Shaw Environmental & Infrastructure, Inc.

13 British American Boulevard
LATHAM, NY 12110-1405
518.783.1996
FAX 518.783.8397

FINAL INTERIM MEASURES (IM) WORK PLAN
90 HOPKINS STREET SITE
NYSDEC ENVIRONMENTAL RESTORATION PROGRAM SITE E915181

BUFFALO, NEW YORK

Shaw Project No.: 141825

July 2012

Prepared for:

Mr. Jim Merriam
Corporate, Director of Environmental Services
Praxair, Inc.

Submitted by:

Shaw Environmental & Infrastructure, Inc.
13 British American Boulevard
Latham, New York, 12110

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List of Appendices

1.0 Introduction

In accordance with the March 25, 2011 meeting with the New York State Department of Environmental Conservation (NYSDEC) and City Of Buffalo (City) personnel, Shaw Environmental & Infrastructure, Inc. (Shaw) has prepared this Interim Measures (IM) Work Plan for the Praxair, Inc. (Praxair) 90 Hopkins Road site located in Buffalo, New York. A Draft IM Work Plan, dated June 13, 2011, was submitted to NYSDEC for review and comment. This plan has been revised pursuant to the requests and comments presented in NYSDEC's July 14, 2011 Comment Letter (included as **Appendix A**) and subsequent discussions and clarifications which were presented during the site meeting on July 20, 2011.

The purpose of this IM Work Plan is to propose interim measures that may be employed to control sediment-laden surface water run-off with potentially higher pH levels from the lime ponds/piles at this site prior to and during the lime removal activities which are to be conducted for the site. Activities focus upon providing immediate measures to minimize the offsite migration of sediments and lime contact water from the lime ponds to the surrounding areas and accommodate future removal and associated activities. Therefore, earth disturbance and other site activities will be limited to those required for the proper installation of these measures.

2.0 Site Description

The 90 Hopkins Street site is owned by the City of Buffalo. It is a parcel of land measuring approximately 7.8 acres, located in a heavily industrial area of Hopkins Street. The property is currently vacant. There are two lime piles/former ponds and several ancillary areas measuring approximately 4.8 acres. The results of a series of field investigations, the latest of which was conducted by Panamerican Environmental, Inc. (2010), estimate that the total volume of lime (above and below the ground surface) is approximately 118,000 cubic yards (CY). There is also a soil/debris pile located along the eastern boundary of the site. The remainder of the property contains concrete pads/floors of former buildings and open space.

3.0 Adjacent Property Usage

An updated property survey was conducted by Razak Associates in August 2011 to verify the location of the property boundary and adjacent property owners (**Appendix A**) as requested by the NYSDEC in their July 14, 2011 comment letter. The survey provided by Razak Associates is consistent with the actual survey location/orientation of site and adjacent parcels. We have requested tax I.D. numbers and title abstracts from the City to finalize the site survey. This information was not received prior to the submittal of this report and property boundaries may change upon receipt of this information. In addition, vertical and horizontal control was established at the site for future remedial activities, and the grades and elevations between the North Lime Pond and the railroad siding were further defined.

The property is bounded to the north by the former Colgate Avenue, Paper Street, and the recently remediated former Alltift Landfill/Ramco Steel wetlands. A commercial and private property is situated to the northeast, and a large automotive scrap yard is located to the east and southeast of the property. An active railroad right-of-way is located immediately adjacent to the southwestern side of the property with the LTV Steel Marilla Landfill situated further west.

4.0 Interim Measures

During the July 20th site meeting, it was agreed that the existing vegetation along the southwest border (along the active rail line) and along the east border will remain in-place to continue to act as a vegetative strip and buffer. This is a more effective approach to controlling erosion and sedimentation than creating additional ground disturbance during the clearing and grubbing activities which would be required for the installation of silt fence or other measures. Therefore, the interim measures will primarily focus on minimizing the offsite migration of lime from the lime piles to the wetland area which lies to the north of the site.

The following measures were "sized" in accordance with the NYSDEC State Standards and Specifications for Erosion and Sediment Control, August 2005. Supporting calculations for the sizing of these structures is presented in **Appendix C**. The plan location of all erosion and sediment controls are presented on Sheet No. C-1; details of the measures are shown on Sheet No. C-2 (**Appendix B**).

1. Stabilized Construction Entrance – A stabilized construction entrance will be installed at the northeast corner of the site.
2. Silt Fence – A series of silt fences will be installed along the eastern limits of the North Lime Pile. The alignments of these structures were selected so that they are installed along a common contour thereby minimizing the potential of concentrated flow through the fence. This type of structure was selected based on the steepness of slope, the length of slope, and contributing watershed.
3. Swale – A swale will be installed at the northeast corner of the North Lime Pile to collect the runoff from the top of the pile. Since the drainage area is less than 5 acres (approximately 1.34 acres), this swale is classified as a Swale A with bottom width of 4 feet and a depth of 1 foot. The swale will measure approximately 100 feet in length and with a slope of 2 percent. Erosion control matting and grass will be used to stabilize this swale.
4. Sediment Trap – A type ST-IV will be installed to intercept stormwater runoff from the lime pile area. The total drainage area flowing to this trap measures 1.83 acres. The outlet is located at the northwest corner of (the topographical low point of the site). Prior to excavation, lime materials at the surface will be removed and placed on the Northern Lime Pile at the location shown on Sheet No. C-1. The underlying materials will used to construct the sediment trap. All existing wells and piezometers will be protected during construction.
5. Crusting Agent – A crusting agent such as DusTreat DC9136 is currently being evaluated for use at the site. This dust control binding agent has been successfully used to control dust emissions from inactive piles containing coal, coke, fly ash, and other materials. It is applied as a water

solution using hydro seeding equipment. As the crusting agent cures, a hard but flexible crust develops, lasting up to 12 months, and will be evaluated for potential use at the site.

A site-specific air monitoring plan will be followed during this work as detailed in the Community Air Monitoring Plan (**Appendix D**).

Appendix A
Comment Letter

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue, Buffalo, New York 14203-2915
Phone: (716) 851-7220; **Fax** (716) 851-7226
Website: www.dec.ny.gov

Joe Martens
Commissioner

July 14, 2011

Mr. David Stoll
Shaw Environmental, Inc.
13 British American Blvd.
Latham, New York 12110-1405

Dear Mr. Stoll:

90 Hopkins Street Site, Buffalo, New York
E915181
Erosion and Sediment Control Work Plan Comments

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the Draft Sediment and Erosion (E&S) Control Interim Remedial Measure (IRM) Work Plan for the subject site. This review has been done in anticipation of an Order on Consent to address the subject site. The review comments are as followed.

1. The site plan drawing survey should be updated by survey methods to show the railroad tracks and new site investigation monitoring wells. The railroad tracks served as a reference line for the investigative test trenches and revised extent of lime waste. Not knowing the degree to accuracy in establishing the property boundaries in the site drawing, the property boundary lines need to be verified/confirmed for design purposes. Some of the existing boundary lines are shown as approximate. Any remedial efforts should be based upon confirmed property boundary information so as to firmly establish onsite work limits and if any temporary work easements are needed for adjoining offsite work.

2. The site plan drawing should include the revised lime limits as determined by the Panamerican Environmental, Inc. (PEI) site investigation.

3. Some text revisions to the work plan are contained in the attached text file and should incorporated in the updated version.

4. Installation of the silt fencing will require a fair amount of clearing at the base of the lime piles, especially along the areas adjacent to the active rail line along the southwestern perimeter and along the northwestern perimeter. Therefore, the scope of work should probably include this task.

5. Use of silt fencing as a primary sediment control measure, especially at this site is questionable. Drainage exits the site along the northwestern perimeter and is concentrated in a couple areas along the northwestern perimeter. Most perimeter drainage from the piles eventually ends up at this northwestern area. Because of adjoining topography and existing drainage patterns, most

runoff is contained to the site before excess runoff migrates to the northwestern perimeter. It may be more advantageous to improve the surface drainage to this discharge area and create a shallow stilling area(s) to settle out lime sediment particles. A site inspection of the area along with obtaining several grade elevation survey points will help develop a more useful and practical E&S IRM.

If you have any questions regarding the above, please feel free to contact me at 716-851-7220 or by email at ewmelnyk@gw.dec.state.ny.us.

Sincerely,

Eugene Melnyk

Eugene W. Melnyk, PE
Project Manager
Division of Environmental Remediation

Attachments:
Draft E&S IRM Work Plan document file with redline edits

ec: Dennis Sutton, City of Buffalo
John Heffron, City of Buffalo
James Merriam, Praxair, Inc.
George Bagget, Praxiar, Inc.
Hassan Rahal, Praxair, Inc.
Martin Doster, NYSDEC

Draft Interim Remedial Measures (IRM) Work Plan
90 Hopkins Street Site
NYSDEC Environmental Restoration Program Site E915181
Buffalo, New York

Project Description:

In accordance with the March 25, 2011 meeting with the New York State Department of Environmental Conservation (NYSDEC) and City Of Buffalo (City) personnel, Shaw Environmental Inc. (Shaw) has prepared this Interim Remedial Measures (IRM) Work Plan for the 90 Hopkins Road site located in Buffalo, New York. The purpose of this IRM is to propose interim measures to control potential sediment/high pH-laden surface water run-off from the lime ponds/piles at this facility prior to and during the Beneficial Use Determination (BUD) activities while accommodating future remedial activities at the site. Therefore, earth disturbance and other site activities will be limited to those required for the proper installation of these measures.

Site Description:

The 90 Hopkins Street site~~property~~ is owned by the City of Buffalo. It is of a parcel of land measuring approximately 8 acres, located in a heavily industrial area of Hopkins Street. The property is currently vacant. There are two lime plies and ~~former ponds~~and ~~level~~ ancillary areas measuring approximately 4.8 acres and containing an estimated 118,000 cubic yards (CY) of lime. There is also a soil/debris pile located along the eastern boundary of the site. The remainder of the property contains concrete pads/floors of former buildings and open space.

Adjacent Property Usage:

The property is bounded to the north by former Colgate Avenue paper street, and the ~~newly~~recently remediated former Alltift Lnandfill/Ramco Steel/~~Bliss & Laughlin company property and~~ wetlands~~, and the Alltift Landfill~~. A commercial and private property is situated to the northeast, and a large automotive scrap yard is located to the east and southeast of the property. An active railroad right-of-way is located immediately adjacent to the southwestern side of the property with the LTV Steel Marilla Street Landfill situated further west.

Interim Remedial Measures:

The following remedial measures will be installed at the site to minimize offsite migration lime from the lime piles. All remedial measures were sized in accordance with the New York Department of Environmental Conservation (NYDEC) State Standards and Specifications for Erosion and Sediment Control, August 2005.

1. Silt Fence – A series of silt fences will be installed along the north, east and southwest limits of the North and South Lime Piles. The alignments of these structures were selected so that they are installed along a common contour thereby minimizing the potential of concentrated flow through the fence. This type of structure was selected based on the steepness of slope, the length of slope, and contributing watershed. It is also preferred since the amount of clearing and grubbing and site disturbance required for installation is minimal.

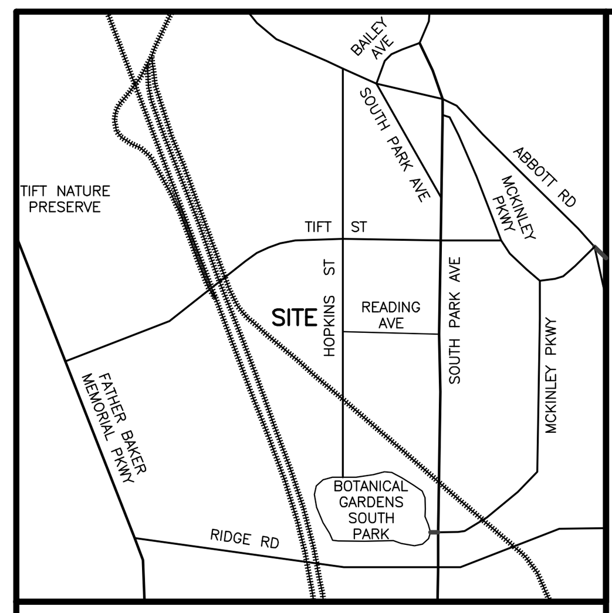
2. Temporary Swale – A temporary swale will be installed at the northeast corner of the North Lime Pile to collect the runoff from the top of the pile. Since the drainage area is less than 5 acres (approximately 1.75 acres) this swale is classified as a Swale A with bottom width of 4 feet and a depth of 1 foot. The swale will measure approximately 100 feet in length and with a slope of 2 percent. Erosion control matting and grass will be used to stabilize this swale.

3. Check Dam – Two check dams will be installed within the temporary swale to reduce erosion within the swale.

4. Level Spreader – A level spreader will installed at the end of the temporary swale to convert the concentrated flow from the swale to sheet flow over a stabilized area. Runoff from the Type II, 24 hour – 10 year storm event from the drainage area is estimated to be 8.75 cubic feet per second (cfs). Per the NYDEC standard the level spreader has a minimum entrance width of 10 feet, a minimum end width of 3 feet, and a minimum length of 10 feet.

5. Crusting Agent – A crusting agent such as DusTreat DC9136 is currently being evaluated for use at the site. This dust control binding agent has been successfully used to control dust emissions from inactive piles containing coal, coke, fly ash, and other materials. It is applied as a water solution using hydro seeding equipment. As the crusting agent cures, a hard but flexible crust develops lasting up to 12 months.

Appendix B
Site Plans and Figures



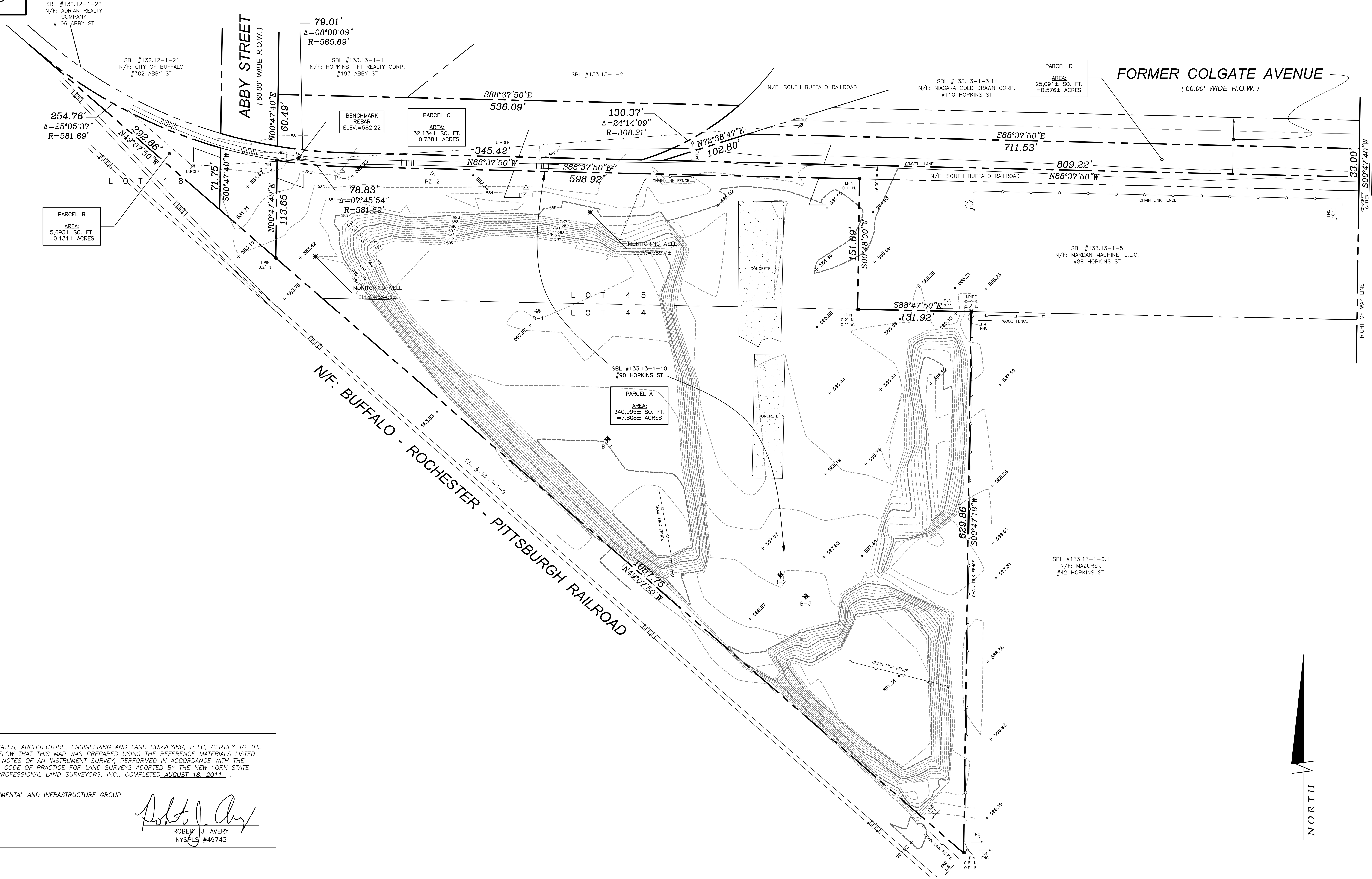
CERTIFICATIONS ON THIS BOUNDARY SURVEY SIGNIFY THAT THE MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC. THE CERTIFICATION IS LIMITED TO PERSONS FOR WHOM THE BOUNDARY SURVEY MAP IS PREPARED, TO THE TITLE COMPANY, TO THE GOVERNMENTAL AGENCY, AND TO THE LENDING INSTITUTION LISTED ON THIS BOUNDARY SURVEY MAP. THE CERTIFICATIONS HEREIN ARE NOT TRANSFERABLE.

REFERENCES:

1. MAP OF A BOUNDARY SURVEY PREPARED BY CLEAR CREEK LAND SURVEYING, LLC, DATED FEBRUARY 8, 2005.
2. LIBER 9797 OF DEEDS, PAGE 389.

NOTES:

1. THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A REVIEW OF AN ABSTRACT OF TITLE AND IS SUBJECT TO ANY CONDITIONS, EASEMENTS AND/OR RESTRICTIONS OF RECORD THAT THE REVIEW OF SAME WOULD DISCLOSE.



WE, RAZAK ASSOCIATES, ARCHITECTURE, ENGINEERING AND LAND SURVEYING, PLLC, CERTIFY TO THE PARTIES LISTED BELOW THAT THIS MAP WAS PREPARED USING THE REFERENCE MATERIALS LISTED HEREON AND THE NOTES OF AN INSTRUMENT SURVEY, PERFORMED IN ACCORDANCE WITH THE CURRENT EXISTING CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC., COMPLETED AUGUST 18, 2011 .

1. SHAW ENVIRONMENTAL AND INFRASTRUCTURE GROUP

ROBERT J. AVERY
NYSPLS #49743

INSTRUMENT SURVEY MAP

PROJECT

#90 HOPKINS STREET

BEING PART OF TOWN LOTS 44 & 45, TOWNSHIP 10, RANGE 8, BUFFALO CREEK RESERVATION AND LOT 18 IN THE OGDEN GORE TRACT, SITUATE IN THE CITY OF BUFFALO, COUNTY OF ERIE, STATE OF NEW YORK

LOCATION
#90 HOPKINS STREET, BUFFALO, NY 14220

CLIENT
SHAW ENVIRONMENTAL AND INFRASTRUCTURE GROUP

Razak Associates
ARCHITECTURE
ENGINEERING
LAND SURVEYING
INTERIORS
PLANNING
LANDSCAPE
2060 FAIRPORT-NINE MILE POINT ROAD, SUITE 410
PENFIELD, NY 14526
PHONE: 585.377.3550 ◆ FAX: 585.377.3559

STATE OF NEW YORK — ROBERT J. AVERY — NO. 049743 — Licensed Land Surveyor

NEW YORK STATE LICENSED PROFESSIONAL

NO	REVISIONS	DATE	BY
9			
8			
7			
6			
5			
4			
3			
2			
1	REVISED PER CITY OF BUFFALO TAX MAP	9/06/11	SAC

GRAPHIC SCALE: 1" = 60'

0 30 60 90 120 180

DRAWING ALTERATION NOTICE

THE FOLLOWING IS AN EXCERPT FROM THE NEW YORK STATE EDUCATION LAW ARTICLE 145, SECTION 7209 AND APPLIES TO THIS DRAWING:

"IT IS A VIOLATION OF THIS LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION 'ALTERED BY' FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION."

SCALE	1" = 60'
DATE	8/25/11
SHEET	1 of 1
PROJECT NO.	11-0310
FILE NAME	HopkinsSt#90.dwg
DRAWN BY	SAC
CHECKED BY	RJA

OFFICE Pittsburgh, PA
DRAWING NUMBER 141825-D1

VERIFY SCALE 0 1"

Xref : XR-TB newbase
Image : 90HOP.jpg logo.jpg 60-grass.jpg

File: O:\Project\141825\141825D1.dwg
Plot Date/Time: Mar 16, 2012 - 10:35am
Plotted By: greg.jones

SBL #132.12-1-21
N/F: CITY OF BUFFALO
#302 ABBY ST

SBL #133.13-1-1
N/F: HOPKINS TIFT REALTY CORP.
#193 ABBY ST

SBL #133.13-1-2

N/F: SOUTH BUFFALO RAILROAD

SBL #133.13-1-3.11
N/F: NIAGARA COLD DRAWN CORP.
#110 HOPKINS ST

FORMER COLGATE AVENUE
(66.00' WIDE R.O.W.)

ABBY STREET
(60.00' WIDE R.O.W.)

HOPKINS STREET
(60.00' WIDE R.O.W.)

SBL #133.13-1-5
N/F: MARDAN MACHINE, L.L.C.
#88 HOPKINS ST

SBL #133.13-1-6.1
N/F: MAZUREK
#42 HOPKINS ST

N/F: BUFFALO - ROCHESTER - PITTSBURGH RAILROAD

APPROX. PROPERTY LINE

BERM EL. 584

PZ-1
PZ-2
PZ-3

MONITORING WELL ELEV.=585.7±
MONITORING WELL ELEV.=584.0±

STONE OUTLET EL. 583

STABILIZED CONSTRUCTION ENTRANCE

TEMPORARY SWALE A-3

INV. EL. 582.5
INV. EL. 584
INV. EL. 585
INV. EL. 586
INV. EL. 586.5
INV. EL. 587

AREA TO BE USED FOR DISPOSAL OF SURFICIAL LIME MATERIAL REMOVED DURING SEDIMENT TRAP CONSTRUCTION

LOT 45
LOT 44

NORTH LIME PILE

SOUTH LIME PILE

APPROXIMATE LIMITS OF LIME PILE

APPROXIMATE LIMITS OF SUBGRADE LIME MATERIAL

TEMPORARY STOCKPILE FOR CLEARED & GRUBBED MATERIALS

B-1
B-2
B-3
B-4

CHAIN LINK FENCE
WOOD FENCE
CONCRETE
RIGHT OF WAY LINE
BRUSH
30" POPLAR

LEGEND

- LIMITS OF LIME PILES
- LIMITS OF SUBGRADE LIME
- REBAR & CAP
- PIN
- FENCE
- PROPERTY LINE
- TREE
- RIGHT OF WAY
- STONE
- BRUSH
- SPOT ELEVATION
- SILT FENCE

SITE LOCATION MAP
NOT TO SCALE

SCALE
0 50 100 150 FEET

NOTES:

1. BOUNDARY SURVEY IS BASED ON SURVEY CONDUCTED BY RAZAK ASSOCIATES, #90 HOPKINS STREET, SCALE 1"=60', AUGUST 25, 2011.
2. BOUNDARY INFORMATION SHOWN FROM BOUNDARY SURVEY OF COLGATE AVENUE. LANDS OF THE CITY OF BUFFALO PART OF LOTS 44 AND 45 T-10 R-8 BCR AND LOT 18 IN THE OGDEN GORE TRACT, CITY OF BUFFALO, ERIE COUNTY, NEW YORK PREPARED BY CLEAR CREEK LAND SURVEYING LLC. DATED FEBRUARY 8, 2005 AND KNOWN AS PROJECT NO. 1204-149-OL.
3. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 1988 (NAD 88).
4. SOURCE VERTICAL CONTROL: NATIONAL GEODETIC SURVEY BENCH MARK Q 410 P.I.D. NC0701 ELEVATION: 598.03 (NAVD 88 FEET).
5. BORING, PIEZOMETER, AND TEST PIT LOCATIONS AND APPROXIMATE LIMITS OF SUBGRADE LIME MATERIAL WERE TAKEN FROM CLOUGH HARBOUR & ASSOCIATES DRAWING DATED 7/28/06 AND ARE APPROXIMATE.
6. LIMITS OF LIME PONDS WERE REVISED PER PANAMERICAN ENVIRONMENTAL, INC. PEI-2010 PROGRAM.

REFERENCE:

REFERENCE ALL DRAWINGS FROM OTHER SOURCES HERE.

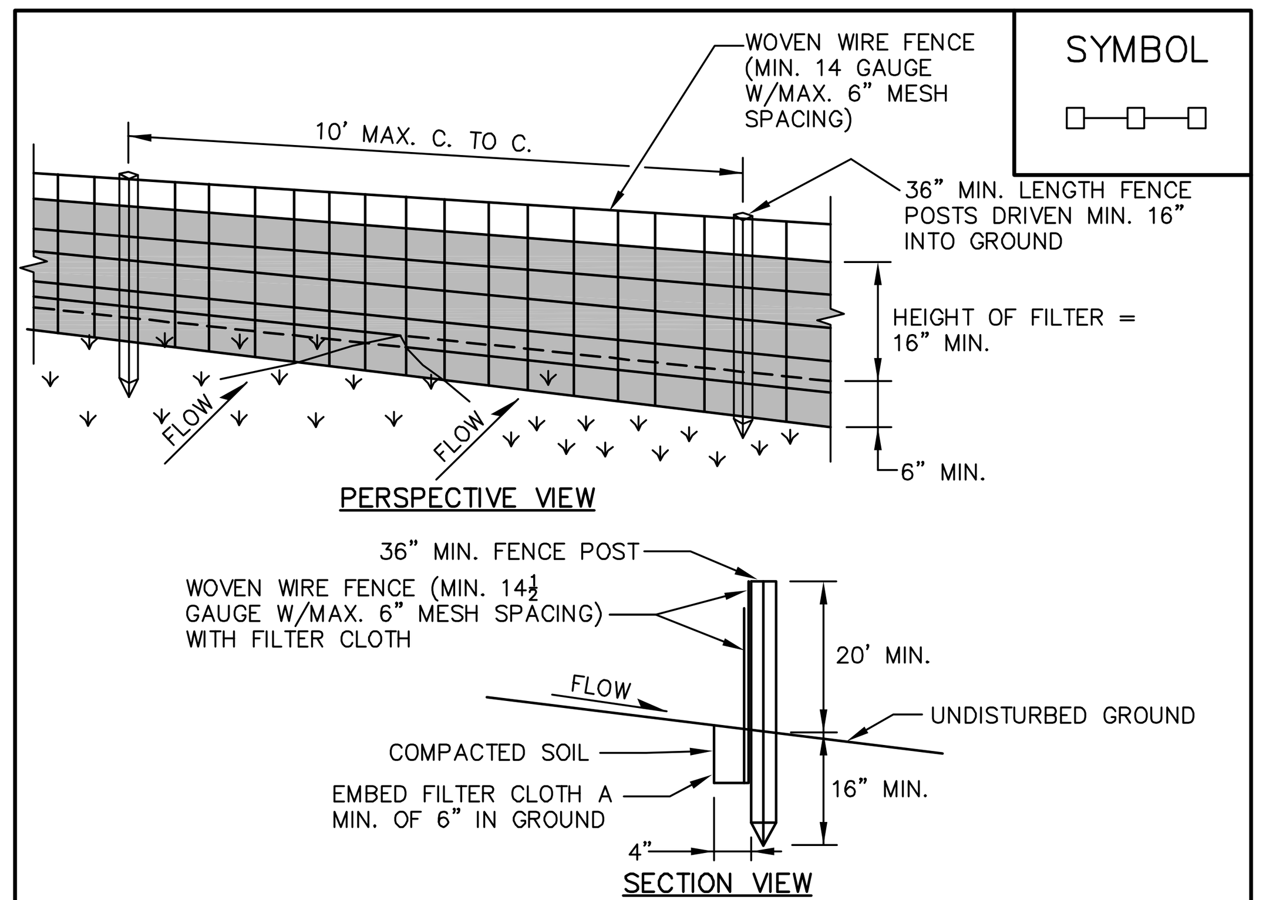
REV	DESCRIPTION / ISSUE	DATE	APPROVED
B	REVISED PER NYSDEC COMMENTS	3/16/12	P.I.
A	ISSUED FOR NYSDEC REVIEW	9/19/11	P.I.

Shaw Environmental, Inc.
2790 Mosside Boulevard
Monroeville, PA 15146-2792

PRAXAIR

PLAN INTERIM REMEDIAL MEASURE
90 HOPKINS STREET
INTERIM REMEDIAL MEASURE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	DRAWING NO.	SHEET NO.
P.I.	C.J.	P.I.	D.S.	9/19/11	AS SHOWN	141825-D1	C-1

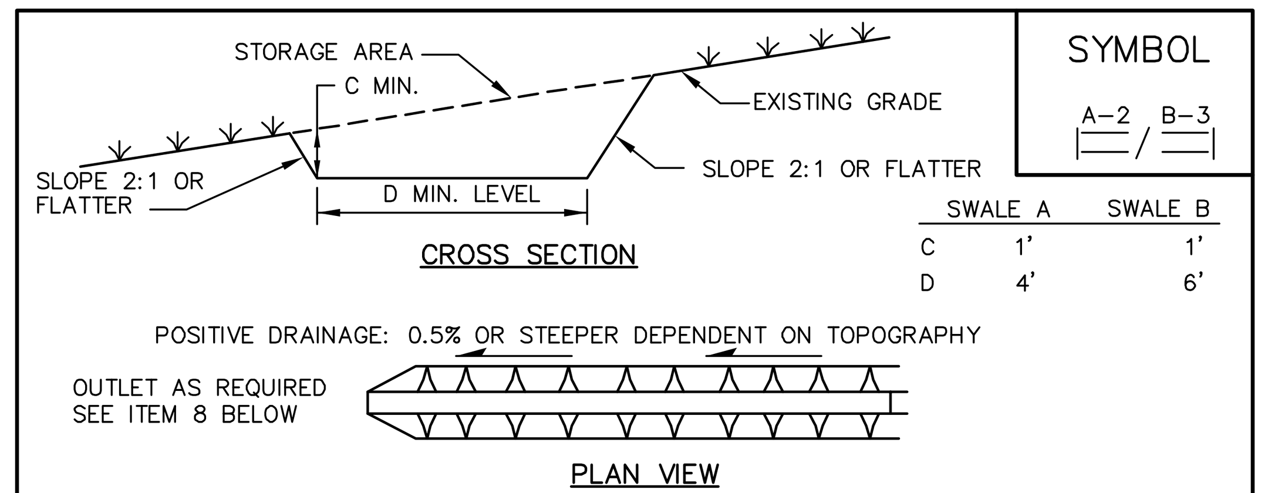


CONSTRUCTION SPECIFICATIONS

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 FASTEN 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 OVERLAPPED 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 ON 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



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES 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 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.

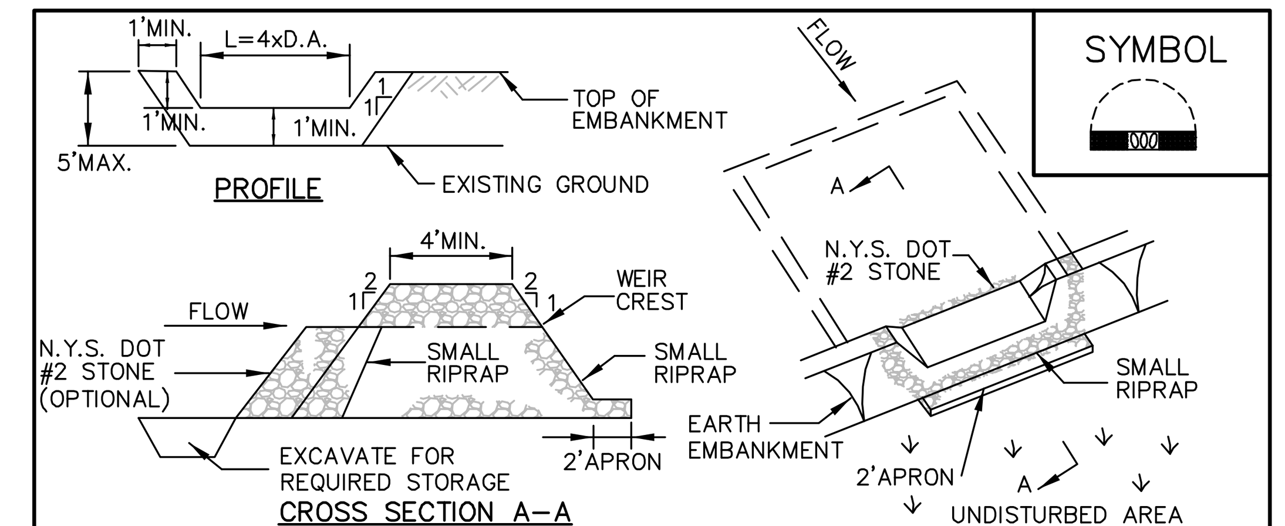
TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC – 10 AC)
1	0.5–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1–5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1–8.0%	SEED AND COVER WITH RECP	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE
4	8.1–2.0%	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE	ENGINEERED 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

DESIGN DIMENSIONS: SWALE TYPE = A
C = 1.5 FT
D = 4 FT
STABILIZATION TYPE = 3



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

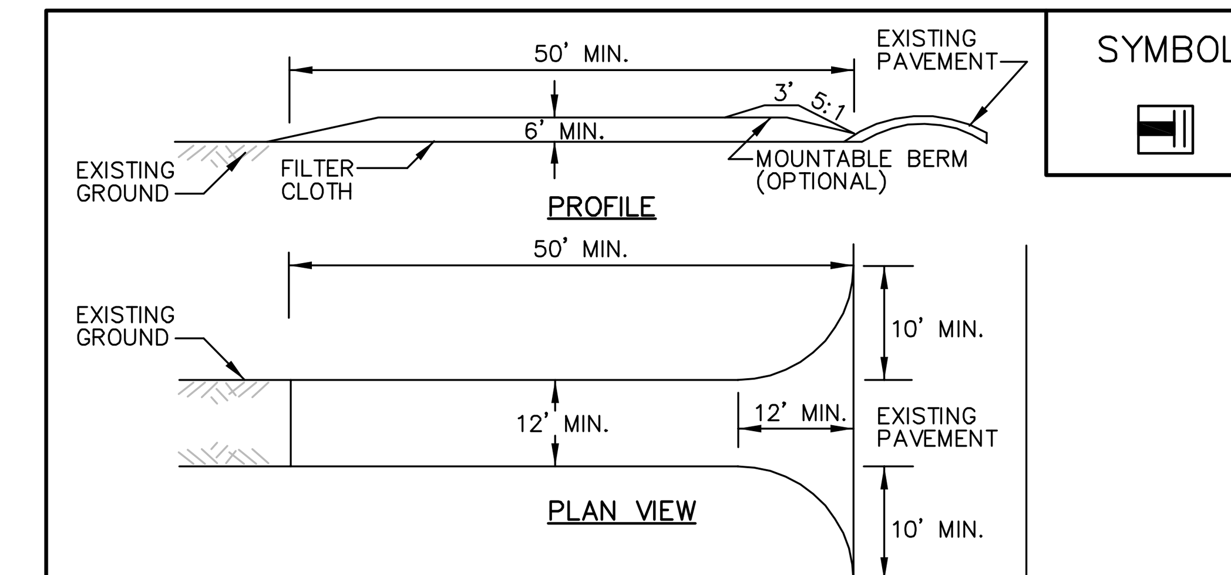
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER–SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. 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 DEMEN–SIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½" 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

DESIGN DIMENSIONS: D.A. = 3.45 ACRES
L = 14 FT
WATER CREST = 583 FT MSL
T/EMBANKMENT = 584 FT MSL



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USES 1–4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CON–STRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING PR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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

STABILIZED CONSTRUCTION ENTRANCE

REV	DESCRIPTION / ISSUE	DATE	APPROVED
B	REVISED PER NYSDEC COMMENTS	3/16/12	P.I.
A	ISSUED FOR NYSDEC REVIEW	9/19/11	P.I.

Shaw®
Shaw Environmental, Inc.
2790 Mosside Boulevard
Monroeville, PA 15146-2792

PRAXAIR

DESIGNED BY: P.I.
DRAWN BY: G.J.
CHECKED BY: P.I.
APPROVED BY: D.S.

INTERIM REMEDIAL MEASURES DETAILS
90 HOPKINS STREET
INTERIM REMEDIAL MEASURE

DATE: 9/19/11 | SCALE: AS SHOWN | DRAWING NO. 141825–D2 | SHEET NO. C-2

OFFICE Pittsburgh, PA | DRAWING NUMBER 141825-D2

VERIFY SCALE 0 1"

Xref: XR-TB
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File: O:\Project\141825\14182502.dwg
Plot Date/Time: Mar 16, 2012 – 10:39am
Plotted By: greg.jones

Appendix C
Design Calculations

Shaw® Shaw Environmental, Inc.

By PJI Date 09/16/11 Subject Praxair - 90 Hopkins Street Site IRM Sheet No. 1 of 2
Chkd. By Date Erosion and Sedimentation Calculations Proj. No. 141825

Purpose: The pupose of the following calculations is to size the erosion and sedimentation control measures to be installed as part of the IRM at Praxair's 90 Hopkins Street Site located in Buffalo, NY.

References: New YorkDepartment of Environmental Conservation (NYDEC) State Standards and Specifications for Erosion and Sediment Control, August 2005.

Solution:

Temporary Swale-

Drainage Area = 1.34 acres < 5 acres (Sheet No. 2 of2)

Therefore use A swale with Type 3 Stabilization Treatment.

Sediment Trap-

Use Stone Outlet ST-IV

Drainage Area =	1.34 acres + 0.49 acres = 1.83 acres	(Sheet No. 2 of 2)	
Required Volume =	1.83 acres * 3,600 cf/acre =	6,588 cf	
Provided Volume =	8,426 sf * 1 ft =	8,426 cf	OK
Wier Length =	4 ft/acre * 1.83 acres =	7.32 ft	Use 8 ft

Appendix D
Community Air Monitoring Plan (CAMP)

Shaw Environmental & Infrastructure, Inc.

13 British American Boulevard
LATHAM, NY 12110-1405
518.783.1996
FAX 518.783.8397

COMMUNITY AIR MONITORING PLAN (CAMP)

90 Hopkins Street Site
Buffalo, New York
NYSDEC Environmental Restoration Program Site E915181

Shaw Project No.: 141825

July 2012

Prepared for:

Jim Merriam
Corporate, Director of Environmental Services
Praxair, Inc.

Submitted by:

Shaw Environmental & Infrastructure, Inc.
13 British American Boulevard
Latham, New York, 12110

Table of Contents

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List of Appendices

1.0 Introduction

Shaw Environmental & Infrastructure, Inc. (Shaw) has prepared this Community Air Monitoring Plan (CAMP) for the 90 Hopkins Street Site located in Buffalo, New York (Site, **Figure 1**). The site is owned by the City of Buffalo. It is of a parcel of land measuring approximately 7.8 acres, located in a heavily industrial area of Hopkins Street. The property is currently vacant. There are two lime piles/former ponds and several ancillary areas measuring approximately 4.8 acres. The results of a series of field investigations estimate the total volume of lime (above and below the ground surface) is approximately 118,000 cubic yards (CY). There is also a soil/debris pile located along the eastern boundary of the site. The remainder of the property contains concrete pads/floors of former buildings and open space.

This CAMP will be implemented during site activities associated with the approved Interim Measures (IM). As discussed in the New York State Department of Health (NYSDOH) Generic CAMP (**Appendix A**), a CAMP requires real-time monitoring for volatile organic compounds (VOC's) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. Note that no monitoring for VOC's is proposed for this site as carbide lime, the material in question, has a characteristic odor but contains no VOC's, nor are VOC's considered to be a contaminant of concern at this site. Additionally, the impacts to air quality are negligible during the movement of lime, consequently, any air monitoring proposed will focus upon particulates in and around the working areas. The CAMP is not intended for use in establishing action levels for worker respiratory protection (which is addressed in Shaw's Health & Safety Plan (HASP). 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 particulate 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 lime material off-site through the air. This CAMP is consistent with the NYSDOH Generic Community Air Monitoring Plan (**Appendix A**).

2.0 Lime Excavation Scope of Work

This project includes excavation of lime and miscellaneous debris to an average depth of 1 to 2 feet below ground surface (bgs). This project anticipates excavation of approximately 600 CY of lime during the implementation of the Interim Measures included as **Figure 1**. This excavation is not anticipated to progress into the groundwater table and will be of a short duration (not longer than 2 weeks).

Excavated material will be stockpiled on site on the Northern lime pile.

3.0 Air Monitoring Procedures for Intrusive Activities

It is anticipated that very little dust will be generated and/or observed during these site activities. Dust may be generated from the disturbance of dry soil or from lime drying on the roadway, becoming calcium carbonate. In general, the excavated lime has a 45% moisture content and consistency of "wet sand" or mud cake; consequently, dust is not expected. The following sections describe the specific CAMP monitoring procedures for particulates. As mentioned previously VOC's are not a concern at this Site and therefore, will not be monitored.

3.1 Particulate Monitoring

Continuous monitoring will be conducted for all ground intrusive activities. Ground intrusive activities include, but are not limited to lime/debris excavation and handling, trenching, grading, placement of clean fill and loading of lime.

The air will be monitored in real-time during the excavation of Site lime (or other activities that involve moving existing Site lime around or off the Site) in connection with the construction of the IM. Air monitoring for particulates (i.e., dust) will be performed as needed during project excavation activities using hand held and/or fixed air monitoring equipment and visual observations.

Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM-10) and capable of integrating (averaging) over periods of 15 minutes or less, at a minimum, may be set up at one upwind (background) and one downwind location, at heights approximately 4 feet to 5 feet above land surface (i.e., the breathing zone). If used, this equipment will log the 15-minute average concentrations for subsequent downloading and reporting. An audible alarm on the downwind particulate monitoring device will be set at 90 micrograms per cubic meter (μg/m3) above the background level (i.e., the upwind location). Upwind concentrations will be measured at the start of each workday and periodically throughout the day thereafter to establish background conditions. The CAMP coordinator will record the wind direction and speed as described below. These readings will allow the CAMP coordinator to ensure that CAMP equipment is located appropriately based upon the wind direction. The particulate monitoring equipment will be calibrated at the start of each day and as necessary throughout the day.

The monitoring results will be compared to the following:

1. If the downwind PM-10 particulate level is 100 μg/m3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques shall be employed. Work may continue with dust suppression techniques, provided that downwind PM-10 particulate levels do not exceed 150 μg/m3 above the upwind level and provided that no visible dust is migrating from the work area.
2. If, after implementation of dust suppression techniques (i.e. spreading of gravel or light water spray), downwind PM-10 particulate levels are greater than 150 μg/m3 above the upwind level, work shall be reevaluated and changes initiated to reduce particulate levels to less than 150 μg/m3 above background conditions and to prevent visible dust migration, including work stoppage if necessary.

Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded at a minimum of three times each day. These results will be used to position the particulate monitoring equipment in appropriate upwind and downwind locations.

There may also be situations where visible dust is generated by excavation activities and migrates to downwind locations but is not detected by the monitoring equipment at or above the action levels. Therefore, if visible dust is observed leaving the working area, dust suppression techniques such as those described in the HASP will be employed. If dust suppression techniques do not lower particulates to below 150 μg/m3 or visible dust persists, additional measures, including work suspension if necessary, will be implemented to remedy the situation.

All air monitoring data, meteorological data, and the locations of monitoring equipment will be recorded in the onsite files and will be available for NYSDEC and NYSDOH review.

3.2 Dust Suppression Techniques

Reasonable dust-suppression techniques will be used during all work that may generate dust. Small piles of gravel will be stored near the loading areas to clean up small lime spills during loading. Water will not be used to suppress lime on the roadway because it will then be tracked off-site. The following techniques will be employed to control the generation and migration of dust during these activities:

- Spreading of small gravel to clean up lime spills,
- Hauling materials in properly covered containers; and,
- Restricting vehicle speeds to 10 miles per hour (mph).

Figures

OFFICE Pittsburgh, PA
DRAWING NUMBER 141825-D1

VERIFY SCALE 0 1"

Xref : XR-TB newbase
Image : 90HOP.jpg logo.jpg 60-grass.jpg

File: O:\Project\141825\141825D1.dwg
Plot Date/Time: Mar 16, 2012 - 10:35am
Plotted By: greg.jones

SBL #132.12-1-21
N/F: CITY OF BUFFALO
#302 ABBY ST

SBL #133.13-1-1
N/F: HOPKINS TIFT REALTY CORP.
#193 ABBY ST

SBL #133.13-1-2

N/F: SOUTH BUFFALO RAILROAD

SBL #133.13-1-3.11
N/F: NIAGARA COLD DRAWN CORP.
#110 HOPKINS ST

FORMER COLGATE AVENUE
(66.00' WIDE R.O.W.)

ABBY STREET
(60.00' WIDE R.O.W.)

HOPKINS STREET
(60.00' WIDE R.O.W.)

SBL #133.13-1-5
N/F: MARDAN MACHINE, L.L.C.
#88 HOPKINS ST

SBL #133.13-1-6.1
N/F: MAZUREK
#42 HOPKINS ST

N/F: BUFFALO - ROCHESTER - PITTSBURGH RAILROAD

APPROX. PROPERTY LINE

BERM EL. 584

PZ-1
PZ-2
PZ-3

MONITORING WELL ELEV.=585.7±
MONITORING WELL ELEV.=584.0±

STONE OUTLET EL. 583

STABILIZED CONSTRUCTION ENTRANCE

TEMPORARY SWALE A-3

INV. EL. 582.5
INV. EL. 584
INV. EL. 585
INV. EL. 586
INV. EL. 586.5
INV. EL. 587

AREA TO BE USED FOR DISPOSAL OF SURFICIAL LIME MATERIAL REMOVED DURING SEDIMENT TRAP CONSTRUCTION

LOT 45
LOT 44

NORTH LIME PILE

SOUTH LIME PILE

APPROXIMATE LIMITS OF LIME PILE

APPROXIMATE LIMITS OF SUBGRADE LIME MATERIAL

TEMPORARY STOCKPILE FOR CLEARED & GRUBBED MATERIALS

B-1
B-2
B-3
B-4

CHAIN LINK FENCE
WOOD FENCE
CONCRETE
RIGHT OF WAY LINE
BRUSH
30" POPLAR

LEGEND

- LIMITS OF LIME PILES
- LIMITS OF SUBGRADE LIME
- REBAR & CAP
- PIN
- FENCE
- PROPERTY LINE
- TREE
- RIGHT OF WAY
- STONE
- BRUSH
- SPOT ELEVATION
- SILT FENCE

SITE LOCATION MAP
NOT TO SCALE

SCALE
0 50 100 150 FEET

NOTES:

1. BOUNDARY SURVEY IS BASED ON SURVEY CONDUCTED BY RAZAK ASSOCIATES, #90 HOPKINS STREET, SCALE 1"=60', AUGUST 25, 2011.
2. BOUNDARY INFORMATION SHOWN FROM BOUNDARY SURVEY OF COLGATE AVENUE. LANDS OF THE CITY OF BUFFALO PART OF LOTS 44 AND 45 T-10 R-8 BCR AND LOT 18 IN THE OGDEN GORE TRACT, CITY OF BUFFALO, ERIE COUNTY, NEW YORK PREPARED BY CLEAR CREEK LAND SURVEYING LLC. DATED FEBRUARY 8, 2005 AND KNOWN AS PROJECT NO. 1204-149-OL.
3. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 1988 (NAD 88).
4. SOURCE VERTICAL CONTROL: NATIONAL GEODETIC SURVEY BENCH MARK Q 410 P.I.D. NC0701 ELEVATION: 598.03 (NAVD 88 FEET).
5. BORING, PIEZOMETER, AND TEST PIT LOCATIONS AND APPROXIMATE LIMITS OF SUBGRADE LIME MATERIAL WERE TAKEN FROM CLOUGH HARBOUR & ASSOCIATES DRAWING DATED 7/28/06 AND ARE APPROXIMATE.
6. LIMITS OF LIME PONDS WERE REVISED PER PANAMERICAN ENVIRONMENTAL, INC. PEI-2010 PROGRAM.

REFERENCE:

REFERENCE ALL DRAWINGS FROM OTHER SOURCES HERE.

REV	DESCRIPTION / ISSUE	DATE	APPROVED
B	REVISED PER NYSDEC COMMENTS	3/16/12	P.I.
A	ISSUED FOR NYSDEC REVIEW	9/19/11	P.I.

Shaw Environmental, Inc.
2790 Mosside Boulevard
Monroeville, PA 15146-2792

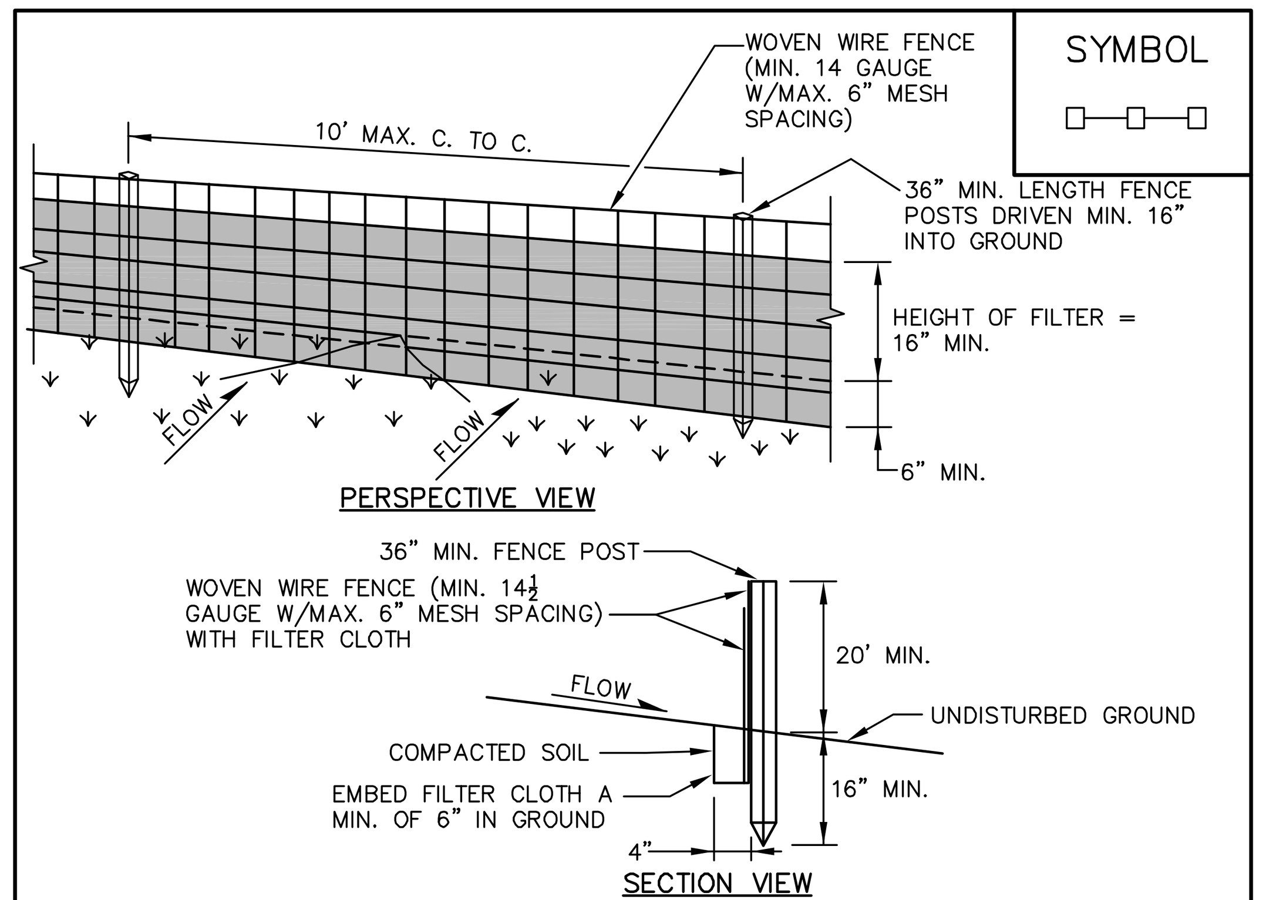
PRAXAIR

PLAN INTERIM REMEDIAL MEASURE
90 HOPKINS STREET
INTERIM REMEDIAL MEASURE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	DRAWING NO.	SHEET NO.
P.I.	C.J.	P.I.	D.S.	9/19/11	AS SHOWN	141825-D1	C-1

OFFICE Pittsburgh, PA

DRAWING NUMBER 141825-D2

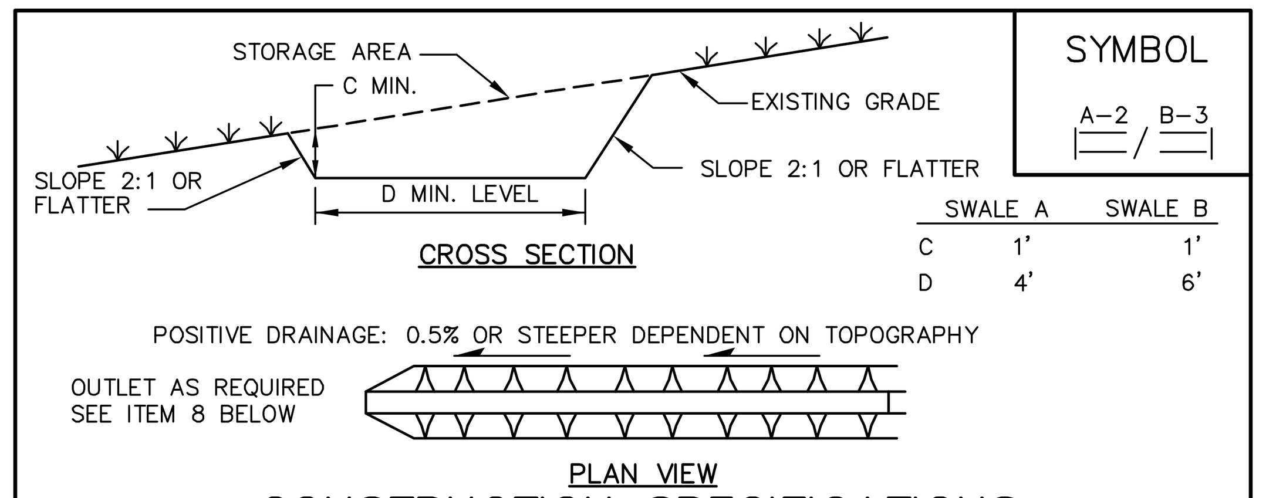


CONSTRUCTION SPECIFICATIONS

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 FASTEN 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 OVERLAPPED 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 ON 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



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES 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 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.

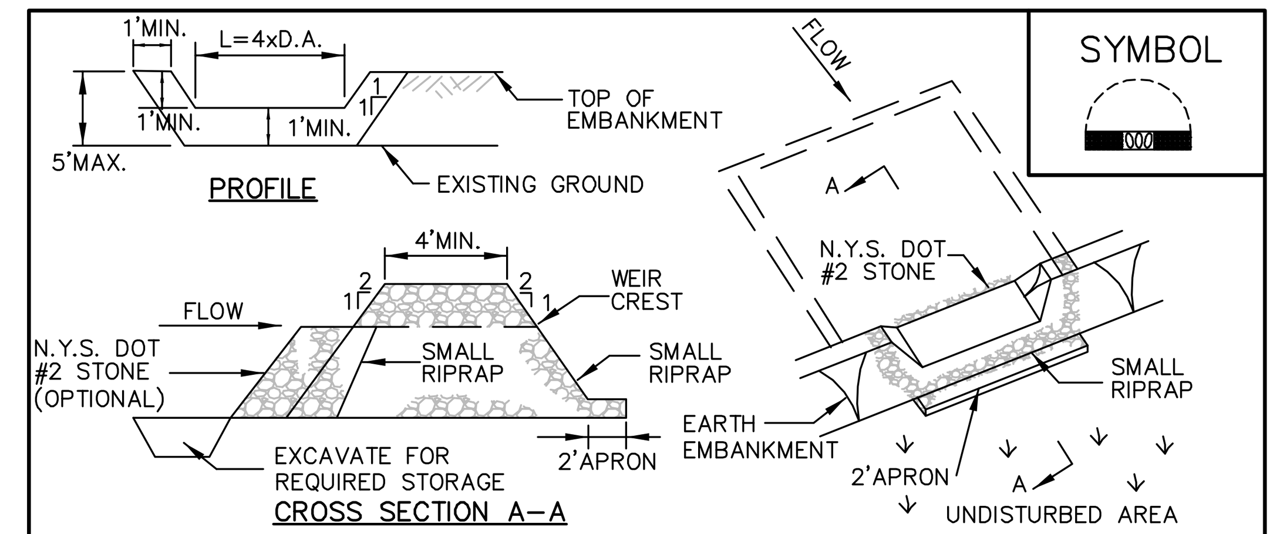
TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC – 10 AC)
1	0.5–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1–5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1–8.0%	SEED AND COVER WITH RECP	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE
4	8.1–2.0%	LINED WITH 4–8" RIP–RAP OR GEOTEXTILE	ENGINEERED 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

DESIGN DIMENSIONS: SWALE TYPE = A
C = 1.5 FT
D = 4 FT
STABILIZATION TYPE = 3



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

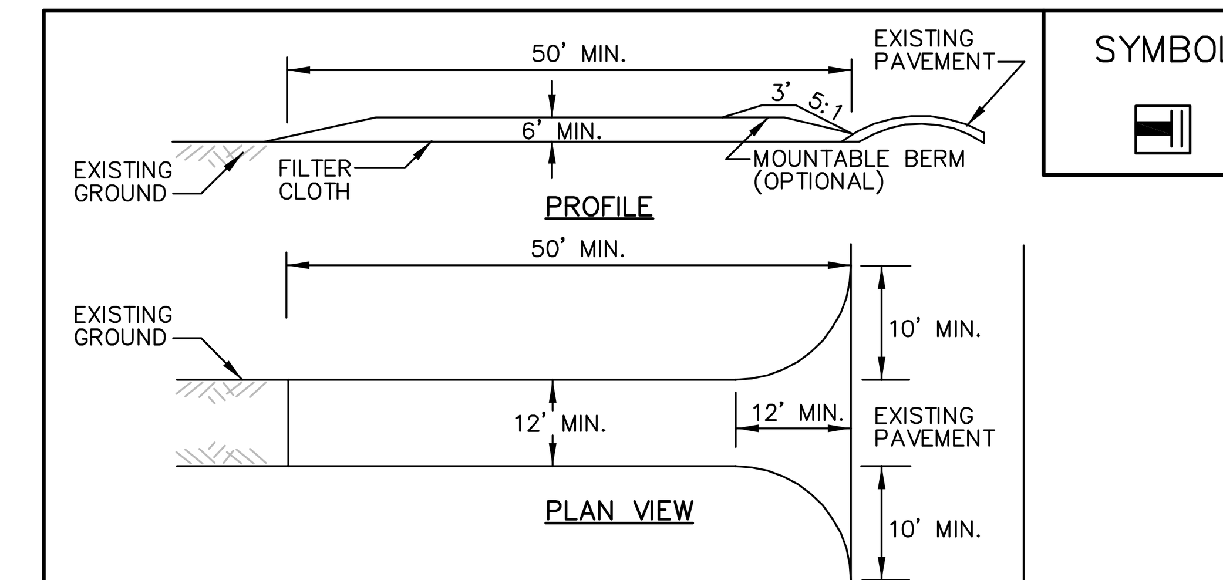
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER–SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. 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 DEMEN–SIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½" 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

DESIGN DIMENSIONS: D.A. = 3.45 ACRES
L = 14 FT
WATER CREST = 583 FT MSL
T/EMBANKMENT = 584 FT MSL



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USES 1–4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CON–STRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING PR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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

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Shaw Environmental, Inc.
2790 Mosside Boulevard
Monroeville, PA 15146-2792

PRAXAIR

INTERIM REMEDIAL MEASURES DETAILS
90 HOPKINS STREET
INTERIM REMEDIAL MEASURE

DESIGNED BY: P.I.
DRAWN BY: G.J.
CHECKED BY: P.I.
APPROVED BY: D.S.

DATE:	SCALE:	DRAWING NO.	SHEET NO.
9/19/11	AS SHOWN	141825–D2	C-2

VERIFY SCALE

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File: O:\Project\141825\14182502.dwg
Plot Date/Time: Mar 16, 2012 – 10:39am
Plotted By: greg.jones

Appendix A

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.

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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° C (14 to 122° 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.