Department of Public Safety at 800-482-0777 during non-office hours has been added to this section.
3	Section 4.5 Soil Removal	The relocation of the wood chips and brush to the adjoining treeline is acceptable, however it will be difficult to blade it across the berms without spreading soil, unless the equipment used has a bucket or it is temporarily moved near the roadway away from the berms. Also the property surrounding this area has been transferred to the Midcoast Regional Redevelopment Authority and caution should be used not to stray onto their property without permission. (See FOST 2012-2, figure B-5.)	Noted. Inner and outer soil berms will be removed prior to relocating the woods chips and brush into the surrounding woods so that soil is not spread during the relocation process. If the woods chips and brush impede access to the soil berms, they will be temporarily moved to the side so that the equipment can access the soil first, and then woods chips and brush will be relocated into the surrounding woods. Care will be taken to ensure that woods chips and brush are not relocated onto MRRA property without permission.

Comment #	Location	Comment	Response
4	Section 4.6.2, Soil Sampling	Please clarify the surface soil sample collection method proposed (depths, etc). MEDEP suggests 0-6 inches approximately in a 3x3 inch or 4x4 inch area if that will provide sufficient volume for the analytical methods proposed. How will the sampling locations be determined? Will they be equidistance within the removed berm? Please add this to the text or include the approximate sampling locations on Figure 3.	Text has been added to this section to clarify that soil samples will be collected at locations that are equidistance within the removed berm. At each location, soil will be collected from an approximately 3x3 inch area from a depth of 0-6 inches. This will provide sufficient volume to perform the required analyses. In addition, approximate sample locations have been added to Figure 3.
5	Table 3, Project Quantitation Limit (PQL) Goals and Laboratory Detection Limits	There are a few trace metals that have PQL goals that will not be met based on the Limits of Detection noted in the table. Please shade those elements if the final laboratory values will not meet the PQL goals.	Analytes for which the PQLs are below the LODs have been shaded on Table 3. This includes metals antimony and arsenic as well as PCBs Aroclor-1221 and Aroclor-1232.
END OF COMMENTS			



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

November 20, 2012

Mr. Todd Bober
BRAC PMO NE
Building 679-Naval Business Center
4911 South Broad Street
Philadelphia, PA 19112-1303

Re: Helipad Cleanup Workplan
Former Naval Air Station, Brunswick, Maine

Dear Mr. Bober:

The Maine Department of Environmental Protection (MEDEP) has reviewed the Navy's responses (November 9, 2012) to MEDEP's comments (November 2, 2012) for the draft "Helipad Cleanup Workplan" and the accompanying red-line strikeout revision of the workplan. Based on those reviews MEDEP has no further comments.

Thank you for the opportunity to review this document and please contact me at (207) 287-7713 or claudia.b.sait@maine.gov, if you have any questions or comments.

Respectfully,

Claudia Sait
Project Manager-Federal Facilities
Bureau of Remediation & Waste Management

Cf: Electronic Copy

Chris Evans-MEDEP
Paul Burgio-BRAC PMO
David W. Chipman
Carol Warren
Suzanne Johnson-BASCE
Denise Clavette-Town of Brunswick
Carolyn Lepage-Lepage Environmental

Robert Leclerc-BNAS
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