WORK PLAN

Construction of Soil Cover at BASF South 40 Parcel

(Rensselaer, New York)

PREPARED FOR:

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SUBMITTED BY:

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Table of Contents

FIGURES

1.0 INTRODUCTION

This Work Plan (WP) addresses the proposed construction of the soil cover at the BASF Corporation (BASF) South 40 parcel, a 34-acre parcel located in the City of Rensselaer (Site). The soil cover system is based on a modification of Figure 6-1 of the Remedial Action Work Plan (RAWP) dated July 8, 2003 for the South 40 remediation, which RAWP was approved by the NYSDEC on January 22, 2004, and includes the following components, beginning at bottom of cover:

1. A demarcation layer, comprising a high visibility (e.g., orange) geotextile;
2. A structural fill layer, 8" compacted thickness, comprising granular soil (i.e., sand/gravel) ; and
3. A vegetative support layer, 4" thickness, which will be hydroseeded.

This WP is intended to serve as a supplement to the RAWP, and does not duplicate the information included therein. It is limited to the specific tasks required to construct the cover system.

1.1 Overview

This construction WP outlines the remedial activities and procedures required to construct the cover system at the Site. The WP has been prepared in accordance with the Brownfield Cleanup Agreement (BCA) Index No. A4-0507-0604.

Cover construction will consist of the following tasks:

1. Prepare submittals;
2. Mobilize;
3. Establish limits of soil cover area in the field based on mapping (Figure 6-1) and visual inspection
4. Install soil erosion control measures;
5. Identify large trees to remain;
6. Cut trees; clear and grub soil cover area;
7. Fine grade site to create a smooth, uniform surface; spread existing material stockpiles, or use to fill low areas;
8. Place demarcation layer;
9. Place and compact structural fill;
10. Place vegetative support soil;

11. Hydroseed; and

12. Restore all disturbed areas; demobilize

In addition to these activities, dust controls will be implemented to protect human health and the environment by eliminating this potential exposure pathway between remaining site contaminants and environmental receptors. Dust control is addressed in the RAWP and is not duplicated herein.

1.2 Work Plan Organization

This WP has been organized into the following sections:

Section 1.0 – Introduction - Presents an overview of the cover system components and construction activities

Section 2.0 - Scope of Work – Presents a detailed description of the work tasks associated with implementing the WP.

Section 3.0 – Construction Schedule – Presents an overview of the construction work and the timeframe in which it will be completed.

Section 4.0 – Summary Report – Presents an overview of the construction documentation report.

2.0 SCOPE OF WORK

This WP will address the construction of the soil cover system at the South 40 Site. Specific tasks are detailed herein:

2.1 Prepare Submittals

Submittals will be prepared by the contractor detailing proposed material descriptions and sources. These will include, but not be limited to:

- Catalog cuts for the high visibility demarcation geotextile
- Source of structural fill material, including analytical test data to demonstrate that the structural fill material is free of any contamination.
- Laboratory test data for structural fill material, including gradation (sieve) analysis (ASTM D 422)
- Laboratory test data for vegetative support soil, including pH and organic content
- Seed mixture data, including application rates
- Silt fence materials and details

2.2 Mobilize

Mobilize equipment and materials necessary to perform the work. Considering the scope of work it is anticipated that construction trailers would not be required, only material and equipment laydown areas.

2.3 Establish Limits of Cover Area

The approximate limits of the cover area are shown on Figure 6-1. These approximate limits will be surveyed and staked in the field. A field walk will then be performed by the Contractor, Owner and NYSDEC to visually field verify that the staked limits appear reasonable and correspond approximately with the intended limits of cover soil and the existing mounded area. If necessary, the staked limits of the cover will be adjusted, based on field observations.

Revisions to the proposed limits of cover, if any, will be surveyed and submitted for approval.

2.4 Install Erosion Control Measures

Silt fencing will be installed around the limits of the soil cover system and all areas that will be disturbed, such as haul roads, material laydown areas, parking areas, etc. Hay bails will be placed and staked behind the silt fencing in areas where runoff is expected.

The condition of the silt fencing and other erosion control measures will be inspected weekly and after significant storm events. Damaged silt fencing and other erosion control measures will be repaired promptly.

2.5 Identify Trees to Remain

Brush and tree cover is extensive across the Site. Most of the trees within the limits of the cover area are small and will be cut and chipped. However, some older, larger trees may exist within the cover area. To the extent practicable, an attempt will be made to save larger trees, particularly along Riverside Ave and adjacent to the eastern and southern wetlands.

This will be accomplished by capping around isolated large trees, or by adjusting the limits of the cover area to avoid clusters of large trees at the perimeter of the cover area. Any adjustments to the limit of cover area, if any, will be submitted for approval. The thickness of cover soils may be adjusted (i.e., thinned) in the area immediately adjacent to large trees to minimize placement of fill over the tree roots and around tree trunks, in an effort to minimize distress to the trees.

Trees identified to remain and be protected will be marked with high visibility flagging. Flagged trees that are accidentally damaged will be cut, chipped, and removed from the site.

2.6 Clearing and Grubbing

Trees within the limits of the soil cover area will be cut, except those specifically identified to be saved. All trees, stumps, and woody brush will be chipped and removed off site for disposal. Care will be taken to remove dirt from the roots prior to chipping or removal.

2.7 Fine Grading

As noted in the RAWP, debris piles are visible at the Site, including broken-up asphalt, demolition debris, cinders, soot, and a dark, sand-like material. The material in these debris piles will be spread out to create a relatively smooth, level surface, suitable for cover placement. Alternatively, the material in the debris piles may be relocated to fill in low areas within the limits of the cover area, if necessary.

The cover area will then be fine graded to create a smooth, approximately level surface suitable for

placement and compaction of cover soils. The fine graded surface will be at approximately existing grade. There will be no significant cuts and fills or changes in the overall topography.

The proposed cap will be pervious, and should not impact existing surface drainage patterns and runoff. No effort will be made to change the characteristics of the existing topography or to alter and improve surface drainage. The intent is to maintain existing topography, with only minor grading to remove debris piles and to smooth the surface in preparation of cover placement and compaction.

Soft areas encountered during fine grading operations, if any, will be stabilized to provide a firm base suitable for compaction of cover soils. This will be accomplished by mixing coarse-sized fill and debris into the soft materials to create a firm surface that can support heavy construction equipment.

2.8 Demarcation Layer

A high visibility (e.g., orange) geotextile will be used as the demarcation layer. The geotextile layer will be rolled directly onto the fine graded surface, with a nominal 6" overlap. To the extent practicable, the geotextile demarcation layer will be rolled out immediately prior to spreading the structural fill to minimize risk of wind damage or UV degradation. If necessary, sand bags or stakes will be used to temporarily anchor the geotextile in place.

2.9 Structural Fill

The 8" structural fill layer will be placed in a single lift. The structural fill will be a granular soil with a maximum particle size of 6" with no more than 15 percent fines passing the No. 200 sieve size. The structural fill material will be substantially free of shale or other soft particles.

The structural fill will be compacted using a vibratory smooth drum roller. A minimum of three roller passes will be made at all locations.

2.10 Vegetative Support Layer

A 4-inch layer of vegetative support soil will be placed over the structural fill. It will be compacted by tracking with a dozer. The vegetative support layer will meet the following requirements:

- Loam topsoil, well drained homogeneous texture and of uniform grade, without the admixture of subsoil material and entirely free of dense material, hardpan, sod, or any other objectionable foreign material.

- Containing not less than 4 percent or more than 20 percent organic matter in that portion of a

sample passing a 1/4 inch sieve when determined by the wet combustion method on a sample dried at 105 degrees C.

- Containing a pH value within the range of 4.5 to 7 on that portion of the sample which passes a 1/4 inch sieve.

- Containing the following gradations:

SIEVE DESIGNATION	PERCENT PASSING
1 inch	100
1/4 inch	97 - 100
No. 200	20 - 65 (of the 1/4 inch sieve)

2.11 Hydroseeding

Seeding materials will be applied with a hydroseeder. The seed mix will be applied at a rate of 47 pounds per acre.

The slurry mixture of water, seed, fertilizer, and mulch will be distributed uniformly at a minimum rate of 57 gallons per 1000 sq ft (2500 gallons per acre).

Seed will be fresh, clean, new-crop seed mixed in the proportions specified for species and variety, and conforming to Federal and State Standards. The percentage of weed seed shall not exceed 0.1 percent by weight.

RESTORATION EROSION MIX

Name	Variety	A	B	C
Red Fescue (Festuca rubra)	Commercial	92	98	42
Annual Ryegrass (Lolium multiflorum)	Commercial	98	97	41
Queen Anne's Lace ** (Daucus carota)	Commercial	---	---	1
Yarrow ** (Achillea millefolium)	Commercial	---	---	1
Ox-eye Daisy ** (Chrysanthemum leucanthemum)	Commercial	78	99	1
Smartweed ** (Polygonum pensylvanicum)	Commercial	---	---	1
Red Top (Agrostis alba)	Commercial	93	98	4
Bird's-foot Trefoil * (Lotus corniculatus)	Commercial	67	95	8
New England Aster ** (Aster novae-angliae)	Commercial	82	95	1

A = Min. Percentage of Germination

B = Min. Purity Percentage

C = Weight Pure Live Seed in Mixture

The area will be watered as needed until November 15, 2007 in order to encourage rapid growth of the grasses.

2.12 Demobilization

At completion of cover construction, all equipment and materials will be removed from the site. All equipment that may have come in contact with the existing soil will be decontaminated prior to leaving the site.All disturbed areas will be hydroseeded. Temporary access roads will be left in place or removed, at the Owner's option.

3.0 CONSTRUCTION SCHEDULE

The project for the South 40 Cover Construction work would commence on approximately September 1, 2007. The initial work would be the site mobilization and site preparation, followed by clearing and grubbing, grading, demarcation layer, structural fill, topsoil and hydroseeding. The work would be complete by October 31, 2007.

4.0 SUMMARY REPORT

Following the completion of cover construction at the Site, the Engineer will prepare a Cover Construction Summary Report. This Report will consist of a narrative and photo-documentation of the work completed by the Contractor, any deviations from the scope of work, descriptions and quantities of materials utilized, analytical data (fill sampling) and a drawing illustrating the as-built extent of the cover.

The Engineer will certify that the field activities were performed by the Contractor in accordance with the WP. The Report will be stamped and signed by a professional engineer (PE) licensed to practice in the State of New York.

FIGURE 6-1

Proposed Soil Cover System