BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

August 31, 2012

Mr. Maurice F. Moore
New York State Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Ave
Buffalo, New York 14203

Re: Colgate Avenue Site
NYSDEC Site No. 915133
Final Site Management Plan

Dear Mr. Moore:

Enclosed for your files is one hard-bound copy of the Final Site Management Plan (SMP) for the above-referenced site. A full electronic copy has been secured to the inside front cover of the report.

Please contact us if you have any questions or require additional information.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Thomas H. Forbes, P.E.
Principal Engineer

ec: Paul Pavlis, Esq. – Ameron International Corporation
Craig Slater, Esq. – The Slater Law Firm, PLLC
Matthew Forcucci – NYSDOH

File: 0100-001-200

Site Management Plan

Colgate Avenue Site

Buffalo, New York
Site No. 915133

July 2009
Revised February 2011
Final August 2012

0100-001-200

Prepared For:

Ameron International

Prepared By:

BENCHMARK
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Colgate Avenue Site

ERIE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 915133

Prepared for:
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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

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FINAL AUGUST 2012

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

APPENDICES

CERTIFICATIONS

I, Thomas H. Forbes, P.E. certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

070950	8-29-12	
NYS Professional Engineer #	Date	Signature

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the Colgate Avenue Site in Buffalo, New York (hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Order on Consent Index #B9-0680-04-011, Site #915133, which was executed in December 2004.

1.1.1 General

Ameron International Corporation entered into an Order on Consent with the NYSDEC to remediate a 3.2-acre property located in Buffalo, Erie County, New York. This Order on Consent required the Remedial Party, Ameron International Corporation (Ameron), to investigate and remediate contaminated media at the site. Figures showing the location and boundaries of this 3.2-acre "site" are provided as Figures 1 and 2, respectively. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement.

After completion of the remedial work described in the Remedial Action Work Plan (RAWP), some contamination was left in the subsurface at this site, which is hereafter referred to as "remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Benchmark Environmental Engineering & Science, PLLC (Benchmark), on behalf of Ameron, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for

implementing the Institutional Controls (ICs) and future Engineering Controls (ECs) that are required by the Environmental Easement for the site.

1.1.2 Purpose

The site contains contamination left after completion of the remedial action. Institutional Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, will require compliance with this SMP and all ICs placed on the site. The ICs: place restrictions on site use; require implementation of ECs to mitigate any potential vapor intrusion in newly constructed buildings; and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site after completion of the Remedial Action, and includes: (1) implementation and management of all Institutional and future Engineering Controls; (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; and (2) a Monitoring Plan for implementation of Site Monitoring. In addition, this SMP requires preparation of an Operation and Maintenance Plan for vapor mitigation controls constructed in concert with any new buildings erected on the site.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC).
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent (Index #B9-

0680-04-011; Site #915133 for the site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the City of Buffalo, County of Erie, New York and is identified as 113-119 Colgate Avenue (SBL Nos. 133.62-2-1.11 and 133.62-2-25.11) on the Erie County Tax Map. The site is an approximately 3.2-acre area bounded by Colgate Avenue to the north, light industrial properties to the south, residential properties along Colgate Avenue to the east, and commercial and industrial properties to the west (see Figure 2). The boundaries of the site are more fully described in the Environmental Easement contained in Appendix G.

1.2.2 Site History

Beginning in approximately 1960 and continuing to 1982, Ameron (or its predecessors) operated a protective coatings manufacturing facility on the subject property. During 1983 and 1984, environmental investigations revealed the presence of certain chemicals in soil and shallow groundwater beneath the western most portion of the former manufacturing building (Plant No. 1). As a result, in 1986 Ameron entered into an Order on Consent with the NYSDEC, whereby Ameron installed, maintained, and operated a sub-floor soil vapor extraction (SVE) system under the two westernmost rooms of Plant No. 1 for a 10-year period. The system was constructed and installed in 1988, approved by NYSDEC in 1989, and operated by Ameron through 1999.

At the conclusion of these remedial activities, Ameron sought delisting of the Site from NYSDEC's Registry of Inactive Hazardous Waste Sites. NYSDEC indicated that although the terms of the 1986 Order on Consent were completed to their satisfaction, insufficient data existed to establish that the remedial action goals had been attained.

Consequently, NYSDEC denied the delisting and required further investigation of the property.

In November 2001, Ameron retained AFI Environmental to conduct a limited subsurface Site investigation to confirm that SVE successfully remediated contaminants of concern to levels below the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs). The investigation results were reported in AFI's report entitled Subsurface Soil Investigation and Water Analysis for MW-2, dated November 2001.

In June 2004, Ameron retained AFI to conduct a supplemental Site investigation for the purposes of delisting the property prior to closing the USTs. Because no RCRA substances, listed hazardous substances, or contaminants of concern (other than petroleum) were identified, Ameron once again requested that the Site be delisted. The NYSDEC denied delisting of the property until the underground storage tank (UST) closure project was complete.

In August 2004, AFI prepared and submitted to the NYSDEC a Remedial Action Work Plan (RAWP) for the investigation and removal of the USTs. The NYSDEC-approved RAWP was implemented from October to December 2004. Remedial work involved removing, cleaning, and recycling 11 USTs and off-site landfill disposal of 2,839 tons of impacted soils from the western portion of the Site. The soil was disposed at a permitted landfill (Modern Landfill) under a "contained-in" hazardous waste management exclusion issued by NYSDEC. Post-excavation confirmatory sampling verified that cleanup goals were achieved. In April 2005, AFI issued a Remedial Action Work Report describing the UST and soil removal activities.

In December 2004, Ameron entered into an Order on Consent (Index #B9-0680-04-011) with NYSDEC to complete a records search for the property and a Remedial Investigation/Feasibility Study (RI/FS). The Site is currently listed in the New York State Registry of Inactive Hazardous Waste Disposal Sites as Site Number 915133 with a Classification of "4" pursuant to ECL 27-1305. Class "4" sites are defined as sites that have been properly closed but require continued management. The Order on Consent required preparation and implementation of an RI/FS Work Plan incorporating the elements of an RI/FS as set forth in the USEPA guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988.

Ameron subsequently retained benchmark to prepare and implement an RI/FS Work Plan. RI field activities were initially completed during the period of April 19 through May 3, 2006 in general accordance with the January 2006 NYSDEC-approved

RI/FS Work Plan. Following review of the 2006 RI sample data, the NYSDEC required collection of additional samples for lead and PCBs in surface soils, as well as collection of a groundwater sample for volatile organic compound (VOC) analysis. The supplemental sampling work was performed on January 3, 2007. Between October 2008 and March 2009, Benchmark completed a supplemental boring and groundwater investigation in the northwestern portion of the Site, downgradient of the former UST field.

On November 3, 2009 a fire destroyed a portion of the onsite building referred to as Plant No. 1. Ameron undertook emergency demolition of all onsite structures with the exception of a 2-story building on the eastern side of the site, which remained in sound condition.

1.2.3 Geologic Conditions

Based on the bedrock geologic map of Erie County, the Site is situated over the Skaneateles Formation of the Middle Devonian Hamilton Group. The Skaneateles Formation is comprised of the younger Levanna shale member and the older Stafford limestone member. The Levanna shale is described as black shale with interbedded dark gray shale and argillaceous limestone with an estimated thickness of 45 to 55 feet. The Stafford limestone member is described as a massive gray limestone that weathers chocolate brown, with shaley interbeds and an estimated thickness of 15 feet. Underlying the Hamilton Group in Erie County is the lower Devonian Onondaga Limestone Formation, which has an estimated thickness of 110 to 160 feet.

Structurally, the bedrock formations strike in an east-west direction and exhibit a regional dip that approximates 40 feet per mile (3 to 5 degrees) toward the south and southwest. As a result of this dip, the older Onondaga limestone outcrops or subcrops north of the Hamilton Group. An intersecting, orthogonal patter of fractures and joint sets are common throughout the bedrock strata. The surficial geomorphology of the bedrock strata was modified by period subaerial erosion and continental glaciation.

Site overburden soils have been described as soil/fill to approximately 0.5 to 2.0 feet below ground surface (fbgs) to as deep as 8 fbgs, overlying native silty clay with varying amounts of sand and brownish gray clay.

Hydrostratigraphic units are sequences of geologic materials that possess similar hydrogeologic properties including hydraulic conductivity and porosity. The hydrostratigraphy of the Site, interpolated from other sites in the vicinity, consists of three units: a shallow overburden zone; a deep overburden aquitard; and a till/bedrock zone. The shallow overburden zone consists of an unconfined, saturated soil/fill unit and

an underlying layer of lacustrine silty sands with thin organic layers. The deep overburden aquitard, or confining unit, is comprised of low permeable lacustrine silty clay and a dense, low permeable glacial till. The till/bedrock zone consists of a hydraulically connected sandy reworked till and a directly underlying fractured shale and limestone.

Groundwater within the shallow overburden zone varies in depth from 1.7 to 3.0 fbgs, as indicated by depth to water measurements recorded on May 3, 2006 from on-site monitoring wells (i.e., MW-1 through MW-6, and PZ-1) and presented in Table 1. Shallow groundwater at the Site generally flows west-northwest toward Lake Erie. A groundwater isopotential map shows the general direction of shallow groundwater flow on the site is presented as Figure 3.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the site. The results of the RI are described in detail in the following report:

- Benchmark Environmental Engineering & Science, PLCC. *Remedial Investigation/ Feasibility Study (RI/FS) Report, Colgate Avenue Site, Buffalo, New York.* Revised January 2010.

RI field activities were initially completed during the period of April 19 through May 3, 2006 in general accordance with the NYSDEC-approved RI/FS Work Plan. Following review of the 2006 RI sample data, the NYSDEC required collection of additional samples for lead and PCBs in surface soils, as well as a groundwater sample for VOC analysis. The supplemental sampling work was performed on January 3, 2007. Between October 2008 and March 2009, Benchmark completed a supplemental boring and groundwater investigation in the northwestern portion of the Site, downgradient of the former UST field.

Below is a summary of site conditions prior to implementation of remedial measures. Tables 2a and 2b summarize the soil concentrations detected during the 2006 RI and 2007 Supplemental RI. For purposes of comparison, Tables 2a and 2b present the data relative to commercial and industrial Soil Cleanup Objectives (SCOs) per 6 NYCRR Part 375. The commercial and industrial SCOs are considered appropriate comparative criteria based upon the current and reasonably anticipated future use of the site.

Tables 3a and 3b summarize the groundwater concentrations detected during the 2006 RI and 2008/2009 Supplemental RI. The data are presented relative to New York State Class GA Groundwater Quality Standards and Guidance Values (GQSGVs)

Soil

- Two surface soil samples (SS-1 and SS-2) were collected from locations as shown on Figure 3. The samples were collected from the depth interval of 0 to 6 inches below ground surface and analyzed for Target Compound List (TCL) VOCs, TCL Semi-Volatile Organic Compounds (SVOCs), TCL pesticides, PCBs, TAL metals, and cyanide. All detected SVOC constituents were present below the corresponding SCOs for commercial soils with the exception of benzo(a)pyrene, which exceeded the SCO in sample SS-1 (see Table 1). All of the TAL metals were well within the corresponding commercial SCOs in the surface soil samples with the exception of lead in SS-2. The concentration of lead was detected at 2,660 ppm, (estimated value). The SCO for lead (restricted commercial) is 1,000 ppm. PCB sample results for surface soil samples were slightly above the commercial SCO (see Table 1). The maximum concentration detected was 6.9 ppm. The SCO for PCBs (restricted commercial) is 1 ppm.
- There were a total of 17 fill samples that were collected either as composites across the depth of the test pits (which typically extended 2-3 feet below grade to the clay layer) or from borings below the 0.5 foot interval. Impacted soil/fill was not observed in any of the soil samples. A slight glue-like odor was noted during excavation of test pit TP-5; however, PID headspace readings were 0.0 ppm in all compass directions at this location (see Figure 3). None of the headspace measurements exceeded 0.7 ppm (measured at the west wall of test pit TP-7), further supporting field observations. Sample results are described below according to contaminant class.
- VOCs were generally reported as non-detectable or at trace (estimated) concentrations below the sample quantitation limit (see Table 1). VOC results were well below the corresponding commercial SCOs.
- The majority of the analyzed SVOCs were reported as non-detectable or at trace (estimated) concentrations below the sample quantitation limit. All detected constituents were present well below the corresponding SCOs for commercial soils with the exception of benzo(a)pyrene, which slightly exceeded the SCO in sample TP-6 (see Table 1). Benzo(a)pyrene was detected at a concentration of 1.5 ppm at a depth of 0-2.5 fbgs. The commercial SCO for benzo(a)pyrene is 1 ppm.
- Lead was detected at concentrations above the commercial use SCO in three soil samples. The three samples were collected from two locations, SB-3 and SB-5 (see Table 2). The maximum concentration detected was 50,300 ppm (estimated value). All of the TAL metals were well within the corresponding commercial SCOs in the RI test pit soil samples with the exception of

manganese in TP-5, which slightly exceeded the commercial SCO. The concentration of manganese detected was 12,400 ppm (estimated). The commercial SCO for manganese is 10,000 ppm.

- None of the pesticides exceeded commercial SCOs.
- PCB Aroclors were not detected or were present below the SCO for commercial soils.
- The pH of the soil/fill samples was in the range of 6.6 – 8.4 SU (i.e., neutral).

Site-Related Groundwater

- Groundwater samples were collected from the two existing and four new/replacement monitoring wells during the spring 2006 RI investigation and at PZ-1 (VOCs only) during the January 2007 supplemental investigation (see Table 3). Groundwater samples were collected from four temporary monitoring wells and new shallow overburden well MW-7A during the October 2008-January 2009 supplemental investigation. A discussion of the results is presented below (see Table 4). See Figure 4 for ground water monitoring well locations.
- The majority of the analyzed VOCs were reported as non-detectable or at trace concentrations below the practical quantitation limit. Piezometer PZ-1, located near the former underground storage tanks, exhibited low levels of ethylbenzene and xylene. A trace level of benzene was also detected in PZ-1 at an estimated concentration of 3 ppb. At downgradient well MW-2R, only one compound, cis-1,2-dichloroethene (reported at an estimated concentration of 6 ppb) slightly exceeded the corresponding groundwater quality standards/guidance values (GWQS/GV) of 5 ppb.
- The sample from temporary monitoring well TMW-1 generally yielded non-detectable or low concentrations of VOCs below GWQS/GV, with only benzene present at a trace (estimated) concentration slightly above the GWQS/GV. At TMW-2, the data indicated the presence of several compounds, including chlorinated organics, at concentrations exceeding their respective Class GA GWQS/GV. Sample results for downgradient temporary well TMW-4 indicated a significant drop in VOC concentrations from TMW-2, with most parameters reported as non-detect or at trace levels below GWQS/GV; detected constituents were reported at concentrations an order of magnitude below the levels present in TMW-2. Sample results from temporary well TMW-3 exhibited no detectable chlorinated organics; compounds reported above GWQS/GV were limited to petroleum aromatics likely representing residual halo from the UST removal.
- Sample results from new shallow overburden well MW-7A were comparable to those encountered at temporary well TMW-4, with concentrations of chlorinated VOCs dropping by approximately an order of magnitude from those detected at TMW-2.

- Similar to VOCs, nearly all of the analyzed SVOCs were reported as non-detectable or at trace concentrations below the practical quantitation limit. Only one compound, phenol (reported at an estimated concentration of 2 ppb in MW-6) slightly exceeded the corresponding GWQS/GV of 1 ppb.
- Metals detected at levels above GWQS/GV were limited to aluminum, iron, lead, magnesium, manganese, sodium, and zinc. With the exception of lead, all of these parameters were detected in the upgradient well (MW-1) location, with iron, magnesium, and zinc present in MW-1 at concentrations in excess of the GWQS/GV. Although lead was reported as non-detect in MW-1, the concentration of lead in MW-3R (29 ppb) only slightly exceeded the GWQS/GV (25 ppb).
- Only one pesticide compound, dieldrin (reported at an estimated concentration of 0.061 ppb in MW-5) slightly exceeded its GWQS/GV of 0.004 ppb.

Site-Related Soil Vapor Intrusion

- Soil vapor samples were not collected during the RI.

Underground Storage Tanks

- As discussed above, AFI Environmental prepared and submitted to the NYSDEC a RAWP (August 2004) for the investigation and removal of the closed-in-place USTs discovered during the November 2001 Limited Subsurface Investigation. Remedial work was conducted from October to December 2004 and involved the removal, cleaning, and recycling of 11 USTs and off-site landfill disposal of 2,839 tons of impacted soils from the western portion of the Site. The soil was disposed at a permitted landfill (Modern Landfill in Lewiston, NY) under a "contained-in" hazardous waste management exclusion issued by NYSDEC. Post-excavation confirmatory sampling verified that TAGM 4046 RSCOs were achieved. The UST and soil removal activities are described in AFI's April 2005 RA Work Report.

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP) dated January 2010. The following is a summary of the Remedial Actions performed at the site:

1. Excavation of soil/fill exceeding commercial SCOs for lead and PCBs listed in Tables 2a and 2b. This required excavation in two areas of samples SS-1, SS-2, SB-3, and SB-5.
2. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the site.
3. Remediation of groundwater through injection of Hydrogen Release Compound® (HRC®) to stimulate anaerobic bioremediation of the chlorinated

VOCs surrounding temporary monitoring well TMW-2. This involved directly injecting 570 lbs. of HRC® into the contaminated groundwater using small diameter rods and a high-capacity hydraulic injection pump. A total of 16 delivery points spaced on 12.5-ft centers were used to treat the groundwater in this area. Figure 5 shows the approximate location of the delivery points.

4. Remediation of groundwater through injection of Oxygen Release Compound® (ORC®) to stimulate aerobic bioremediation of the aromatic VOCs surrounding temporary monitoring well TMW-3. This involved directly injecting 750 lbs. of ORC® into the contaminated groundwater using small diameter rods and a high-capacity hydraulic injection pump. A total of 49 delivery points spaced on 10-ft centers were used to treat the groundwater in this area. Figure 5 shows the approximate location of the delivery points.
5. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting.

Remedial activities were completed at the site on October 1, 2010.

1.4.1 Removal of Contaminated Materials from the Site

Soil/fill excavation activities were conducted on September 30, 2010 by the subcontractor, R.E. Lorenz Construction, Inc. of Lancaster, NY, retained by Benchmark. Prior to initiating the work, the subcontractor cut and removed the remaining steel rail from the former spur spanning the SB-3 and SB-5 areas. Soil was then excavated to the specified depths and minimum areas identified in the RA Work Plan (i.e., 15-feet wide x 15-feet long x 1.5 feet deep centered on sample locations SS-1, SS-2, and SB-3; and an area 15-feet wide x 15-feet long x 2 feet deep centered on sample location SB-5). Prior to excavation of the SB-3 area soils, they were stabilized in place via the addition of Portland cement approximately 3% by weight. This reduced lead leachability allowing the soils to be disposed as sanitary waste. Soils were direct-loaded to tandem trucks operated by R.E. Lorenz, Inc. for off-site disposal as described below. No trucks were allowed to traverse the hotspot areas.

During excavation of the SB-3 area, some remaining rail tie fragments from the former spur were encountered. These fragments were anticipated when the waste disposal profile was prepared and were disposed with the soil/fill materials. Similar fragments were encountered upon excavation of the SB-5 area; however in addition to the fragments, approximately 8 competent rail ties were also encountered within the excavation limits. These competent ties, which were not approved for off-site disposal

under the profile, were cleaned of soil clods and temporarily set aside. Benchmark and the NYSDEC verbally agreed that these competent ties would remain on-site below grade consistent with other ties from former rail spurs on the property. To avoid contravening the RA Work Plan criteria for approved backfill materials in the pre-defined excavation areas, the SS-2 excavation was extended approximately 8 feet to the south and competent ties were placed in this extended area. Figure 5 shows the approximate excavation areas and depths for remedial activities at the site.

The contents of two 55-gallon drums containing soil cuttings from prior investigation work were disposed off-site with the soil/fill materials. The drums were cleaned of residual soil and crushed for off-site recycling.

Excavated soil/fill was disposed on the same day as the removal work on September 30, 2010. A total of 74.78 tons of soil material was transported and disposed at the Waste Management, Inc. (WMI) Chaffee Landfill in Chaffee, New York (NYSDEC No. 9-1462-00001/00006) by R.E. Lorenz, Inc., a licensed solid waste transporter (NYSDEC #9A799). This included 15.97 tons of stabilized soil material from the SB-3 area, which were disposed as solid waste under WMI profile 106173NY, and 58.81 tons of soil/fill from the remaining three areas, which were disposed as alternative daily cover material under WMI profile 106032NY. All excavations were backfilled to original grade with topsoil from a NYSDEC-approved source and seeded with an approved seed mix per the RA Work Plan.

Figure 5 shows the areas where excavation and backfilling were performed.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

Table 4a summarizes the results of all soil samples remaining at the site after completion of Remedial Action that exceed the Track 1 (unrestricted-use) SCOs per 6 NYCRR Part 375.

As presented on Table 4a, several polyaromatic hydrocarbons (PAHs) as well as certain metals and to a lesser extent PCBs remain on the site at concentrations above the unrestricted use SCOs. Several of these constituents are commonly encountered at elevated concentration at properties where fill materials were imported and/or where burning of fossil fuels such as coal historically occurred. As such, they tend to be ubiquitous in the City of Buffalo. Moreover, the remedial program was not geared toward

achieving unrestricted use SCOs, as these criteria are overly stringent based on the current and reasonably-anticipated future use of the Site.

Comparison of the data to the commercial use SCOs on Table 4b provides a more meaningful representation of final (remediated) site conditions. As presented on Table 4b, only two exceedances of commercial SCOs remain. Benzo(a)pyrene was detected at one sample location (TP-6) outside of the remedial area at a concentration only slightly above the commercial SCO. Based on the limited nature of the exceedance and the extent to which other samples yielded concentrations of this parameter below the commercial SCO, it is anticipated that the average (site-wide) benzo(a)pyrene concentration falls below the SCO. Similarly, manganese was detected at only one sample location (TP-5) above the commercial use SCO. However manganese is a naturally-occurring metal with background concentrations on or about the same order of magnitude as the concentration reported for sample TP-5.

In addition to soil impact, groundwater impact was addressed by the remedial program. Areas where groundwater impact was addressed include the area surrounding TMW-2 and TMW-3. In both cases, the efficacy of the injections will be assessed through continued post-remedial groundwater monitoring.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil and groundwater exists beneath the site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site.
- The basic implementation and intended role of each EC/IC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the features to be evaluated during each required inspection and periodic review.
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site.
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

There are no engineering control systems incorporated into the final remedy for the Site. However, as further discussed herein one of the institutional controls requires that any newly-constructed building (i.e., after the date that the environmental easement

is filed) must be furnished with a soil vapor barrier and passive subslab depressurization system.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10. However, no on-going remedial systems are operating at the Site at this time.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the RAWP to prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination and limit the use and development of the site to commercial and industrial uses only.

The specific Institutional Controls required by the Environmental Easement are listed below. Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted-commercial/industrial use provided that the long-term Institutional Controls included in this SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted or restricted residential use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC.
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP.
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use.
- A soil vapor barrier and passive sub-slab depressurization system must be installed beneath any newly constructed buildings on the property.
- Vegetable gardens and farming on the property are prohibited.
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and

environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The site has been remediated for restricted-commercial/industrial use. Any future intrusive work that will disturb the remaining contamination will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP/CAMP is attached as Appendix B to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP, and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

This SMP requires that a vapor barrier and passive sub-slab depressurization system be installed beneath any newly constructed buildings on the property. The passive sub-slab depressurization system must be capable of being converted to an active system.

Prior to installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed

in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York." Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on NYSDOH guidance and construction details of the proposed structure. The work plan will include procedures for verifying the effectiveness of the mitigation measures through a post-construction Soil Vapor Intrusion (SVI) investigation.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as conversion to an active mitigation system.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether any required Engineering Controls continue to perform as designed.
- If these controls continue to be protective of human health and the environment.
- Compliance with requirements of this SMP and the Environmental Easement.
- Achievement of remedial performance criteria.
- Sampling and analysis of appropriate media during monitoring events.
- If site records are complete and up to date.
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48 hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48 hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Order on Consent and all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. These conditions are addressed in the Emergency Response Plan (ERP) included as Attachment B-1 to the HASP.

This Contingency Plan, a summary of the ERP, describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This Contingency Plan also describes the

provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the qualified environmental professional. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 5: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility mark out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 6: Other Contact Numbers

Thomas H. Forbes, P.E. Qualified Environmental Professional	Work: (716) 856-0599 Mobile: (716) 864-1730
Bryan C. Hann Site Safety and Health Officer (SSHO)	Work: (716) 856-0635 Mobile: (716) 870-1165
Richard L. Dubisz Alternate SSHO	Work: (716) 856-0635 Mobile: (716) 998-4334

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 119 Colgate Avenue, Buffalo, New York

Nearest Hospital Name: Mercy Hospital

Hospital Location: 565 Abbott Road, Buffalo, NY, 14220

Hospital Telephone: (716) 826-7000

Directions to the Hospital (see Figure 6):

1. Turn right onto Colgate Avenue.
2. Turn left (north) onto RT 62 South Park Avenue (0.3 miles).
3. Turn right (east) onto Choate Avenue (0.4 miles).
4. Enter next roundabout and take 2nd exit onto Red Jacket Pkwy (0.3 miles).
5. Turn left onto Abbott Road (0.1 mile).
6. Turn left into Emergency Room entrance.

Total Distance: 1.1 miles

Total Estimated Time: 5 minutes

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 5). The list will also be posted prominently at the site and made readily available to all personnel at all times.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site and all affected site media identified below. Monitoring of any installed Engineering Controls is described in Chapter 4, Operation, Monitoring, and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater).
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance.
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency.
- Information on all designed monitoring systems (e.g., well logs).
- Analytical sampling program requirements.
- Reporting requirements.
- Quality Assurance/Quality Control (QA/QC) requirements.
- Inspection and maintenance requirements for monitoring wells.
- Monitoring well decommissioning procedures.
- Annual inspection and periodic certification.

Semi-annual groundwater monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted for the first two years. Trends in contaminant levels in groundwater will be evaluated to determine if the remedy

continues to be effective in achieving remedial goals. Termination of monitoring is anticipated after two years if no increasing trends in contaminant concentrations are observed and with NYSDEC concurrence. Monitoring programs are summarized in Table 7 and outlined in detail in Section 3.2 below.

Table 7: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Semi-annual	Groundwater	TCL VOCs

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 MEDIA MONITORING PROGRAM

3.2.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy.

A network of monitoring wells has been installed to monitor site groundwater. Specifically, downgradient wells MW-2R, MW-3R, MW-4, and MW-7A will be analyzed on a semi-annual basis for 2 years (4 events). Samples will be collected and analyzed as discussed below. Remaining existing wells will be monitored for groundwater elevation to verify flow direction. After 2 years, groundwater quality and elevation monitoring will be discontinued provided that the data does not indicate an increasing trend in contaminant concentration. Figure 7 shows the location of the downgradient monitoring wells to be sampled. Table 1 summarizes well construction and water elevation measurements from the May 2006 sampling event. Figure 3 is a groundwater isopotential map showing the approximate direction of groundwater flow based on elevation data collected during the May 2006 sampling event. Monitoring well construction logs are included in Appendix C.

The sampling frequency may be modified with the approval of NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC. Deliverables for the groundwater monitoring program are specified below.

3.2.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and documented on a groundwater sampling log presented in Appendix D. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Each groundwater sample will be collected using standard low-flow purge and sample methods per the RI/FS Work Plan and analyzed in the field for water quality parameters (i.e., pH, conductivity, temperature, turbidity, and dissolved oxygen) and in the laboratory for Target Compound List (TCL) VOCs via USEPA Method 8260B.

Laboratory samples will be transported under chain-of-custody command to an Environmental Laboratory Approval Program (ELAP)-certified laboratory. The laboratory data package will be a Category A deliverable; however, the NYSDEC may request, at any time, to upgrade the deliverable to Category B.

Appendix E includes Benchmark's Field Operating Procedure (FOP) entitled "Low-Flow Groundwater Purging and Sampling Procedures." In the event well conditions do not allow for low-flow sampling (e.g., due to poor/slow well recovery), Benchmark will implement bailer purge and sample procedures in accordance with our FOP entitled "Groundwater Purging Procedures Prior to Sample Collection." Regardless of purge procedure, Benchmark's FOP entitled "Groundwater Sample Collection Procedures" will also be followed.

3.2.1.2 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that

are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix F). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.4 MONITORING QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Sampling and analyses will be performed in general conformance with the Quality Assurance Project Plan (QAPP) prepared for the RI/FS Work Plan in January 2006. Specific QA/QC requirements to be followed for the post-remedial groundwater monitoring program are identified below:

- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with USEPA SW-846.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected and analyzed at a frequency of one per 20 groundwater samples per sample event.
- Calibration Procedures:

  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures will be in conformance with the latest version of USEPA SW-846.
- The laboratory will provide a case narrative that will identify any issues affecting sample integrity and/or analytical reliability. In addition, the monitoring report will include a discussion of the field QC sample results and any potential positive or negative bias indicated by the QC data.

3.5 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file by the Site Owner or its designated representative. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in Section 5.3 of this SMP.

All monitoring results will be summarized in spreadsheet format and compared to appropriate standards criteria and guidance (e.g. Groundwater Quality Standards and Guidance Values). These data summary tables will be transmitted to NYSDEC subsequent to each sampling event. In addition, a comprehensive report of the monitoring events will be prepared and provided to the NYSDEC on an annual basis in the Periodic Review Report. These reports will include, at a minimum:

- Date of event(s).
- Personnel conducting sampling.
- Description of the activities performed.
- Type of samples collected (i.e., groundwater).
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.).
- Sampling results in comparison to appropriate standards/criteria.
- A figure illustrating sample type and sampling locations.
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format).

- A discussion of data quality as evidenced from site-specific QC data and laboratory case narrative.
- Any observations, conclusions, or recommendations.
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 8 below.

Table 8: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater Sampling	Analytical Summary Table: Semi-annually – 60 days following sampling event (if required) Monitoring Report: Annually – with Periodic Review Report

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The site remedy does not presently rely on any mechanical systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

However, this SMP requires that a vapor barrier and passive sub-slab depressurization system be installed beneath any newly constructed buildings on the property and, therefore, a system-specific Operation and Maintenance Plan must be prepared and submitted to the NYSDEC for approval (in conjunction with the design of such systems).

5. INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and any NYSDEC-approved Operation and Maintenance Plan developed in accordance with this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

Groundwater monitoring events will be recorded on the form contained in Appendix D. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix F). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective.
- The Monitoring Plan is being implemented.
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional control identified for the site, I certify that all of the following statements are true:

- The institutional control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the environmental easement.
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, (name of certifying environmental professional), of (name of certifying company), am certifying as Owner or Owner's Designated Site Representative for the site.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year, beginning eighteen months after the Satisfactory Completion Letter is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site as described in Section 1.2.1. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment, and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual site inspections and severe condition inspections, if applicable.
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format.
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format.
- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD, or Decision Document.
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications.
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored.
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan.
  - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the site is located, and in electronic format to NYSDEC Central Office, Regional Office, and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work

necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

TABLES

BENCHMARK Environmental Engineering & Science, PLLC

TABLE 1

GROUNDWATER ELEVATION DATA SUMMARY

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Monitoring Well Designation	Top of Casing Elevation	Top of Riser Elevation[1] (Ref. Point)	Surface Elevation	Water Level (ft below TOR)[2,3]	Groundwater Surface Elevation (ft)
PZ-1	503.48	503.23	501.15	4.05	499.18
MW - 1	503.76	503.50	501.83	4.42	499.08
MW - 2R	501.21	500.94	498.73	4.15	496.79
MW- 3R	500.37	500.24	498.16	3.79	496.45
MW - 4	500.41	500.30	497.89	4.07	496.23
MW - 5	504.36	504.03	501.95	5.11	498.92
MW - 6	504.51	504.30	502.34	4.62	499.68
MW-7A	501.81	501.60	498.53	3.29	498.31

Notes:

1. Top of riser (TOR) elevation based on an assumed datum of 500.00 ft below mean sea level (fmsl).
2. Water levels measured and recorded on May 3, 2006.
3. MW-7A; water level measured and well surveyed on March 9, 2009.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2a

SOIL ANALTICAL DATA SUMMARY - 2006 RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

PARAMETER[1]	Sample Location									
	SS - 1	SS - 2	TP - 2 (0.0 - 3.0)	TP - 3 (0.0 - 3.0)	TP - 3 (0.0 - 3.0) Blind Duplicate	TP - 5 (0.0 - 3.0)	TP - 6 (0.0 - 2.5)	TP- 7 (0.0 - 2.5)	SCO RESTRICTED-INDUSTRIAL (ppm)[2]	SCO RESTRICTED-COMMERCIAL (ppm)[2]
TCL VOCs (mg/kg)										
Acetone	ND	ND	ND	ND	ND	0.084	0.005 J	ND	**1000**	**500**
Ethylbenzene	ND	ND	0.42 J	ND	ND	ND	ND	ND	**780**	**390**
TOTAL Xylenes	ND	ND	8.8	ND	ND	0.004 J	ND	ND	**1000**	**500**
Carbon Disufide	ND	ND	ND	ND	ND	0.003 J	ND	ND	**--**	**--**
Chlorofrom	ND	ND	ND	ND	ND	0.002 J	ND	ND	**700**	**350**
2 - Butanone	ND	ND	ND	ND	ND	0.009 J	ND	ND	**1000**	**500**
Methylcyclohexane	ND	ND	ND	ND	ND	0.005 J	0.004 J	ND	**--**	**--**
Isopropylbenzene	ND	ND	ND	ND	ND	0.004 J	0.003 J	ND	**--**	**--**
TCL SVOCs (mg/kg)										
2,4 - Dimethylphenol	ND	ND	0.045 J	ND	ND	ND	ND	ND	**--**	**--**
Naphthalene	0.062 J	0.03 J	0.018 J	ND	ND	1.1	0.067 J	0.083 J	**1000**	**500**
2 - Methylnaphthalene	ND	0.028 J	0.02 J	ND	ND	0.033 J	0.028 J	0.045 J	**--**	**--**
Dimethyl Phthalate	0.16 J	ND	ND	ND	ND	ND	ND	ND	**--**	**--**
Acenaphthylene	ND	0.015 J	0.054 J	ND	ND	ND	0.042 J	0.033 J	**1000**	**500**
Acenaphthene	0.16 J	0.032 J	0.013 J	ND	0.012 J	0.025 J	0.11 J	0.11 J	**1000**	**500**
Dibenzofuran	0.064 J	0.021 J	0.017 J	ND	ND	0.025 J	0.06 J	0.11 J	**--**	**350**
Fluorene	0.12 J	0.031 J	0.02 J	0.014 J	0.014 J	0.22 J	0.11 J	0.18 J	**1000**	**500**
Phenanthrene	1.9 J	0.43	0.17 J	0.17 J	0.15 J	0.21 J	1.2	1.5	**1000**	**500**
Anthracene	0.31 J	0.09 J	0.049 J	0.046 J	0.036 J	0.021 J	0.26 J	0.28 J	**1000**	**500**
Carbazole	0.24 J	0.049 J	0.02 J	0.015 J	0.012 J	0.13 J	0.16 J	0.24 J	**--**	**--**
Di - n - butyl phthalate	0.38 J	0.14 J	ND	0.031 J	0.1 J	ND	0.074 J	0.21 J	**--**	**--**
Fluoranthene	3.4	0.65	0.32 J	0.41 J	0.27 J	0.37 J	2.5	1.8	**1000**	**500**
Pyrene	2.9	0.55	0.27 J	0.3 J	0.2 J	0.43 J	2.1	1.1	**1000**	**500**
Butyl benzyl phthalate	0.22 J	ND	ND	0.011 J	0.016 J	ND	ND	ND	**--**	**--**
Benzo (a) anthracene	1.5 J	0.33 J	0.17 J	0.19 J	0.13 J	0.24 J	1.1	0.74	**11**	**5.6**
Chrysene	1.6 J	0.36 J	0.22 J	0.19 J	0.13 J	0.42 J	1.3	0.66	**110**	**56**
Bis(2 - ethylhexyl) phthalate	140	ND	ND	ND	ND	4	560	ND	**--**	**--**
Di - n - octyl phthalate	ND	ND	ND	ND	0.016 J	ND	ND	ND	**--**	**--**
Benzo (b) fluoranthene	2.9 J	0.64 J	0.48 J	0.36 J	0.32 J	1.1 J	3.4 J	1.2 J	**11**	**5.6**
Benzo (k) fluoranthene	0.64 J	0.15 J	0.12 J	0.076 J	0.3 J	1 J	0.93 J	0.32 J	**110**	**56**
Benzo (a) pyrene	**1.6 J**	0.34 J	0.23 J	0.19 J	0.13 J	0.21 J	**1.5**	**0.63**	**1.1**	**1**
TCL SVOCs (mg/kg)										
Indeno (1,2,3 - cd) pyrene	0.94 J	0.17 J	0.16 J	0.088 J	0.073 J	0.22 J	1.2	0.28 J	**11**	**5.6**
Dibenzo (a,h) anthracene	0.23 J	0.052 J	0.055 J	0.026 J	0.023 J	0.065 J	0.28 J	0.082 J	**1.1**	**0.56**
Benzo (g,h,i) perylene	0.79 J	0.16 J	0.18 J	0.071 J	0.048 J	0.19 J	0.94	0.21 J	**1000**	**500**
TAL Metals (mg/kg)										
Aluminum	6590	8260	13600	10700	8830	8050	15100	10100		**--**
Antimony	2.9 BN*J	2.9 BN*J	ND N*J	ND N*J	ND N*J	ND N*J	ND N*J	ND N*J		**--**
Arsenic	5.8 N*J	11 N*J	9.5 N*J	9.7 N*J	5.8 N*J	3.3 N*J	7.7 N*J	13 N*J	**16**	**16**
Barium	299	93.8	76.6	62.6	43.7	111	50.1	134	**10000**	**400**
Beryllium	0.88 E*J	0.7 E*J	1.5 E*	0.53 BE*	0.35 BE*	0.36 BE*	0.5 BE*	0.75 BE*	**2700**	**590**
Cadmium	3 EJ	0.59 BEJ	0.35 BE	0.84 BE	0.14 BE	ND	0.23 BE	2.8 E	**60**	**9.3**
Calcium	54200 E*J	38000 E*J	80300 E*	6350 E*	6690 E*	37400 E*	5150 E*	35800 E*		**--**
Chromium	41 NE*J	17.9 NE*J	24.1 NE*J	13.5 NE*J	9.2 NE*J	295 NE*J	12.8 NE*J	101 NE*J	**6800**	**1500**
Cobalt	4.4 BEJ	6.2 BEJ	6.9 BEJ	2.9 BEJ	3.4 BEJ	3.4 BEJ	4.9 BEJ	4.7 BEJ		**--**
Copper	55 N*J	31.5 N*J	38.3 N*J	13.3 N*J	12.4 N*J	33.4 N*J	10.1 N*J	44.9 N*J	**10,000**	**270**
Iron	17300 E*J	18400 E*J	29700 E*	23300 E*	15700 E*	90600 E*	21700 E*	43700 E*		**--**
Lead	505 E*J	**2660 E*J**	60 E*	74.1 E*	64.8 E*	108 E*	48.2 E*	224 E*	**3900**	**1000**
Magnesium	15000 *	4240 *	11800 *	1400 *	2440 *	8940 *	1630 *	4590 *		**--**
Manganese	1160 E*J	576 E*J	1430 E*J	296 E*J	157 E*J	**12400 E*J**	322 E*J	2570 E*J	**10000**	**10000**
Mercury	0.154 *	0.123 N*J	0.17 N*J	0.042 BN*J	0.151 N*J	0.036 BN*J	0.029 BN*J	0.021 BN*J	**5.7**	**2.8**
Nickel	18.2 EJ	16.4 EJ	23.2 E	8.3 E	9.6 E	10.4 E	10.4 E	19.1 E	**10000**	**310**

TABLE 2a

SOIL ANALTICAL DATA SUMMARY - 2006 RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

PARAMETER[1]	Sample Location									
	SS - 1	SS - 2	TP - 2 (0.0 - 3.0)	TP - 3 (0.0 - 3.0)	TP - 3 (0.0 - 3.0) Blind Duplicate	TP - 5 (0.0 - 3.0)	TP - 6 (0.0 - 2.5)	TP- 7 (0.0 - 2.5)	SCO RESTRICTED-INDUSTRIAL (ppm)[2]	SCO RESTRICTED-COMMERCIAL (ppm)[2]
TAL Metals (mg/kg)										
Potassium	748	996	1040	414 B	576 B	508 B	486 B	483 B		--
Selenium	1.8 B	1.7 B	2.4 B	2.5 B	1.8 B	6.8	2.4 B	4.5 B	**6800**	**1500**
Silver	0.24 B	0.14 B	0.17 B	0.19 B	0.07 B	0.33 B	0.17 B	0.37 B	**6800**	**1500**
Sodium	286 B	129 B	264 B	141 B	81.8 B	227 B	147 B	165 B		--
Thallium	0.62 B	0.62 B	1.3 B	ND	ND	2.5	ND	1.5 B		--
Vanadium	15.5 NE*J	17.7 NE*J	25.4 NE*J	26.1 NE*J	19.5 NE*J	162 NE*J	29 NE*J	53.2 NE*J		--
Zinc	2280 NE*J	359 NE*J	217 NE*J	161 NE*J	136 NE*J	120 NE*J	108 NE*J	485 NE*J	**10000**	**10000**
Wet Chemistry Analysis (units as indicated)										
Leachable pH (S.U.)	7.6 J	7.7 J	7.8 J	7.7 J	7.7 J	8.4 J	6.6 J	7.7 J	--	
Total Organic Carbon (mg/kg)	NA	NA	20000	NA	NA	7800	NA	NA	--	
Pesticides (mg/kg)										
alpha - BHC	ND	0.01 J	ND	ND	ND	ND	ND	ND	**6.8**	**3.4**
Heptachlor	0.014 J	ND	ND	ND	ND	ND	ND	ND	**29**	**15**
Heptachlor epoxide	ND	ND	0.0055 JP	ND	ND	ND	ND	ND	**--**	**--**
4,4' - DDE	0.13 J	0.085 PJ	ND	ND	ND	ND	ND	ND	**120**	**62**
Endrin	0.03 JPN	0.018 JPN	ND	ND	ND	ND	ND	ND	**410**	**89**
Endosulfan Sulfate	ND	ND	0.0054 J	ND	ND	ND	ND	ND	**920**	**200**
4,4' - DDT	ND	0.22 P	ND	ND	ND	ND	ND	ND	**94**	**47**
Methoxychlor	ND	ND	ND	0.022 JP	ND	ND	ND	ND	--	**--**
Total Pesticides (mg/kg)	***0.174 JP***	***0.333 JP***	***0.0109 JP***	***0.022 JP***	***0***	***0***	***0***	***0***		
PCB Aroclor (mg/kg)										
Aroclor 1254	**3.1 P**	**1.4**	0.16 JP	0.61 P	ND	ND	ND	ND	**25**	**1**
Aroclor 1260	**3.8**	**1.4 P**	ND	ND	ND	ND	ND	ND	**25**	**1**

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted Use Soil Cleanup Objectives for Protection of Human Health

Definitions:

ND = Parameter not detected above laboratory detection limit.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
b = Analyte was detected in the associated blank as well as in the sample. Value is above the action level for consideration as being external contamination.
B = Value is between the IDL and the CRDL.
* = Indicates analysis is not within quality control limits.
D = All compounds were identified in an analyisis at the secondary dilution factor.
N = Spike sample recovery is not within quality control limits.
E = Indicates value estimated or not reported due to the presence of interferences.
P = Detected concentrations between the two GC columns is greater than 25%; lower value is reported and flagged (for CLP methodology only).

BOLD	= Analytical result exceeds restricted-commercial SCO.
BOLD	= Analytical result exceeds both restricted-commercial and restricted-industrial SCOs.

TABLE 2b

SOIL ANALYTICAL DATA SUMMARY - 2007 SUPPLEMENTAL RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

PARAMETER[1]	Sample Location												SCO RESTRICTED-INDUSTRIAL (ppm)[2]	SCO RESTRICTED-COMMERCIAL (ppm)[2]
	SB-1 (0.5-1.0)	SB-1 (1.0-1.5)	SB-2 (0.5-1.0)	SB-2 (1.0-1.5)	SB-3 (0.5-1.0)	SB-3 (1.0-1.5)	SB-4 (0.5-1.0)	SB-4 (1.0-1.5)	SB-5 (0.5-1.0)	SB-5 (1.0-1.5)	SB-6 (0.5-1.0)	SB-6 (1.0-1.5)		
Total Metals (mg/kg)														
Lead	65.2 E*J	16.1 E*J	844 E*J	476 E*J	**50300 E*J**	294 E*J	227 E*J	171 E*J	**3420 E*J**	**1430 E*J**	293 E*J	20.1 E*J	**3900**	**1000**
PCBs (mg/kg)														
Aroclor 1254	0.36	ND	ND	ND	ND	ND	ND	ND	0.27 J	0.062	0.59	ND	**25**	**1**
Aroclor 1260	0.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**25**	**1**

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted Use Soil Cleanup Objectives for Protection of Human Health

Definitions:

ND = Parameter not detected above laboratory detection limit.
* = Indicates analysis is not within quality control limits.
E = Indicates value estimated or not reported due to the presence of interferences.

BOLD	= Analytical result exceeds restricted-commercial SCO.
BOLD	= Analytical result exceeds restricted-commercial and restricted industrial SCOs.

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TABLE 3a

GROUNDWATER ANALYTICAL DATA SUMMARY -2006 RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter [1]	Sample Location								GWQS/GV [5]
	MW-1	MW-2R [2]	MW-3R [4]	MW-4	MW-5 [3]	Blind Dup, MW-5	MW-6	PZ-1	
TCL VOCs (ug/L)									
Acetone	ND	2 J	ND	2 J	6 J	7 J	8 J	ND	**50 ***
cis-1,2-Dichloroethylene	ND	**6 J**	ND	ND	ND	ND	ND	ND	**5**
Benzene	ND	ND	ND	ND	ND	ND	ND	**3 J**	**1**
2-Butanone (MEK)	ND	ND	ND	1 J	ND	ND	ND	ND	**50 ***
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	**50**	**5**
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	ND	2 J	**5**
Xylenes, total	ND	ND	ND	ND	ND	ND	ND	**120**	**5**
TCL SVOCs - acid extractables (ug/L)									
4-Methylphenol	ND	ND	ND	ND	ND	ND	1 J	--	**1***
Phenol	ND	ND	ND	ND	ND	ND	**2 J**	--	**1***
Pesticides (ug/L)									
beta-BHC	ND	0.034 JPNJ	ND	ND	0.098 PJ	0.1 PNJ	0.08 PJ	--	
Heptachlor	ND	0.013 JPNJ	ND	ND	0.033 JP	0.032 J	0.019 J	--	**0.04**
Aldrin	ND	ND	ND	ND	ND	ND	ND	--	**ND**
Heptachlor epoxide	ND	ND	ND	ND	0.13 P ND	0.12 P ND	ND	--	**0.03**
Endosulfan I	ND	ND	ND	ND	0.039 JP	0.04 J	ND	--	
Dieldrin	ND	ND	ND	ND	**0.061 JPNJ**	ND	ND	--	**0.004**
4,4'-DDE	ND	ND	ND	ND	0.1 JPNJ	0.11 PNJ	ND	--	**0.3**
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	--	
4,4'-DDT	ND	0.024 JPNJ	0.022 J	ND	ND	0.059 J	0.027 JP	--	**0.2**
Methoxychlor	ND	ND	ND	ND	0.11 J	0.13 J	0.05 J	--	**35**
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	--	**5**
alpha-Chlordane	ND	ND	ND	ND	ND	ND	0.019 J	--	**0.05**
gamma-Chlordane	ND	ND	ND	ND	0.02 JPNJ	0.023 JPNJ	ND	--	**0.05**
Total and Soluble Metals [4,6] (ug/L)									
Aluminum, Total	51.6 B*	**696 ***	**4100 ***	**127 B***	**101 B***	**113 B***	**213***	--	**100**
Aluminum, Soluble	--	--	16.2 B	--	--	--	--	--	**100**
Arsenic, Total	ND	ND	3.3 B	ND	ND	ND	ND	--	**25**
Barium, Total	32.2 B	40.1 B	68.8 B	74 B	52.6 B	52.1 B	27.8 B	--	**1000**
Barium, Soluble	--	--	43.9 B	--	--	--	--	--	**1000**
Beryllium, Total	0.43 B	0.62 B	0.77 B	0.59 B	0.38 B	0.46 B	0.36 B	--	**3**
Beryllium, Soluble	--	--	0.28 B	--	--	--	--	--	**3**
Cadmium, Total	ND	ND	ND	0.88 B	ND	ND	ND	--	**5**
Calcium, Total	120000	377000	185000	229000	142000	141000	91100	--	
Calcium, Soluble	--	--	171000	--	--	--	--	--	
Chromium, Total	0.55 B	0.65 B	6.5 B	ND	ND	ND	ND	--	**50**
Cobalt, Total	2.7 B	5.9 B	3.8 B	0.92 B	7.9 B	7.7 B	1.4 B	--	
Copper, Total	1.4 B	ND	9.3 B	5.9 B	4 B	3.5 B	ND	--	**200**
Copper, Soluble	--	--	1.2 B	--	--	--	--	--	**200**
Iron, Total	**4490**	**1630**	**12200**	**14700**	**1760**	**1560**	198	--	**300**
Iron, Soluble	--	**432**	**1270**	--	291	--	ND	--	**300**
Lead, Total	ND	ND	**29**	13.4	ND	ND	ND	--	**25**
Magnesium, Total	**45100**	**49200**	**38500**	**121000**	**54500**	**54100**	12200	--	**35000**
Magnesium, Soluble	--	--	33900	--	--	--	--	--	**35000**
Manganese, Total	133	**5090**	200	**726**	**10700**	**10700**	135	--	**300**
Manganese, Soluble	--	**5120**	84.8	--	**9750**	--	131	--	**300**

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TABLE 3a

GROUNDWATER ANALYTICAL DATA SUMMARY -2006 RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter [1]	Sample Location															GWQS/GV [5]
	MW-1		MW-2R [2]		MW-3R [4]		MW-4		MW-5 [3]		Blind Dup, MW-5		MW-6		PZ-1	
Total and Soluble Metals [4,6] (ug/L)																
Nickel, Total	9.9 B		9.3 B		9 B		2.6 B		5.7 B		6.5 B		2.8 B		--	**100**
Nickle, Soluble	--		--		3.5 B		--		--		--		--		--	**100**
Potassium, Total	740 B		1840 B		1960 B		1620 B		4420 B		4470 B		2360 B		--	
Potassium, Soluble	--		--		756 BE		--		--		--		--		--	
Selenium, Total	ND		ND		ND		ND		7.7 B		ND		ND		--	**10**
Sodium, Total	12800		**66300**		17100		**48000**		**45500**		**45100**		5460		--	**20000**
Sodium, Soluble	--		--		17000 E		--		--		--		--		--	**20000**
Vanadium, Total	ND		1.3 B		6.9 B		ND		ND		0.63 B		ND		--	
Zinc, Total	**3390**		63.7		834		**14500**		12.1 B		10.5 B		7.1 B		--	**2000**
Zinc, Soluble	--		--		11.1 B		--		--		--		--		--	**2000**
Wet Chemistry [7] (units as indicated)																
Chemical Oxygen Demand (mg/L)	--		ND		21.3		--		80.8		--		18.2		--	
Sulfate (mg/L)	--		998		163		--		174		--		66.4		--	
Field Measurements [8] (units as indicated)																
pH (S.U.)	6.89	6.91	6.75	6.65	6.93	6.85	6.92	6.95	6.79	6.98	6.79	6.98	6.74	6.86	6.74	6.89	**6.5 - 8.5**
Temperature (°C)	11.2	18.6	11.8	12.7	9.3	14.5	9.2	12.3	10.0	18.4	10.0	18.4	11.1	14.6	7.3	6.2	
Specific Conductance (uS)	819.1	909.1	1824	1902	991.5	987.8	1759	1732	1020	985.3	1020	985.3	414.2	706.9	705.9	704.7	
Turbidity (NTU)	18.8	17.3	38.7	38.5	**120**	**387**	40.9	23.9	32.4	13.5	32.4	13.5	8.91	**501**	**330**	**>1000**	**50****
ORP (mV)	-103	-108	127	90	-55	-55	-89	-114	36	80	36	80	68	-97	-112	-111	

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. MS/MSD collected at monitoring well MW-2R.
3. Blind Duplicate collected at monitoring well MW-5.
4. Due to turbidity greater than 50 NTU, a filtered sample was submitted for soluble metal analysis at MW-3R.
5. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV), 6 NYCRR Part 703.
6. Groundwater collected from well MW-2R, MW-5, and MW-6 were analyzed for soluble iron and manganese, in addition to TAL Metals.
7. Samples were also collected from MW-2R, MW-3R, MW-5, and MW-6 for BOD_5 and nitrate; however, results were reported as ND. Similarly, samples were collected from MW-3R, MW-5 and MW-6 for TPH; results were reported as ND.
8. Field measurements collected at time of groundwater sampling. Field measurements stabilized during well purging, as presented on Well Purge & Sample Collection Logs.

Definitions:

J = Estimated value; result is less than the sample quantitation limit but greater than zero.
B = Analyte was detected in the associated blank as well as in the sample.
P = Detected concentrations between the two GC columns is greater than 25%; lower value is reported and flagged (for CLP methodology only).
ND = parameter not detected above laboratory detection limit.
NJ = parameter has been 'tentatively identified' with its approximate concentration.
" -- " = not analyzed for this parameter
" * " = Groundwater Quality Guidance Value
" ** " = field threshold value; when exceeded, field filtered metals sample is collected (i.e., dissolved metals).

BOLD = Analytical result exceeds individual GWQS/GV.

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TABLE 3b

GROUNDWATER ANALYTICAL DATA SUMMARY - 2008/2009 SUPPLEMENTAL RI

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter [1]	Sample Location					GWQS/GV [2]
	TMW-1	TMW-2	TMW-3	TMW-4	MW-7a	
TCL VOCs (ug/L)						
Acetone	4 J	9 J	**140 DJ**	2 J	1 J	**50**
Benzene	**6 J**	**11**	**1.6 J**	ND	0.69 J	**1**
2-Butanone (MEK)	ND	8 J	4.9 J	ND	ND	**50**
Carbon disulfide	0.6 J	ND	ND	ND	ND	**60**
1,1-Dichloroethane	ND	0.3 J	ND	ND	ND	**5**
1,1-Dichloroethene	ND	**6 J**	ND	ND	1.5 J	**5**
cis-1,2-Dichloroethene	ND	**1600 D**	ND	**120**	**240**	**5**
trans-1,2-Dichloroethene	ND	**300 D**	ND	1.4 J	3.7 J	**5**
Ethylbenzene	ND	**440 D**	**670 DJ**	1.9 J	ND	**5**
2-Hexanone	ND	0.9 J	ND	ND	ND	**50**
Isopropylbenzene (Cumene)	ND	**10**	**160 DJ**	ND	ND	**5**
Methylcyclohexane	1 J	ND	21 DJ	ND	ND	**--**
Methylene chloride	ND	ND	ND	ND	0.87	**5**
4-methyl-2-pentanone (MIBK)	0.6 J	850 D	31 DJ	ND	ND	**--**
Tetrachloroethene	ND	**42**	ND	ND	0.25 J	**5**
Toluene	0.8 J	**38**	3 J	ND	ND	**5**
Trichloroethene	ND	**870 D**	ND	**46**	**130**	**5**
Vinyl chloride	ND	**510 D**	ND	**14**	**20**	**2**
Total Xylene	ND	**180**	**3300 DJ**	**9.6 J**	ND	**5**
Field Measurements [8] (units as indicated)						
pH (S.U.)	--	--	--	--	7.1	6.5 - 8.5
Temperature (°C)	--	--	--	--	6.3	NA
Specific Conductance (uS)	--	--	--	--	901	NA
Turbidity (NTU)	--	--	--	--	91.9	NA
ORP (mV)	--	--	--	--	84	NA

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. NYSDEC Division of Water Ambient Water Quality Standards & Guidence Values and Effluent Limitations (TOGS1.1.1).

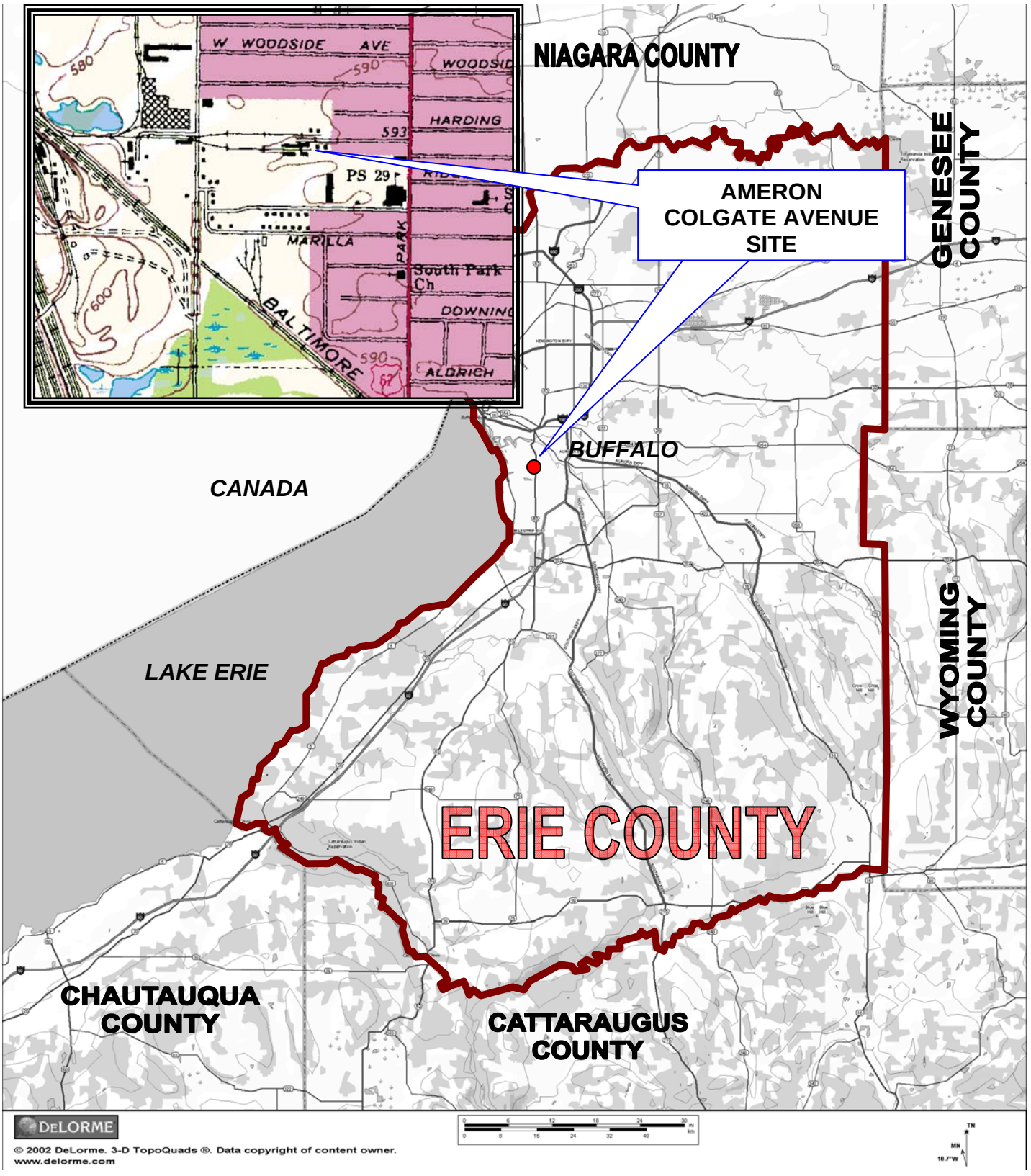
Definitions:

J = Estimated value; result is less than the sample quantitation limit but greater than zero.
D = Dilution required due to high concentration of analyte.
ND = parameter not detected above laboratory detection limit.
" -- " = not analyzed for this parameter

BOLD = Analytical result exceeds individual GWQS/GV.

FIGURES

FIGURE 1



F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 1; site location and vicinity map.dwg

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2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

PROJECT NO.: 0100-001-200

DATE: JUNE 2009

DRAFTED BY: AJZ

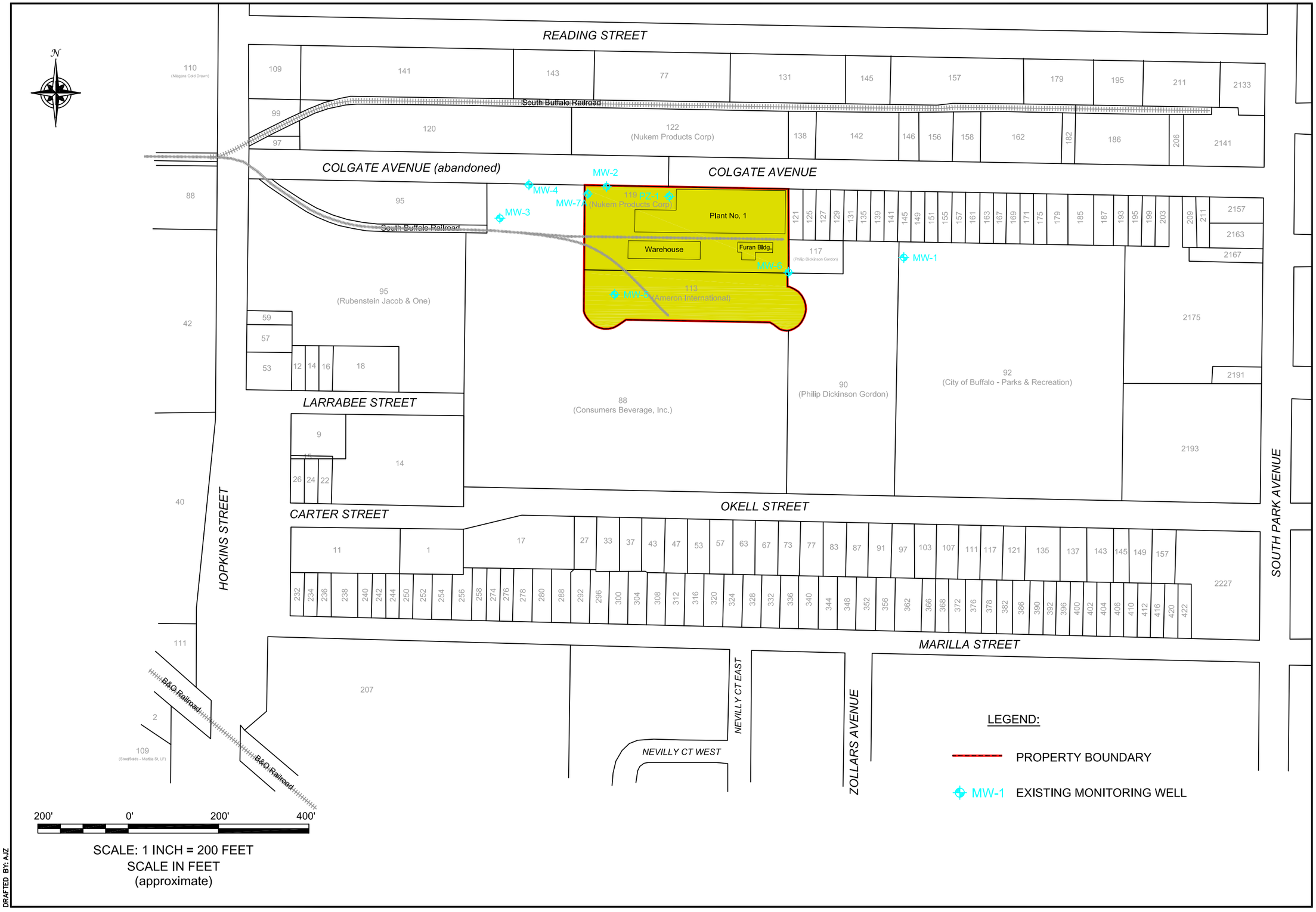
SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 2- Site Plan.dwg, 6/22/2009 2:34:10 PM, Adobe PDF



DATE: JUNE 2009
DRAFTED BY: AJZ

2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

JOB NO.: 0100-001-200

SITE PLAN

SITE MANAGEMENT PLAN
COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE 2

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 7; Groundwater Monitoring Well Network.dwg, 6/22/2009 2:37:42 PM, Adobe PDF

LEGEND:

- PROPERTY BOUNDARY
- MW-4 EXISTING MONITORING WELL
- MW-2R REPLACEMENT MONITORING WELL (2)
- MW-5 RI MONITORING WELL (2)
- PZ-1 RI PIEZOMETER (1)
- 499 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

South Buffalo Railroad (abandoned)

122
(Nukem Products Corp)

138

142

146

COLGATE AVENUE (abandoned)

COLGATE AVENUE

MW-4
496.3

MW-2R
496.8

PZ-1
498.3

Plant No. 1

121 125 127 129 131 135 139 141 145

MW-3R
495.9

496

South Buffalo Railroad
(abandoned)

Warehouse

Furan Bldg.

117
(Philip Dickinson Gordon)

MW-1
499.3

MW-6
498.6

497

MW-5
498.7

Former AST Cradle

498

88
(Consumers Beverage, Inc.)

90
(Philip Dickinson Gordon)

499

N

70' 0' 70' 140'

SCALE: 1 INCH = 70 FEET
SCALE IN FEET
(approximate)

DATE: JUNE 2009
DRAFTED BY: AJZ

2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK
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ENGINEERING &
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JOB NO.: 0100-001-200

GROUNDWATER ISOPOTENTIAL MAP

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE 3

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 4; RI and Supp RI Sample Locations.dwg, 2/11/2011 3:18:00 PM, Adobe PDF

LEGEND:

- PROPERTY BOUNDARY
- MW-4 EXISTING MONITORING WELL
- MW-2R REPLACEMENT MONITORING WELL
- MW-5 RI MONITORING WELL
- PZ-1 RI PIEZOMETER
- B-3 TEMPORARY BORING
- TMW-3 TEMPORARY WELL
- MW-7A SUPPLEMENTAL MONITORING WELL
- 499 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- TP-1 RI TEST PIT LOCATION
- SS-1 RI SURFACE SOIL SAMPLE
- SB-4 SUPPLEMENTAL INVESTIGATION SOIL BORING

South Buffalo Railroad (abandoned)

122 (Nukem Products Corp)

138

142

146

COLGATE AVENUE (abandoned)

COLGATE AVENUE

MW-4 496.3

MW-2R 496.8

MW-7A

B-4

TMW-4

B-1

TMW-1

PZ-1 498.3

B-9

B-2

TMW-2

B-5

B-6

B-3

TMW-3

B-7

Plant No. 1

Conc. Pad

B-8

MW-3R 495.9

SB-6

SB-5

SB-4

SB-3

SS-1

SS-2

Furan Bldg.

Warehouse

SB-1

SB-2

TP-4

TP-5

TP-6

TP-7

MW-6 498.6

TP-1

TP-2

TP-3

MW-5 498.7

Former AST Cradle

MW-1 499.3

121

125

127

129

131

135

139

141

145

117 (Philip Dickinson Gordon)

88 (Consumers Beverage, Inc.)

90 (Philip Dickinson Gordon)

496

497

498

499

N

70' 0' 70' 140'

SCALE: 1 INCH = 70 FEET
SCALE IN FEET
(approximate)

DATE: FEBRUARY 2009
DRAFTED BY: THF/JCT/NTM

2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK Environmental Engineering & Science, PLLC

JOB NO.: 0100-001-200

RI AND SUPPLEMENTAL RI SAMPLE LOCATIONS

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE

BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE 4

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 5, Summary of Remedial Measures.dwg, 2/11/2011 3:17:14 PM, Adobe PDF

LEGEND:

- PROPERTY BOUNDARY
- MW-4 EXISTING MONITORING WELL
- MW-2R REPLACEMENT MONITORING WELL
- MW-5 RI MONITORING WELL
- PZ-1 RI PIEZOMETER
- B-3 TEMPORARY BORING
- TMW-2 TEMPORARY WELL
- MW-7A SUPPLEMENTAL MONITORING WELL
- TP-1 RI TEST PIT LOCATION
- SB-4 SUPPLEMENTAL INVESTIGATION SOIL BORING
- SS-1 RI SURFACE SOIL SAMPLE
- HRC DIRECT-PUSH INJECTION POINT
- ORC DIRECT-PUSH INJECTION POINT
- DEMOLISHED STRUCTURES
- 15' X 15' EXCAVATION AREA

143 77 131 145 157

South Buffalo Railroad (abandoned)

122
(Nukem Products Corp)

138 142 146

COLGATE AVENUE (abandoned)

COLGATE AVENUE

MW-2R
496.8

MW-4
496.3

MW-7A
B-4
TMW-4

B-1
TMW-1

PZ-1
498.3

B-9

B-2
TMW-2

B-5

B-6

TMW-3

B-7

B-8

Plant No. 1

2-STORY
BUILDING

121 125 127 129 131 135 139 141 145

MW-3R
495.9

SB-6 SB-5 SB-4 SB-3

SS-1 SS-2

Warehouse

Furan Bldg.

SB-1

SB-2

South Buffalo Railroad
(abandoned)

TP-4 TP-5 TP-6 TP-7

MW-6
498.6

TP-1 TP-2 TP-3

MW-5
498.7

Former AST Cradle

117
(Phillip Dickinson Gordon)

MW-1
499.8

88
(Consumers Beverage, Inc.)

90
(Phillip Dickinson Gordon)

70' 0' 70' 140'

SCALE: 1 INCH = 70 FEET
SCALE IN FEET
(approximate)

N

DATE: JUNE 2009
DRAFTED BY: AJZ

2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK Environmental Engineering & Science, PLLC

JOB NO.: 0100-001-200

SUMMARY OF REMEDIAL MEASURES

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE

BUFFALO, NEW YORK

PREPARED FOR
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FIGURE 5

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

PROJECT NO.: 0100-001-200

DATE: JUNE 2009

DRAFTED BY: AJZ

HOSPITAL ROUTE MAP

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

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FIGURE 6

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\figure 6; hospital route map RA WORK PLAN.dwg

F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\Figure 7 Groundwater Monitoring Well Network.dwg, 2/11/2011 3:16:39 PM, Adobe PDF

LEGEND:

- PROPERTY BOUNDARY
- MW-4 LONG-TERM GROUNDWATER MONITORING WELL
- MW-2R WATER LEVEL ONLY

South Buffalo Railroad (abandoned)

122
(Nukem Products Corp)

138

142

146

COLGATE AVENUE (abandoned)

COLGATE AVENUE

MW-4

MW-2R

MW-7A

PZ-1

2-STORY BUILDING

MW-3R

121

125

127

129

131

135

139

141

145

South Buffalo Railroad
(abandoned)

117
(Philip Dickinson Gordon)

MW-1

MW-6

MW-5

88
(Consumers Beverage, Inc.)

90
(Philip Dickinson Gordon)

N

70' 0' 70' 140'

SCALE: 1 INCH = 70 FEET
SCALE IN FEET
(approximate)

DATE: MAY 2007
DRAFTED BY: BCH

2558 HAMBURG TURNPIKE
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LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK Environmental Engineering & Science, PLLC

JOB NO.: 0100-001-200

GROUNDWATER MONITORING WELL NETWORK

SITE MANAGEMENT PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE 7

APPENDIX A

EXCAVATION WORK PLAN

APPENDIX A – EXCAVATION WORK PLAN

A-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Mr. Martin Doster, P.E.
Regional Hazardous Waste Remediation Engineer
NYSDEC – Region 9
270 Michigan Ave.
Buffalo, NY 14203-2999

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control.
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling.
- A schedule for the work, detailing the start and completion of all intrusive work.
- A summary of the applicable components of this EWP.
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120.
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix B of this document.
- Identification of disposal facilities for potential waste streams.
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil

APPENDIX A – EXCAVATION WORK PLAN

screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

Unless otherwise approved by the NYSDEC, a truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

APPENDIX A – EXCAVATION WORK PLAN

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

The truck transport route is as follows:

<u>To Chaffee Landfill, 10860 Olean Rd., Chaffee, NY</u>

- From the Site, take 62 south (right)
- Turn left (east) onto Ridge Rd.
- Take Ramp right for I-90E (east).
- Merge onto I-90E (east).
- Take Exit 54 for SR-400 South/Aurora Expressway.
- Keep straight onto SR-16 South.
- Bear right onto SR-16/Olean Rd.
- End at 10860 Olean Rd., Chaffee, NY

All trucks loaded with site materials will exit the vicinity of the site using only this approved truck routes or an alternate NYSDEC-approved truck route which takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the

APPENDIX A – EXCAVATION WORK PLAN

facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport..

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during site redevelopment. Due to limited available space at the Site, some off-site queuing of trucks may be necessary. The number and duration of trucks lined up outside the Site entrance will be minimized through efficient scheduling and staging at a remote location.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

APPENDIX A – EXCAVATION WORK PLAN

A-7 MATERIALS REUSE ON-SITE

On-site reuse of material is acceptable provided that the material does not exhibit visual or olfactory evidence of contamination, and photoionization detector (PID) measurements of the atmosphere at the soil/fill interface do not exceed 5 parts per million (ppm) above background. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will not be reused within landscaping berms.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site unless pre-approved by the NYSDEC.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering , will be handled, transported and disposed off-site in accordance with applicable local, State, and Federal regulations. Monitoring well purge and development fluids will not be recharged back to the land surface or subsurface of the site unless permission is granted by the NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) will be performed under a SPDES permit.

A-9 COVER SYSTEM RESTORATION

The site remedy does not include a cover system. However, following soil excavation activities, the existing asphalt or grass cover will be restored or replaced with alternative structural or vegetative cover to mitigate erosion.

A-10 BACKFILL FROM OFF-SITE SOURCES

The criteria under which off-site material may be used as subgrade backfill are presented below.

APPENDIX A – EXCAVATION WORK PLAN

- **Off-Site Soil/Fill:** Off-site soil/fill may be used as subgrade backfill provided that it originates from known sources having no evidence of disposal or releases of hazardous substances; hazardous, toxic, or radioactive wastes; or petroleum, and is tested and meet the criteria shown on Table A-1. In addition, no off-site materials meeting the definition of a solid waste as defined in 6 NYCRR, Part 360-1.2 (a) shall be used as backfill. The criteria presented in Table A-1 represent the lesser of restricted-commercial SCOs or levels protective of groundwater quality as published in 6NYCRR Part 375-6.8.
- **Off-Site Aggregate Material:** Rock or stone, consisting of virgin material from a permitted mine or quarry may be imported without chemical testing.
- **Other Off-Site Material:** Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility may be imported, without chemical testing, as backfill beneath pavement, or building floors, or as general subgrade fill provided it is covered with 2 feet of offsite soil fill meeting the above criteria (as specified in Section 360-16.1 of 6 NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), "uncontaminated" means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

Off-site borrow soils shall be tested to assure conformance with the criteria identified on Table A-1. If an off-site soil/fill borrow source is of unknown origin or originates from a commercial, industrial, or urban site, then a tiered approach based on the volume of impacted soil/fill being excavated will be used to determine the frequency of characterization sampling. In such instances, a minimum of one sample will be collected for each 250 cubic yards (CY) up to 1,000 CY of material excavated. If more than 1,000 CY of soil/fill are excavated from the same general vicinity and all samples of the first 1,000 CY meet the criteria listed in Table A-1, the sample collection frequency may be reduced to one sample for each additional 1,000 CY of soil/fill from the same general vicinity, up to 5,000 CY. For borrow sources greater than 5,000 CY, sampling frequency may be reduced to one sample per 5,000 CY, provided all earlier samples met Table A-1 criteria.

APPENDIX A – EXCAVATION WORK PLAN

For off-site soil borrow sources originating from known, virgin sources, a similar sampling frequency as described above will be employed, but initial sampling will be at a frequency of one per 1,000 CY in lieu of one per 250 CY.

Grab samples will be collected for VOC analysis. For all other required analyses, a minimum of four grab samples will be collected to form a single composite sample. Approximately equal aliquots of the grab samples will be composited in the field using a stainless steel trowel and bowl. The trowel and bowl shall be decontaminated with a non-phosphate detergent (e.g., Alconox®) and potable water wash solution followed by a distilled water rinse between sampling locations. The soil/fill samples will be analyzed in accordance with USEPA SW-846 Methodology by a New York State Department of Health (NYSDOH) ELAP-certified laboratory.

Analytical results must be maintained on file for review in support of the periodic institutional and engineering control certification required per the Environmental Easement.

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

If construction activities disturb more than one acre of land, the Federal Water Pollution Control Act (as amended, 33 U.S.C. 1251 et. seq.) and the New York State Environmental Conservation Law (Article 17, Titles 7 and 8, and Article 70) would apply.

With some exceptions, operators of construction activities that will result in the disturbance of one or more acres of land must obtain coverage under SPDES General Permit (GP-02-01) prior to the commencement of soil disturbance. Also requiring a permit are construction activities disturbing less than 1 acre if they are part of a larger common plan of development or sale with a planned disturbance of equal to or greater

APPENDIX A – EXCAVATION WORK PLAN

than one acre, or activities that are designated by the NYSDEC. The NYSDEC can require a permit for construction activities disturbing less than one acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

To obtain coverage under the general permit, the operator of a construction activity must file a completed Notice of Intent (NOI) with the NYSDEC. Submitting a NOI is an affirmation that a Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the site and will be implemented prior to the commencement of construction activities. Coverage under the general permit will begin either 5 or 60 business days after receipt of a completed NOI by the NYSDEC. Appendix A-1, Figure 1 is a flowchart to be used in determining whether a SWPPP will be required during site redevelopment construction activities. The Notice of Intent application form and the text of the Construction Storm Water General Permit are provided in Appendix A-1.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

Erosion and sediment controls shall be installed in accordance with the standards and specifications presented in Appendix A-2.

APPENDIX A – EXCAVATION WORK PLAN

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 COMMUNITY AIR MONITORING PLAN

As detailed in Appendix B, the following criteria shall also be adhered to for the protection of the nearby community.

Organic Vapor Community Air Monitoring:

Community air monitoring will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e., proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector or other equipment will be suitable to the types of contaminants known or suspected to be present will be used, and will be capable of calculating 15-minute running average concentrations. All air monitoring equipment will be calibrated at least daily and an upwind concentration will be taken at least daily to establish background conditions. If an upwind reading is not obtained, it shall be assumed to be

APPENDIX A – EXCAVATION WORK PLAN

zero parts per million. The 15-minute average concentrations will be compared to the levels specified below.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the organic vapor decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less - but in no case less than 20 feet - is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone, work activities must be shut down and the following activities will be performed:

- All Emergency Response Contacts as listed in the HASP (Appendix B) and the Emergency Response Plan (Attachment B-1 to the HASP) will be advised.
- The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
- Air monitoring will be continued at 1/2 the distance from the exclusion zone to the nearest receptor.

All readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review.

Explosive Vapor Community Air Monitoring

Explosive vapor community air monitoring will be performed at the downwind perimeter of the site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind site perimeter, the local Fire Department will be contacted (see Section 2.5.1 of the SMP for phone number).

APPENDIX A – EXCAVATION WORK PLAN

Airborne Particulate Community Air Monitoring

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. If upwind conditions are expected to pose significant background levels of respirable particulates, continuous upwind monitoring should be performed. Otherwise, upwind respirable particulate levels must be zero micrograms per cubic meter. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.

If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 ug/m3 above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m3 of the upwind level and in preventing visible dust migration.

Figure A-1 shows sample locations of air sampling stations based on generally prevailing westerly wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind direction.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

APPENDIX A – EXCAVATION WORK PLAN

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. Specific odor control methods to be used on a routine basis are described below. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

Particulate monitoring will be performed along the downwind perimeter of the Site during subgrade excavation, grading, and handling activities in accordance with the NYSDOH Generic Community Monitoring Plan (see Appendix A-3) and Fugitive Dust and Particulate Monitoring (see Appendix A-4). Dust suppression techniques will be employed as necessary to mitigate fugitive dust from non-vegetated or disturbed soil/fill during post-remediation construction and redevelopment.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

APPENDIX A – EXCAVATION WORK PLAN

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.
- Covering or proof-rolling excavated areas and materials after excavation activity ceases.
- Reducing the excavation size and/or number of excavations.

All reasonable attempts will be made to keep visible and/or fugitive dust to a minimum.

A-16 OTHER NUISANCES

A plan will be developed and used by the contractor for all remedial work to ensure compliance with local noise control ordinances. At a minimum, this shall include limiting construction to typical daylight work hours.

TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE A-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter	Cover Soil Criteria[1]
Volatile Organic Compounds (mg/kg)	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichloroethene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	3.2
Methyl ethyl ketone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE A-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter	Cover Soil Criteria[1]
Volatile Organic Compounds (mg/kg)	
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xylene (mixed)	1.6
Semi-Volatile Organic Compounds (mg/kg)	
Acenaphthene	98
Acenaphthylene	107
Anthracene	500
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1.7
Benzo(g,h,i)perylene	500
Benzo(k)fluoranthene	1.7
Chrysene	1
Dibenz(a,h)anthracene	0.56
Fluoranthene	500
Fluorene	386
Indeno(1,2,3-cd)pyrene	5.6
m-Cresol(s)	0.33
Naphthalene	12
o-Cresol(s)	0.33
p-Cresol(s)	0.33
Pentachlorophenol	0.8
Phenanthrene	500
Phenol	0.33
Pyrene	500

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE A-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter	Cover Soil Criteria[1]
Metals (mg/kg)	
Arsenic	16
Barium	400
Beryllium	47
Cadmium	7.5
Chromium, Hexavalent[2]	19
Chromium, Trivalent[2]	1500
Copper	270
Cyanide	27
Lead	450
Manganese	2000
Mercury (total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2480
PCBs/Pesticides (mg/kg)	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	17
4,4'-DDT	47
4,4'-DDD	14
Aldrin	0.19
Alpha-BHC	0.002
Beta-BHC	0.009
Chlordane (alpha)	2.9
Delta-BHC	0.25
Dibenzofuran	210
Dieldrin	0.1
Endosulfan I	102

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE A-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Colgate Avenue Site
Ameron International Corporation

Parameter	Cover Soil Criteria[1]
PCBs/Pesticides (mg/kg)	
Endosulfan II	102
Endosulfan sulfate	200
Endrin	0.06
Heptachlor	0.38
Lindane	0.1
Polychlorinated biphenyls	1

Notes:

[1] Soil criteria are lesser of concentrations protective of groundwater or commercial health-based soil cleanup objectives per 6 NYCRR 375-6.8(b).

[2] The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

FIGURES

LEGEND:

- PROPERTY BOUNDARY
- MW-4 EXISTING MONITORING WELL
- MW-2R REPLACEMENT MONITORING WELL
- MW-5 RI MONITORING WELL
- PZ-1 RI PIEZOMETER
- AIR MONITORING LOCATION

South Buffalo Railroad (abandoned)

122
(Nukem Products Corp)

138

142

146

COLGATE AVENUE (abandoned)

COLGATE AVENUE

MW-4

MW-2R

PZ-1

MW-3R

2-STORY BUILDING

AIR MONITORING STATIONS TO BE ADJUSTED AS NECESSARY BASED ON WIND CONDITIONS

121

125

127

129

131

135

139

141

145

South Buffalo Railroad (abandoned)

117
(Philip Dickinson Gordon)

MW-1

MW-6

MW-5
498.7

88
(Consumers Beverage, Inc.)

90
(Philip Dickinson Gordon)

N

70' 0' 70' 140'

SCALE: 1 INCH = 70 FEET
SCALE IN FEET
(approximate)

DATE: JUNE 2009
DRAFTED BY: AJZ

2558 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NY 14218
(716) 856-0599

BENCHMARK Environmental Engineering & Science, PLLC

JOB NO.: 0100-001-200

AIR MONITORING STATIONS

EXCAVATION WORK PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE A-1

APPENDIX A-1

STORM WATER POLLUTION PREVENTION

4286041005

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-02-01

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required. To properly complete this form, please refer to the Instruction Manual which can be accessed at http://www.dec.ny.gov/docs/water_pdf/instr_man.pdf

-IMPORTANT-

THIS FORM FOR HANDPRINT ONLY

RETURN THIS FORM TO THE ADDRESS ABOVE

PRINT CAPITAL LETTERS IN BLACK INK AND AVOID CONTACT WITH THE EDGE OF BOXES
FILL IN CIRCLES COMPLETELY AND DO NOT USE CHECKMARKS
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State Zip -

Phone (Owner/Operator) - -

Fax (Owner/Operator) - -

Email (Owner/Operator)

Location Information

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip -

County DEC Region (if known)

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Direction to Nearest Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

Y Coordinates (Northing) 4

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in imperviousness**

○ **Redevelopment with no increase in imperviousness**

Project Site Information

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME — Number of Lots
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ ROAD/HIGHWAY
○ INDUSTRIAL	○ RECREATIONAL/SPORTS FIELD
○ COMMERCIAL	○ BIKE PATH/TRAIL
○ ROAD/HIGHWAY	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ RECREATIONAL/SPORTS FIELD	○ PARKING LOT
○ BIKE PATH/TRAIL	○ OTHER
○ SUBSURFACE UTILITY	OTHER
○ PARKING LOT	
○ OTHER	
OTHER	

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ Yes ○ No

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ○ Yes ○ No

6. Is this property owned by a state authority, state agency or local government? ○ Yes ○ No

7. In accordance with the larger common plan of development or sale; enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	Acreage To Be Disturbed	Existing Impervious Area Within Disturbed	Future Impervious Area Within Disturbed
.	.	.	.

8. Will there be more than 5 acres disturbed at any given time? ○ Yes ○ No

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	%	%	%

10. Is this a phased project? **(if yes, The SWPPP must address all planned phases)** * ○ Yes ○ No

11. Enter the planned start and end dates of the disturbance activities

Start Date ___/___/_____ - **End Date** ___/___/_____

Receiving System(s)

12. Provide the name of the nearest, natural, classified surface waterbody(ies) into which construction site runoff has the potential to discharge.

For Questions 13 and 14 refer to the Instruction Manual for a subset of 303(d) segments and TMDL watersheds subject to Condition A of the permit. These waterbodies and watersheds have been identified for regulation within the stormwater program due to some level of impairment by nutrients, silt or sediment. The Instruction Manual can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment? * ○ Yes ○ No

14. Is this project located in a TMDL Watershed? * ○ Yes ○ No

***NOTE:** **If you answered Yes to either question 13 or 14, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review.**

15. Does the site runoff enter a separate storm sewer system- including roadside drains, swales, ditches, culverts, etc? **(if no, skip question 16)** ○ Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ○ No ○ Unknown

Stormwater Pollution Prevention Plan (SWPPP)

18. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? ○ Yes ○ No *

19. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **If no, Skip question 20** ○ Yes ○ No

20. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ? ○ Yes ○ No *

NOTE: If you answered no to question 18 or 20, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review. Please provide further details in the details/comment section on the last page of this form.

21. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer Information (if different from Owner/Operator info)

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

Stormwater Pollution Prevention Plan (SWPPP)

Erosion and Sediment Control Practices

22. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

23. Select **all** of the erosion and sediment control practices that will be employed on the project site.

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Other

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Stormwater Pollution Prevention Plan (SWPPP)

Water Quality and Quantity Control

Important:Completion of Questions 24-30 is not required if the project:

Disturbs less than 5 acres and is planned for single-family residential homes(including subdivisions) or construction on agricultural property and does not have a discharge to a 303(d) water or is not located within a TMDL watershed.

Additionally, sites where there will be no future impervious area within the disturbed area and that do not have a change(pre to post development)in hydrology do not need to complete questions 24-30.

24. Indicate **all** the permanent Stormwater Management Practice(s) that will be installed on this site

Post Construction Stormwater Management Practices

Ponds

- ○ **Micropool Extended Detention (P-1)**
- ○ **Wet Pond (P-2)**
- ○ **Wet Extended Detention (P-3)**
- ○ **Multiple Pond System (P-4)**
- ○ **Pocket Pond (P-5)**

Filtering

- ○ **Surface Sand Filter (F-1)**
- ○ **Underground Sand Filter (F-2)**
- ○ **Perimeter Sand Filter (F-3)**
- ○ **Organic Filter (F-4)**
- ○ **Bioretention (F-5)**

Wetlands

- ○ **Shallow Wetland (W-1)**
- ○ **Extended Detention Wetland (W-2)**
- ○ **Pond/Wetland System (W-3)**
- ○ **Pocket Wetland (W-4)**

Infiltration

- ○ **Infiltration Trench (I-1)**
- ○ **Infiltration Basin (I-2)**
- ○ **Dry Well (I-3)**

Open Channels

- ○ **Dry Swale (O-1)**
- ○ **Wet Swale (O-2)**

○ **Other**

Describe other stormwater management practices not listed above or explain any deviations from the technicial standards. If the SWPPP does not conform to the technicial standards, the SWPPP must be prepared and certified by a licensed/certified professional and is subject to a 60-business day review.

Has a long term Operation and Maintenance plan for the post construction management practices been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Stormwater Pollution Prevention Plan (SWPPP)
Water Quality and Quantity Control

25. Provide the total water quality volume required and the total provided for the site.

Total Water Quality Volume (WQv)

WQv Required ___.___ **acre-feet**

WQv Provided ___.___ **acre-feet**

26. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of *post-developed 1 year, 24 hour storm event*

CPv Required ___.___ **acre-feet**

CPv Provided ___.___ **acre-feet**

The need to provide for channel protection has been waived because

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development ___.___ **CFS**

Post-development ___.___ **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development ___.___ **CFS**

Post-development ___.___ **CFS**

The need to provide for flood control has been waived because

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 27 and 28 impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s) (Total Drainage Area = Project Site + Offsite areas)

27. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. ___ %

28. Post-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. ___ %

29. Indicate the total number of permanent stormwater management practices to be installed ___

30. Provide the total number of stormwater discharge points from the site (include discharges to either surface waters or to seperate storm sewer systems) ___

Other Permits

31. Select any other DEC permits that are required for this project or ○ None

DEC Permits

○ Air Pollution Control	○ Stream Protection/Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers

Other

32. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

NYR

Details/Comments

Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction. and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

MI

Print Last Name

Owner/Operator Signature

Date

/ /

9100215042

New York State Department of Environmental Conservation
Division of Water
Bureau of Water Permits, 4th Floor
625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 . **Fax:** (518) 402-9029
Website: www.dec.state.ny.us

NYR (for DEC use only)

Notice of Intent or Termination

For Stormwater Discharges Associated with Industrial Activity under the State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit GP-0-06-002

All Sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this Notice of Intent or Termination (NOIT) Form. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

"IMPORTANT - PRINT CAPITAL LETTERS USING BLACK INK. AVOID CONTACT WITH THE EDGE OF THE BOXES. FILL IN CIRCLES COMPLETELY AND DO NOT USE CHECK MARKS. OWNER/OPERATOR MUST SIGN FORM."

Owner/Operator Information

O/O Name

O/O Street Address

O/O City

O/O State N Y

O/O Zip -

Contact Information

Contact First Name

Contact Last Name

Contact Phone - -

Contact Fax - -

Contact eMail

0250215049

Facility Information

Facility Name

Facility Street Address

Facility City

Facility State NY

Facility Zip -

Facility County

Name of Nearest Cross Street

Distance to Nearest Cross Street (feet)

Direction to Nearest Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

---

1. Permit I.D Number (for renewals, modifications or terminations) **NYR**

2. Reason for Submittal:

   ○ Coverage for a new facility (not previously permitted)

   ○ Permit Renewal

   ○ Modification (There has been a change in information since the earlier submission)

   ○ Want to terminate general stormwater permit coverage

3. Provide the Geographic Coordinates for the facility in NYTM units.

   X Coordinates (Easting)

   4 Y Coordinates (Northing)

These coordinates can be obtained through the NYSDEC Stormwater Interactive Map on the DEC Website at: http://www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm
Directions: Go to the above website. Zoom into your project location such that you can accurately click on the center of your facility. Once you have located your facility, go to the drop-down menu on the left and choose "Get Coordinates". Click on the center of your facility and a small window containing the X, Y coordinates in NYTM units will pop up. Transcribe these coordinates into the spaces above. For problems with the interactive map, please try the help function.

4. Identify all applicable Industrial Activities from the Industrial Sectors shown below that are located within areas subject to the stormwater discharges covered under this permit. Check all that apply to your facility.

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
		Sector A: Timber Products	
B,C	○	2411	Log Storage and Handling (Wet deck storage areas are only authorized if no chemical additives are used in the spray water or applied to the logs).
B	○	2421	General Sawmills and Planning Mills
B	○	2426	Hardwood Dimension and Flooring Mills
B	○	2429	Special Product Sawmills, Not Elsewhere
B	○	2431-2439 (except 2434 - see sector W)	Millwork, Veneer, Plywood, and Structural Wood.
B	○	2441, 2448, 2449	Wood Containers
B	○	2451, 2452	Wood Buildings and Mobile Homes
B	○	2491	Wood Preserving
B	○	2493	Reconstituted Wood Products
B	○	2499	Wood Products, Not Elsewhere Classified
		Sector B: Paper and Allied Products	
	○	2611	Pulp Mills
	○	2621	Paper Mills
B	○	2631	Paperboard Mills
	○	2652-2657	Paperboard Containers and Boxes
	○	2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
		Sector C: Chemical and Allied Products	
B	○	2812-2819	Industrial Inorganic Chemicals.
B	○	2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass.
	○	2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; In Vitro and In Vivo Diagnostic Substances; Biological Products, Except Diagnostic Substances.
B	○	2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations.
	○	2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products.
	○	2861-2869	Industrial Organic Chemicals.
B,C	○	2873-2879	Agricultural Chemicals.
	○	2891-2899	Miscellaneous Chemical Products.
	○	3952 (limited to list)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints and Artist's Watercolors.
		Sector D: Asphalt Paving and Roofing Materials and Lubricants	
B,C	○	2951, 2952	Asphalt Paving and Roofing Materials
	○	2992, 2999	Miscellaneous Products of Petroleum and Coal
		Sector E: Glass Clay, Cement, Concrete, and Gypsum Products	
	○	3211	Flat Glass
	○	3221, 3229	Glass and Glassware, Pressed or Blown
	○	3231	Glass Products Made of Purchased Glass
C	○	3241	Hydraulic Cement
B	○	3251-3259	Structural Clay Products
B	○	3261-3269	Pottery and Related Products
B,C	○	3271-3275	Concrete, Gypsum and Plaster
	○	3281	Cut Stone and Stone Products
	○	3291-3299	Abrasive, Asbestos, and Miscellaneous Non-metallic Mineral Products

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
		Sector F: Primary Metals	
B	O	3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
B	O	3321-3325	Iron and Steel Foundries
	O	3331-3339	Primary Smelting and Refining of Nonferrous Metals
	O	3341	Secondary Smelting and Refining of Nonferrous Metals
B	O	3351-3357	Rolling, Drawing, and Extruding of Nonferrous
B	O	3363-3369	Nonferrous Foundries (Castings)
	O	3398, 3399	Miscellaneous Primary Metal Products
		Sector G: Metal Mining (Ore Mining and Dressing)	
B	O	1011	Iron Ores
B	O	1021	Copper Ores
B	O	1031	Lead and Zinc Ores
B	O	1041, 1044	Gold and Silver Ores
B	O	1061	Ferroalloy Ores, Except Vanadium
B	O	1081	Metal Mining Services
B	O	1094, 1099	Miscellaneous Metal Ores
		Sector H: Coal Mines and Coal Mining Related Facilities	
		Sector I: Oil and Gas Extraction and Refining	
B	O	1311	Crude Petroleum and Natural Gas
B	O	1321	Natural Gas Liquids
B	O	1381-1389	Oil and Gas Field Services
B	O	2911	Petroleum Refineries
		Sector J: Mineral Mining and Dressing	
B	O	1411	Dimension Stone
B,C	O	1422-1429	Crushed and Broken Stone, Including Rip Rap
B,C	O	1442, 1446	Sand and Gravel
	O	1455, 1459	Clay, Ceramic, and Refractory Materials
	O	1474-1479	Chemical and Fertilizer Mineral Mining
B	O	1481	Nonmetallic Minerals Services, Except Fuels
B	O	1499	Miscellaneous Nonmetallic Minerals, Except Fuels
		Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities	
B,C	O	HZ	Hazardous Waste Treatment, Storage or Disposal
		Sector L: Land Fills and Land Application Sites	
B,C	O	LF	Landfills, Land Application Sites, and Open Dumps
		Sector M: Automobile Salvage Yards	
B	O	5015	Automobile Salvage Yards
		Sector N: Scrap Recycling Facilities	
B	O	5093	Scrap Recycling Facilities
B	O	4499 (limited to list)	Dismantling Ships, Marine Salvaging, and Marine Wrecking - Ships for Scrap
		Sector O: Steam Electric Generating Facilities	
B,C	O	SE	Steam Electric Generating Facilities

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
		Sector P: Land Transportation and Warehousing	
B	O	4011, 4013	Railroad Transportation
B	O	4111-4173	Local and Highway Passenger Transportation
B	O	4212-4231	Motor Freight Transportation and Warehousing
B	O	4311	United States Postal Service
B	O	5171	Petroleum Bulk Stations and Terminals
		Sector Q: Water Transportation	
B	O	4412-4499 (except 4499 as specified in Sector N)	Water Transportation
		Sector R: Ship and Boat Building or Repairing Yards	
	O	3731, 3732	Ship and Boat Building or Repair Yards
		Sector S: Air Transportation	
B	O	4512-4581	Air Transportation Facilities
		Sector T: Treatment Works	
B	O	TW	Treatment Works
		Sector U: Food and Kindred Products	
	O	2011-2015	Meat Products
	O	2021-2026	Dairy Products
	O	2032-2038	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties
B	O	2041-2048	Grain Mill Products
	O	2051-2053	Bakery Products
	O	2061-2068	Sugar and Confectionery Products
B	O	2074-2079	Fats and Oils
	O	2082-2087	Beverages
	O	2091-2099	Miscellaneous Food Preparations and Kindred Products
	O	2111-2141	Tobacco Products
		Sector V: Textile Mills, Apparel, and Other Fabric Product Manufacturing, Leather and Leather Pruducts	
	O	2211-2299	Textile Mill Products
	O	2311-2399	Apparel and Other Finished Products Made From Fabrics and Similiar Materials
	O	3131-3199 (except 3111- see sector Z)	Leather and Leather Products, except Leather Tanning and Finishing
		Sector W: Furniture and Fixtures	
	O	2434	Wood Kitchen Cabinets
	O	2511-2599	Furniture and Fixtures
		Sector X: Printing and Publishing	
	O	2711-2796	Printing, Publishing, and Allied Industries
		Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries	
B	O	3011	Tires and Inner Tubes
B	O	3021	Rubber and Plastics Footwear
B	O	3052, 3053	Gaskets, Packing, and Sealing Devices and rubber and Plastics Hose and Belting
B	O	3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
B	O	3081-3089	Miscellaneous Plastics Products
	O	3931	Musical Instruments
	O	3942-3949	Dolls, Toys, Games and Sporting and Athletic Goods
	O	3951-3955	Pens, Pencils, and Other Artists' Materials
	O	3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
	O	3991-3999	Miscellaneous Manufacturing Industries

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
		Sector Z: Leather Tanning and Finishing	
B	○	3111	Leather Tanning, Currying and Finishing
		Sector AA: Fabricated Metal Products	
B	○	3411-3499	Fabricated Metal Products, Except Machinery and Transportation Equipment
B	○	3911-3915	Jewelry, Silverware, and Plated Ware
		Sector AB: Transportation Equipment, Industrial or Commercial Machinery	
	○	3511-3599 (except 3571-3579 see Sector AC)	Industrial and Commercial Machinery (Except Computer and Office Equipment)
	○	3711-3799 (except 3731 & 3732 see Sector R)	Transportation Equipment (Except Ship and Boat Building and Repairing)
		Sector AC: Electronic, Electrical, Photographic, and Optical Goods	
B	○	3571-3579	Computer and Office Equipment
B	○	3612-3699	Electronic, Electrical Equipment and Components, Except Computer Equipment
B	○	3812-3873	Measuring, Analyzing and Controlling Instrument; Photographic and Optical Goods
		Sector AD & AE: Non-Classified Facilities/Storm Water Discharges Designated By the Board As Requiring Permits	
B	○	Sector AD	Other Storm Water Discharges Designated By the Department As Needing a Permit or Any Facility Discharging Storm Water Associated With Industrial Activity Not Described By Any of Sectors A-AC. Note: Facilities may not elect to be covered under Sector AD. Only the Department may assign a facility to Sector AD.
B	○	Sector AE	

Notes: B - Benchmark Monitoring Required
C - Compliance Monitoring for Point Source Category Effluent Limitations

5. Has a Stormwater Pollution Prevention Plan (SWPPP) been prepared for this facility in accordance with the requirements of the SPDES Multi-Sector General Permit? Please be advised that you cannot obtain coverage under this permit without having first prepared a SWPPP. ..... ○ Yes ○ No

6. For each stormwater discharge associated with industrial activity at your facility identify the outfall number (e.g., 001, 002, etc.); the four digit Standard Industrial Classification (SIC) codes or 2-letter Industrial Activity Codes that best represent the principal products or services rendered by the facility for that drainage area; and the acreage of industrial activity exposed to stormwater for each outfall (round to nearest tenth of an acre):

Outfall No.	Industrial Activities (SIC or 2-letter Codes) A	B	C	Acreage
1				.
2				.
3				.
4				.
5				.
6				.
7				.
8				.
9				.
			Total Acreage	.

(Note: SIC information can be obtained at the following web sites: http://www.osha.gov/pls/imis/sicsearch.html and http://www.softshare.com/tables/sic/. The 2-letter Industrial Activity Codes are: **HZ** - hazardous waste treatment, storage or disposal facilities; **LF** - landfills/disposal facilities that receive or have received any industrial waste; **SE** - steam electric power generating facilities; or **TW** - treatment works for treating domestic sewage.)

7. Does this facility have coal piles that are exposed to precipitation? ..... ○ Yes ○ No

8. Does this facility discharge have salt piles that are exposed to precipitation? ..... ○ Yes ○ No

9. Does this facility discharge stormwater from secondary containment areas for liquid bulk storage or transfer areas? ..... ○ Yes ○ No

10. Is the facility subject to any of the following EPA Point Source Category Effluent Limitations?

- Runoff from material storage piles at cement manufacturing facilities (40 CFR Part 411 Subpart C)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Contaminated runoff from phosphate fertilizer manufacturing facilities (40 CFR Part 418 Subpart A)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Coal Pile runoff at steam electric power generating facilities (40 CFR Part 423)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Discharges resulting from spraydown or intentional wetting of logs at wet deck storage areas (40 CFR Part 429 Subpart I)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Mine dewatering discharges at crushed stone, construction sand and gravel, and industrial sand mines (40 CFR Part 436)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Runoff from asphalt emulsion facilities (40 CFR Part 443 Subpart A)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

- Runoff from landfills (40 CFR 445 Subpart A and B)? ..... ○ Yes ○ No

If yes, list Outfall Nos. | | | | | | | | | | | | | | | |

11. Provide the name(s) of the surface waterbody(ies) into which site runoff will discharge:

12(a). Does site runoff enter a Municipal Separate Storm Sewer System including roadside drains, swales, ditches, culverts, etc.? ..... ○ Yes ○ No

12(b). If yes, what is the name of the municipality/entity that owns the Municipal Separate Storm Sewer System?

13. Identify any other DEC Permits that are required for this facility:

○ Air Pollution Control	○ Stream Protection/Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water supply
○ Mined Land Reclamation	○ Freshwater Wetlands
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers

Other

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name (please print or type) MI

Date / /

Owner/Operator Last Name (please print or type)

Signature

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-02-01

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 8, 2003

Expiration: January 8, 2008

William R. Adriance
Chief Permit Administrator

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Authorized Signature

William R. Adriance

Date: January 8, 2003

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY

Preface

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater discharges from certain construction activities to waters of the United States[1] are unlawful unless they are authorized by a NPDES (National Pollutant Discharge Elimination System) permit or by a state permit program. New York's SPDES (State Pollutant Discharge Elimination System) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL"). Discharges of pollutants to all other "Waters of New York State" such as groundwaters are also unlawful unless they are authorized by a SPDES permit.

A discharger, owner, or operator may[2] obtain coverage under this general permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this General Permit and the NOI for New York are available by calling (518) 402-8109 or at any Department of Environmental Conservation (the Department) regional office (see Appendix A on Page 23). They are also available on the Department's website at:

www.dec.state.ny.us

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[1] "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; and
(b) All interstate waters, including interstate "wetlands"; and
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    (3) Which are used or could be used for industrial purposes by industries in interstate commerce; and
(d) All impoundments of waters otherwise defined as waters of the United States under this definition; and
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; and
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal areas in wetlands) nor resulted from the impoundment of waters of the United States.

[2] "may" refers to circumstances under which the discharger is ineligible for coverage under this general permit because of other provisions of this permit. Dischargers which are excluded from coverage under this general permit as provided for in Part I, Section C, for example, are not authorized to discharge under this permit. This also applies to possible situations in which an NOI has been submitted and/or a regulatory fee paid pursuant to Article 72 of the ECL. The submittal of an NOI and/or regulatory fee has no bearing or relevance whatsoever on the eligibility of the construction activity discharging stormwater runoff under the authority of this permit.

Local Programs of a Regulated MS4

Under the federal Phase II stormwater program, many cities, villages, towns, and other public entities in New York State which are located within "Urbanized Areas" as defined by the U.S. Census and who operate a Municipal Separate Storm Sewer System ("MS4") will be required to obtain SPDES permit coverage for stormwater discharges under their jurisdiction and control (see 40CFR Part 122 §122.26.32). Additionally, MS4s may be designated by the Department as regulated MS4s. Among other requirements, the Phase 2 NPDES stormwater regulations require regulated MS4s to address stormwater runoff from construction activities. Construction activities covered under this general permit, which are subject to stormwater runoff controls of a regulated MS4, will also need to comply with the MS4's controls.

Five (5) Day Coverage

Prior to the submission of an NOI, the owner or operator must have completed a Storm Water Pollution Prevention Plan (SWPPP) that complies with all requirements of this general permit. Submitting an NOI is an affirmation that a SWPPP has been prepared and will be implemented. If an applicant certifies that the SWPPP has been developed in conformance with the Department's technical standards, the applied-for activity may obtain coverage under this general permit in five (5) business days after the Department's receipt of the NOI provided, that the activity is eligible for coverage under this general permit and that the Department has not informed the applicant otherwise.

Sixty (60) Day Coverage

While the Department's technical standards are appropriate statewide, it is recognized that there may be situations where stormwater management goals can best be met by alternative means that are more suitable given local conditions.

For construction projects in these situations, applicants must identify in their NOI each of the deviations from the Department's technical standards that they are seeking. Applicants must also explain why the deviations are needed or desired and what impacts to water quality, if any, can be expected if the deviation were allowed. Applicants must also explain the actions, if any, that local board(s) have taken with respect to the deviation(s). For applicants which cannot certify conformance with the Department's technical standards, the SWPPP must also be certified by a licensed/certified professional that the SWPPP has been developed in a manner which will insure compliance with water quality standards and with the substantive intent of this permit.

In cases of deviations from the Department's technical standards, applicants must allow sixty (60) business days after the receipt by the Department of a completed NOI and certification before gaining coverage under this general permit and before initiating any construction activity. During this 60 day period, the Department may conduct further review of the NOI and SWPPP. If additional information is needed to complete the review, the NOI will be considered

incomplete and the applicant will be so advised. The intent of this provision is to require conformance the Department's technical standards wherever possible and appropriate. At the same time, alternative means to address stormwater control may be allowed under this general permit where they are more suitable for the site in question and where they will not diminish water quality protection.

There are other scenarios under which coverage under this general permit will not occur until 60 business days from the receipt of a completed NOI. For example, if the construction activity or post construction runoff causes the discharge of a pollutant of concern to a water identified on the 303(d) list or a watershed with an approved TMDL for that pollutant of concern, coverage under the general permit will not occur until sixty (60) business days from the receipt by the Department of a completed NOI. For these projects the operator may be required to submit the SWPPP and/or appropriate certification(s) to the Department for review. The flowchart shown in Figure 1 on page vi will help to describe the process under which certain conditions exist that require possible further analysis and water quality/quantity considerations.

Computer Tool Available For Completion of SWPPPs and NOIs Under Development

The Department is currently developing an interactive computer software tool entitled "How to Prepare SWPPPs and Notices of Intent" to assist applicants in both developing SWPPPs and completing NOIs. This will be available in the near future for use on the Department website as well as being packaged independently on compact discs. This tool will contain guidance as well as many useful links to reference materials and documents concerning erosion and sedimentation control, as well as to the design of stormwater management practices . The Department's website will contain the latest information and guidance on the various tools available.

The Department's Technical Standards

The Department's technical standards for erosion and sediment control are contained in the document, *"New York Standards and Specifications for Erosion and Sediment Control"*[3] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quantity and water quality controls (post-construction stormwater control practices), the Department's technical standards are detailed in the *"New York State Stormwater Management Design Manual."* Both of these documents are available on the Department's website. If an applicant certifies that stormwater management practices will conform to the Department's technical standards, then coverage under the permit may occur sooner than otherwise would be the case if non-conformance with the manuals existed. See Figure 1 on page vi for more information.

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3 Previously, the *"New York Guidelines for Urban Erosion and Sediment Control"*, also commonly referred to as the "Blue Book".

Permit Valid for Any Size Disturbance

This permit may be used for construction activities involving any amount of disturbed acreage, provided that all other eligibility conditions in subsection B of Part I are satisfactorily met (see page 2 of this permit). Thus, this permit may apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(14)(x) which are also referred to as "NPDES Phase 1 construction activities" involving soil disturbances of five (5) acres or more. This permit may also apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(15) which are also referred to as "NPDES Phase 2 small construction activities" involving soil disturbances of between one (1) and five (5) acres. And, this permit may also apply to construction activities involving soil disturbances of less than one (1) acre if the Department determines that a SPDES permit is required pursuant to the ECL. In any and all cases, all of the eligibility provisions of this general permit must be met in order to gain coverage.

Notice of Termination

After construction is completed as defined in the general permit (see Part II beginning on Page 7), cancellation of coverage is accomplished by the submittal of a Notice of Termination ("NOT"). Failure to submit a NOT may result in the continued obligation to pay a yearly Regulatory Fee established pursuant to Article 72 of the ECL and/or may be cause for suspension of permit coverage.

Previous versions of NOIs, NOTs and Notices of Intent, Transfer and Termination ("NOITT"s) cannot be used in conjunction with this general permit. There is a new NOI required for obtaining coverage under this general permit. Failure to include information identified as "mandatory" entries on the new NOI form may prevent and/or delay discharge authorization being sought under this permit.

The new NOT will also include an identification of any permanent structures that are being left on the site after stabilization occurs and after termination of permit coverage under this general permit. The NOT will also include a certification that the structures were constructed as described in the SWPPP and that an Operation and Maintenance ("O&M") manual has been prepared and has been made available to the owner of such permanent structures who is expected to conduct the necessary O&M over the life of the structure(s).

Ineligible Activities

The submittal of a completed NOI and/or the payment of an annual regulatory fee by an applicant does not necessarily mean that an applicant is covered under this permit if the applicant is ineligible for coverage under this permit under the terms cited in Part I of this permit. In other words, submitting a completed NOI and paying an annual regulatory fee does not automatically gain an applicant permit coverage if the applicant is ineligible for coverage under this permit even if the Department fails to immediately inform the applicant of such ineligibility.

Permit Expiration Date

Coverage under this general permit is available January 8, 2003 and will expire five (5) years after issuance on January 8, 2008.

Activities Previously Covered Under GP-93-06

In a separate proposal, the Department is also concurrently seeking to re-issue GP-93-06 with an expiration of August 1, 2003. The purpose of this action is to provide a transition period for permittees which have had SPDES permit coverage under GP-93-06 immediately prior to January 8, 2003, the effective date of GP-02-01. **Prior to August 1, 2003**, these activities will need to:
(1) stabilize their sites in accordance with GP-93-06 and submit an NOT; or, if necessary,
(2) gain coverage under GP-02-01 by submitting a new NOI.

For **new** construction activities, coverage under GP-93-06 will not be available after the effective date of GP-02-01, January 8, 2003. Such discharges may be eligible for coverage under GP-02-01 (see Part I.B. on page 2 of this permit).

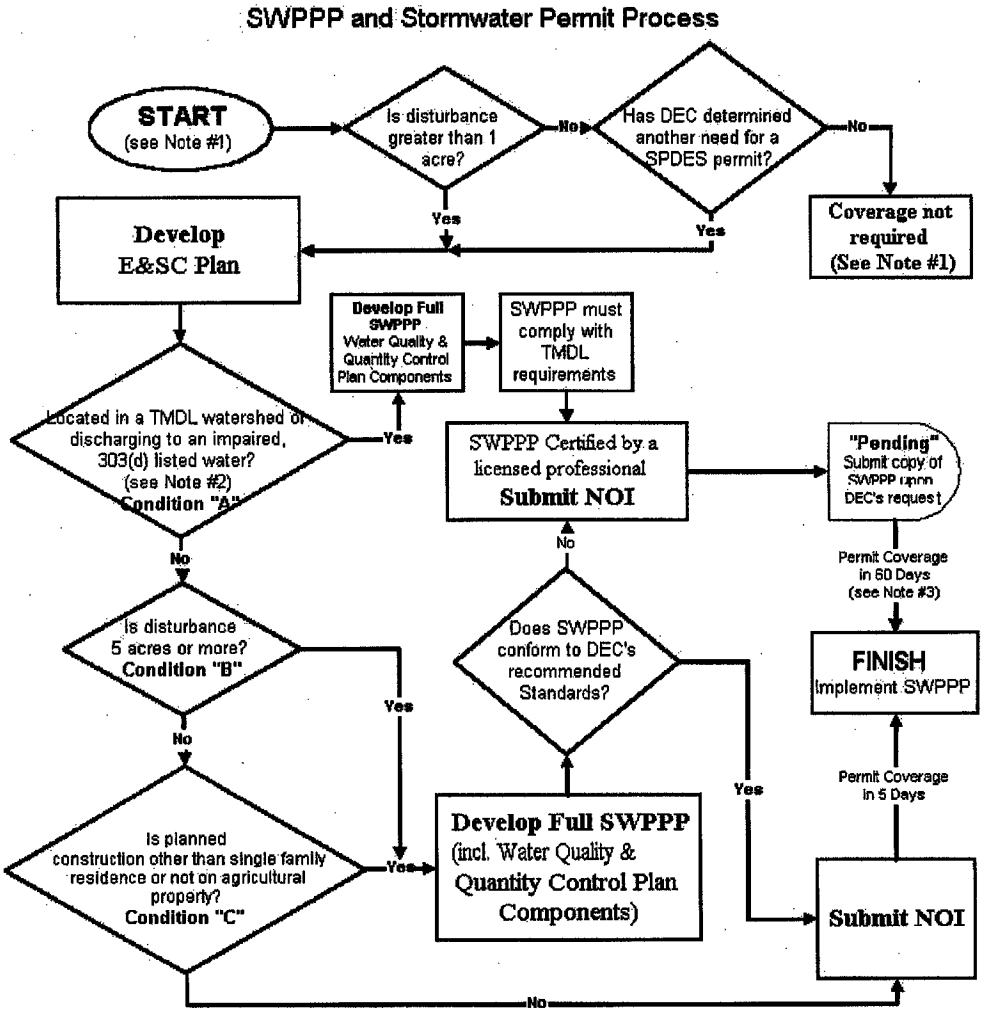
Water Quality Violations Not Permitted

This permit does not authorize any person to cause or contribute to a condition in contravention of any water quality standards that are contained in the Rules and Regulations of the State of New York (see Part I of this permit on page 2) even if the permittee is in compliance with all other provisions of this permit. Any violations of water quality standards may be considered by the Department to be violations of this permit and/or the ECL, including its accompanying regulations.

Other Department Permits

Construction activities may also require other Department permits in addition to the coverage provided by this general permit including, but not limited to, dam safety, wetlands and stream protection. Such other Department permits must be obtained separately from coverage under this general permit. Further information concerning these permits should be sought from the Regional Permit Administrator at the appropriate Department regional office (See Appendix A on page 23).

FIGURE 1



NOTES:

1. Under any of the above conditions other environmental permits may be required. DEC may require permit for construction disturbance < 1 acre on a case by case basis.
2. **and** the following exists: construction and/or stormwater discharges from the construction or post-construction site contain the pollutant of concern identified in the TMDL or 303(d) listing.
3. After receipt by DEC of completed application.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES

FROM CONSTRUCTION ACTIVITIES

TABLE OF CONTENTS

Part I. COVERAGE UNDER THIS PERMIT

A. **Maintaining Water Quality** - It shall be a violation of this general permit and the Environmental Conservation Law ("ECL") for any discharge authorized by this general permit to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York including, but not limited to:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal and settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

B. **Eligibility Under This General Permit**

1. This permit may authorize all discharges of stormwater from construction activity[4] to surface waters and groundwaters except for ineligible discharges identified under subparagraph C of this Part (see below). Discharge authorization under this permit requires the submittal of a completed NOI.

2. Except for non-stormwater discharges explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from construction activities.

3. Notwithstanding paragraphs B.1 and B.2 above, the following non-stormwater discharges may be authorized by this permit: discharges from fire

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[4] This includes discharges of stormwater associated with industrial activity identified under 40 CFR Part 122, subsection 122.26(b)(14)(x), small construction activities identified under 40 CFR Part 122, subsection 122.26(b)(15) or any other stormwater from construction activities that are not otherwise ineligible for coverage under this permit (See Part I, subsection B beginning on page 2).

fighting activities; fire hydrant flushings; waters to which cleansers or other components have **not** been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this general permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP(see Part III beginning on Page 7). Under all circumstances, the permittee must still comply with water quality standards (see Part I, subsection A on Page 2).

C. **Activities Which Are Ineligible for Coverage Under This General Permit** - All of the following stormwater discharges from construction activities are **not** authorized by this permit:

1. Discharges after construction activities have been completed and the site has undergone final stabilization[5];

2. Discharges that are mixed with sources of non-stormwater other than those expressly authorized under subsection B.3. of this Part (see page 3) and identified in the SWPPP required by this permit;

3. Discharges that are subject to an existing SPDES individual or general permit or which are required to obtain an individual or alternative general permit pursuant to Part V, subparagraph K (see page 21) of this permit;

4. Discharges that are likely to adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

5. Discharges which are subject to an existing effluent (limitation) guideline addressing stormwater and/or process wastewater unless said guidelines are contained herein; or

6. Discharges which either cause or contribute to a violation of water quality standards adopted pursuant to the ECL and its accompanying regulations (See subsection A of Part I on page 2).

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[5] "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

D. **Authorization Under This General Permit**

1. An operator[6] must submit a completed NOI form in order to be authorized to discharge under this general permit. The NOI form shall be one which is associated with this general permit, signed in accordance with Part V. H.(see Page 19) of this permit and submitted to the address indicated on the NOI form. NOIs and NOITTs used in association with either previous or other general permits are not valid for obtaining coverage under this general permit. The submittal of an NOI is an affirmation to the operators' understanding and belief that the activity is eligible for coverage under this permit and that a SWPPP has been prepared and will be implemented in accordance with Part III of this permit.

2. All contractors and subcontractors of the operator identified under Part III.E.1 (see page 17) must provide the certification cited under Part III.E.2 (see page 17). Such certifications shall become part of the SWPPP for the construction activity covered under this general permit.

3. Unless notified by the Department to the contrary, operators who are eligible for coverage under this permit **and** who submit an NOI in accordance with the requirements of this permit, may be authorized to discharge stormwater from construction activities under the terms and conditions of this permit, and in accordance with the following timetable:

a. For construction activities which:

(1) develop a SWPPP in conformance with the Department's technical standards (See subsection D of Part III on page 10), and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

or

(2) as of the effective date of this general permit, GP-02-01, have obtained coverage under, and are operating in compliance with, GP-93-06; and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

authorization to discharge under this permit may occur five (5) business days after the date on which the NOI is received by the Department.

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6 For the purposes of this permit, the term "operator" means the person, persons, or legal entity which owns or leases the property on which the construction activity is occurring. Also, see Part V., subsection H. on page 19 of this permit.

b. For activities which do not comply with the preceding subsection (i.e. Part I.D.3.a.), authorization to discharge under this permit will begin no sooner than sixty (60) business days from the receipt of the completed NOI unless notified differently by the Department pursuant to Part V, subsection K of this permit (see page 21). For activities not satisfying Part I.D.3.a.(1) above, or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must be prepared by a licensed/certified professional[7] and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with water quality standards (see Part I.A.) and with the substantive intent of this permit.

c. For construction activities which are subject to a sixty-day period provision identified in the preceding subparagraph b., the SWPPP shall include each of the components identified in Part III.A.1.b. (see page 8).

4. At its sole discretion, the Department may deny or terminate coverage under this permit and require coverage under another SPDES permit at any time based on a review of the NOI, the SWPPP or other relevant information (see Part V, subsection K of this permit on page 21).

5. A copy of the NOI and a brief description of the project shall be posted at the construction site in a prominent place for public viewing.

6. A signed copy of the NOI, the SWPPP, and any reports required by this permit shall also be submitted concurrently to the local governing body and any other authorized agency[8] having jurisdiction or regulatory control over the construction project.

7. New stormwater discharges from construction activities that require any other Uniform Procedures Act permit (Environmental Conservation Law, 6 NYCRR Part 621) cannot be covered under this general permit until the other required permits are obtained. Upon satisfaction of the State Environmental Quality Review Act ("SEQRA") for the proposed action and issuance of necessary permits, the applicant may submit an NOI to obtain coverage under this general

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7 A "licensed/certified professional" means a person currently licensed to practice engineering in New York State or is a Certified Professional in Erosion and Sediment Control (CPESC).

8 For the purposes of this general permit, "any other authorized agency" shall include any local, regional, or state entity or agency except the Department which has authority to review stormwater discharge from the project, including authority under any approved watershed protection plan or regulations.

permit.[9] In order to facilitate the Department's review of a multi-permitted project, an applicant should submit, at a minimum, a copy of the SWPPP which contains the information specified in Appendix B (see page 24). This information will assist the Department in determining whether or not coverage under this general permit or another SPDES permit is the more appropriate option. The Department may also require the submission of additional information in order to determine the SWPPP's conformance with the Department's technical standards.

8. Upon renewal of this general permit or issuance of a new general permit, the permittee is required to notify the Department of its intent to be covered by the new general permit. Coverage will continue under this permit for its term unless action is taken to terminate permit coverage as provided elsewhere in this permit. See also Part V. subsection B. on page 18 of this permit.

9. In the event of a transfer of ownership or responsibility for stormwater runoff, there can be no "automatic" transfer of permit coverage from one permittee to the next without appropriate notification from the dischargers. The former permittee must submit an NOT and notify the new discharger of the possible need for the new discharger to submit a new NOI (see Section E, subparagraph 2 below).

E. **Deadlines for Notification**

1. Operators who intend to obtain coverage under this general permit for stormwater runoff from construction activities must submit an NOI in accordance with the requirements of this Part at least five (5), or sixty (60) business days, as appropriately determined from Part I, Section D.3 (see page 4) prior to the commencement of construction[10] activities.

2. For stormwater runoff from construction activities where the operator changes, a new NOI must be submitted by the new operator in accordance with the requirements of this permit. The former operator must submit a NOT in accordance with Part II (see page 7) of this permit and notify the new operator of the requirement to submit a new NOI to obtain coverage under this permit. The new operator must also review and sign the SWPPP in accordance with Part III.B.(see page 9) and continue implementation of the SWPPP as required by this

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9 The purposes of this subsection is to assure that the requirements of SEQRA are fulfilled, if necessary, before any discharge authorization under this general permit is granted.

10 "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities, or other construction activities.

permit.

Part II. TERMINATION OF COVERAGE[11]

Where a site has been finally stabilized, the operator must submit a NOT form prescribed by the Department for use with this general permit. The NOT shall be signed in accordance with Part V. H.(see page 19) of this permit and submitted to the address indicated on the approved NOT form.

The permittee must identify all permanent stormwater management structures that have been constructed and provide the owner(s) of such structures with a manual describing the operation and maintenance practices that will be necessary in order for the structure to function as designed after the site has been stabilized. The permittee must also certify that the permanent structure(s) have been constructed as described in the SWPPP.

Part III. STORMWATER POLLUTION PREVENTION PLANS ("SWPPP"s)

A. General

1. SWPPP Preparation

a. A SWPPP shall be developed by the operator for construction activities at each site to be covered by this permit, prior to the initiation of activities requiring coverage under this permit. SWPPPs shall be prepared in accordance with sound engineering practices. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges. In addition, the SWPPP shall describe and ensure the implementation of practices which will be used to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. Operators are encouraged to have their SWPPP reviewed for adequacy and completeness by the local soil and water conservation district ("SWCD") and/or other professionals qualified in erosion and sediment control practices[12] and stormwater management. Moreover, if the construction activity is identified under Part I, subsection D.3.b. (See page 5), or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must include a certification by a licensed/certified professional.

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11 Submittal of an NOT will terminate coverage under this general permit and will also remove the permittee from subsequent billings of the annual regulatory fee levied under Article 72 of the ECL.

12 For example, CPESC, Inc. administers a certified program of individuals under its CPESC (Certified Professional in Erosion and Sediment Control) program which is sponsored by the International Erosion Control Association (IECA) and the Soil and Water Conservation Society (SWCS) and is endorsed by USDA - Natural Resources Conservation Service. CPESC, Inc. also administers the CPSWQ (Certified Professional in Stormwater Quality) program.

b. All SWPPPs shall include erosion and sediment controls. For construction activities meeting either Condition "A", "B" or "C" described below, the SWPPP shall also include water quantity and water quality controls (post-construction stormwater control practices).(see Part III. D.).

(1) Condition A - Construction site or post construction runoff discharging a pollutant of concern to either an impaired water identified on DEC's 303(d) list or a TMDL watershed for which pollutants in stormwater have been identified as a source of the impairment.

(2) Condition B - Construction site runoff from Phase 1 construction activities (construction activities disturbing five (5) or more acres) identified under 40 CFR Part 122, §122.26(b)(14)(x).

(3) Condition C - Construction site runoff from construction activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

2. **SWPPP Implementation** - Operators are responsible for implementing the provisions of the SWPPP and ensuring that all contractors and subcontractors who perform professional services at the site provide certification of the SWPPP in accordance with Part I.D.2. (see page 4) and Part III.E.2. (see page 17) of this permit. All contractors and subcontractors identified in the SWPPP in accordance with Part III.E.1. (see page 17) of this permit must agree to implement applicable provisions of the SWPPP and satisfy the certification requirement of Part III.E.2. (see page17). However, contractors and subcontractors who are not operators, as defined in this permit (see page 4), are not required to submit a NOI in addition to the NOI submitted by the operator.

3. **Deadlines for SWPPP Preparation and Compliance** - The SWPPP must be developed prior to the submittal of an NOI and provide for compliance with the terms and schedule of the SWPPP beginning with the initiation of construction activities. The operator shall also certify in the SWPPP that all appropriate stormwater control measures will be in place before commencement of construction of any segment of the project that requires such measures.

4. **Local Requirements** - Developing a SWPPP that complies with the requirements listed herein does not relieve an operator from the obligation of complying with stormwater management requirements of the local government having jurisdiction over the project.

5. **Activities Previously Covered Under GP-93-06** - For construction activities which are covered by GP-93-06 as of the effective date of this permit (GP-02-01), the continued implementation of their SWPPP that was developed and implemented in accordance with GP-93-06 is acceptable until such time as:

(a) an NOT is submitted;

(b) the Department notifies them otherwise in accordance with this permit, including Part V, subsection K (see page 21); or

(c) this permit expires.

B. **Signature and SWPPP Review**

1. The SWPPP shall be signed in accordance with Part V. H.(see page 19), and be retained at the site where the construction activity occurs in accordance with Part IV (see retention of records on page 17) of this permit.

2. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity. The operator shall make SWPPPs available upon request to the Department and any local agency having jurisdiction; or in the case of a stormwater discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the municipal operator of the system.

3. The Department, or its authorized representative, may notify the permittee at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. Such notification shall identify those provisions of the permit which are not being met by the SWPPP and identify which provisions of the SWPPP require modifications in order to meet the minimum requirements of this permit. Within seven (7) days of such notification, (or as otherwise provided by the Department) the permittee shall make the required changes to the SWPPP and shall submit to the Department a written certification that the requested changes have been made. Notwithstanding the foregoing, the Department reserves all rights to enforce the terms of the ECL.

C. **Keeping SWPPPs Current** - The permittee shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

2. The SWPPP proves to be ineffective in:

   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by this permit, or

   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity.

3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP (see Part III.E, page 17 below). Amendments to the SWPPP may be reviewed by the Department in the same manner as provided by Part III.B (see page 9 above).

D. **General Contents of SWPPPs** -

1. Standards for construction activities covered under this permit - The Department's technical standards for erosion and sediment controls are detailed in the "*New York Standards and Specifications for Erosion and Sediment Control*"[13] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quality and water quantity controls (post-construction stormwater control practices), the Department's technical standards are detailed in the "*New York State Stormwater Management Design Manual.*"

If an operator certifies that the SWPPP has been developed in conformance with the Department's technical standards referenced above, they may obtain coverage under this general permit in five (5) business days from the Department's receipt of the NOI, provided the construction activity does not meet Condition A in Part III.A.1.b. For SWPPPs which will not conform with the Department's technical standards, the SWPPP must be prepared by a licensed/certified professional and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with the State's water quality standards and with the substantive intent of this permit. In addition, coverage under this general permit will not begin until sixty (60) business days from the receipt of a completed NOI.

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13 Previously, the "*New York Guidelines for Urban Erosion and Sediment Control*," also commonly referred to as the "Blue Book."

2. **Minimum SWPPP Components** SWPPPs prepared pursuant to this general permit shall present fully designed and engineered stormwater management practices with all necessary maps, plans and construction drawings. The SWPPP must, at a minimum, include the following:

a. For all construction activities subject to this general permit -

(1). provide background information about the scope of the project, including the location, type and size of project.

(2) provide a site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);

(3) provide a description of the soil(s) present at the site;

(4) provide a construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Guidelines for Urban Erosion and Sediment Control, there shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the Department;

(5) provide a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the storm water discharges;

(6) provide a description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to storm water, and spill prevention and response;

(7) describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land

clearing and grubbing to project close-out;

(8) identify and show on a site map/construction drawing(s) the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

(9) provide the dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;

(10) identify temporary practices that will be converted to permanent control measures;

(11) provide an implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place;

(12) provide a maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practices;

(13) provide the names(s) of the receiving water(s);

(14) provide a delineation of SWPPP implementation responsibilities for each part of the site;

(15) provide a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

(16) provide any existing data that describes the stormwater runoff characteristics at the site.

b. For construction activities meeting Condition A, B or C in Part III.A.1.b.

(1) provide all the information required in Parts III.D.2.a.1 - 16 above;

(2) provide a description of each post-construction stormwater control practice;

(3) identify and show on a site map/construction drawing(s) the specific location(s) and size(s) of each post-construction stormwater control practice;

(4) provide a hydrologic and hydraulic analysis for all structural components of the stormwater control system for the applicable design storms;

(5) provide a comparison of post-development stormwater runoff conditions with pre-development conditions;

(6) provide the dimensions, material specifications and installation details for each post-construction stormwater control practice;

(7) provide a maintenance schedule to ensure continuous and effective operation of each post-construction stormwater control practice.

The following three subsections, Part III.D. 3. through Part III.D. 5., apply only to construction activities covered under this general permit which meet Conditions "A" , "B"[14] or "C" in Part III. A.1.b. Beginning with Part III.E. below (see page 17) the requirements set forth therein apply to all permittees covered under this permit.

3. **Site Assessment and Inspections** -

a. The operator shall have a qualified professional[15] conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by Part III.D. (see page 10) of this permit have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following the commencement of construction, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. During each inspection, the qualified professional shall record the following information:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and

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14 Condition "B" includes construction activities covered under GP-93-06 and, therefore, are subject to Part III.D.3 through Part III.D. 5.

15 "Qualified professional" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist.

containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water;
and

(6) All deficiencies that are identified with the implementation of the SWPPP.

b. The operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction,[16] the operator shall certify in the site log book that the SWPPP, prepared in accordance with Part III.D. (see page 10) of this permit, meets all Federal, State and local erosion and sediment control requirements.

The operator shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

c. Prior to filing of the Notice of Termination or the end of permit term, the operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[17] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

d. The operator shall certify that the requirements of Parts III.D.3., III.D.4. and III.D.5 of this permit have been satisfied within 48 hours of actually meeting such requirements.

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16 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

17 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

4. **Stabilization**[18] - The operator shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:

a. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable;

b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures need not be initiated on that portion of the site.

5. **Maintenance** - Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty (50) percent from the design capacity.

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18 "Stabilization" means covering or maintaining an existing cover over soil. Cover can be vegetative (e.g. grass, trees, seed and mulch, shrubs, or turf) or non-vegetative (e.g. geotextiles, riprap, or gabions).

E. **Contractors**

1. The SWPPP must clearly identify for each measure identified in the SWPPP, the contractor(s) and subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement in Part III.E.2 (see below) of this permit in accordance with Part V.H.(see page 19) of this permit. All certifications must be included in the SWPPP. Additionally, new contractors and subcontractors (see subsection C.3. above) need to similarly certify.

2. **Certification Statement** - All contractors and subcontractors identified in a SWPPP in accordance with Part III.E.1 (see above) of this permit shall sign a copy of the following certification statement before undertaking any construction activity at the site identified in the SWPPP:

> "I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

The certification must include the name and title of the person providing the signature in accordance with Part V.H.(see page 19) of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part IV. MONITORING, REPORTING AND RETENTION OF RECORDS

A. The Department may, at its sole discretion, require monitoring of discharge(s) from the permitted construction activity after notifying the permittee in writing of the basis for such monitoring, the parameters and frequency at which monitoring shall occur and the associated reporting requirements, if any.

B. The operator shall retain copies of SWPPPs and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

C. The operator shall retain a copy of the SWPPP required by this permit at the construction site from the date of initiation of construction activities to the date of final

stabilization.

D. The operator shall also prepare a written summary of its status with respect to compliance with this general permit at a minimum frequency of every three months during which coverage under this permit exists. The summary should address the status of achieving each component of the SWPPP . This summary shall be handled in the same manner as prescribed for SWPPPs under Part III, subsection B (see Page 9).

E. **Addresses** - Except for the submittal of NOIs and NOTs, all written correspondence under this permit directed to the Department, including the submittal of individual permit applications, shall be sent to the address of the appropriate Department Office as listed in Appendix A (see page 23).

Part V. STANDARD PERMIT CONDITIONS

A. **Duty to Comply** - The operator must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against either the operator or the contractor/subcontractor; permit revocation or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all construction activity at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the operator or the operator's on-site representative.

B. **Continuation of the Expired General Permit** - This permit expires five (5) years after issuance on January 8, 2008. However, coverage may be obtained under the expired general permit which will continue in force and effect until a new general permit is issued. After issuance of a new general permit, those with coverage under GP-02-01 will have six (6) months from the effective date of the new general permit to complete their project or obtain coverage under the new permit. Unless otherwise notified by the Department in writing, operators seeking authorization under a new general permit must submit a new NOI in accordance with the terms of such new general permit. See also Part I, subsection D.8. on page 6.

C. **Penalties for Violations of Permit Conditions** - There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $25,000 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. **Need to halt or reduce activity not a defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the construction activity in order to maintain compliance with the conditions of this permit.

E. **Duty to Mitigate** - The permittee and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. **Duty to Provide Information** - The permittee shall furnish any information requested by any agency with regulatory or review authority over this project for the purpose of determining compliance with this permit or compliance with any other regulatory requirements placed on the project in conjunction with this permit. Failure to provide requested information shall be a violation of this permit. Such regulating agencies include but are not limited to the Department, SWCDs,[19] local planning, zoning, health, and building departments that review and approve erosion and sediment control plans, grading plans, and Stormwater Management Plans, as well as MS4s into whose system runoff from the permitted project or activity discharges. The SWPPP and inspection reports required by this general permit are public documents that the operator must make available for inspection, review and copying by any person within five (5) business days of the operator receiving a written request by any such person to review the SWPPP and/or the inspection reports. Copying of documents will be done at the requester's expense.

G. **Other Information** - When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.

H. **Signatory Requirements** - All NOIs, NOTs, SWPPPs, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation: by (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

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19 "SWCD" means Soil and Water Conservation District

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and all reports required by the permit and other information requested by the Department or local agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. **Certification** - Except for NOIs and NOTs, any person signing documents in accordance with this Part shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

I. **Property Rights** - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

J. **Severability** - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. **Denial of Coverage Under This Permit**

1. At its sole discretion, the Department may require any person authorized by this permit to apply for and/or obtain either an individual SPDES permit or an alternative SPDES general permit. Where the Department requires a discharger authorized to discharge under this permit to apply for an individual SPDES permit, the Department shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual SPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Department Office indicated in Appendix A of this permit. The Department may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual SPDES permit application as required by the Department under this paragraph, then the applicability of this permit to the individual SPDES permittee is automatically terminated at the end of the day specified by the Department for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix A on page 23 of this permit). The request may be granted by issuance of an individual permit or an alternative general permit at the discretion of the Department.

3. When an individual SPDES permit is issued to a discharger covered by this permit, or the discharger is authorized to discharge under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual SPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

L. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

M. **Inspection and Entry** - The permittee shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an MS4, an authorized representative of the MS4 receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. **Permit Actions** - At the Department's sole discretion, this permit may, at any time, be modified, revoked, or renewed. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not stay compliance with any terms of this permit.

APPENDIX A

List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0365	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	200 White Plains Road, 5th Floor Tarrytown, NY 10591-5805 Tel. (845) 332-1835
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	Route 86, PO Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Hudson Street Warrensburg, NY 12885-0220 Tel. (518) 623-1200
6	Herkimer, Jefferson, Lewis, Oneida and St. Lawrence	State Office Building 317 Washington Street Watertown, NY 13601-3787 Tel. (315) 785-2245	State Office Building 207 Genesee Street Utica, NY 13501-2885 Tel. (315) 793-2554
7	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7438	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7500
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates	6274 East Avon-Lima Road Avon, NY 14414-9519 Tel. (585) 226-2466	6274 East Avon-Lima Rd. Avon, NY 14414-9519 Tel. (585) 226-2466
9	Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming	270 Michigan Avenue Buffalo, NY 14203-2999 Tel. (716) 851-7165	270 Michigan Ave. Buffalo, NY 14203-2999 Tel. (716) 851-7070

APPENDIX B

Information Required of Construction Activities Which Are Identified Under Part I, subsection D.7. (see page 5)

A. The location (including a map) and the nature of the construction activity;

B. The total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

C. Proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable State and local erosion and sediment control requirements;

D. Proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable State or local erosion and sediment control requirements;

E. An estimate of the runoff coefficient of the site and the increase in impervious area after the construction addressed in the permit application is completed, the nature of the fill material and existing data describing the soil or the quality of the discharge; and

F. The name of the receiving water(s).

APPENDIX A-2

EROSION AND SEDIMENT CONTROLS

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

New York State Standards and Specifications for Erosion and Sediment Control

August 2005

New York State
Department of Environmental Conservation

George E. Pataki, Governor

STANDARD AND SPECIFICATIONS FOR TEMPORARY CRITICAL AREA PLANTINGS

Definition

Providing erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.

Purpose

To provide temporary erosion and sediment control. Temporary control is achieved by covering all bare ground areas that exist as a result of construction or a natural event.

Conditions Where Practice Applies

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

Criteria

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and rocks are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft.).
IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 90 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulch allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydromulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding.

STANDARD AND SPECIFICATIONS FOR MULCHING

Definition

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/ acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

Table 3.7
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7”	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2”	9 cu. yds.	405 cu. yds.	3”	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48” x 50 yds. or 48” x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	8” x 100” 2-sided plastic, 48” x 180” 1-sided plastic	—	—	Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Compost	Up to 3” pieces, moderately to highly stable	3-9 cu. yds.	134-402 cu. yds.	1-3”	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Table 3.8
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.

STANDARD AND SPECIFICATIONS FOR TEMPORARY SWALE

Definition

A temporary excavated drainage way.

Purpose

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device.

Conditions Where Practice Applies

Temporary swales are constructed:

1. to divert flows from entering a disturbed area.

2. intermittently across disturbed areas to shorten overland flow distances.

3. to direct sediment laden water along the base of slopes to a trapping device.

4. to transport offsite flows across disturbed areas such as rights-of-way.

Swales collecting runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.2 on page 5A.5 for details.

	Swale A	Swale B
Drainage Area	<5 Ac	5-10 Ac
Bottom Width of Flow Channel	4 ft	6 ft
Depth of Flow Channel	1 ft	1 ft
Side Slopes	2:1 or flatter	2:1 or flatter
Grade	0.5% Min. 20% Max.	0.5% Min. 20% Max.

For drainage areas larger than 10 acres, refer to the Standard and Specification for Waterways on page 5B.11.

Stabilization

Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. The flow channel shall be stabilized as per the following criteria:

Type of Treatment	Channel Grade[1]	Flow Channel A (<5 Ac.)	Flow Channel B (5-10 Ac)
1	0.5-3.0%	Seed & Straw Mulch	Seed & Straw Mulch
2	3.1-5.0%	Seed & Straw Mulch	Seed and cover with RECP, Sod, or lined with plastic or 2 in. stone
3	5.1-8.0%	Seed and cover with RECP, Sod, or line with plastic or 2 in. stone	Line with 4-8 in. or stone or Recycled Concrete Equivalent[2] or geotextile
4	8.1-20%	Line with 4-8 in. stone or Recycled Concrete Equivalent[2] or geotextile	Site Specific Engineering Design

[1] In highly erodible soils, as defined by the local approving agency, refer to the next higher slope grade for type of stabilization.
[2] Recycled Concrete Equivalent shall be concrete broken into the required size, and shall contain no steel reinforcement.

Outlet

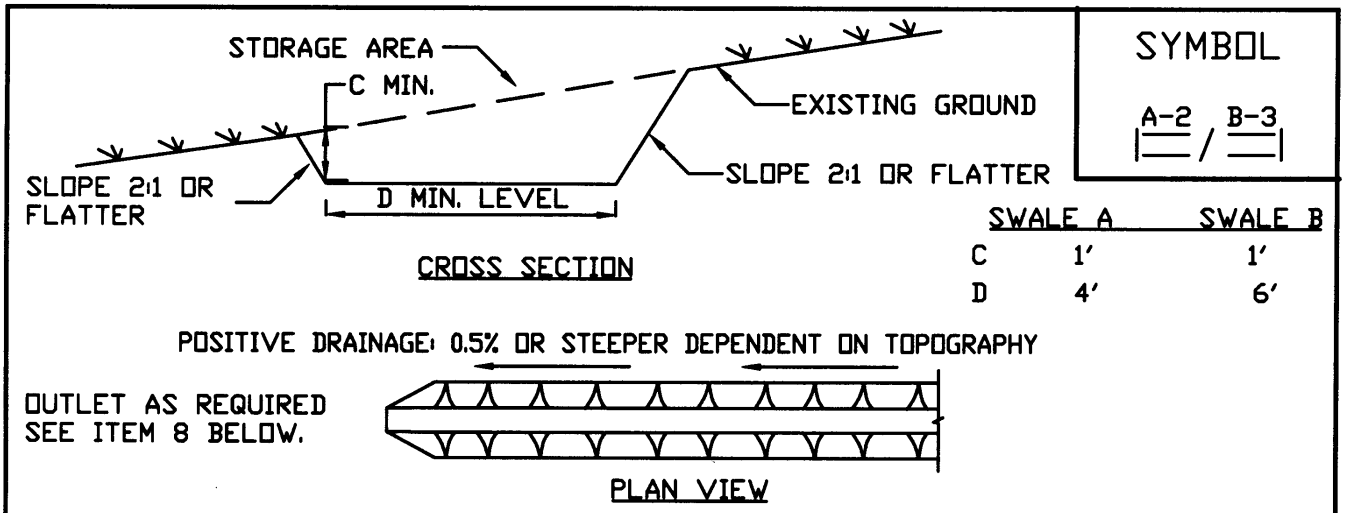
Swale shall have an outlet that functions with a minimum of erosion, and dissipates runoff velocity prior to discharge off the site.

Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet condition.

If a swale is used to divert clean water flows from entering a disturbed area, a sediment trapping device may not be needed.

Figure 5A.2
Temporary Swale



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1-8.0%	SEED AND COVER WITH RECP	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE
4	8.1-20.%	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

TEMPORARY SWALE

STANDARD AND SPECIFICATIONS FOR PERIMETER DIKE/SWALE

Definition

A temporary ridge of soil excavated from an adjoining swale located along the perimeter of the site or disturbed area.

Purpose

The purpose of a perimeter dike/swale is to prevent off site storm runoff from entering a disturbed area and to prevent sediment laden storm runoff from leaving the construction site or disturbed area.

Conditions Where Practice Applies

Perimeter dike/swale is constructed to divert flows from entering a disturbed area, or along tops of slopes to prevent flows from eroding the slope, or along base of slopes to direct sediment laden flows to a trapping device.

The perimeter dike/swale shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.3 on page 5A.8 for details.

The perimeter dike/swale shall not be constructed outside the property lines without obtaining legal easements from affected adjacent property owners. A design is not required for perimeter dike/swale. The following criteria shall be used:

Drainage area – Less than 2 acres (for drainage areas larger than 2 acres but less than 10 acres, see earth dike or temporary swale; for drainage areas larger than 10 acres, see standard and specifications for diversion).

Height – 18 inches minimum from bottom of swale to top of dike evenly divided between dike height and swale depth.

Bottom width of dike – 2 feet minimum.

Width of swale – 2 feet minimum.

Grade – Dependent upon topography, but shall have positive drainage (sufficient grade to drain) to an adequate outlet. Maximum allowable grade not to exceed 8 percent.

Stabilization – The disturbed area of the dike and swale shall be stabilized within 7 days of installation, in accordance with the standard and specifications for temporary swales.

Outlet

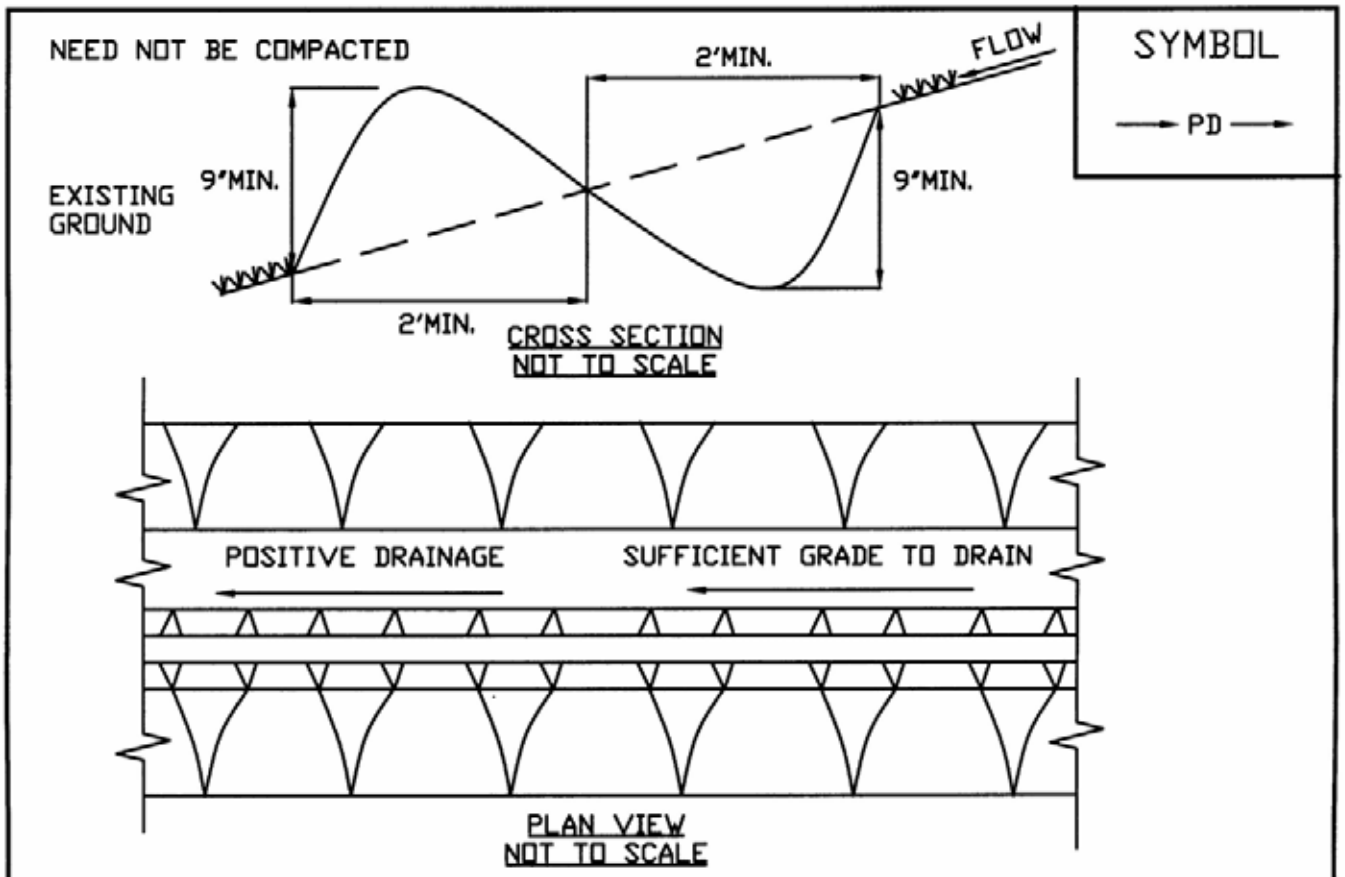
1. Perimeter dike/swale shall have a stabilized outlet.

2. Diverted runoff from a protected or stabilized upland area shall outlet directly onto an undisturbed stabilized area.

3. Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment trapping device such as a sediment trap, sediment basin, or to an area protected by any of these practices.

4. The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet.

Figure 5A.3
Perimeter Dike/Swale



CONSTRUCTION SPECIFICATIONS

1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSION VELOCITY.
4. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
5. STABILIZATION OF THE AREA DISTURBED BY THE DIKE AND SWALE SHALL BE DONE IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR TEMPORARY SEEDING AND MULCHING, AND SHALL BE DONE WITHIN 10 DAYS.
6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

MAX. DRAINAGE AREA LIMIT: 2 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

PERIMETER DIKE OR SWALE

STANDARD AND SPECIFICATIONS FOR STRAW BALE DIKE

Definition

A temporary barrier of straw, or similar material, used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a bale dike is to reduce runoff velocity and effect deposition of the transported sediment load. Straw bale dikes have an estimated design life of three (3) months.

Conditions Where Practice Applies

The straw bale dike is used where:

1. No other practice is feasible.
2. There is no concentration of water in a channel or other drainage way above the barrier.
3. Erosion would occur in the form of sheet erosion.
4. Length of slope above the straw bale dike does not exceed these limits.

Constructed Slope	Percent Slope	Slope Length (ft.)
2:1	50	25
3:1	33	50
4:1	25	75

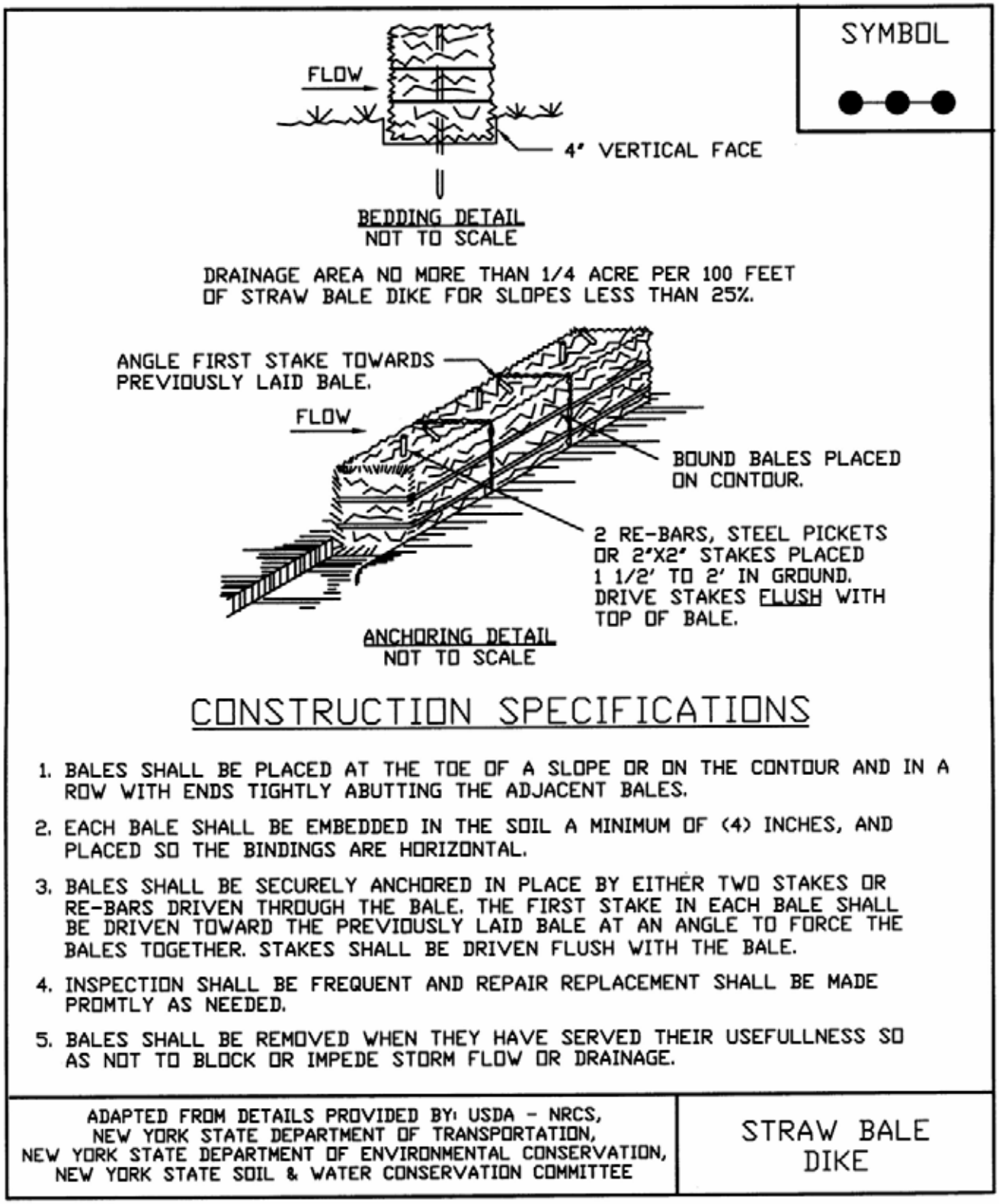
Where slope gradient changes through the drainage area, steepness refers to the steepest slope section contributing to the straw bale dike.

The practice may also be used for a single family lot if the slope is less than 15 percent. The contributing drainage areas in this instance shall be less than one quarter of an acre per 100 feet of fence and the length of slope above the dike shall be less than 200 feet.

Design Criteria

The above table is adequate, in general, for a one-inch rainfall event. Larger storms could cause failure of this practice. Use of this practice in sensitive areas for longer than one month should be specifically designed to store expected runoff. All bales shall be placed on the contour with cut edge of bale adhering to the ground. See Figure 5A.7 on page 5A.18 or details.

Figure 5A.7
Straw Bale Dike



STANDARD AND SPECIFICATIONS FOR SILT FENCE

Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

Slope Steepness	Maximum Length (ft.)
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and

3. Erosion would occur in the form of sheet erosion; and

4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

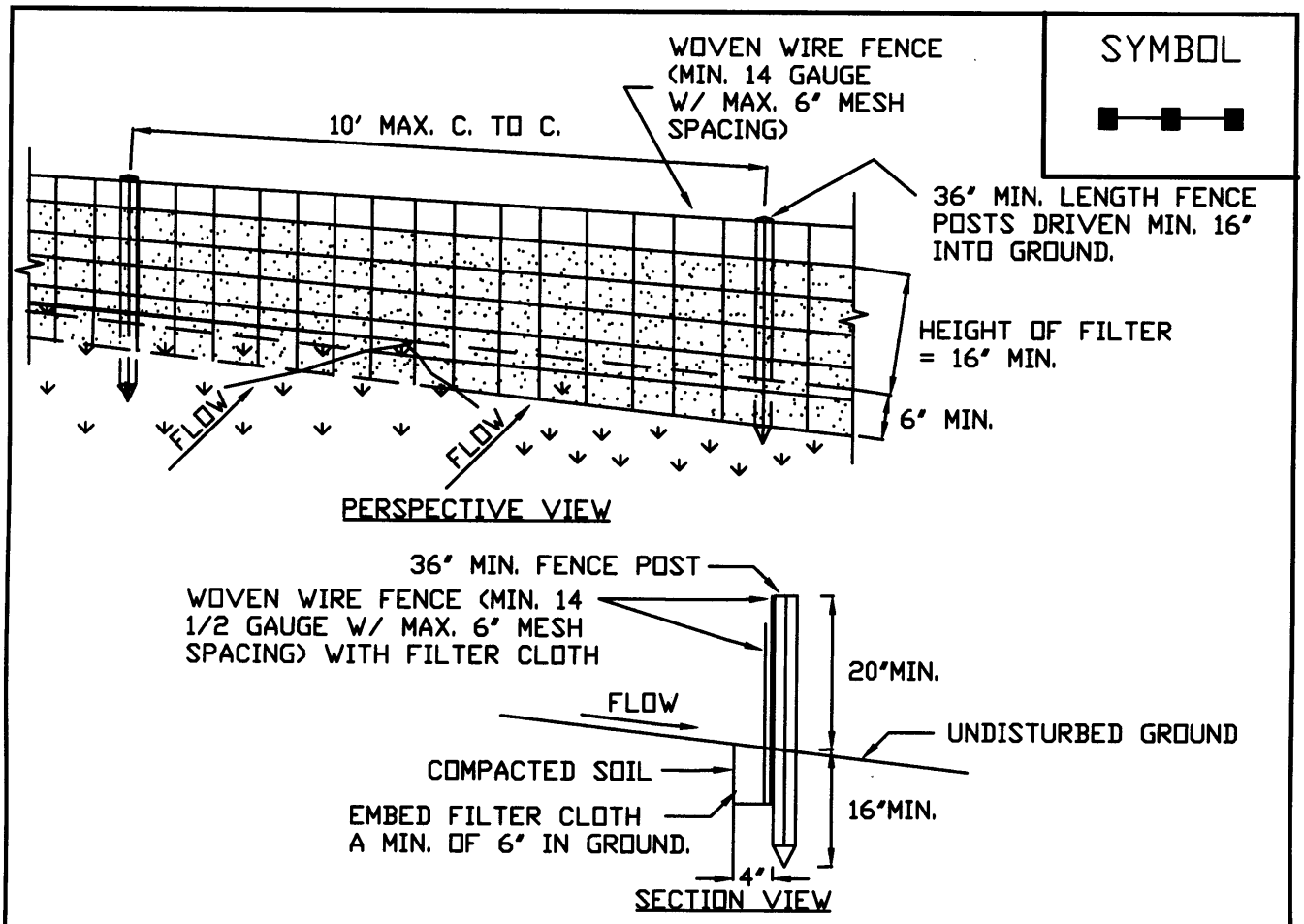
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

Figure 5A.8
Silt Fence



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	SILT FENCE

STANDARD AND SPECIFICATIONS FOR SEDIMENT TRAP

Definition

A temporary sediment control device formed by excavation and/or embankment to intercept sediment laden runoff and retain the sediment.

Purpose

The purpose of the structure is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation.

Conditions Where Practice Applies

A sediment trap is usually installed in a drainage way, at a storm drain inlet, or other points of collection from a disturbed area.

Sediment traps should be used to artificially break up the natural drainage area into smaller sections where a larger device (sediment basin) would be less effective.

Design Criteria

If any of the design criteria presented here cannot be met, see Standard and Specification for Sediment Basin on page 5A.49.

Drainage Area

The drainage area for sediment traps shall be in accordance with the specific type of sediment trap used (Type I through V).

Location

Sediment traps shall be located so that they can be installed prior to grading or filling in the drainage area they are to protect. Traps must not be located any closer than 20 feet from a proposed building foundation if the trap is to function during building construction. Locate traps to obtain maximum storage benefit from the terrain and for ease of cleanout and disposal of the trapped sediment.

Trap Size

The volume of a sediment trap as measured at the elevation of the crest of the outlet shall be at least 3,600 cubic feet per acre of drainage area. The volume of a constructed trap shall be calculated using standard mathematical procedures. The volume of a natural sediment trap may be approximated by the equation: Volume (cu.ft.) = 0.4 x surface area (sq.ft.) x maximum depth (ft.).

Trap Cleanout

Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to ½ of the design depth of the trap. Sediment removed from the trap shall be deposited in a protected area and in such a manner that it will not erode.

Embankment

All embankments for sediment traps shall not exceed five (5) feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum four (4) foot wide top and side slopes of 2:1 or flatter. The embankment shall be compacted by traversing with equipment while it is being constructed. The embankment shall be stabilized with seed and mulch as soon as it is completed

The elevation of the top of any dike directing water to any sediment trap will equal or exceed the maximum height of the outlet structure along the entire length of the trap.

Excavation

All excavation operations shall be carried out in such a manner that erosion and water pollution shall be minimal. Excavated portions of sediment traps shall have 1:1 or flatter slopes.

Outlet

The outlet shall be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion at or below the outlet does not occur.

Sediment traps must outlet onto stabilized (preferable undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. Distance between inlet and outlet should be maximized to the longest length practicable.

Trap Details Needed on Erosion and Sediment Control Plans

Each trap shall be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan shall indicate all the information necessary to properly construct and maintain the structure. If the drawings are such that this information cannot be delineated on the drawings, then a table shall be developed. If a table is developed, then each trap on a plan shall have a number and the numbers shall be consecutive.

The following information shall be shown for each trap in a summary table format on the plans.

1. Trap number
2. Type of trap
3. Drainage area
4. Storage required
5. Storage provided (if applicable)
6. Outlet length or pipe sizes
7. Storage depth below outlet or cleanout elevation
8. Embankment height and elevation (if applicable)

Type of Sediment Traps

There are five (5) specific types of sediment traps which vary according to their function, location, or drainage area.

I. Pipe Outlet Sediment Trap
II. Grass Outlet Sediment Trap
III. Catch Basin Sediment Trap
IV. Stone Outlet Sediment Trap
V. Riprap Outlet Sediment Trap

I. Pipe Outlet Sediment Trap

A Pipe Outlet Sediment Trap consists of a trap formed by embankment or excavation. The outlet for the trap is through a perforated riser and a pipe through the embankment. The outlet pipe and riser shall be made of steel, corrugated metal or other suitable material. The top of the embankment shall be at least 1 ½ feet above the crest of the riser. The top 2/3 of the riser shall be perforated with one (1) inch nominal diameter holes or slits spaced six (6) inches vertically and horizontally placed in the concave portion of the corrugated pipe.

No holes or slits will be allowed within six (6) inches of the top of the horizontal barrel. All pipe connections shall be watertight. The riser shall be wrapped with ½ to ¼ inch hardware cloth wire then wrapped with filter cloth with a sieve size between #40-80 and secured with strapping or connecting band at the top and bottom of the cloth. The cloth shall cover an area at least six (6) inches above the highest hole and six (6) inches below the lowest hole. The top of the riser pipe shall not be covered with filter cloth. The riser shall have a base with sufficient weight to prevent flotation of the riser. Two approved bases are:

1. A concrete base 12 in. thick with the riser embedded 9 in. into the concrete base, or

2. One quarter inch, minimum, thick steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or earth placed on it to prevent flotation. In either case, each side of the square base measurement shall be the riser diameter plus 24 inches.

Pipe outlet sediment traps shall be limited to a five (5) acre maximum drainage area. Pipe outlet sediment traps may be interchangeable in the field with stone outlet or riprap sediment traps provided that these sediment traps are constructed in accordance with the detail and specifications for that trap.

Select pipe diameter from the following table:

Minimum Sizes

Barrel Diameter[1] (in.)	Riser Diameter[1] (in.)	Maximum Drainage Area (ac.)
12	15	1
15	18	2
18	21	3
21	24	4
21	27	5

[1] Barrel diameter may be same size as riser diameter.

See details for Pipe Outlet Sediment Trap ST-I in Figure 5A.16 (1) and 5A.16 (2) on pages 5A.38 and 5A.39.

II. Grass Outlet Sediment Trap

A Grass Outlet Sediment Trap consists of a trap formed by excavating the earth to create a holding area. The trap has a discharge point over natural existing grass. The outlet crest width (feet) shall be equal to four (4) times the drainage area (acres) with a minimum width of four (4) feet. The outlet shall be free of any restrictions to flow. The outlet lip must remain undisturbed and level. The volume of this trap shall be computed at the elevation of the crest of the outlet. Grass outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Grass Outlet Sediment Trap ST-II in Figure 5A.17 on page 5A.40.

III. Catch Basin Sediment Trap

A Catch Basin Sediment Trap consists of a basin formed by excavation on natural ground that discharges through an opening in a storm drain inlet structure. This opening can either be the inlet opening or a temporary opening made by omitting bricks or blocks in the inlet.

A yard drain inlet or an inlet in the median strip of a dual highway could use the inlet opening for the type outlet. The trap should be out of the roadway so as not to interfere with future compaction or construction. Placing the trap on the opposite side of the opening and diverting water from the roadway to the trap is one means of doing this. Catch basin sediment traps shall be limited to a three (3) acre maximum drainage area. The volume of this trap is measured at the elevation of the crest of the outlet (invert of the inlet opening).

See details for Catch Basin Sediment Trap ST-III in Figure 5A.18 on page 5A.41.

IV. Stone Outlet Sediment Trap

A Stone Outlet Sediment Trap consists of a trap formed by an embankment or excavation. The outlet of this trap is over a stone section placed on level ground. The minimum length (feet) of the outlet shall be equal to four (4) times the drainage area (acres).

Required storage shall be 3,600 cubic feet per acre of drainage area.

The outlet crest (top of stone in weir section) shall be level, at least one (1) foot below top of embankment and no more than one (1) foot above ground beneath the outlet. Stone used in the outlet shall be small riprap (4 in. x 8 in.). To provide more efficient trapping effect, a layer of filter cloth should be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.

Stone Outlet Sediment Traps may be interchangeable in the field with pipe or riprap outlet sediment traps provided they are constructed in accordance with the detail and specifications for those traps. Stone outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Stone Outlet Sediment Trap ST-IV in Figure 5A.19 on page 5A.42.

V. Riprap Outlet Sediment Trap

A Riprap Outlet Sediment Trap consists of a trap formed by an excavation and embankment. The outlet for this trap shall be through a partially excavated channel lined with riprap. This outlet channel shall discharge onto a stabilized area or to a stable watercourse. The riprap outlet sediment trap may be used for drainage areas of up to a maximum of 15 acres.

Design Criteria for Riprap Outlet Sediment Trap

1. The total contributing drainage area (disturbed or undisturbed either on or off the developing property) shall not exceed 15 acres.
2. The storage needs for this trap shall be computed using 3600 cubic feet of required storage for each acre of drainage area. The storage volume provided can be figured by computing the volume of storage area available behind the outlet structure up to an elevation of one (1) foot below the level weir crest.
3. The maximum height of embankment shall not exceed five (5) feet.
4. The elevation of the top of any dike directing water to a riprap outlet sediment trap will equal or exceed the minimum elevation of the embankment along the entire length of this trap.

Riprap Outlet Sediment Trap ST-V
(for Stone Lined Channel)

Contributing Drainage Area (ac.)	Depth of Channel (a) (ft.)	Length of Weir (b) (ft.)
1	1.5	4.0
2	1.5	5.0
3	1.5	6.0
4	1.5	10.0
5	1.5	12.0
6	1.5	14.0
7	1.5	16.0
8	2.0	10.0
9	2.0	10.0
10	2.0	12.0
11	2.0	14.0
12	2.0	14.0
13	2.0	16.0
14	2.0	16.0
15	2.0	18.0

See details for Riprap Outlet Sediment Trap ST-V on Figures 5A.20(1) and 5A.20(2) on pages 5A.43 and 5A.44.

Optional Dewatering Methods

Optional dewatering devices may be designed for use with sediment traps. Included are two methods, which may be used. See Figure 5A.21 on page 5A.45 for details.

Figure 5A.16(1)
Pipe Outlet Sediment Trap: ST-I

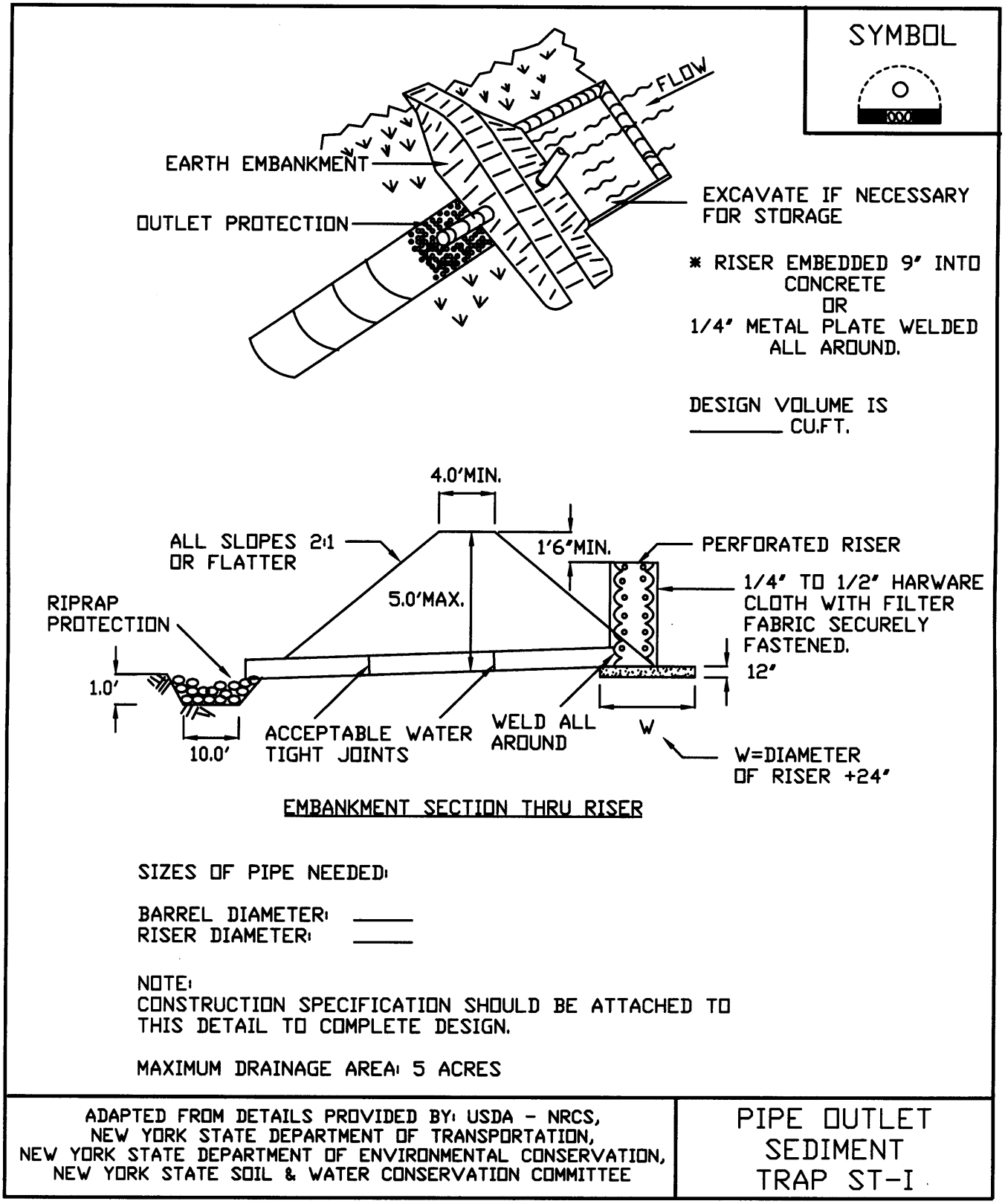


Figure 5A.16(2)
Pipe Outlet Sediment Trap: ST-I—Construction Specifications

SYMBOL

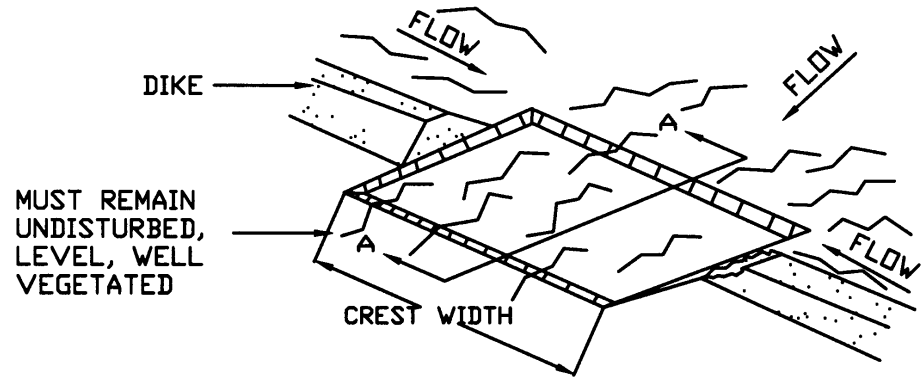
CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
4. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
5. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
8. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER; CUT SLOPES 1:1 OR FLATTER.
9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
10. THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE (1) INCH DIAMETER HOLES OR SLITS SPACED SIX (6) INCHES VERTICALLY AND HORIZONTALLY AND PLACED IN THE CONCAVE PORTION OF PIPE. NO HOLES WILL BE ALLOWED WITHIN SIX (6) INCHES OF THE HORIZONTAL BARREL.
11. THE RISER SHALL BE WRAPPED WITH 1/4 TO 1/2 INCH HARDWARE CLOTH WIRE THEN WRAPPED WITH FILTER CLOTH (HAVING AN EQUIVALENT SIEVE SIZE OF 40-80). THE FILTER CLOTH SHALL EXTEND SIX (6) INCHES ABOVE THE HIGHEST HOLE AND SIX (6) INCHES BELOW THE LOWEST HOLE. WHERE ENDS OF THE FILTER CLOTH COME TOGETHER, THEY SHALL BE OVER-LAPPED, FOLDED AND STAPLED TO PREVENT BYPASS.
12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN FOUR (4) INCH LAYERS. A MINIMUM OF TWO (2) FEET OF HAND COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. FOR CONCRETE BASED THE DEPTH SHALL BE TWELVE (12) INCHES WITH THE RISER EMBEDDED NINE (9) INCHES. A 1/4 INCH MINIMUM THICKNESS STEEL PLATE SHALL BE ATTACHED TO THE RISER BY A CONTINUOUS WELD AROUND THE BOTTOM TO FORM A WATERTIGHT CONNECTION AND THEN PLACE TWO (2) FEET OF STONE, GRAVEL, OR TAMPED EARTH ON THE PLATE.

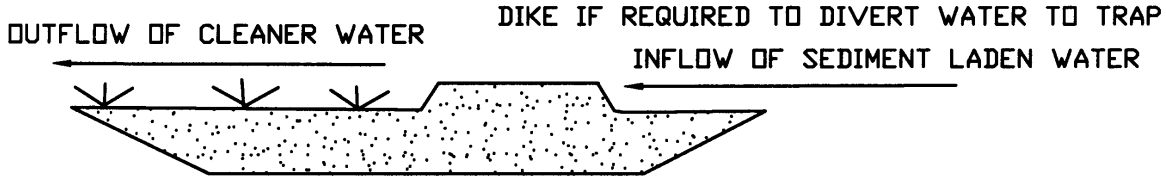
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

PIPE OUTLET
SEDIMENT TRAP
ST-I

Figure 5A.17
Grass Outlet Sediment Trap: ST-II



SYMBOL



CREST WIDTH (FT)=4xDRAINAGE AREA (ACRES)

SECTION A - A
EXCAVATED GRASS OUTLET SEDIMENT TRAP

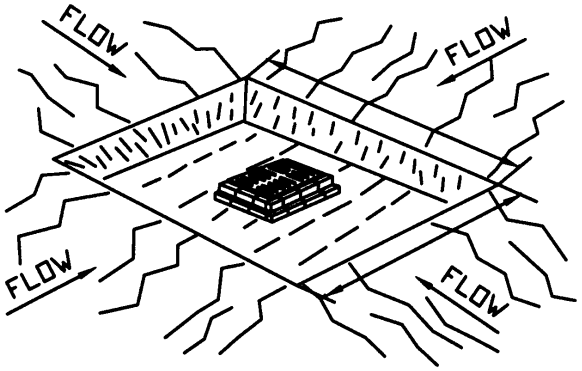
CONSTRUCTION SPECIFICATIONS

1. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE AREA.
2. MINIMUM CREST WIDTH SHALL BE 4 x DRAINAGE AREA
3. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
6. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
7. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 5 ACRES

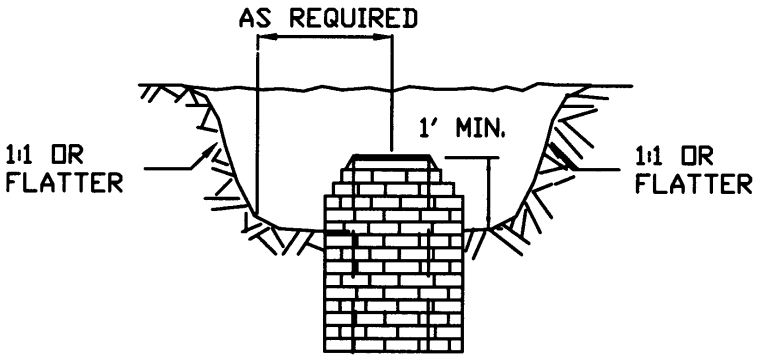
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	GRASS OUTLET SEDIMENT TRAP ST-II

Figure 5A.18
Catch Basin Sediment Trap: ST-III



SYMBOL

YARD DRAIN



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

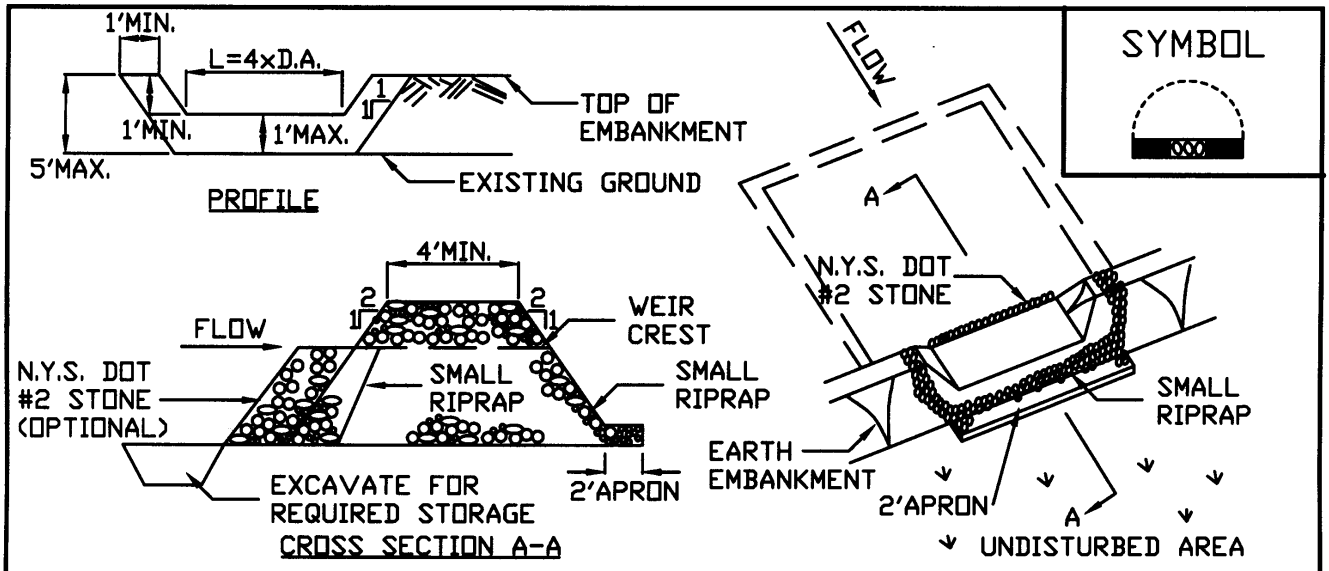
1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
2. THE VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
3. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
5. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTED DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
6. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 3 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

CATCH BASIN
SEDIMENT TRAP
ST-III

Figure 5A.19
Stone Outlet Sediment Trap: ST-IV



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP INPLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

MAXIMUM DRAINAGE AREA 5 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STONE OUTLET SEDIMENT TRAP ST-IV

Figure 5A.20(1)
Riprap Outlet Sediment Trap: ST-V

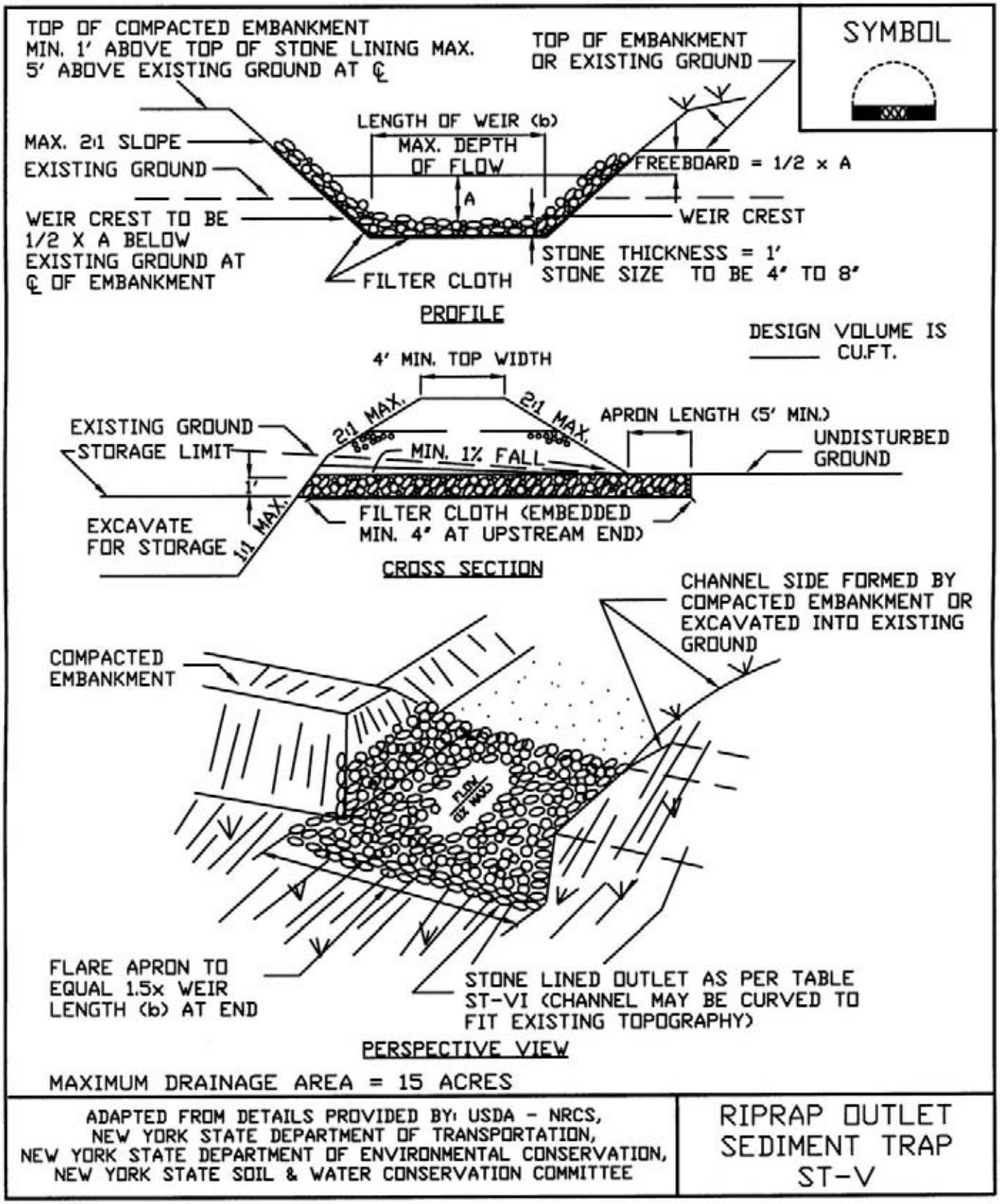


Figure 5A.202)
Riprap Outlet Sediment Trap: ST-V—Construction Specifications

SYMBOL

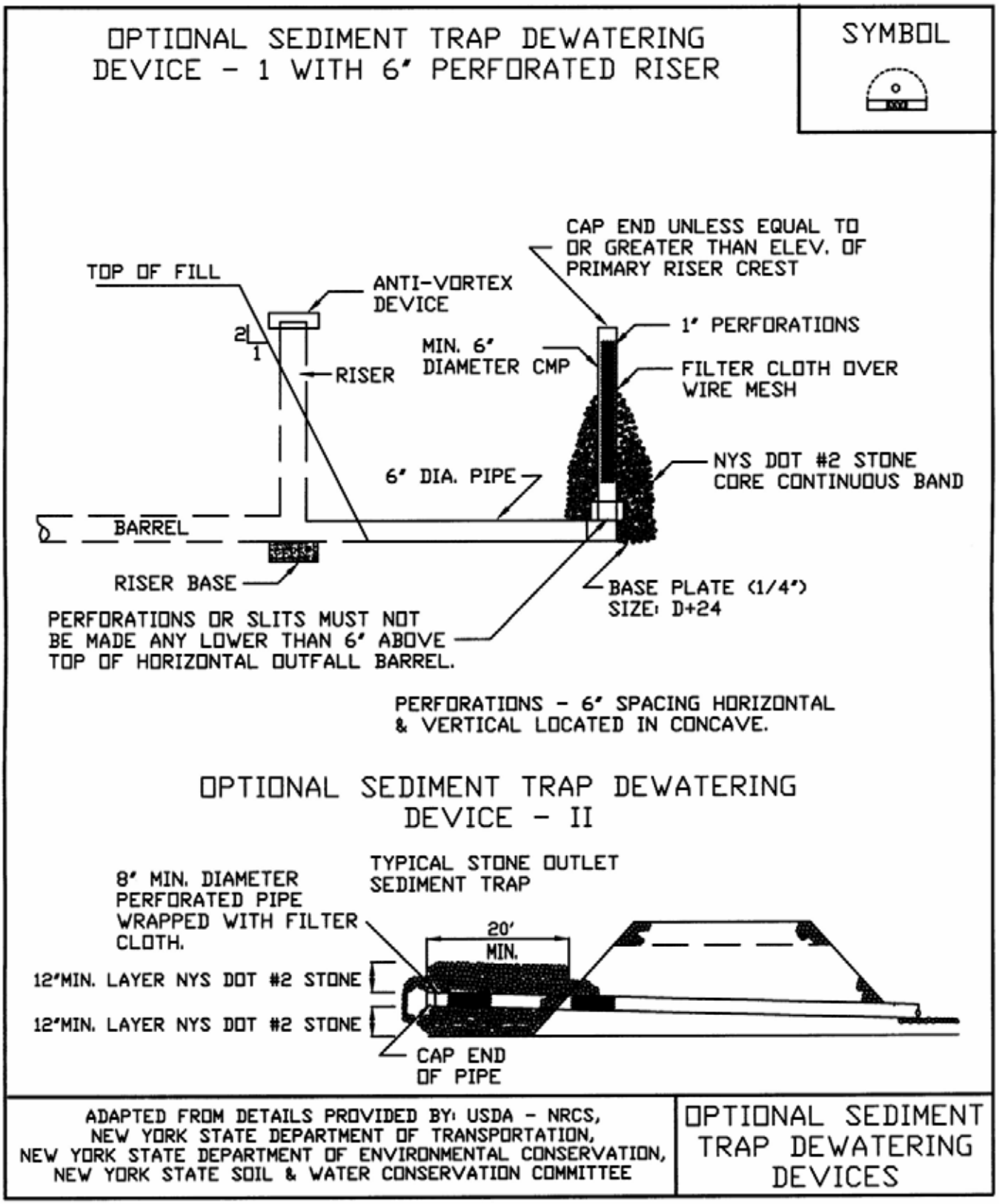
CONSTRUCTION SPECIFICATIONS

1. THE AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. MAXIMUM HEIGHT OF OF EMBANKMENT SHALL BE FIVE (5) FEET, MEASURED AT CENTERLINE OF EMBANKMENT.
3. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER, CUT SLOPES 1:1 OR FLATTER.
4. ELEVATION OF THE TOP OF ANY DIKE DIRECTING WATER INTO TRAP MUST EQUAL OR EXCEED THE HEIGHT OF EMBANKMENT.
5. STORAGE AREA PROVIDED SHALL BE FIGURED BY COMPUTING THE VOLUME AVAILABLE BEHIND THE OUTLET CHANNEL UP TO AN ELEVATION OF ONE (1) FOOT BELOW THE LEVEL WEIR CREST.
6. FILTER CLOTH SHALL BE PLACED OVER THE BOTTOM AND SIDES OF THE OUTLET CHANNEL PRIOR TO PLACEMENT OF STONE. SECTIONS OF FABRIC MUST OVERLAP AT LEAST ONE (1) FOOT WITH SECTION NEAREST THE ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OUTLET CHANNEL.
7. STONE USED IN THE OUTLET CHANNEL SHALL BE FOUR (4) TO EIGHT (8) INCH RIPRAP. TO PROVIDE A FILTERING EFFECT, A LAYER OF FILTER CLOTH SHALL BE EMBEDDED ONE (1) FOOT WITH SECTION NEAREST ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
8. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
9. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRED AS NEEDED.
10. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
11. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
12. DRAINAGE AREA FOR THIS PRACTICE IS LIMITED TO 15 ACRES OR LESS.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET
SEDIMENT TRAP
ST-V

Figure 5A.21
Optional Sediment Trap Dewatering Devices



APPENDIX A-3

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

APPENDIX A-4

FUGITIVE DUST AND PARTICULATE MONITORING

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX B

EXAMPLE HASP AND CAMP

EXAMPLE

HEALTH AND SAFETY PLAN (HASP)
REMEDIAL ACTIVITIES

COLGATE AVENUE SITE
BUFFALO, NEW YORK

February 2011 0100-001-200
Revised August 2012

Prepared for:

SITE MANAGEMENT PLAN
APPENDIX B

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES
COLGATE AVENUE SITE

Plan Reviewed by (initial):

Corporate Health and Safety Director: Michael Yount

Project Manager: Thomas H. Forbes

Designated Site Safety and Health Officer: Bryan C. Hann

Acknowledgement:

I acknowledge that I have reviewed the information contained in this site-specific Health and Safety Plan, and understand the hazards associated with performance of the field activities described herein. I agree to comply with the requirements of this plan.

NAME (PRINT)	SIGNATURE	DATE

SITE MANAGEMENT PLAN
APPENDIX B

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

TABLE OF CONTENTS

SITE MANAGEMENT PLAN
APPENDIX B

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

TABLE OF CONTENTS

SITE MANAGEMENT PLAN
APPENDIX B

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120 and USEPA Standard Operating Safety Guidelines, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by Benchmark Environmental Engineering & Science, PLLC and TurnKey Environmental Restoration, LLC employees (referred to jointly hereafter as Benchmark-TurnKey) during remedial activities at the Colgate Avenue Site located in Buffalo, New York. This HASP presents information and procedures for Benchmark-TurnKey employees who will be involved with field activities, including the assignment of responsibilities, personnel protection requirements, work practices, and emergency response procedures. It is not intended to cover the activities of other contractors or subcontractors on the Site; these firms will be required to develop and enforce their own HASPs as discussed below. In order to ensure that proper coordination on such key issues as emergency notification and decontamination exists between Benchmark-TurnKey and other contractors or subcontractors, Benchmark-TurnKey will review all HASPs and coordinate procedures where appropriate.

This HASP presents information on known Site health and safety hazards using available historical information for previously investigated areas of the Site, and identifies the equipment, materials and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards. This HASP will be updated as new investigation data becomes available.

All Benchmark-TurnKey personnel involved with the field activities associated with Site work will be required to comply with this HASP and any field modifications as directed by the Site Safety and Health Officer.

1.2 Site Location and Description

The Colgate Avenue Site encompasses approximately 3.2 acres in the City of Buffalo, New York. The Site is generally bounded by Colgate Avenue to the north, residential properties along Colgate Avenue to the east, light industrial properties to the south (fronting on Okell Street), and commercial and industrial properties to the west (see Figure 1 of the

Remedial Action Work Plan). Colgate Avenue terminates at the western gate of the Ameron property. Buildings within the Site are vacant, with Site structures generally limited to a portion of a former office and manufacturing building referred to as Plant No. 1; a warehouse; and production building referred to as the Furan Building. Surrounding property is comprised primarily of residential housing and light industrial business.

1.3 Site History

Beginning in approximately 1960 and continuing to 1982, Ameron (or its predecessors) operated a protective coatings manufacturing facility on the subject property. During 1983 and 1984, environmental investigations revealed the presence of certain chemicals in soil and perched water beneath the westernmost portion of the former manufacturing building. As a result, in 1986 Ameron entered into an Order on Consent with the New York State Department of Environmental Conservation (NYSDEC), whereby Ameron installed, maintained, and operated a sub-floor soil vapor extraction (SVE) system for a 10-year period. The system was constructed and installed in 1988, approved by NYSDEC in 1989, and operated by Ameron through 1999.

At the conclusion of these remedial activities, Ameron sought delisting of the site from NYSDEC's Registry of Inactive Hazardous Waste Sites. NYSDEC indicated that although the terms of the 1986 Order on Consent were completed to their satisfaction, insufficient data existed to establish that the remedial action goals had been attained. Consequently, NYSDEC denied the delisting and required further investigation of the property.

1.4 Previous Investigations

A summary of the Site investigations and pertinent environmental activities at the Site is presented in Section 1.2.2 of the Remedial Action Work Plan.

1.5 Overview of Site Remedial Activities

Benchmark-TurnKey personnel will be on-site to observe remedial activities. The field activities to be completed are listed below and more fully described in the RA Work Plan for the Site (Ref. 1):

- Site preparation.
- Excavation of impacted soil/fill and backfilling of excavations.
- Injection of Hydrogen Release Compound® and Oxygen Release Compound®.
- Sampling of monitoring wells including measurement of field parameters.
- Community air monitoring.

2.0 ORGANIZATIONAL STRUCTURE

This chapter of the HASP describes the lines of authority, responsibility, and communication as they pertain to health and safety functions at the Site. The purpose of this chapter is to identify the personnel who will impact the development and implementation of the HASP and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations, and establishes the lines of communication among them for heath and safety matters. The organizational structure described in this chapter is consistent with the requirements of 29 CFR 1910.120(b)(2). This section will be reviewed by the Project Manager and updated as necessary to reflect the current organizational structure at this Site.

2.1 Roles and Responsibilities

All Benchmark-TurnKey personnel on the Site must comply with the minimum requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this Site are detailed in the following paragraphs.

2.1.1 Corporate Health and Safety Director

The Benchmark-TurnKey Corporate Health and Safety Director is **Mr. Michael Yount**. The Corporate Health and Safety Director is responsible for developing and implementing the Health and Safety program and policies for Benchmark Environmental Engineering & Science PLLC and TurnKey Environmental Restoration, LLC, and consulting with corporate management to ensure adequate resources are available to properly implement these programs and policies. The Corporate Health and Safety Director coordinates Benchmark-TurnKey's Health and Safety training and medical monitoring programs, and assists project management and field staff in developing site-specific health and safety plans.

2.1.2 Project Manager

The Project Manager for this Site is **Mr. Thomas H. Forbes**. The Project Manager has the responsibility and authority to direct all Benchmark-TurnKey work operations at the Site. The Project Manager coordinates safety and health functions with the Site Safety and Health Officer, and bears ultimate responsibility for proper implementation of this HASP.

He may delegate authority to expedite and facilitate any application of the program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

- Preparing and coordinating the Site Work Plan.
- Providing Benchmark-TurnKey workers with work assignments and overseeing their performance.
- Coordinating health and safety efforts with the Site Safety and Health Officer.
- Reviewing the emergency response coordination plan to assure its effectiveness.
- Serving as the primary liason with Site contractors and the property owner.

2.1.3 Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) for this Site is **Mr. Bryan H. Hann**. The qualified alternate SSHO is **Mr. Richard L. Dubisz**. The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the Site during all work operations and has the authority to halt work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

- Managing the safety and health functions for Benchmark-TurnKey personnel on the Site.
- Serving as the point of contact for safety and health matters.
- Ensuring that Benchmark-TurnKey field personnel working on the Site have received proper training (per 29 CFR Part 1910.120(e)), that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.
- Performing or overseeing Site monitoring as required by the HASP.
- Assisting in the preparation and review of the HASP.
- Maintaining site-specific safety and health records as described in this HASP.
- Coordinating with the Project Manager, Site Workers, and Contractor's SSHO as necessary for safety and health efforts.
- Conducting daily tailgate Health and Safety meetings

2.1.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor's and Subcontractor's HASP); using proper personal protective equipment (PPE); reporting unsafe acts and conditions to the SSHO; and following the safety and health instructions of the Project Manager and SSHO.

2.1.5 Other Site Personnel

Other Site personnel with health and safety responsibilities include the remediation contractor, who will be responsible for developing, implementing and enforcing a Health and Safety Plan equally stringent or more stringent than Benchmark-TurnKey's HASP. Benchmark-TurnKey assumes no responsibility for the health and safety of anyone outside its direct employ. Each Contractor's HASP shall cover all non-Benchmark-TurnKey site personnel. Each Contractor shall assign a SSHO who will coordinate with Benchmark-TurnKey's SSHO as necessary to ensure effective lines of communication and consistency between contingency plans.

In addition to Benchmark-TurnKey and Contractor personnel, other individuals who may have responsibilities in the work zone include subcontractors and governmental agencies performing site inspection work (e.g., the New York State Department of Environmental Conservation). The Contractor shall be responsible for ensuring that these individuals have received OSHA-required training (29 CFR 1910.120(e)), including initial, refresher and site-specific training, and shall be responsible for the safety and health of these individuals while they are on-site.

3.0 HAZARD EVALUATION

The possibility exists that workers will be exposed to hazardous substances during surface/subsurface soil sampling, installation of monitoring wells using a drill rig, well development, groundwater monitoring, and slug testing. The principal points of exposure would be through direct contact with impacted media or vapors during sample collection and handling activities. In addition, the use of large equipment will also present conditions for potential physical injury to workers. Adherence to the medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, establishment work zones and site control, appropriate decontamination procedures and contingency planning outlined herein will reduce the potential for chemical exposures and physical injuries.

3.1 Chemical Hazards

The nature and distribution of chemical constituents in soil/fill/groundwater at the Colgate Avenue Site were described during several historic investigations:

- November 2001 Limited Subsurface Soil Investigation conducted by AFI Environmental (Ref. 2).
- June 2004 Supplemental Site Investigation conducted by AFI Environmental (Ref. 3).
- April 2005 Remedial Action Work Report prepared by AFI Environmental (Ref. 4).
- June 2010 Remedial Investigation/Feasibility Study Report by Benchmark (Ref. 5).

Based on this work, the constituents of potential concern include chlorinated organics in groundwater and lead in soil. Table B-1 identifies concentration ranges for the constituents of potential concern detected during previous investigations at the Site. Table B-2 lists toxicity and exposure data for these constituents. Brief descriptions of the toxicology of these constituents and related health and safety guidance and criteria are provided below.

- **1,2-Dichloroethene (cis and trans)** are used as intermediates in the production of other chlorinated solvents and compounds, as well as low temperature extraction solvents for dyes, perfumes, and lacquers; commercial use of these

compounds is not extensive. They are highly volatile by reaction with alkalis, potassium hydroxide, sodium, and sodium hydroxide. Direct exposure is mostly by inhalation resulting in heart and liver damage.

- **Tetrachloroethene (PCE)** is used a solvent for greases, waxes and rubbers. It is harmful by ingestion inhalation and skin absorption. Exposure can cause dermatitis, dizziness, nausea, liver, and kidney damage. This compound is a suspected carcinogen.
- **Trichloroethene (TCE)** was formally widely used in dry cleaning operations and metal degreasing. It is toxic by inhalation and skin absorption. It is an irritant to the skin, eyes, and mucous membranes. Symptoms of exposure may include headache, dizziness, and nausea. Exposure may cause liver and kidney damage. TCE is a suspected human carcinogen.
- **Vinyl Chloride** is used primarily as an intermediate in the manufacture of polyvinyl chloride; limited quantities are used as a refrigerant and as an intermediate in the production of chlorinated compounds. It is a biodegradation product of trichloroethene, tetrachloroethene, and 1,1,1-trichloroethene. Inhalation exposure may result in damage to the liver, kidneys, lungs, and other organs. In addition to liver cancer, exposure has also been linked to an increased risk of lung, brain, hematopoietic, and digestive tract cancers.
- **Lead** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.
- **Polychlorinated biphenyls (PCBs),** a series of compounds that were commonly used in transformer oil, are suspected carcinogens. PCBs may vary in form from oily liquids to white solids. Exposure may cause nausea, vomiting, weight loss, jaundice, edema, and abdominal pain.

With respect to the anticipated activities defined in Section 1.4, possible routes of exposure to the above-mentioned contaminants are presented in Table B-3. The use of proper respiratory equipment, as outlined in Section 7.0, will minimize the potential for exposure to airborne contamination. Further, exposure to contaminants through dermal and other routes will also be minimized through the use of protective clothing (Section 7.0), safe work practices (Section 6.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

Site remedial activities may present the following physical hazards:

- The potential for physical injury during heavy equipment use.
- The potential for slip and fall injuries due to slippery terrain.

These hazards represent only some of the possible means of injury that may be present during remedial and sampling activities at the Site. Since it is impossible to list all potential sources of injury, it shall be the responsibility of each individual to exercise proper care and caution during all phases of the work.

4.0 TRAINING

4.1 Site Workers

All personnel performing remedial activities (such as, but not limited to, equipment operators and general laborers) and who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the SSHO prior to the start of field activities. A description of topics to be covered by this training is provided below.

4.1.1 Initial and Refresher Training

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5), and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e)(3) and 1910.120(e)(8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations.
- Site safety and hazard recognition, including chemical and physical hazards.
- Medical monitoring requirements.
- Air monitoring, permissible exposure limits, and respiratory protection level classifications.
- Appropriate use of PPE, including chemical compatibility and respiratory equipment selection and use.
- Work practices to minimize risk.
- Work zones and Site control.
- Safe use of engineering controls and equipment.
- Decontamination procedures.
- Emergency response and escape.
- Confined space entry procedures.

- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at Benchmark Environmental Engineering and Science, PLLC's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 Site Training

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the information and requirements it contains. The site briefing shall be provided by the SSHO prior to initiating field activities and shall include:

- Names of personnel and alternates responsible for Site safety and health.
- Safety, health and other hazards present on the Site.
- The Site lay-out including work zones and places of refuge.
- The emergency communications system and emergency evacuation procedures.
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the Site.
- Medical surveillance, including recognition of symptoms and signs of over-exposure (see Section 5).
- Decontamination procedures (see Section 12).
- The Emergency Response Plan (see Attachment B-1).

- Confined space entry procedures, if required (see Section 13).
- The spill containment program (see Section 9).
- Site control (see Section 11).

Supplemental health and safety briefings will also be conducted by the SSHO on an as-needed basis during the course of the work. Supplemental briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during on-going Site characterization and analysis. Conditions for which the SSHO may schedule additional briefings include, but are not limited to: a change in Site conditions (i.e., based on monitoring results); changes in the work schedule/plan; newly discovered hazards; and safety incidents occurring during Site work.

4.2 Supervisor Training

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 Emergency Response Training

Emergency response training is addressed in the Emergency Response Plan included as Attachment B-1 of this HASP.

4.4 Site Visitors

Benchmark-TurnKey's SSHO will provide a site-specific briefing to all Site visitors and other non-Benchmark-TurnKey personnel who enter the Site beyond the Site entry point. The site-specific briefing will provide information about Site hazards, the Site lay-out including work zones and places of refuge, the emergency communications system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

Site visitors will not be permitted to enter the exclusion zone or contaminant reduction zones unless they have received the level of training required for Site workers as described in Section 4.1.

5.0 MEDICAL MONITORING

Medical monitoring examinations are provided to Benchmark-TurnKey employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment and termination physicals for all Benchmark-TurnKey employees involved in hazardous waste Site field operations. Annual exams are provided for those employees who are engaged in hazardous waste site field operations for more than 30 days per year, or who meet other specific criteria listed in 29 CFR 1910.120(f). Post-exposure examinations are also provided for employees who may have been injured, received a health impairment, or developed signs or symptoms of over-exposure to hazardous substances or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event.

Medical evaluations are performed by ADP Screening & Selection Services, an occupational health care provider under contract with Benchmark-TurnKey. ADP's local facility is Health Works WNY, Seneca Square Plaza, 1900 Ridge Road, West Seneca, New York 14224. The facility can be reached at (716) 823-5050 to schedule routine appointments or post-exposure examinations.

Medical evaluations are conducted according to the Benchmark-TurnKey Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The examinations include:

- Occupational/medical history review.
- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 yrs age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).

- Medical certification of physical requirements (i.e.., sight, musculoskeletal, cardiovascular) for safe job performance and to wear respiratory protection equipment.

The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data.

In conformance with OSHA regulations, Benchmark-TurnKey will maintain and preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report, and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

All Benchmark-TurnKey employees shall conform to the following safe work practices during all on-site work activities conducted within the exclusion and contamination reduction zones:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Respiratory protective equipment and clothing must be worn by all personnel entering the Site as required by the HASP or as modified by the Site Safety Officer. Excessive facial hair (i.e., beards, long mustaches, or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.
- Due to possible contraindications, use of prescribed drugs should be reviewed with the Benchmark-TurnKey occupational physician.
- Alcoholic beverage and illegal drug intake are strictly forbidden during the work day.
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan.
- On-site personnel shall use the "buddy" system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective Site operations.
- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for Benchmark-TurnKey employees, as requested and required.

The recommended specific safety practices for working around the subcontractor's equipment (e.g., drill rig, backhoe, site truck.) are as follows:

- Although the subcontractors are responsible for their equipment and safe operation of the Site, Benchmark-TurnKey personnel are also responsible for their own safety.
- Subsurface work will not be initiated without first clearing underground utility services.
- Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The Site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.
- Care should be taken to avoid overhead wires when moving heavy-equipment from location to location.
- Hard hats, safety boots, and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.
- The work Site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the Site.
- Proper lighting must be provided when working at night.
- Work activities should be discontinued during an electrical storm or severe weather conditions.
- The presence of combustible gases should be checked before igniting any open flame.
- Personnel shall stand upwind of remedial activities when not immediately involved in sampling/logging/observing activities.
- Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

Personal protective equipment (PPE) will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the Site.

Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded. Categories A through D consistent with United States Environmental Protection Agency (USEPA) Level of Protection are:

- **Level A:** Should be selected when the highest level of respiratory, skin and eye protection is needed.
- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.
- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured, and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- **Level D:** Should not be worn on any site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

OSHA requires the use of certain PPE under conditions where an immediate danger to life and health (IDLH) may be present. Specifically, OSHA 29 CFR 1910.120(g)(3)(iii) requires use of a positive pressure self-contained breathing apparatus, or positive pressure air-line respirator equipped with an escape air supply when chemical exposure levels present a substantial possibility of immediate serious injury, illness or death, or impair the ability to escape. Similarly, OSHA 29 CFR 1910.120(g)(3)(iv) requires donning totally encapsulating chemical protective suits (with a protection level equivalent to Level A protection) in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

In situations where the types of chemicals, concentrations, and possibilities of contact are unknown, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components are detailed below for levels A/B, C, and D protection.

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection, however Level A provides a higher degree of dermal protection than Level B. Use of Level A over Level B is determined by: comparing the concentrations of identified substances in the air with skin toxicity data, and assessing the effect of the substance (by its measured air concentrations or splash potential) on the small area of the head and neck unprotected by Level B clothing. The recommended PPE for level A/B is:

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA).
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit.
- Inner and outer chemical resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

7.2.2 Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The device (when required) must be an air purifying respirator (MSHA/NIOSH approved)

equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training, and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if: oxygen content of the atmosphere is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask; and an appropriate cartridge/canister is used, and its service limit concentration is not exceeded. Recommended PPE for Level C conditions includes:

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO.
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

An air monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances and where the atmospheric contains at least 19.5% oxygen. Recommended PPE for Level D includes:

- Coveralls.
- Safety boots/shoes.
- Safety glasses or chemical splash goggles.
- Hardhat.

- Optional gloves; escape mask; face shield.

7.2.4 Recommended Level of Protection for Site Tasks

Based up current information regarding both the contaminants suspected to be present at the Site and the various remedial tasks to be implemented, the minimum required levels of protection for these tasks shall be as identified in Table B-4.

8.0 EXPOSURE MONITORING

8.1 General

Based on the results of historic sample analysis and the nature of the proposed work activities at the Site, the possibility exists that particulates may be released to the air during work activities. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PEL) established by OSHA for the individual compounds (see Table B-2), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 Work Area Monitoring

Routine, real-time monitoring of the atmosphere within the work area will be conducted by Benchmark-TurnKey during all intrusive activities (e.g., drilling, test pitting, well development, excavating, etc.). The work area will be monitored at regular intervals using a photo-ionization detector (PID), combustible gas meter and a particulate meter. Observed values will be recorded and maintained as part of the permanent field record.

Additional air monitoring measurements may be made by Benchmark-TurnKey personnel to verify field conditions during subcontractor oversight activities. Monitoring instruments will be protected from surface contamination during use. Additional monitoring instruments may be added if the situations or conditions change.

8.1.2 Off-Site Community Monitoring

In addition to on-site monitoring within the work zone(s), monitoring at the down-wind portion of the Site perimeter will be conducted when any ground intrusive or non-intrusive activities are performed. Ground intrusive activities are defined by NYSDOH Appendix 1A Generic Community Air Monitoring Plan (Attachment B-2). Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Non-intrusive activities include the collection of soil and sediment samples or the collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is required for non-intrusive activities. This will provide a real-time method for determination

of substantial vapor and/or particulate releases to the surrounding community as a result of intrusive activities.

Periodic monitoring is required during non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to an individual not involved in the site activity (i.e., on a curb of a busy street). The action levels below can be used during periodic monitoring.

8.2 Monitoring Action Levels

8.2.1 On-Site Levels

The PID or other appropriate instrument(s) will be used as specified in this Health and Safety Plan. Methane gas will be monitored with the "combustible gas" option on the combustible gas meter or other appropriate instrument(s) in accordance with this plan. In addition, fugitive dust/particulate concentrations will be monitored using a real-time particulate monitor as specified in this plan. Readings obtained in the breathing zone may be interpreted (with regard to other site conditions) as follows for on-site Benchmark-TurnKey personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to background on the PID) - Continue operations under Level D.
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings above background to 5 ppm on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C.
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of 5 to 50 ppm above background on the PID - Continue operations under Level B, re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.
- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm on the PID - Discontinue operations and exit the work zone immediately.

The explosimeter will be used to monitor levels of both combustible gases and oxygen during construction activities. Action levels based on the instrument readings shall be as follows:

- Less than 10% LEL - Continue engineering operations with caution.
- 10-25% LEL - Continuous monitoring with extreme caution, determine source/cause of elevated reading.
- Greater than 25% LEL - Explosion hazard, evaluate source and leave the Work Zone.
- 19.5% - 21% oxygen - Proceed with extreme caution; attempt to determine potential source of oxygen displacement.
- Less than 19.5% oxygen - Leave work zone immediately.
- 21-25% oxygen - Continue engineering operations with caution.
- Greater than 25% oxygen - Fire hazard potential, leave Work Zone immediately.

The particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities. Action levels based on the instrument readings shall be as follows:

- Less than 50 mg/m^3 - Continue field operations.
- 50-150 mg/m^3 - Don dust/particulate mask or equivalent
- Greater than 150 mg/m^3 - Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (i.e.., wetting of excavated soils or tools at discretion of Site Safety and Health Officer).

Readings with the combustible gas meter, particulate monitor, and organic vapor analyzers will be recorded and documented in the Health and Safety Logbook. All instruments will be calibrated before use and the procedure will be documented in the Health and Safety Logbook.

8.2.2 Community Air Monitoring

In addition to the action levels prescribed in Section 8.2.1 for Benchmark-TurnKey personnel on-site, the following criteria shall also be adhered to for the protection of the nearby community.

Organic Vapor Community Air Monitoring:

Community air monitoring will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e, proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector or other equipment will be suitable to the types of contaminants known or suspected to be present will be used, and will be capable of calculating 15-minute running average concentrations. All air monitoring equipment will be calibrated at least daily and an upwind concentration will be taken at least daily to establish background conditions. The 15-minute average concentrations will be compared to the levels specified below.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds *5* ppm above background, work activities will be halted and monitoring continued. If the organic vapor decreases (per instantaneous readings) below *5* ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less - but in no case less than 20 feet - is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone, work activities must be shut down and the following activities will be performed:
  - All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan (Attachment B-1) will be advised.
  - The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
  - Air monitoring will be continued at 1/2 the distance from the exclusion zone to the nearest receptor.

All readings will be recorded and will be available for New York State Department of Environmental Conservation (DEC) and Department of Health (DOH) personnel to review.

Explosive Vapor Community Air Monitoring

Explosive vapor community air monitoring will be performed at the downwind perimeter of the Site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind site perimeter, the local Fire Department will be contacted (see Attachment B-1 for phone number).

Airborne Particulate Community Air Monitoring

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 ug/m^3 above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

9.0 SPILL RELEASE/RESPONSE

This chapter of the HASP describes the potential for and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section of the HASP is to plan appropriate response, control, counter-measures and reporting, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this Site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a "harmful quantity" of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes of 1,000 gallons or more, or lesser quantities that either form a visible sheen on the water or violate applicable water quality standards.
- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/ maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a Site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on Site history and the scope of work, a hazardous material spill is not likely to occur during remedial efforts. However, the procedures identified below will be followed in the event of an unanticipated release.

9.2 Initial Spill Notification and Evaluation

Any worker who discovers a hazardous substance or oil/petroleum spill will immediately notify the Project Manager and SSHO. The worker will, to the best of his/her ability, report the material involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, if any, and any associated injuries. The Emergency Response Plan presented in Attachment B-1 of this HASP will immediately be implemented if an emergency release has occurred.

Following initial report of a spill, the Project Manager will make an evaluation as to whether the release exceeds RQ levels. If an RQ level is exceeded, the Project Manager will notify the Site owner who will in turn notify NYSDEC at 1-800-457-7362 within 2 hours of spill discovery. The Project Manager will also determine what additional agencies are to be contacted regarding the release, and will follow-up with written reports as required by the applicable regulations.

9.3 Spill Response

For all spill situations, the following general response guidelines will apply:

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be roped, ribboned, or otherwise blocked off to prevent unauthorized access.
- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
- Ignition points will be extinguished/removed if fire or explosion hazards exist.
- Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

For minor spills, the Benchmark-TurnKey will maintain a Spill Control and Containment Kit in the Field Office or other readily accessible storage location. The kit will consist of, at a minimum, a 50 lb. bag of "speedy dry" granular absorbent material, absorbent pads, shovels, empty 5-gallon pails and an empty open-top 55-gallon drum. Spilled materials will be absorbed, and shoveled into a 55-gallon drum for proper disposal (USEPA approval will be secured for on-site treatment of the impacted soils/absorbent materials, if applicable). Impacted soils will be hand-excavated to the point that no visible signs of contamination remains, and will be drummed with the absorbent.

In the event of a major release or a release that threatens surface water, a spill response contractor will be called to the Site. The response contractor may use heavy equipment (e.g., excavator, backhoe, etc.) to berm the soils surrounding the spill site or create diversion trenching to mitigate overland migration or release to navigable waters. Where feasible, pumps will be used to transfer free liquid to storage containers. Spill control/cleanup contractors in the Western New York area that may be contacted for assistance (in order of preference) include:

- The Environmental Service Group of NY, Inc.: (716) 695-6720
- Op-Tech: (716) 873-7680
- Environmental Products & Services of Vermont, Inc.: (716) 597-0001

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

Site remedial activities will occur outdoors where measures will be required to be taken to minimize heat/cold stress to Benchmark-TurnKey employees. The Site Safety and Health Officer and/or his or her designee will be responsible for monitoring Benchmark-TurnKey field personnel for symptoms of heat/cold stress.

10.1 Heat Stress Monitoring

Personal protective equipment may place an employee at risk of developing heat stress, a common and potentially serious illnesses often encountered at construction, landfill, waste disposal, industrial or other unsheltered sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning, and age. Personal protective equipment may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection), and require increased energy expenditure due to its bulk and weight.

Proper training and preventive measures will mitigate the potential for serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.
- Train workers to recognize the symptoms of heat related illness.

Heat-Related Illness - Symptoms:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet, and abdomen.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same. If the pulse rate is 100 beats per minute at the beginning of the nest rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No Benchmark-TurnKey employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:

  1) **Frostnip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions, removal of boots and gloves, soaking the injured part in warm water (102 to 108 degrees Fahrenheit), and drinking a warm beverage. Do not rub skin to generate friction/ heat.

  2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue which will be firm to the touch but will yield little pain. The treatment is identical for Frostnip.

  3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frostnip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:

  1) Shivering

  2) Apathy (i.e., a change to an indifferent or uncaring mood)

  3) Unconsciousness

  4) Bodily freezing

  Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

  1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)

  2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).

  3) Perform passive re-warming with a blanket or jacket wrapped around the victim.

In any potential cold stress situation, it is the responsibility of the SSHO to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
    - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
    - At a workers request.
    - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
    - As a screening measure whenever anyone worker on Site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

11.0 WORK ZONES AND SITE CONTROL

Work zones around the areas designated for work activities will be established by Benchmark-TurnKey on a daily basis and communicated to all employees and other Site users by the SSHO. It shall be the SSHO's responsibility to ensure that all Site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- Exclusion Zone ("Hot Zone") - The area where contaminated materials may be exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- Contaminant Reduction Zone - The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment, and samples must remain in the Contaminant Reduction Zone until decontaminated.
- Support Zone - The part of the Site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all work activities involving disruption or handling of Site soils, sediment, or groundwater:

- Exclusion Zone: 50 foot radius from the outer limit of the sampling activity.
- Contaminant Reduction Zone: 100 foot radius from the outer limit of the sampling activity.
- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contaminant Reduction Zones will be strictly controlled by Benchmark-TurnKey. Only personnel who are essential to the completion of the task will be allowed access to these areas and only if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The Contractor will maintain a Health and Safety Logbook containing the names of workers and their level of protection. The zone boundaries may be changed by the SSHO as

environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for Benchmark-TurnKey Employees

The degree of decontamination required is a function of a particular task and the environment within which it occurs. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions which may arise at the Site. All Benchmark-TurnKey personnel on-site shall follow the procedure below.

Station 1 - Equipment Drop: Deposit visibly contaminated (if any) re-useable equipment used in the contamination reduction and exclusion zones (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic sheeting.

Station 2 - Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves. Deposit tape and gloves in waste disposal container.

Station 3 - Tape, Outer Boot, and Glove Removal: Remove tape, outer boots, and gloves. Deposit tape and gloves in waste disposal container.

Station 4 - Canister or Mask Change: If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot cover donned, and worker returns to duty.

Station 5 - Outer Garment/Face Piece Removal: Protective suit removed and deposited in separate container provided by Contractor. Face piece or goggles are removed if used. Avoid touching face with fingers. Face piece and/or goggles deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 6 - Inner Glove Removal: Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in waste disposal container.

Following PPE removal, personnel shall wash hands, face, and forearms with absorbent wipes. If field activities proceed for six consecutive months or longer, shower facilities will be provided for worker use in accordance with OSHA 29 CFR 1910.120(n).

12.2 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a Site contaminant would be considered "Immediately Dangerous to Life or Health."

12.3 Decontamination of Field Equipment

Decontamination of heavy equipment will be conducted by the subcontractor in accordance with his approved Health and Safety Plan in the Contamination Reduction Zone. As a minimum, this will include manually removing heavy soil clods, followed by high pressure water and detergent or steam cleaning.

Decontamination of all tools used for sample collection purposes will be conducted by Benchmark-TurnKey personnel. It is expected that all tools will be constructed of nonporous, nonabsorbent materials (i.e., metal) which will aid in the decontamination effort. Any tool or part of a tool made of porous, absorbent material (i.e., wood) will be placed into suitable containers and prepared for disposal.

13.0 CONFINED SPACE ENTRY

OSHA 29 CFR 1910.146 identifies a confined space as a space which is large enough and so configured that an employee can physically enter and do assigned work, has limited or restricted means for entry and exit, and is not intended for continuous employee occupancy. Confined spaces include, but are not limited to, trenches, storage tanks, process vessels, pits, sewers, tunnels, underground utility vaults, pipelines, sumps, wells, and excavations.

Confined space entry by Benchmark-TurnKey employees is not anticipated to be necessary to complete the Site remedial activities identified in Section 1.4. In the event that the scope of work changes or confined space entry appears necessary, the Project Manager will be consulted to determine if feasible engineering alternatives to confined space entry can be implemented. If confined space entry by Benchmark-TurnKey employees cannot be avoided through reasonable engineering measures, task-specific confined space entry procedures will be developed and a confined-space entry permit will be issued through Benchmark-TurnKey's corporate Health and Safety Director. Benchmark-TurnKey employees shall not enter a confined space without these procedures and permits in place.

14.0 FIRE PREVENTION AND PROTECTION

14.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper Site preparation and safe storage of combustible and flammable materials.
- Availability of coordination with private and public fire authorities.
- Adequate job-site fire protection and inspections for fire prevention.
- Adequate indoctrination and training of employees.

14.2 Equipment and Requirements

Fire extinguishers will be provided by Benchmark-TurnKey and are required to be provided by the subcontractor on all heavy equipment brought on-site. Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary. Recharge or replacement shall be mandatory immediately after each use.

14.3 Flammable and Combustible Substances

All storage, handling, or use of flammable and combustible substances will be under the supervision of qualified persons. All tanks, containers and pumping equipment, whether portable or stationary, which are used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the National Fire Protection Association.

14.4 Hot Work

If the scope of work necessitates welding or blow torch operation, the hot work permit presented in Attachment B-3 will be completed by the SSHO and reviewed/issued by the Project Manager.

15.0 EMERGENCY INFORMATION

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan is attached to this HASP as Attachment B-1.

16.0 REFERENCES

1. Benchmark Environmental Engineering & Science, PLCC. *Remedial Action Work Plan, Colgate Avenue Site, Buffalo, New York*. May 2009.

2. AFI Environmental. *Letter Report on Subsurface Soil Investigation and Water Analysis MW2 at Ameron Site, 111 Colgate Avenue, Buffalo, New York*. November 30, 2001.

3. AFI Environmental. *Supplemental Site Investigation and Closure Report, Ameron Site, City of Buffalo, Erie County, New York*. July 21, 2004.

4. AFI Environmental. *Remedial Action Work Report, Former Ameron Site, City of Buffalo, Erie County, New York*. April 2005.

5. Benchmark Environmental Engineering & Science, PLCC. *Remedial Investigation/ Feasibility Study (RI/FS) Report, Colgate Avenue Site, Buffalo, New York*. June 2010.

TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE B-1

CONSTITUENTS OF POTENTIAL CONCERN & OBSERVED CONCENTRATIONS BY MEDIA

Health & Safety Plan For Remedial Activities
Colgate Avenue Site
Buffalo, New York

Parameter	Soil [1] (mg/kg)	Groundwater [2] (µg/L)
cis-1,2-Dichloroethene	ND	1600
trans-1,2-Dichloroethene	ND	300
Tetrachloroethene	ND	42
Trichloroethene	ND	870
Vinyl chloride	ND	510
Lead	50300	29 (MW-3R)
PCB Aroclor 1254	3.1	NA
PCB Aroclor 1260	3.8	NA

Notes:

[1] Maximum concentrations detected during the 2006 RI; lead concentration from SB-3.

[2] Concentrations detected in temporary well TMW-2.

ND = Not detected.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE B-2

TOXICITY AND EXPOSURE DATA FOR CONSTITUENTS OF POTENTIAL CONCERN

Health & Safety Plan For Remedial Activities
Colgate Avenue Site
Buffalo, New York

Constituents of Potential Concern	Inhalation Hazard		IDLH
	PEL	TLV	
Volatile Organic Compounds (ppm):			
cis-1,2-Dichloroethene	200	200	1000
trans-1,2-Dichloroethene	200	200	1000
Tetrachloroethene	100	25	150, Ca
Trichloroethene	100	50	1000, Ca
Vinyl Chloride	1	1	Ca
Inorganic Compounds (mg/m^3):			
Lead	0.05	0.15	100
Polychorinated Biphenyls (PCBs) : ppm			
Aroclors 1254 and 1260	--	--	--

Notes:

PEL - Permissible Exposure Limit, established by OSHA, equals the maximium exposure concentration allowable for 8 hours per day @ 40 hours per week.

TLV - Threshold Limit Value, established by ACGIH, equals the maximum exposure concentration allowable for 8 hours per day @ 40 hours per week.

C - Ceiling Level equals the maximum exposure concentration allowable during the work day.

IDLH - Immediately Dangerous to Life or Health

Ca - NIOSH considers constituent to be a potential occupational carcinogen.

NA - IDLH has not yet been established.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE B-3

POTENTIAL ROUTES OF EXPOSURE TO CONSTITUENTS OF POTENTIAL CONCERN

Health & Safety Plan For Remedial Activities
Colgate Avenue Site
Buffalo, New York

Activity	Direct Contact with Subsurface Soils	Direct Contact with Groundwater	Inhalation of Vapors or Dust
Excavation and Backfilling			X
Subsurface Soil Borings (HRC/ORC Injections)	X		X
Monitoring Well Sampling		X	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE B-4

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES
COLGATE AVENUE SITE
BUFFALO, NEW YORK

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)[1] LEVELS

Activity	Respiratory Protection[2]	Clothing	Gloves	Boots	Other Required PPE/Modifications[3]
Excavation and Backfilling	Level D; upgrade to Level C if necessary	Work Uniform or Tyvek	L	L outer, steel-toed safety boot inner	Hardhat, Safety glasses w/ side shields
Subsurface Soil Borings (HRC/ ORC Injections)	Level D; upgrade to Level C if necessary	Work Uniform or Tyvek	L	L outer, steel-toed safety boot inner	Hardhat, Safety glasses w/ side shields
Monitoring Well Sampling	Level D; upgrade to Level C if necessary	Poly-coated Tyvek or S	L	L outer, steel-toed safety boot inner	Safety glasses w/ side shields

Notes:

1. T = Tyvek; L= Latex; N = Nitrile;, S = Saranex
2. Respiratory equipment shall conform to guidelines presented in Section 8. The Level C requirement is an air-purifying respirator equipped with organic compound/acid gas/dust cartridge.
3. Dust masks shall be donned as directed by the site health and safety officer or site safety technician whenever potentially contaminated airborne particulates (i.e., dust) are present in significant amounts in the breathing zone. Goggles may be substituted with safety glasses w/side-shields whenever contact with contaminated liquids is not anticipated.

ATTACHMENT B-1

EMERGENCY RESPONSE PLAN

EXAMPLE

EMERGENCY RESPONSE PLAN
for
REMEDIAL ACTIVITIES

COLGATE AVENUE SITE
BUFFALO, NEW YORK

February 2011
Revised August 2012

0100-001-200

Prepared for:

AMERON INTERNATIONAL

HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES
ATTACHMENT B-1: EMERGENCY RESPONSE PLAN

COLGATE AVENUE SITE

TABLE OF CONTENTS

LIST OF FIGURES

1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site Health and Safety Plan (HASP) prepared for remedial activities at Ameron International's Colgate Avenue Site in Buffalo, New York. This appendix of the HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This ERP is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning.
- Personnel roles, lines of authority, and communication.
- Emergency recognition and prevention.
- Safe distances and places of refuge.
- Evacuation routes and procedures.
- Decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency alerting and response procedures.
- Critique of response and follow-up.
- Emergency personal protective equipment (PPE) and equipment.

2.0 PRE-EMERGENCY PLANNING

This Site has been evaluated for potential emergency occurrences, based on Site hazards, the required work tasks, the site topography, and prevailing weather conditions. The results of that evaluation indicate the potential for the following site emergencies to occur at the locations indicated.

Type of Emergency:

1. Medical, due to physical injury
2. Fire

Source of Emergency:

1. Slip/trip/fall
2. Fire

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked.

Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed in below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0, Personal Protective Equipment, of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
First Aid Kit	1	Site Vehicle
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-resistant suits	4 (minimum)	Site Vehicle

4.0 EMERGENCY PLANNING MAPS

An area-specific map of the Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features, however the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and inside the Benchmark-TurnKey personnel field vehicle.

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: *Thomas H. Forbes*
Work: (716) 856-0599
Mobile: (716) 864-1730

Corporate Health and Safety Director: *Michael M. Yount*
Work: (716) 856-0599
Mobile: (716) 983-9788

Site Safety and Health Officer (SSHO): *Bryan C. Hann*
Work: (716) 856-0635
Mobile: (716) 870-1165

Alternate SSHO: *Richard L. Dubisz*
Work: (716) 856-0635
Mobile: (716) 998-4334

MERCY HOSPITAL:	(716) 826-7000
MERCY HOSPITAL (ER):	(716) 828-2790
FIRE:	911
AMBULANCE:	911
BUFFALO POLICE:	911
STATE EMERGENCY RESPONSE HOTLINE:	(800) 457-7362
NATIONAL RESPONSE HOTLINE:	(800) 424-8802
NYSDOH:	(716) 847-4385
NYSDEC:	(716) 851-7220
NYSDEC 24-HOUR SPILL HOTLINE:	(800) 457-7252

The Site location is:

Colgate Avenue (Ameron) Site
119 Colgate Avenue, Buffalo, NY 14220
Site Phone Number: (Insert Cell Phone or Field Trailer): _____

6.0 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's Site Health and Safety Officer to ensure an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site excavation.

2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/ everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction Site Health and Safety Officer to review evacuation routes and procedures as necessary and to inform all Benchmark-TurnKey workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the SSHO (***Bryan Hann*** or ***Richard Dubisz***) so that appropriate action can be initiated. Contractors and

subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying on them.

7.0 EXTREME WEATHER CONDITIONS

In the event of adverse weather conditions, the SSHO in conjunction with the Contractor's SSHO will determine if engineering operations can continue without sacrificing the health and safety of site personnel. Items to be considered prior to determining if work should continue include but are not limited to:

- Potential for heat/cold stress.
- Weather-related construction hazards (e.g., flooding or wet conditions producing undermining of structures or sheeting, high wind threats, etc).
- Limited visibility.
- Potential for electrical storms.
- Limited site access/egress (e.g., due to heavy snow)

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

The following general guidelines will be employed in instances where health impacts threaten to occur acute exposure is realized:

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on-site. If necessary, transport to medical center.
- Inhalation: Move to fresh air and, if necessary, transport to medical center.
- Ingestion: Decontaminate and transport to medical center.

Personal Injury:

Minor first-aid will be applied on-site as deemed necessary. In the event of a life threatening injury, the individual should be transported to Mercy Hospital via ambulance. The Site Health and Safety Officer will supply available chemical specific information to appropriate medical personnel as requested.

First aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the SSHO to ensure that the expended items are replaced.

Directions to Mercy Hospital (see Figure B-1):

- Turn right onto Colgate Avenue.
- Turn left (north) onto RT 62 South Park Avenue (0.3 miles).
- Turn right (east) onto Choate Avenue (0.4 miles).
- Enter next roundabout and take 2nd exit onto Red Jacket Pkwy (0.3 miles).
- Turn Left onto Abbott Road (0.1 mile).
- Turn Left into Emergency Room entrance.

Mercy Hospital is located at 565 Abbott Road, Buffalo, NY, 14220, and is approximately 1 mile northeast of the Site.

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

Following an emergency, the SSHO and Project Manager shall review the effectiveness of this ERP in addressing notification, control, and evacuation requirements. Updates and modifications to this ERP shall be made accordingly. It shall be the responsibility of each contractor to establish and assure adequate records of the following:

- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal, and/or international agencies.
- Property or equipment damage.
- Third party injury or damage claims.
- Environmental testing logs.
- Explosive and hazardous substances inventories and records.
- Records of inspections and citations.
- Safety training.

10.0 EMERGENCY RESPONSE TRAINING

All persons who enter the worksite, including visitors, shall receive a site-specific briefing about anticipated emergency situations and the emergency procedures by the SSHO. Where this site relies on off-site organizations for emergency response, the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

FIGURES

BENCHMARK
Environmental Engineering & Science, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 856-0599

PROJECT NO.: 0100-001-200

DATE: MAY 2009

DRAFTED BY: AJZ

HOSPITAL ROUTE MAP

HEALTH AND SAFETY PLAN (HASP) - SITE MANAGEMENT PLAN

COLGATE AVENUE SITE
BUFFALO, NEW YORK

PREPARED FOR
AMERON INTERNATIONAL

FIGURE B-1

FILEPATH: F:\CAD\Benchmark\Ameron International\Colgate Avenue\Site Management Plan\figure B-1; hospital route map.dwg

ATTACHMENT B-2

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

ATTACHMENT B-3

HOT WORK PERMIT FORM

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

HOT WORK PERMIT

PART 1 - INFORMATION

Issue Date:

Date Work to be Performed: Start: Finish (permit terminated):

Performed By:

Work Area:

Object to be Worked On:

PART 2 - APPROVAL

(for 1, 2 or 3: mark Yes, No or NA)*

Will working be on or in:	Finish (permit terminated):	
1. Metal partition, wall, ceiling covered by combustible material?	yes	no
2. Pipes, in contact with combustible material?	yes	no
3. Explosive area?	yes	no

* = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below.

PART 3 - REQUIRED CONDITIONS**

(Check all conditions that must be met)

	PROTECTIVE ACTION		PROTECTIVE EQUIPMENT
	Specific Risk Assessment Required		Goggles/visor/welding screen
	Fire or spark barrier		Apron/fireproof clothing
	Cover hot surfaces		Welding gloves/gauntlets/other:
	Move movable fire hazards, specifically		Wellintons/Knee pads
	Erect screen on barrier		Ear protection: Ear muffs/Ear plugs
	Restrict Access		B.A.: SCBA/Long Breather
	Wet the ground		Respirator: Type:
	Ensure adequate ventilation		Cartridge:
	Provide adequate supports		Local Exhaust Ventilation
	Cover exposed drain/floor or wall cracks		Extinguisher/Fire blanket
	Fire watch (must remain on duty during duration of permit)		Personal flammable gas monitor
	Issue additional permit(s):		

Other precautions:

** Permit will not be issued until these conditions are met.

SIGNATURES

Orginating Employee:	Date:
Project Manager:	Date:
Part 2 Approval:	Date:

Prepared By: _____

APPENDIX C

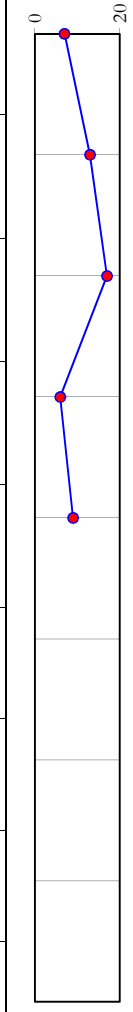
MONITORING WELL BORING AND CONSTRUCTION LOGS

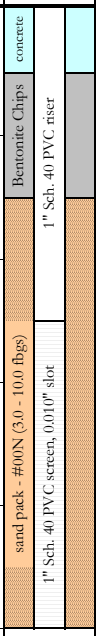
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

FIELD BOREHOLE/MONITORING INSTALLATION LOG

Project Name:	111 Colgate Ave.	**BORING NUMBER:**	**PZ - 1**
Project Number:	0100 - 001 - 100	**Location:**	111 Colgate Ave.
Client:	Ameron International	**Start Date/Time:**	04/19/06 12:30 PM
Drilling Company:	Earth Dimensions, Inc.	**End Date/Time:**	04/20/06 11:40 AM
Driller:	Brian Bartron	**Logged By:**	TAB
Helper:	Harold Kleever	**Drilling Method:**	4.25 HSA
Rig Type:	D 50	**Weather:**	Sun mid 60's winds 0-5 mph out of the west

Elevation (fmsl)	Depth (fbgs)	Sample No.	Blows (per 6")	SPT N-Value	Recovery	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other	PID Scan (ppm)	PID HDSP (ppm)	Soil Unit
501.15	0	S1	2 3 4 4	7	1.4	**0.0 - 1.4:** Reworked sand/gravel, 60% LPF, 30% FS, 10% coarse & smooth grained gravel and pebbles	0.0	0.0	reworked sand and gravel
499.15	2	S2	6 4 9 13	13	0.9	**0.0 - 0.9:** As above, wet @ 3.0 fbgs.	0.0	0.0	reworked sand and gravel
497.15	4	S3	25 11 6 9	17	0.2	**0.0 -0.2:** Brown, wet, large pieces of angular gravel	0.0	0.0	GP
495.15	6	S4	1 2 4 8	6	0.8	**0.0 - 0.8:** As S1	0.0	0.0	reworked sand and gravel
493.15	8	S5	3 5 4 5	9	0.75	**0.0 - 0.2:** Med grey, wet, coarse grained sand, 80% CS, 20% FS **0.2 - 0.6:** Med grey, wet, sand, 30% LPF, 60% FS **0.6 - 0.75:** Med grey, moist clay, stiff, 60% MPF, 40% FS	0.0	0.0	CLAY
491.15	10	S6		0		EOB @ 10.0 fbgs			
489.15	12	S7		0					
487.15	14	S8		0					
485.15	16	S9		0					
483.15	18								





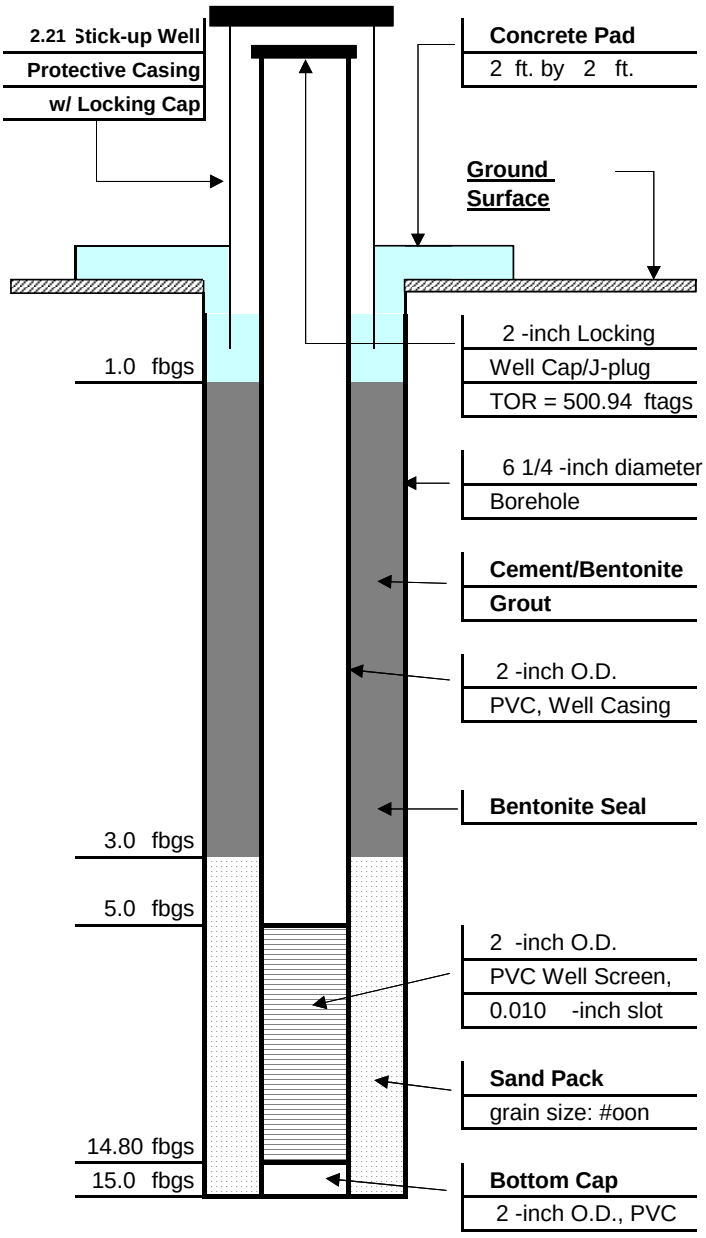
ABBREVIATIONS:

C = coarse	fbgs = feet below ground surface	HSA = hollow stem auger
CG = coarse gravel	FG = fine gravel	LP = low plasticity
CS = coarse sand	fmsl = feet above mean sea level	LWD = loose when disturbed
EOB = end of boring	FS = fine sand	M = medium
F = fines or fine	HP = high plasticity	MP = medium plasticity

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

STICK-UP MONITORING WELL COMPLETION DETAIL

Project Name:	**111 Colgate Ave**	WELL NUMBER:	**MW - 2R**
Client:	**Ameron International**	Date Installed:	**04/19/06**
Boring Location:	**Formeer MW - 2**	Project Number:	**0100-001-200**



Driller Information

Company:	Earth Dimensions
Driller:	Brian Barton
Helper:	Harold Kleever
Permit Number:	NA
Drill Rig Type:	D50

Well Information

Land Surface Elevation:	498.73	fmsl (approximate)
Drilling Metho	Remvoed MW - 2, overdrilled with HSAs	
Soil Sample Collection Method:	None collected	
Drilling Fluid:	None	
Fluid Loss During Drilling:	None --	gallons (approximate)

Material of Well Construction

Casing:	Schedule 40 PVC
Screen:	0.010 inch screen schedule 40 PVC
Sump:	none
Sand Pack:	#OON sand
Annular Seal:	medium bentonite chips

Well Development

Well Purpose:	Groundwater sample collecton	
Techneque(s):	poly disposable bailer	
Date Completed:	04/19/06	
BM/TK Personnel:	TAB/BCH	
Total Volume Purge:	25	gallons
Static Water Level (SWL):	3.46	fbTOR
Pump Depth:	NA	
Purge Duration:	300	minutes
Yeild:	0.1	gpm
Specific Capacity:	0.00	gpm/ft

Comments:

saturated thickness: SWL - stickup = 1.25 fbgs

Total Depth = 17.62 fbTOR — Total Depth - SWL = 11.95 feet

stick-up = 2.21 feet

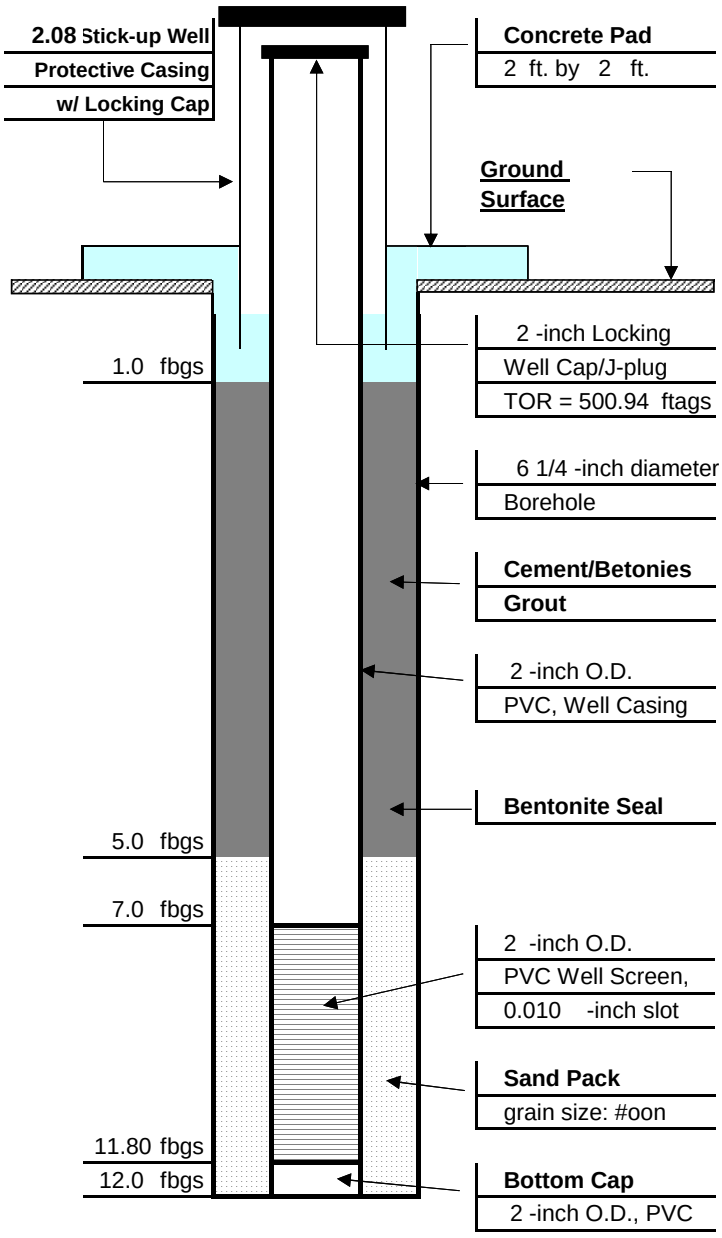
Total Depth = 15.41 fbgs

PREPARED BY: Thomas A. Behrendt DATE: 04/28/06

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

STICK-UP MONITORING WELL COMPLETION DETAIL

Project Name:	**111 Colgate Ave**	WELL NUMBER:	**MW - 3R**
Client:	**Ameron International**	Date Installed:	**04/19/06**
Boring Location:	**Formeer MW - 3**	Project Number:	**0100-001-200**



Driller Information

Company:	Earth Dimensions
Driller:	Brian Barton
Helper:	Harold Kleever
Permit Numbe	NA
Drill Rig Type:	D50

Well Information

Land Surface Elevation:	498.16	fmsl (approximate)
Drilling Metho(	Remvoed MW - 3, overdrilled with HSAs	
Soil Sample Collection Method:	None collected	
Drilling Fluid:	None	
Fluid Loss During Drilling:	None --	gallons (approximate)

Material of Well Construction

Casing:	Schedule 40 PVC
Screen:	0.010 inch screen schedule 40 PVC
Sump:	none
Sand Pack:	#OON sand
Annular Seal:	medium bentonite chips

Well Development

Well Purpose:	Groundwater sample collecton	
Techneque(s):	poly disposable bailer	
Date Completed:	04/19/06	
BM/TK Personnel:	TAB/BCH	
Total Volume Purge:	18	gallons
Static Water Level (SWL):	3.36	fbTOR
Pump Depth:	NA	
Purge Duration:	66	minutes
Yeild:	0.3	gpm
Specific Capacity:	0.00	gpm/ft

Comments: saturated thickness: SWL - stickup = 1.28 fbgs

Total Depth =	14.34	fbTOR	Total Depth - SWL =	10.98	feet
stick-up =	2.08	feet			
Total Depth =	12.26	fbgs			

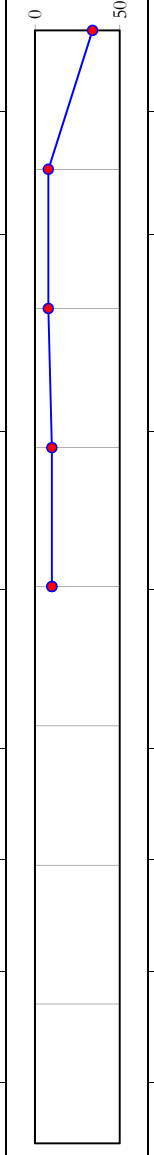
PREPARED BY: Thomas A. Behrendt DATE: 04/28/06

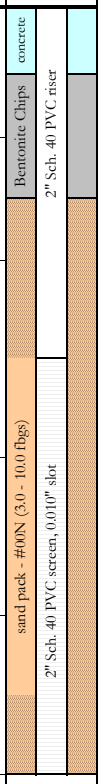
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

FIELD BOREHOLE/MONITORING INSTALLATION LOG

Project Name:	111 Colgate Ave.	**BORING NUMBER:**	**MW - 5**
Project Number:	0100 - 001 - 100	**Location:**	111 Colgate Ave.
Client:	Ameron International	**Start Date/Time:**	04/20/06 09:25 AM
Drilling Company:	Earth Dimensions, Inc.	**End Date/Time:**	04/20/06 10:50 AM
Driller:	Brian Bartron	**Logged By:**	TAB
Helper:	Harold Kleever	**Drilling Method:**	4.25 HSA
Rig Type:	D 50	**Weather:**	Sun mid 60's winds 0-5 mph out of the west

Elevation (fmsl)	Depth (fbgs)	Sample No.	Blows (per 6")	SPT N-Value	Recovery	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other	PID Scan (ppm)	PID HDSP (ppm)	Soil Unit
501.95	0	S1	4 12 22 18	34	0.9	**0.0 - 0.9:** Med brown, moist, reworked sandy clay, 60% MPF, 40% FS, w/ coarse grained gravel with black	0.0	0.0	Sandyclay
499.95	2	S2	6 4 4 7	8	1.5	**0.0 - 0.9:** As Above **0.9 - 1.5:** Med brown, wet @ 3.0 fbgs, sand, LWD, rapid dilatancy, 80% FS, 20% LPF	0.0	0.0	Sand
497.95	4	S3	3 4 4 3	8	1.5	**0.0 - 0.4:** Light grey, clay, moist, stiff with some iron staining, 70% MPF, 30% FS **0.4 - 0.8:** Med brown w/ black areas, clayey sand, wet, rapid dilatancy, LWD, 80% FS, 20% LPF w/ iron staining **0.8 - 1.2:** Med brown, clayey sand, wet, LWD, slow dilatancy, 60% FS, 40% MPF, w/ orange staining **1.2 - 1.5:** As S3 0.4 - 0.8 above.	0.0	0.0	Sandyclay/ clay
495.95	6	S4	3 3 7 10	10	1.5	**0.0 - 1.1:** medium brown, moist, clayey sand, 80% MPF, 20% FS. **1.1 - 1.2:** Med Grey, wet, clayey sand, LWD, rapid dilatancy, 80% FS, 20% MPF **1.2-1.4:** as S3 0.0 - 0.4, moist **1.4 - 1.5:** as S4 1.1 - 1.2, wet	0.0	0.0	Sandyclay /clay
493.95	8	S5	3 4 6 9	10	1.5	**0.0 -1.5:** Med grey, clay, stiff, 70%, 30% FS, with some wet FS lenses.	0.0	0.0	CLAY
491.95	10	S6		0		EOB @ 10.0 fbgs			
489.95	12	S7		0					
487.95	14	S8		0					
485.95	16	S9		0					
483.95	18								





Well Construction Details

ABBREVIATIONS:

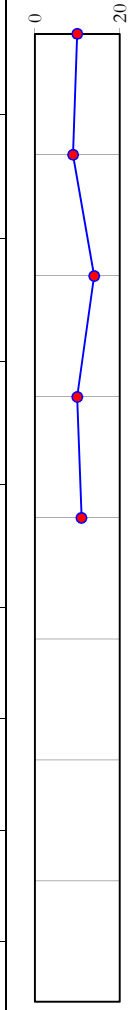
C = coarse	fbgs = feet below ground surface	HSA = hollow stem auger
CG = coarse gravel	FG = fine gravel	LP = low plasticity
CS = coarse sand	fmsl = feet above mean sea level	LWD = loose when disturbed
EOB = end of boring	FS = fine sand	M = medium
F = fines or fine	HP = high plasticity	MP = medium plasticity

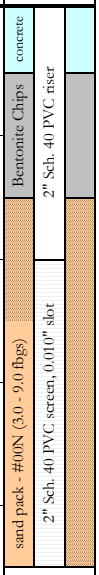
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

FIELD BOREHOLE/MONITORING INSTALLATION LOG

Project Name:	111 Colgate Ave.	**BORING NUMBER:**	**MW - 6**
Project Number:	0100 - 001 - 100	**Location:**	111 Colgate Ave.
Client:	Ameron International	**Start Date/Time:**	04/19/06 14:25 PM
Drilling Company:	Earth Dimensions, Inc.	**End Date/Time:**	04/20/06 08:00 AM
Driller:	Brian Bartron	**Logged By:**	TAB
Helper:	Harold Kleever	**Drilling Method:**	4.25 HSA
Rig Type:	D 50	**Weather:**	Sun mid 60's winds 0-5 mph out of the west

Elevation (fmsl)	Depth (fbgs)	Sample No.	Blows (per 6")	SPT N-Value	Recovery	SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other	PID Scan (ppm)	PID HDSP (ppm)	Soil Unit
502.34	0	S1	2 4 6 10	10	1.8	**0.0 - 0.6:** Topsoil, black, moist, 40% LPF, 50% FS, 10% organic material, w/ rootlets and worm holes **0.6 - 1.8:** Med brown, sand, moist, LWD, 90% FS, 10% LPF	0.0	0.0	Topsoil/ Sand
500.34	2	S2	5 5 4 4	9	1.7	**0.0 - 1.7:** As S1 0.6 - 1.8, w/ iron staining and wet @ 3.5 fbgs	0.0	0.0	Sand
498.34	4	S3	4 6 8 7	14	2.0	**0.0 -1.6:** Med brown, wet, sandy clay, dense, 80% MPF, 20% FS w/ iron staining. **1.6 - 2.0:** Med grey, moist, sitly clay, med soft 80% MPF, 20% FS	0.0	0.0	Sandyclay/ clay
496.34	6	S4	3 4 6 10	10	0.8	**0.0 - 0.8:** As S3 1.6 -2.0, moist	0.0	0.0	clay
494.34	8	S5	3 4 7 12	11	1.8	**0.0 -1.8:** same as above, moist	0.0	0.0	CLAY
492.34	10	S6		0		EOB @ 9.0 fbgs			
490.34	12	S7		0					
488.34	14	S8		0					
486.34	16	S9		0					
484.34	18								





ABBREVIATIONS:

C = coarse	fbgs = feet below ground surface	HSA = hollow stem auger
CG = coarse gravel	FG = fine gravel	LP = low plasticity
CS = coarse sand	fmsl = feet above mean sea level	LWD = loose when disturbed
EOB = end of boring	FS = fine sand	M = medium
F = fines or fine	HP = high plasticity	MP = medium plasticity

Project No: 0100 - 001 - 200

Borehole Number: MW-7A

Project: Supplemental Groundwater Investigation

Client: Ameron International

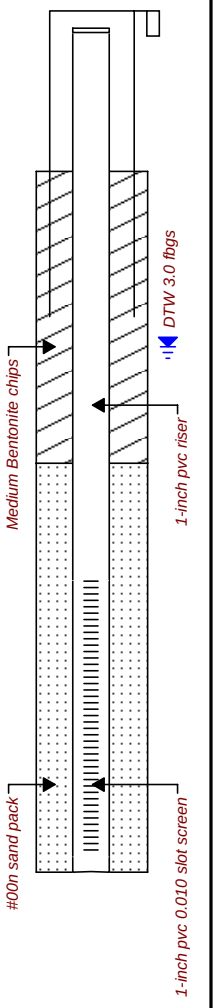
Logged By: TAB

Site Location: 111 Colgate Ave.

Checked By: BCH

Benchmark Environmental Engineering & Science, PLLC
726 Exchange Street, Suite 624
Buffalo, NY
(716) 856-0599

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 25 / 50)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Sand and Gravel*** Brown grey, moist, fine sand with some coarse sand and fine gravel, medium dense, loose when disturbed no odors.	1	15	1.5		0.0		
	-0.8 / 0.8	***Fill*** Black, moist, fill, non-plastic fines with fine sand, little coarse sand and trace fine gravel, orange brick fragments, medium dense, loose when disturbed.							
2.0	-2.0 / 2.0	***Silt with Fine Sand*** Brown, moist to wet, silt with fine sand, medium dense, low plasticity, iron-stained.	2	10	1.8		0.0		
	-4.5 / 4.5	***Clayey Silt*** Brown, wet, clayey silt, with little fine sand, stiff, low plasticity, with grey fine sand filled fractures.	3	12	1.8		0.0		
	-6.0 / 6.0	As above, wet with few to some fine sand with iron staining.							
7.0	-8.0 / 8.0	***Silty clay*** Dark Grey, moist, silty clay, with trace fine sand, varved silt 1-2mm thick, very stiff, High plasticity.	4	16	1.3		0.0		
	-10.0 / 10.0	As above trace coarse sand with rootlets.	5	17	1.7		0.0		
	-12.0 / 12.0	As above no coarse sand.	6	17	1.9		0.0		
12.0			7	16	1.8		0.0		
	-14.0 / 14.0	End of Borehole							
17.0									



Drilled By: Earth Dimensions
Drill Rig Type: Dietrich D120
Drill Method: 4 1/4 - inch HSA Augers

Drill Date(s): 3/5/09

Hole Size: 6 5/8 - inch
Stick-up: 2.5 - feet
Datum: NA

Sheet: 1 of 1

APPENDIX D

GROUNDWATER MONITORING WELL SAMPLING LOG FORM

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

APPENDIX E

GROUNDWATER FIELD OPERATING PROCEDURES

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FIELD OPERATING PROCEDURES

Groundwater Level Measurement

FOP 022.0

GROUNDWATER LEVEL MEASUREMENT

PURPOSE

This procedure describes the methods used to obtain accurate and consistent water level measurements in monitoring wells, piezometers and well points. Water levels will be measured at monitoring wells and, if practicable, in supply wells to estimate purge volumes associated with sampling, and to develop a potentiometric surface of the groundwater in order to estimate the direction and velocity of flow in the aquifer. Water levels in monitoring wells will be measured using an electronic water level indicator (e-line) that has been checked for operation prior to mobilization.

PROCEDURE

1. Decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Benchmark Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

2. Unlock and remove the well protective cap or cover and place on clean plastic.

3. Lower the probe slowly into the monitoring well until the audible alarm sounds. This indicates the depth to water has been reached.

4. Move the cable up and down slowly to identify the depth at which the alarm just begins to sound. Measure this depth against the mark on the lip of the well riser used as a surveyed reference point (typically the north side of the riser).

5. Read depth from the graduated cable to the nearest 0.01 foot. Do not use inches. If the e-line is not graduated, use a rule or tape measure graduated in 0.01-foot increments to measure from the nearest reference mark on the e-line cable.

6. Record the water level on a Water Level Monitoring Record (sample attached).

7. Remove the probe from the well slowly, drying the cable and probe with a clean paper wipe. Be sure to repeat decontamination before use in another well.

8. Replace well plug and protective cap or cover. Lock in place as appropriate.

ATTACHMENTS

Water Level Monitoring Record (sample)

REFERENCES

Benchmark FOPs:
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination

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WATER LEVEL MONITORING RECORD

Project Name: Client:

Project No.: Location:

Field Personnel: Date:

Weather:

Well No.	Time	Top of Riser Elevation (fmsl)	Static Depth to Water (fbTOR)	Groundwater Elevation (fmsl)	Total Depth (fbTOR)	Last Total Depth Measurement (fbTOR)

Comments/Remarks:

PREAPRED BY: DATE:

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FIELD OPERATING PROCEDURES

Groundwater Sample Collection Procedures

FOP 024.0

GROUNDWATER SAMPLE COLLECTION PROCEDURES

PURPOSE

This procedure describes the methods for collecting groundwater samples from monitoring wells and domestic supply wells following purging and sufficient recovery. This procedure also includes the preferred collection order in which water samples are collected based on the volatilization sensitivity or suite of analytical parameters required.

PROCEDURE

Allow approximately 3 to 10 days following well development before performing purge and sample activities at any well location. Conversely, perform sampling as soon as practical after sample purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If the well does not yield sufficient volume for all required laboratory analytical testing (including quality control), a decision should be made to prioritize analyses based on contaminants of concern at the site. If the well takes longer than 24 hours to recharge, the Project Manager should be consulted. The following two procedures outline sample collection activities for monitoring and domestic type wells.

Monitoring Wells

1. Purge the monitoring well in accordance with the Benchmark FOPs for Groundwater Purging Procedures Prior to Sample Collection or Low Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedures. Perform sampling as soon as practical after purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If the well does not yield sufficient volume for all required laboratory analytical testing (including quality control), a decision should be made to prioritize analyses based on contaminants of concern at the site. Analyses will be prioritized in the order of the parameters volatilization sensitivity. After volatile organics have been collected, field parameters

must be measured from the next sample collected. If a well takes longer than 24 hours to recharge, the Project Manager should be consulted.

2. Sampling equipment that is not disposable or dedicated to the well will be decontaminated in accordance with the Benchmark Field Operating Procedure for Non-Disposable and Non-Dedicated Sampling Equipment Decontamination.

3. Calibrate all field meters (i.e., pH/Eh, turbidity, specific conductance, dissolved oxygen, PID etc.) in accordance with the Benchmark Field Operating Procedure for Calibration and Maintenance of the specific field meter.

4. Prepare the electronic water level indicator (e-line) in accordance with the procedures referenced in the Benchmark Field Operating Procedure for Groundwater Level Measurement and decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Benchmark Field Operating Procedure for Non-disposable and Non-dedicated Sampling Equipment Decontamination. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

5. Inspect the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Well Purge & Sample Collection Log (sample attached). Specifically, inspect the integrity of the following: concrete surface seal, lock, protective casing and well cover, well casing and J-plug/cap. Report any irregular findings to the Project Manager.

6. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

7. Calibrate the photoionization detector (PID) in accordance with the Benchmark Field Operating Procedure for Calibration and Maintenance of Portable Photoionization Detector.

8. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging. Record PID measurements on a well-specific Groundwater Well Purge & Sample Collection Log (sample attached).

9. Lower the e-line probe slowly into the monitoring well and record the measurement on a well-specific Groundwater Well Purge & Sample Collection Log (sample attached).

10. Groundwater samples will be collected directly from the sampling valve on the flow through cell (low-flow), discharge port of a standard pump assembly (peristaltic, pneumatic, submersible, or Waterra™ pump) or bailer (stainless steel, PVC or polyethylene) into appropriate laboratory provided containers. In low-yielding wells at which the flow through cell is not used, the samples may be collected using a disposable bailer.

11. If disposable polyethylene bailers are used, the bailer should be lowered *slowly* below the surface of the water to minimize agitation and volatilization. For wells that are known to produce turbid samples (values greater than 50 NTU), the bailer should be lowered and retrieved at a rate that limits surging of the well.

12. Sampling data will be recorded on a Groundwater Well Purge & Sample Collection Log (sample attached).

13. Pre-label all sample bottles in the field using a waterproof permanent marker in accordance with the Benchmark Sample Labeling, Storage and Shipment FOP. The following information, at a minimum, should be included on the label:

    - Project Number;
    - Sample identification code (as per project specifications);
    - Date of sample collection (mm, dd, yy);
    - Time of sample collection (military time only) (hh:mm);
    - Specify "grab" or "composite" sample type;
    - Sampler initials;
    - Preservative(s) (if applicable); and
    - Analytes for analysis (if practicable).

14. Collect a separate sample of approximately 200 ml into an appropriate container prior to collecting the first and following the last groundwater sample collected to measure the following field parameters:

Parameter	Units
Dissolved Oxygen	parts per million (ppm)
Specific Conductance	μmhos/cm or μS or mS
pH	pH units
Temperature	^{o}C or ^{o}F
Turbidity	NTU
Eh (*optional*)	mV
PID VOCs (*optional*)	ppm

Record all field measurements on a Groundwater Well Purge & Sample Collection Log (sample attached).

15. Collect samples into pre-cleaned bottles provided by the analytical laboratory with the appropriate preservative(s) added based on the volatilization sensitivity or suite of analytical parameters required, as designated in the **Sample Collection Order** section below.

16. Lower the e-line probe slowly into the monitoring well and record the measurement on a well-specific Groundwater Well Purge & Sample Collection Log (sample attached).

17. The samples will be labeled, stored and shipped in accordance with the Benchmark Field Operating Procedure for Sample Labeling, Storage and Shipment Procedures.

Domestic Supply Wells

1. Calculate or estimate the volume of water in the well. It is desirable to purge at least one casing volume before sampling. This is controlled, to some extent, by the depth of the well, well yield and the rate of the existing pump. If the volume of water in the well cannot be calculated, the well should be purged continuously for no less than 15 minutes.

2. Connect a sampling tap to an accessible fitting between the well and the pressure tank where practicable. A hose will be connected to the device and the hose discharge located 25 to 50 feet away. The well will be allowed to pump until the lines and one well volume is removed. Flow rate will be measured with a container of known volume and a stopwatch.

3. Place a clean piece of polyethylene or Teflon™ tubing on the sampling port and collect the samples in the order designated below and in the sample containers supplied by the laboratory for the specified analytes. ***DO NOT*** use standard garden hose to collect samples.

4. Sampling results and measurements will be recorded on a Groundwater Well Purge & Sample Collection Log (sample attached) as described in the previous section.

5. Collect samples into pre-cleaned bottles provided by the analytical laboratory with the appropriate preservative(s) added based on the volatilization sensitivity or suite of analytical parameters required, as designated in the **Sample Collection Order** section below.

6. The samples will be labeled, stored and shipped in accordance with the Benchmark Field Operating Procedure for Sample Labeling, Storage and Shipment Procedures.

SAMPLE COLLECTION ORDER

All groundwater samples, from monitoring wells and domestic supply wells, will be collected in accordance with the following.

1. Samples will be collected preferentially in recognition of volatilization sensitivity. The preferred order of sampling if no free product is present is:

    - Field parameters
    - Volatile Organic Compounds (VOCs)
    - Purgeable organic carbons (POC)
    - Purgeable organic halogens (POH)
    - Total Organic Halogens (TOX)
    - Total Organic Carbon (TOC)

- Extractable Organic Compounds (i.e., BNAs, SVOCs, etc.)
- Total petroleum hydrocarbons (TPH) and oil and grease
- PCBs and pesticides
- Total metals (Dissolved Metals)
- Total Phenolic Compounds
- Cyanide
- Sulfate and Chloride
- Turbidity
- Nitrate (as Nitrogen) and Ammonia
- Preserved inorganics
- Radionuclides
- Unpreserved inorganics
- Bacteria
- Field parameters

2. Document the sampling procedures and related information in the Project Field Book and on a Groundwater Well Purge & Sample Collection Log (sample attached).

DOCUMENTATION

The three words used to ensure adequate documentation for groundwater sampling are accountability, controllability, and traceability. Accountability is undertaken in the sampling plan and answers the questions who, what, where, when, and why to assure that the sampling effort meets its goals. Controllability refers to checks (including QA/QC) used to ensure that the procedures used are those specified in the sampling plan. Traceability is documentation of what was done, when it was done, how it was done, and by whom it was done, and is found in the field forms, Project Field Book, and chain-of-custody forms. At a minimum, adequate documentation of the sampling conducted in the field consists of an entry in the Project Field Book (with sewn binding), field data sheets for each well, and a chain-of-custody form.

As a general rule, if one is not sure whether the information is necessary, it should nevertheless be recorded, as it is impossible to over-document one's fieldwork. Years may go by before the documentation comes under close scrutiny, so the documentation must be capable of defending the sampling effort without the assistance or translation of the sampling crew.

The minimum information to be recorded daily with an indelible pen in the Project Field Book and/or field data sheets includes date and time(s), name of the facility, name(s) of the sampling crew, site conditions, the wells sampled, a description of how the sample shipment was handled, and a QA/QC summary. After the last entry for the day in the Project Field Book, the Field Team Leader should sign the bottom of the page under the last entry and then draw a line across the page directly under the signature.

PRECAUTIONS/RECOMMENDATIONS

The following precautions should be adhered to prior to and during sample collection activities:

- Field vehicles should be parked downwind (to avoid potential sample contamination concerns) at a minimum of 15 feet from the well and the engine turned off prior to PID vapor analysis and VOC sample collection.

- Ambient odors, vehicle exhaust, precipitation, or windy/dusty conditions can potentially interfere with obtaining representative samples. These conditions should be minimized and should be recorded in the field notes. Shield sample bottles from strong winds, rain, and dust when being filled.

- The outlet from the sampling device should discharge below the top of the sample's air/water interface, when possible. The sampling plan should specify how the samples will be transferred from the sample collection device to the sample container to minimize sample alterations.

- The order of sampling should be from the least contaminated to the most contaminated well to reduce the potential for cross contamination of sampling equipment (see the Sampling Plan or Work Plan).

- Samples should not be transferred from one sampling container to another.

- Sampling equipment must not be placed on the ground, because the ground may be contaminated and soil contains trace metals. Equipment and supplies should be removed from the field vehicle only when needed.

- Smoking and eating should not be allowed until the well is sampled and hands are washed with soap and water, due to safety and possibly sample contamination concerns. These activities should be conducted beyond a 15-foot radius of the well.

- No heat-producing or electrical instruments should be within 15 feet of the well, unless they are intrinsically safe, prior to PID vapor analysis.

- Minimize the amount of time that the sample containers remain open.

- Do not touch the inside of sample bottles or the groundwater sample as it enters the bottle. Disposable gloves may be a source of phthalates, which could be introduced into groundwater samples if the gloves contact the sample.

- Sampling personnel should use a new pair of disposable gloves for each well sampled to reduce the potential for exposure of the sampling personnel to contaminants and to reduce sample cross contamination. In addition, sampling personnel should change disposable gloves between purging and sampling operations at the same well.

- Sampling personnel should not use perfume, insect repellent, hand lotion, etc., when taking groundwater samples. If insect repellent must be used, then sampling personnel should not allow samples or sampling equipment to contact the repellent, and it should be noted in the documentation that insect repellent was used.

- Complete the documentation of the well. A completed assemblage of paperwork for a sampling event includes the completed field forms, entries in the Project Field Book (with a sewn binding), transportation documentation (if required), and possibly chain-of-custody forms.

ATTACHMENTS

Groundwater Well Purge & Sample Collection Log (sample)

REFERENCES

1. Wilson, Neal. *Soil Water and Ground Water Sampling*, 1995

Benchmark FOPs:

007 Calibration and Maintenance of Portable Dissolved Oxygen Meter
008 Calibration and Maintenance of Portable Field pH/Eh Meter
009 Calibration and Maintenance of Portable Field Turbidity Meter
011 Calibration and Maintenance of Portable Photoionization Detector
012 Calibration and Maintenance of Portable Specific Conductance Meter
022 Groundwater Level Measurement
023 Groundwater Purging Procedures Prior to Sample Collection (optional)
031 Low Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedures (optional)
040 Non-Disposable and Non-Dedicated Sampling Equipment Decontamination
046 Sample Labeling, Storage and Shipment Procedures

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER WE
PURGE & SAMPLE COLLECTION L

Project Name:	WELL NUMBER:
Project Number:	Sample Matrix:
Client:	Weather:

WELL DATA: DATE: TIME:

Casing Diameter (inches):	Casing Material:
Screened interval (fbTOR):	Screen Material:
Static Water Level (fbTOR):	Bottom Depth (fbTOR):
Elevation Top of Well Riser (fmsl):	Ground Surface Elevation (fmsl):
Elevation Top of Screen (fmsl):	Stick-up (feet):

PURGING DATA: DATE: START TIME: END TIME:

Method:	Is purge equipement dedicated to sample location? yes
No. of Well Volumes Purged:	Was well purged to dry yes
Standing Volume (gallons):	Was well purged bel nd pack? yes
Volume Purged (gallons):	Condition of We
Purge Rate (gal/min):	Field Personne

VOLUME CALCULATION:

(A) Total Depth of Well (fbTOR):	
(B) Casing Diameter (inches):	
(C) Static Water Level (fbTOR):	
One Well Volume (V, gallons):	
$V = 0.0408 [(B)^2 \times \{ (A) - (C) \}]$	

* Use the table to the right to calculate one well volume by subtracting C f
then multiplying by the volume calculation in the table per well diamet

Volume Calculation

Dia	Volume gal/ft
1"	0.041
	163
4	
	1.02
	1.469

Stabilization Criteria

ter	Criteria
pH	+/- 0.1 un
SC	+/- 3%
Turbidity	+/- 10%
DO	+/- 0.3 m
ORP	+/- 10 mV

EVACUATION STABILIZATIO EST

Time	Water Level (fbTOR)	Accumulated Volume (gallons	pH (units)	cific nce	urbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance Odor
		initial						

SAMPLING DATA: DATE: START TIME: END TIME:

Method:	Is sampling equipement dedicated to sample location? yes
Initial Water Level (fbTOR):	Was well sampled to dryness? yes
Final Water Level (fbTOR):	Was well sampled below top of sand pack? yes
Air Temperature (°F):	Field Personnel:
Source and type of water used in the field for QC purposes:	

PHYSICAL & CHEMICAL DATA:

DESCRIPTION OF WATER SAMPLE		
Odor		
Color		
NAPL		
Contains Sediment?	yes	no

WATER QUALITY MEASUREMENTS							
Sample	Time	pH (units)	TEMP. (°C)	SC (uS)	TURB. (NTU)	DO (ppm)	ORP (mV)
initial							
final							

REMARKS:

PREPARED BY:

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FIELD OPERATING PROCEDURES

Low-Flow (Minimal Drawdown) Groundwater Purging & Sampling Procedure

FOP 031.0

LOW FLOW (MINIMAL DRAWDOWN) GROUNDWATER PURGING & SAMPLING PROCEDURES

PURPOSE

This procedure describes the methods used for performing low flow (minimal drawdown) purging, also referred to as micro-purging, at a well prior to groundwater sampling to obtain a representative sample from the water-bearing zone. This method of purging is used to minimize the turbidity of the produced water. This may increase the representativeness of the groundwater samples by avoiding the necessity of filtering suspended solids in the field prior to preservation of the sample.

Well purging is typically performed immediately preceding groundwater sampling. The sample should be collected as soon as the parameters measured in the field (i.e., pH, specific conductance, dissolved oxygen, Eh, temperature, and turbidity) have stabilized.

PROCEDURE

1. Water samples should not be taken immediately following well development. Sufficient time should be allowed to stabilize the groundwater flow regime in the vicinity of the monitoring well. This lag time will depend on site conditions and methods of installation but may exceed one week.

2. Prepare the electronic water level indicator (e-line) in accordance with the procedures referenced in the Benchmark's Groundwater Level Measurement FOP and decontaminate the e-line probe and a lower portion of cable following the procedures referenced in the Benchmark's Non-disposable and Non-dedicated Sampling Equipment Decontamination FOP. Store the e-line in a protected area until use. This may include wrapping the e-line in clean plastic until the time of use.

3. Calibrate all sampling devices and monitoring equipment in accordance with manufacturer's recommendations, the site Quality Assurance Project Plan (QAPP) and/or Field Sampling Plan (FSP). Calibration of field

instrumentation should be followed as specified in Benchmark's Calibration and Maintenance FOP for each individual meter.

4. Inspect the well/piezometer for signs of vandalism or damage and record condition on the Groundwater Well Purge & Sample Collection Log form (sample attached). Specifically, inspect the integrity of the following: concrete surface seal, lock, protective casing and well cover, well casing and J-plug/cap. Report any irregular findings to the Project Manager.

5. Unlock and remove the well protective cap or cover and place on clean plastic to avoid introducing foreign material into the well.

6. Monitor the well for organic vapors using a PID, as per the Work Plan. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging.

7. Lower the e-line probe slowly into the monitoring well and record the initial water level in accordance with the procedures referenced in Benchmark's Groundwater Level Measurement FOP. Refer to the construction diagram for the well to identify the screened depth.

8. Decontaminate all non-dedicated pump and tubing equipment following the procedures referenced in the Benchmark's Non-disposable and Non-dedicated Sampling Equipment Decontamination FOP.

9. Lower the purge pump or tubing (i.e., low-flow electrical submersible, peristaltic, etc.) slowly into the well until the pump/tubing intake is approximately in the middle of the screened interval. Rapid insertion of the pump will increase the turbidity of well water, and can increase the required purge time. This step can be eliminated if dedicated tubing is already within the well.

   Placement of the pump close to the bottom of the well will cause increased entrainment of solids, which may have settled in the well over time. Low-flow purging has the advantage of minimizing mixing between the overlying

stagnant casing water and water within the screened interval. The objective of low-flow purging is to maintain a purging rate, which minimizes stress (drawdown) of the water level in the well. Low-flow refers to the velocity with which water enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen.

10. Lower the e-line back down the well as water levels will be frequently monitored during purge and sample activities.

11. Begin pumping to purge the well. The pumping rate should be between 100 and 500 milliliters (ml) per minute (0.03 to 0.13 gallons per minute) depending on site hydrogeology. Periodically check the well water level with the e-line adjusting the flow rate as necessary to stabilize drawdown within the well. If possible, a steady flow rate should be maintained that results in a stabilized water level (drawdown of 0.3 feet or less). If the water level exceeds 2 feet below static and declining, slow the purge rate until the water level generally stabilizes. Record each pumping rate and water level during the event.

    The low flow rate determined during purging will be maintained during the collection of analytical samples. At some sites where geologic heterogeneities are sufficiently different within the screened interval, high conductivity zones may be preferentially sampled.

12. Measure and record field parameters (pH, specific conductance, Eh, dissolved oxygen (DO), temperature, and turbidity) during purging activities. In lieu of measuring all of the parameters, a minimum subset could be limited to pH, specific conductance, and turbidity or DO.

    Water quality indicator parameters should be used to determine purging needs prior to sample collection in each well. Stabilization of indicator parameters should be used to determine when formation water is first encountered during purging. In general, the order of stabilization is pH, temperature, and specific conductance, followed by Eh, DO and turbidity. Performance criteria for determination of stabilization should be based on water-level drawdown, pumping rate and equipment specifications for measuring indicator

parameters. An in-line flow through cell to continuously measure the above parameters may be used. The in-line device should be disconnected or bypassed during sample collection.

13. Purging will continue until parameters of water quality have stabilized. Record measurements for field indicator parameters (including water levels) at regular intervals during purging. The stability of these parameters with time can be used to guide the decision to discontinue purging. Proper adjustments must be made to stabilize the flow rate as soon as possible.

14. Record well purging and sampling data in the Project Field Book or on the attached Groundwater Well Purge & Sample Collection Log (sample attached). Measurements should be taken approximately every three to five minutes, or as merited given the rapidity of change.

15. Purging is complete when field indicator parameters stabilize. Stabilization is achieved after all field parameters have stabilized for three successive readings. Three successive readings should be within ± 0.1 units for pH, ± 3% for specific conductance, ± 10 mV for Eh, and ± 10% for turbidity and dissolved oxygen. These stabilization guidelines are provided for rough estimates only, actual site-specific knowledge may be used to adjust these requirements higher or lower.

    An in-line water quality measurement device (e.g., flow-through cell) should be used to establish the stabilization time for several field parameters on a well-specific basis. Data on pumping rate, drawdown and volume required for parameter stabilization can be used as a guide for conducting subsequent sampling activities.

16. Collect all project-required samples from the discharge tubing at the flow rate established during purging in accordance with Benchmark's Groundwater Sample Collection Procedures FOP. **If a peristaltic pump and dedicated tubing is used, collect all project-required samples from the discharge tubing as stated before, however volatile organic compounds should be collected in accordance with the procedure presented in the next**

section. Continue to maintain a constant flow rate such that the water level is not drawn down as described above. Fill sample containers with minimal turbulence by allowing the ground water to flow from the tubing along the inside walls of the container.

17. If field filtration is recommended as a result of increased turbidity, an in-line filter equipped with a 0.45-micron filter should be utilized.

18. Replace the dedicated tubing down the well taking care to avoid contact with the ground surface.

19. Restore the well to its capped/covered and locked condition.

20. Upon purge and sample collection completion, slowly lower the e-line to the bottom of the well/piezometer. Record the total depth to the nearest 0.01-foot and compare to the previous total depth measurement. If a significant discrepancy exists, re-measure the total depth. Record observations of purge water to determine whether the well/piezometer had become silted due to inactivity or damaged (i.e., well sand within purge water). Upon confirmation of the new total depth and determination of the cause (i.e., siltation or damage), notify the Project Manager following project field activities.

PERISTALTIC PUMP VOC SAMPLE COLLECTION PROCEDURE

The collection of VOCs from a peristaltic pump and dedicated tubing assembly shall be collected using the following procedure.

1. Once all other required sample containers have been filled, turn off the peristaltic pump. The negative pressure effects of the pump head have not altered groundwater remaining within the dedicated tubing assembly and as such, this groundwater can be collected for VOC analysis.

2. While maintaining the pressure on the flexible tubing within the pump head assembly, carefully remove and coil the polyethylene tubing from the well; taking care to prevent the tubing from coming in contact with the ground

surface and without allowing groundwater to escape or drain from the tubing intake.

3. Once the polyethylene tubing is removed, turn the variable speed control to zero and reverse the pump direction.

4. Slowly increase the pump rate allowing the groundwater within the polyethylene tubing to be "pushed" out of the intake end (i.e., positive displacement) making sure the groundwater within the tubing is not "pulled" through the original discharge end (i.e., negative displacement). Groundwater pulled through the pump head assembly CANNOT be collected for VOC analysis.

5. Slowly fill each VOC vial by holding the vial at a 45-degree angle and allowing the flowing groundwater to cascade down the side until the vial is filled with as minimal disturbance as possible. As the vial fills, slowly rotate the vial to vertical. **DO NOT OVERFILL THE VIAL, AS THE PRESERVATIVE WILL BE LOST.** The vial should be filled only enough so that the water creates a slight meniscus at the vial mouth.

6. Cap the VOC vials leaving no visible headspace (i.e., air-bubbles). Gently tap each vial against your hand checking for air bubbles.

7. If an air bubble is observed, slowly remove the cap and repeat Steps 5 and 6.

ATTACHMENTS

Groundwater Well Purge & Sample Collection Log (sample)

REFERENCES

United States Environmental Protection Agency, 540/S-95/504, 1995. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.*

Benchmark FOPs:

007 *Calibration and Maintenance of Portable Dissolved Oxygen Meter*
008 *Calibration and Maintenance of Portable Field pH/Eh Meter*
009 *Calibration and Maintenance of Portable Field Turbidity Meter*
011 *Calibration and Maintenance of Portable Photoionization Detector*
012 *Calibration and Maintenance of Portable Specific Conductance Meter*
022 *Groundwater Level Measurement*
024 *Groundwater Sample Collection Procedures*
040 *Non-Disposable and Non-Dedicated Sampling Equipment Decontamination*
046 *Sample Labeling, Storage and Shipment Procedures*

LOW FLOW (MINIMAL DRAWDOWN) GROUNDWATER PURGING & SAMPLING PROCEDURES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

LOW FLOW METHOD GROUNDWATER PURGE & SAMPLE COLLECTION LOG

Project Name:	WELL LOCATION:
Project Number:	Sample Matrix: groundwater
Client:	Weather:

WELL DATA: DATE: TIME:

Casing Diameter (inches):	Casing Material:
Screened interval (fbTOR):	Screen Material:
Static Water Level (fbTOR):	Bottom Depth (fbTOR):
Elevation Top of Well Riser (fmsl):	Ground Surface Elevation (fmsl):
Elevation Top of Screen (fmsl):	Stick-up (feet):
Standing volume in gallons:	
[(bottom depth - static water level) x vol calculation in table per well diameter]:	

Volume Calculation

Well Diameter	Volume gal/ft
1"	0.041
2"	0.163
3"	0.367
4"	0.653
5"	1.020
6"	1.469

PURGING DATA: Pump Type:

Is equipment dedicated to location? yes no					Is tubing ded… …ion? yes no			
Depth of Sample (i.e. Level of Intake) (fbTOR):					…roximate Purg… …(gal/…			
Time	Water Level (fbTOR)	Accumulated Volume (gallons)	pH (units)	Temperature (degrees C)	S…ific …	…ity …	DO (mg… | …mV)	Appearance & Odor
	Initial								

SAMPLING DATA: DATE: START TIME: END TIME:

Method: low-flow with dedica…	Was well sampled to dryness? yes no
Initial Water Level (fbTOR):	Was well sampled below top of sand pack? yes no
Final Water Level (fbTOR):	Field Personnel:

PHYSICAL & CHEMICAL DATA:

	WATER QUALITY MEASUREMENTS					
Appearance: / Color:	pH (units)	TEMP. (°C)	SC (uS)	TURB. (NTU)	DO (ppm)	ORP (mV)
Odor:						
Sediment Present?						

REMARKS:

PREPARED BY:

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FIELD OPERATING PROCEDURES

Sample Labeling, Storage, and Shipment Procedures

FOP 046.0

SAMPLE LABELING, STORAGE & SHIPMENT PROCEDURES

PURPOSE

The collection and analysis of samples of environmental media, including soils, groundwater, surface water, and sediment, are the central activities of the field investigation. These samples must be properly labeled to preserve its identity, and properly stored and shipped in a manner that preserves its integrity and chain of custody. This procedure presents methods for these activities.

SAMPLE LABELING PROCEDURE

1. Assign each sample retained for analysis a unique 9-digit alphanumeric identification code or as indicated in the Project Work Plan. Typically, this code will be formatted as follows:

Sample I.D. Example: GW051402047	
GW	**Sample matrix** GW = groundwater; SW = surface water; SUB = subsurface soil; SS = surface soil; SED = sediment; L = leachate; A = air
05	Month of sample collection
14	Day of sample collection
02	Year of sample collection
047	Consecutive sample number

2. Consecutive sample numbers will indicate the individual sample's sequence in the total set of samples collected during the investigation/sampling event. The sample number above, for example, would indicate the 47th sample retained for analysis during the field investigation, collected on May 14, 2002.

3. Affix a non-removable (when wet) label to each sample container. The following information will be written on the label with black or blue ink that will not smudge when wet:

   - Project number
   - Sample ID (see Step 1 above)
   - Date of sample collection
   - Time of sample collection (military time only)
   - Specify "grab" or "composite" sample with an "X"
   - Sampler initials
   - Preservative(s) (if applicable)
   - Analytes for analysis (if practicable)

4. Record all sample label information in the Project Field Book and on a Sample Summary Collection Log (see attached samples), keyed to the sample identification number. In addition, add information regarding the matrix, sample location, depth, etc. to provide a complete description of the sample.

SAMPLE STORAGE PROCEDURE

1. Immediately after collection, placement in the proper container, and labeling, place samples to be retained for chemical analysis into resealable plastic bags.

2. Place bagged samples into an ice chest filled approximately half-full of double bagged ice. Blue ice is not an acceptable substitute for ice.

3. Maintain samples in an ice chest or in an alternative location (e.g. sample refrigerator) as approved by the Benchmark Field Team Leader until time of shipment. Periodically drain melt-water off coolers and replenish ice as necessary.

4. Ship samples on a daily basis, unless otherwise directed by the Benchmark Field Team Leader.

5. Maintain appropriate custody procedures on coolers and other sample storage containers at all times. These procedures are discussed in detail in the Project Quality Assurance Project Plan, Monitoring Plan or Work Plan.

6. Samples shall be kept in a secure location locked and controlled (i.e., locked building or fenced area) so that only the Project Field Team Leader has access to the location or under the constant visual surveillance of the same.

SAMPLE SHIPPING PROCEDURE

1. Fill out the chain-of-custody form completely (see attached sample) with all relevant information. The white original goes with the samples and should be placed in a resealable plastic bag and taped inside the sample cooler lid; the sampler should retain the copy.

2. Place a layer of inert cushioning material such as bubble pack in the bottom of cooler.

3. Place each bottle in a bubble wrap sleeve or other protective wrap. To the extent practicable, then place each bottle in a resealable plastic bag.

4. Open a garbage bag (or similar) into a cooler and place sample bottles into the garbage bag (or similar) with volatile organic analysis (VOA) vials near the center of the cooler.

5. Pack bottles with ice in plastic bags. At packing completion, cooler should be at least 50 percent ice, by volume. Coolers should be completely filled, so that samples do not move excessively during shipping.

6. Duct tape (or similar) cooler drain closed and wrap cooler completely in two or more locations to secure lid, specifically covering the hinges of the cooler.

7. Place laboratory label address identifying cooler number (i.e., 1 of 4, 2 of 4 etc.) and overnight delivery waybill sleeves on cooler lid or handle sleeve (Federal Express).

8. Sign the custody seal tape with an indelible soft-tip marker and place over the duct tape across the front and back seam between the lid and cooler body.

9. Cover the signed custody seal tape with an additional wrap of transparent strapping tape.

10. Place "Fragile" and "This Side Up" labels on all four sides of the cooler. "This Side Up" labels are yellow labels with a black arrow with the arrowhead pointing toward the cooler lid.

11. For coolers shipped by overnight delivery, retain a copy of the shipping waybill, and attach to the chain-of-custody documentation.

ATTACHMENTS

Soil/Sediment Sample Summary Collection Log (sample)
Groundwater/Surface Water Sample Summary Collection Log (sample)
Wipe Sample Summary Collection Log (sample)
Air Sample Summary Collection Log (sample)
Chain-Of-Custody Form (sample)

REFERENCES

None

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

AIR SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, important observations or descriptions, etc.)

Notes:

1. See QAPP for sampling frequency and actual number of QC samples.
2. SC - Summa Canister.
3. TB - Tedlar Bag (quantity).
4. No Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blanks, Field Duplicates, Field Blanks or Rinsates collected for air samples.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

CHAIN OF CUSTODY RECORD

Project No.			Project Name				Number of Containers	VOCs	SVOCs	Metals					REMARKS
Samplers (Signature)															
No.	Date	Time	comp	grab	Sample Identification										

Possible Hazard Identification:
☐ Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal:
☐ Return to Client ☐ Disposal by Lab ☐ Archive _____(mos.)

Turnaround Time Required:
Normal ☐ Rush ☐

QC Level:
I. ☐ II. ☐ III. ☐ Project Specific (specify):_____

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	REMARKS:
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

WIPE SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, important observations or descriptions, etc.)

Notes:

1. See QAPP for sampling frequency and actual number of QC samples.
2. CWM - clear, wide-mouth glass jar with Teflon-lined cap.
3. FD - Field Duplicate.
4. FB - Field Blank.
5. RS - Rinsate.
6. No Matrix Spike, Matrix Spike Duplicate or Matrix Spike Blanks for wipe samples.
7. Rinsates should be taken at a rate of 1 per day during wipe sampling. Only take when reusable equipment is used.
8. Wipe sample FB collected by wiping unused glove (and any other sampling equipment coming into contact with sampled surface) with prepared gauze pad and place in sample jar. Take at a rate of 1 FB per 20 samples.
9. Wipe sample FDs taken adjacent to original sample at a rate of 1 FD per 20 samples.
10. **EH :** Extract and Hold

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

AIR SAMPLE COLLECTION SUMMARY LOG

Field ID	Location	QC Type	Analytical Parameters	Containers	Date	Time	Sampler Initials	Comments (e.g. problems encountered, ref. to variance, location changes, important observations or descriptions, etc.)

Notes:

1. See QAPP for sampling frequency and actual number of QC samples.
2. SC - Summa Canister.
3. TB - Tedlar Bag (quantity).
4. No Matrix Spike, Matrix Spike Duplicate, Matrix Spike Blanks, Field Duplicates, Field Blanks or Rinsates collected for air samples.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

CHAIN OF CUSTODY RECORD

Project No.	Project Name					Number of Containers	VOCs	SVOCs	Metals						REMARKS
Samplers (Signature)															
No.	Date	Time	comp	grab	Sample Identification										

Possible Hazard Identification:
☐ Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal:
☐ Return to Client ☐ Disposal by Lab ☐ Archive _____(mos.)

Turnaround Time Required:
Normal ☐ Rush ☐

QC Level:
I. ☐ II. ☐ III. ☐ Project Specific (specify):_____

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	REMARKS:
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	

APPENDIX F

SITE-WIDE INSPECTION FORM

Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 915133

Site Name Colgate Avenue Site

Site Address: 119 Colgate Avenue Zip Code: 14220

City/Town: Buffalo

County: Erie

Current Use: Commercial

Intended Use: Commercial – fast food restaurant with parking

Verification of Site Details **Box 2**

		YES	NO
1.	Are the Site Details above, correct?	☐	☐
	If NO, are changes handwritten above or included on a separate sheet?	☐	☐
2.	Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification?	☐	☐
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
3.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification?	☐	☐
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
4.	Has a change-of-use occurred since the initial/last certification?	☐	☐
	If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
5.	For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid?	☐	☐
	If YES, is the new information or evidence that new information has been previously submitted included with this Certification?	☐	☐
6.	For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ?	☐	☐

SITE NO. 915133 **Box 3**

Description of Institutional Control Certification

	YES	NO
1. Compliance with the Site Management Plan (SMP) for the implemented remedy:	□	□
2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department:	□	□
3. Groundwater monitoring as specified in the SMP:	□	□
4. Operation and maintenance of the ASD system as specified in the SMP:	□	□

Description of Engineering Control Certification **Box 4**

	YES	NO
1. Maintenance of the cover systems over the Site:	□	□

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

IC/EC CERTIFICATIONS
SITE NO. 915133

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____(Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

_____ _____
Signature of Owner or Remedial Party Rendering Certification Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

_____ _____ _____
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification | Stamp (if Required) | Date

APPENDIX G

ENVIRONMENTAL EASEMENT

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 25th day of July, 2012 between Owner(s) Ameron International Corporation, having an office at 245 Los Robles Avenue, County of Los Angeles, State of California ("the Grantor"), and The People of the State of New York (the Grantee), acting through their Commissioner of the Department of Environmental Conservation ("the Commissioner") with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 119 Colgate Avenue in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: SBL 133.62-2-1.11 being the same as that property conveyed to Grantor by deeds dated June 26, 1944 and April 26, 1946 and recorded in the Erie County Clerk's Office in Liber 3557, Page 382 and Liber 3882, Page 20, respectively, comprising approximately 1.953 acres, and hereinafter more fully described in the Land Title Survey dated October 25, 2010 prepared by Millard, MacKay & Delles, which will be attached to the Site Management Plan. The property description (the "Controlled Property") is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the

terms and conditions of Order on Consent Number: 915133, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential, and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Regional Remediation Engineer
NYSDEC – Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, New York 14202
Phone: (716)-851-7000

or

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5 the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by

Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: 915133
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Ameron International Corporation

By(1): _____

Print Name: Gary Wagner

Title: Senior Vice President Date: 7/19/11

By(2): _____

Print Name: Leonard J. McGill

Title: Secretary Date: 7/19/11

Grantor's Acknowledgment

STATE OF CALIFORNIA)
) ss:
COUNTY OF LOS ANGELES)

On the 19 day of July, in the year 2011, before me, Cynthia A. Iwasaki, Notary Public, personally appeared Gary Wagner and Leonard J. McGill, who proved to me on the basis of satisfactory evidence to be the person(s) whose name is (are) subscribed to the within instrument and acknowledged to me that ~~he/she~~/they executed the same in ~~his/her~~/their authorized capacity(ies), and that by ~~his/her~~/their signature(s) on the instrument, the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

CYNTHIA A. IWASAKI
Commission # 1839055
Notary Public - California
Los Angeles County
My Comm. Expires Mar 28, 2013

Notary Public

Grantor's Acknowledgment

~~STATE OF~~)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 20__, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 25 day of July, in the year 2012 before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

SCHEDULE "A" PROPERTY DESCRIPTION

PARCEL "A"

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, known as lots numbers 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40, inclusive, in Block "F", as laid out and described on a certain map showing subdivision of part of the Howard Estate Lands in Lot 45, Township 10, Range 8, made by Dennison Fairchild, C.E., November 13, 1906 and filed in the Erie County Clerk's Office under Cover No. 782, more particularly described as follows:

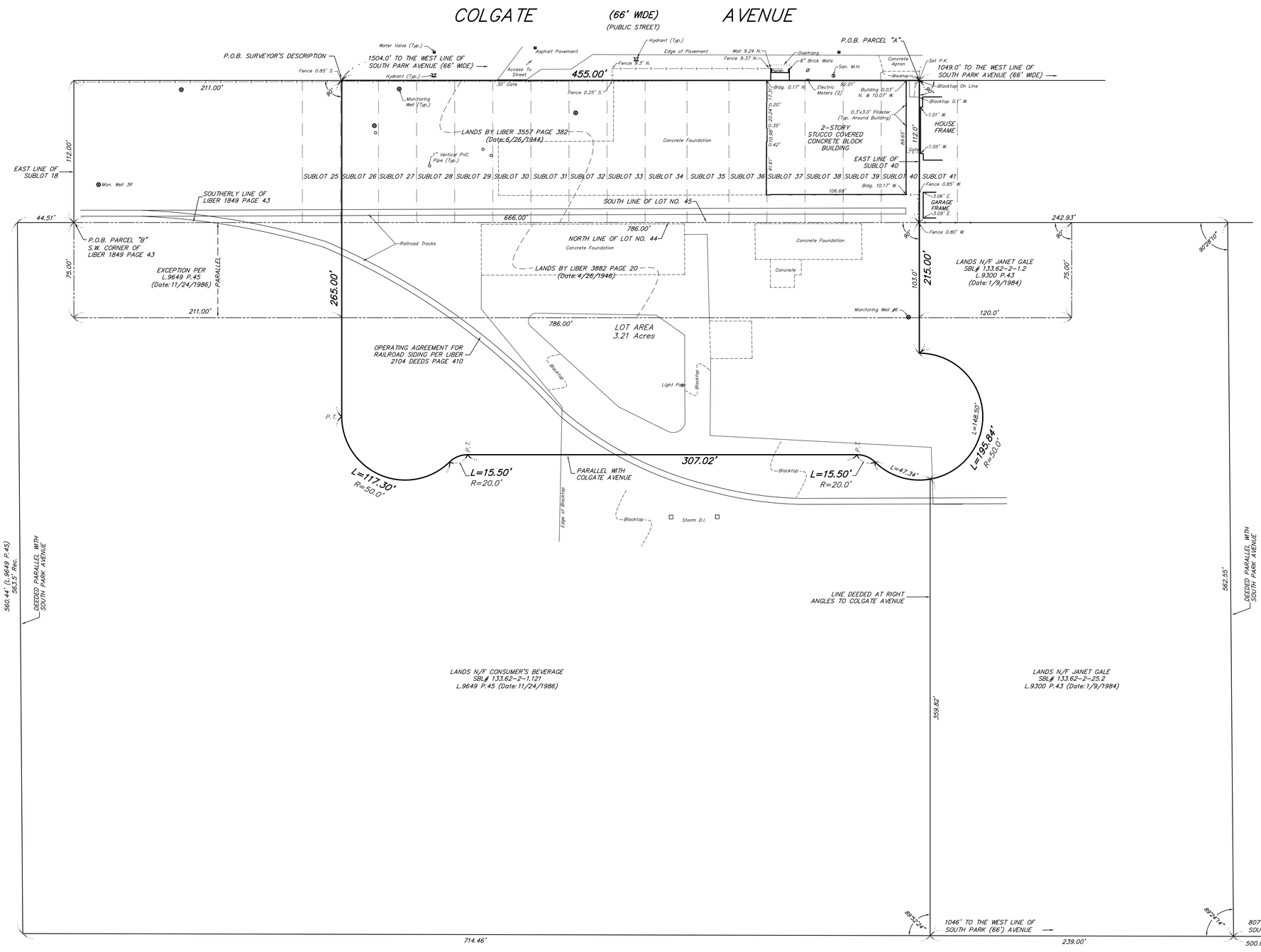
COMMENCING at the point of intersection of the south line of Colgate Avenue with the east line of subdivision lot number 40 aforesaid, which point of commencement is 1049 feet westerly from the westerly line of South Park Avenue; running thence southerly along the easterly line of Subdivision Lot number 40 and substantially at right angles to Colgate Avenue 112 feet to the southerly line of Lot 45; thence westerly and along the southerly line of Lot 45, 666 feet to the easterly line of Subdivision lot number 18; thence northerly along the easterly line of Subdivision lot number 18, 112 feet to the south line of Colgate Avenue; thence easterly and along the south line of Colgate Avenue 666 feet to the point or place of beginning.

PARCEL "B"

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 44, Township 10, Range 8 of the Buffalo Creek Reservation more particularly described as follows:

BEGINNING at the southwest corner of the land conveyed to the Consolidated Battery Company, Inc., by Armin W. Brand and Francis E. Stevens as and composing the copartnership known and doing business under the name of Brand and Stevens, by deed dated July 15, 1925, and recorded in the office of the Erie County Clerk in Liber 1849 of Deeds at page 43 on July 27, 1925; thence easterly along the southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Company Inc. 786 feet; thence southerly at right angles to the said southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Co. Inc. 75 feet; thence westerly along a line parallel to the said southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Co. Inc and distant 75 feet southerly therefrom 786 feet; thence northerly 75 feet to the place of beginning.

EXCEPTING THEREFROM that part conveyed by deed recorded in the Erie County Clerk's Office in Liber 9049 of Deeds at page 45.



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

LEGAL DESCRIPTION

PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT #5009-25131
EFFECTIVE DATE: March 10, 2012

Parcel A (119 Colgate)

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, known as lots numbers 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38,39 and 40, inclusive, in Block "F", as laid out and described on a certain map showing subdivision of part of the Howard Estate Lands in Lot 45, Township 10, Range 8, made by Dennison Fairchild, C.E., November 13, 1906 and filed in the Erie County Clerk's Office under Cover No, 782, more particularly described as follows;

COMMENCING at the point of intersection of the south line of Colgate Avenue with the east line of subdivision lot number 40 aforesaid, which point of commencement is 1049 feet westerly from the westerly line of South Park Avenue; running thence southerly along the easterly line of Subdivision Lot number 40 and substantially at right angles to Colgate Avenue 112 feet to the southerly line of Lot 45; thence westerly and along the southerly line of Lot 45, 666 feet to the easterly line of Subdivision lot number 18; thence northerly along the easterly line of Subdivision lot number 18, 112 feet to the south line of Colgate Avenue; thence easterly and along the south line of Colgate Avenue 666 feet to the point or place of beginning.

Parcel B (119 Colgate)

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 44, Township 10, Range 8 of the Buffalo Creek Reservation more particularly described as follows:

BEGINNING at the southwest corner of the land conveyed to the Consolidated Battery Company, Inc., by Armin W. Brand and Francis E. Stevens as and composing the copartnership known and doing business under the name of Brand and Stevens, by deed dated July 15, 1925, and recorded in the office of the Erie County Clerk in Liber 1849 of Deeds at page 43 on July 27, 1925; thence easterly along the southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Company Inc., 786 feet; thence southerly at right angles to the said southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Co. Inc. 75 feet; thence westerly along a line parallel to the said southerly line and said southerly line extended of the lands so conveyed to the Consolidated Battery Co. Inc and distant 75 feet southerly therefrom 786 feet; thence northerly 75 feet to the place of beginning.

EXCEPTING THEREFROM that part conveyed by deed recorded in the Erie County Clerk's Office in Liber 9649 of Deeds at page 45.

Parcel C (113 Colgate)

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 44, Township 10, Range 8 of the Buffalo Creek Reservation, and being more particularly described as follows:

BEGINNING at a point in the northerly line of Okell Street, distance 307 feet west of the westerly line of South Park Avenue; running thence northerly parallel with said South Park Avenue, 563.5 feet to a point in the north line of Lot No. 44; running thence westerly along said north line of Lot no. 44, 1453.48 feet to a point in a line drawn parallel with the aforementioned South Park Avenue; running thence southerly, 563.5 feet on a line drawn parallel with South Park Avenue to Okell Street; running thence easterly along the north line of Okell Street 1453.48 feet to the point or place of beginning.

EXCEPTING THEREFROM lands conveyed by deed recorded in the Erie County Clerk's Office in Liber 9300 of Deeds at page 43.

ALSO EXCEPTING THEREFROM lands conveyed by deed recorded in the Erie County Clerk's Office in Liber 9649 of Deeds at page 45.

This parcel intending to contain 3.21 Acres more or less.

EASEMENTS / AGREEMENTS

PER SCHEDULE "B" CHICAGO TITLE INSURANCE COMPANY COMMITMENT #5009-25131

5. Agreement for railroad side track made by Consolidated Battery Company Inc. with Wilkeson-Harding Inc. dated September 10, 1930 and recorded September 10, 1930 in Liber 2104 of Deeds at page 410.

SURVEYOR'S LEGAL DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND, Situate in the City of Buffalo, County of Erie and State of New York, being part of Lots 44 and 45, Township 10, Range 8 of Buffalo Creek Reservation and more particularly bounded and described as follows:

Beginning at a point in the south line of Colgate Avenue 1504.0 feet west of the intersection of the south line of Colgate Avenue and west line of South Park Avenue; thence southerly at right angle's to Colgate Avenue 265.0 feet; thence southeast on a curve to the left tangent to the last described line and having a radius of 50 feet an arc length of 117.30 feet; thence on a reverse curve to the right having a radius of 20.0 feet an arc length of 15.50 feet; thence east on a line tangent to the last described curve and parallel with Colgate Avenue 307.02 feet; thence on a curve to the right tangent to the last described course having a radius of 20.0 feet an arc length of 15.50 feet; thence on a reverse curve to the left, having a radius of 50.0 feet an arc length of 195.84 feet to a point; thence northerly along a line at right angles to Colgate Avenue a distance of 215.00 feet to a point on the south line of said Colgate Avenue; thence west and along the said south line of Colgate Avenue, a distance of 455.00 feet to the point or place of beginning.

ENVIRONMENTAL EASEMENT AREA DESCRIPTION

DEC Site number 915133

SAME AS THE SURVEYOR'S LEGAL DESCRIPTION
This parcel intending to contain 3.21 Acres more or less.

THE ENGINEERING AND INSTUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, N.Y. 12233 OR AT derweb@gw.dec.state.ny.us

LEGEND

UTILITY / SERVICE POLE	R.O.W. RIGHT OF WAY
WATER LINE VALVE	CONC. CONCRETE
FIRE HYDRANT	INV. INVERT
D.I. (DROP INLET – STORM)	M.H. MANHOLE
MANHOLE (STORM)	GAS LINE
MANHOLE (ELECTRIC)	WATER LINE
MANHOLE (TRAFFIC)	TELEPHONE LINE
MANHOLE (SANITARY)	ELECTRIC LINE
LDR (LIGHT DUTY RECEIVER – STORM)	UTILITY LINES
BYD (BACKYARD DRAIN INLET – STORM)	CABLE LINES
GAS LINE VALVE	D. DEED
LIGHT STANDARD	M. MEASURED
SIGN	L. LIBER
H.C. HANDICAP	P. PAGE

AMEND: 3-27-12 PER NEW TITLE REPORT
AMEND: 1-31-12 PER COMMENTS

INSTRUMENT(S) UTILIZED IN DETERMINING LOCATION OF BOUNDARY LINES: HEAD OF SEARCH
THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED IN SAID ABSTRACT.

I HEREBY CERTIFY TO the People of the State of New York acting through its Commissioner of the Department of Environmental Conservation and to the Chicago Title Insurance Company, THAT THIS SURVEY MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARD FOR LAND SURVEYS ADOPTED BY THE ERIE COUNTY BAR ASSOCIATION. THIS CERTIFICATION SHALL EXTEND ONLY TO THE ENTITIES LISTED HEREON AND TO THE SUCCESSORS AND/OR ASSIGNEES OF THE LENDING INSTITUTION. THIS CERTIFICATION IS NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS OTHER THAN STATED ABOVE.

FRANCIS E. DELLES NYSPLS No. 050477

Millard, MacKay & Delles
LAND SURVEYORS, LLP
150 AERO DRIVE
BUFFALO, NEW YORK 14225
PHONE (716) 631-5140 ~ FAX 631-3811

SUBLOTS 26 THROUGH 40 INCLUSIVE, BLOCK "F" ~ MAP COVER 782 AND MORE

PART OF LOT 44&45 SECTION ____ TOWNSHIP 10 RANGE 8 OF THE: Buffalo Creek Reservation SURVEY – Erie COUNTY, N.Y.

SURVEY OF: 113 & 119 Colgate Avenue, City of Buffalo

AMEND:
SURVEY DATE: 10-25-10

SCALE: 1" = 40'

SBL No. 133.62-2-1.11&25.11