

Natural Resource Damage Assessment Settlement

ANNUAL MONITORING REPORT

Fort Wayne Reduction Site
Allen County, Indiana

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Prepared for:
SC Holdings, Inc. and the Participating Generators Group
C/O Mr. Jim C. Forney
Waste Management, Inc.
Heritage Office Park West
3970 Heritage Avenue
Okemos, MI 48864

Prepared By:
Natural Concepts, LLP
Scott E. Feters
P.O. Box 1101
Warsaw, IN. 46581

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Fort Wayne Reduction Site Allen County, IN

2003 Annual Monitoring Report

The following report summarizes the monitoring work that was completed on the Fort Wayne Reduction Site Reforestation project located in Allen County, IN. (See Location Map A). This report is submitted as part of the requirement of the Trustee approved Restoration Plan dated December 23, 1999.

Planting of the seedlings was completed on May 6-7th, 2000. 25,400 seedlings were machine planted on approximately 47 acres and annual herbicide was applied at the time of planting. The trees were planted on as close to a 9' x 9' spacing as possible. It should be noted that small changes in soil type, moisture, and terrain may result in trees being planted either somewhat closer or farther apart than that. The following seedlings based upon nursery availability, were planted on the site:

Bur Oak	3,000
Pin Oak	2,500
Swamp White Oak	1,500
Swamp Chestnut Oak	1,500
Overcup Oak	1,000
Green Ash	3,500
Sycamore	3,500
River Birch	3,000
Shellbark Hickory	1,000
Buttonbush	1,600
Silky Dogwood	1,700
Red Osier Dogwood	<u>1,600</u>
	25,400

Monitoring

Three, one acre test plots approximately (208' x 208'), were established on September 14-15th, 2001. Metal "T" fence posts were installed at the corners of all three plots to mark the boundaries. The test plots were located to sample tree survival rates in areas that have different soil types, as well as differences in elevation (depressional areas and high ground). Three photographic stations were also set up in the monitoring areas to

provide visual documentation of development of the areas. Observations of wildlife were noted during all site visits to the reforestation property to document usage of the property.

Monitoring Area #1

Monitoring area # 1 is located in the far west field north of Parrott Road and east of the abandoned Nail Road. The terrain in this field is fairly level with the one exception being a low depression in the far southeast corner of the field next to the drainage ditch. This field was the last area to be planted. In order to plant the trees that we had remaining, the field was planted on an approximately 8' x 8' spacing (680 trees/acre).

Results:

(See attached Monitoring Area #1 Table for complete results)

Total Stems Surviving for Monitoring Area #1 was 570/Acre. Green Ash and Silky Dogwood were the most abundant species followed by Sycamore and Red Osier Dogwood. Total Percent Stem Survival for Area #1 was 83.8% and 11 different species were identified. Deer browse damage on the dogwood shrubs was not as noticeable as it was in 2001 and 2002.

Monitoring Area #2

Monitoring Area #2 is located in the far southeast corner of the property on the north side of Parrott Road. This area was selected as a monitoring area to sample seedling survival in an area that has frequently saturated soil conditions. The test plot is located in a depression area on the landscape and is frequently saturated by runoff from surrounding areas.

Results:

(See attached Monitoring Area #2 Table for complete results)

Total Stems Surviving for Monitoring Area #2 was 451/Acre. Green Ash and Swamp White Oak were the most abundant species followed by River Birch and Silky Dogwood. Total Percent Stem Survival for Area #2 was 83.5% and 8 different species were identified. Rabbit damage to the River Birch and Deer damage on the Dogwood shrubs was not as noticeable in 2003 as it had been in the past.

Monitoring Area #3

Monitoring Area #3 is located along the north side of Parrott Road in the southwest corner of the field. The test plot area is mostly level and provides a good sampling area that is fairly representative of the high areas in the rest of the field.

Results:

(See attached Monitoring Area #3 Table for complete results)

Total Stems Surviving for Monitoring Area #3 was 504/acre. Pin Oak and Swamp White Oak were the most abundant species followed by Bur Oak and River Birch. Total Percent Stem Survival for Area #3 was 93.3% and 9 different species were identified. Rabbit damage to the River Birch was still noticeable in 2003 especially towards the western portion of the sampling area nearest the county ditch.

General Discussion

Growing conditions in 2003 were favorable for establishing trees along the Maumee River. In contrast to the below normal precipitation in 2002, 2003 had above average precipitation. Portions of the reforestation project area were flooded for short durations during the growing season in early June, the first week in July, and once again in mid October. In addition to the planted seedlings, volunteer seedlings are also starting to provide additional habitat. Volunteer species identified include; Silver Maple, Red Maple, Slippery Elm, Box Elder, White Ash, Green Ash, Sycamore, and Cottonwood.

Water quality benefits to the Maumee River are also noticeable on the project area. Sediment deposition in the reforested areas is easily recognized with as much as ¼" sediment on plant debris in the lowest lying areas on the property.

Wildlife habitat has continued to improve since the reforestation was completed. Increased plant diversity and continuing development of the reforestation project provide improved wildlife habitat. Wildlife observed on July 3, 2003 and on October 21, 2003 includes the following:

- Wood duck
- Mallard
- Blue winged teal
- Hooded Merganser
- Red wing Blackbird
- Crow
- Brown headed Cowbird
- Gold Finch
- Cardinal
- Cooper's Hawk
- Red Tail Hawk
- Northern Harrier
- Deer
- Rabbit
- Fox Squirrel
- Coyote
- Opossum
- Northern Leopard Frog
- Unidentified Toad species
- Snapping Turtle

A site visit was made to the property on January 23, 2003 by Wayne Faatz, Jed Pearson, Gary Hudson (all from IDNR), and Scott Feters. The purpose of the meeting was to provide an opportunity for the Trustee agencies to see the property and to see how well the project is doing. During the site visit, we discussed the possibility of restoring an additional 2 acres of tile-drained wetland and reforesting approximately 13.5 acres, as was proposed in our 2002 Annual Monitoring Report. The consensus was that the additional restoration work should be acceptable to the Trustee's in return for issuing a Certificate of Completion and terminating the Consent Decree.

The aforementioned projects are not required under the agreed upon Restoration Plan. However, restoring the wetland and reforesting the remaining acreage would provide additional wildlife habitat and provide additional water quality benefits. Waste Management and the Participating Generators would be willing to pay for the costs to restore this additional habitat if the Trustees would release them from any further monitoring requirements, waive agency oversight costs, issue a Certificate of Completion, and terminate the Consent Decree.

Conclusions

The reforestation project is exceeding the goals of the Restoration Plan after four growing seasons. The original goals of the Restoration plan required a 50% Total Stem Survival with a minimum of five species present. The three monitoring areas averaged 86.9% Total Stem Survival and had an average of 9 different species present since the initial planting in May 2000. Volunteer tree species and planted seedlings are beginning to provide additional cover for wildlife and water quality benefits are already being provided in the form of sediment deposition and nutrient removal from the water column.

Additional wetland restoration and reforestation work will provide excellent wildlife habitat and improved water quality. Waste Management, Inc. and the Participating Generators wish to coordinate with the Trustee Agencies on the additional reforestation and wetland habitat projects in lieu of a release from further monitoring requirements under the Consent Decree. We look forward to hearing from the Trustees and coordinating with you on the completion of the restoration work.

Monitoring Area #1 Approximately 1 Acre (208' x 208')

Species List	Total Stems Surviving by Species	% Stem Survival by Species
Bur Oak	5	<1%
Pin Oak	16	2.8%
Swamp White Oak	30	5.3%
Swamp Chestnut Oak	5	<1%
Green Ash	230	40.4%
Sycamore	72	12.6%
River Birch	16	2.8%
Shellbark Hickory	0	0.0%
Overcup Oak	4	<1%
Silky dogwood	127	22.3%
Red Osier Dogwood	49	8.6%
Buttonbush	16	2.8%

Total Stems Surviving for Monitoring Area #1 570/Acre

Total Percent Stem Survival* 83.8% (570/680)

Species Richness = 11

* Total Percent Stem Survival = Total Surviving Stems / 680 trees per acre planted on 8' x 8' spacing.

NOTE: Area #1 was the last area to be planted. In order to plant the approximate 3 acre field. remaining trees were planted on an approximately 8' x 8' spacing (680 Trees/Acre.)

Monitoring Area #2 Approximately 1 Acre (208' x 208')

Species List	Total Stems Surviving by Species	% Stem Survival by Species
Bur Oak	56	12.4%
Pin Oak	49	10.9%
Swamp White Oak	73	16.2%
Swamp Chestnut Oak	21	4.7%
Green Ash	77	17.1%
Sycamore	53	11.8%
River Birch	65	14.4%
Shellbark Hickory	0	0.0%
Overcup Oak	0	0.0%
Silky dogwood	57	12.6%
Red Osier Dogwood	0	0.0%
Buttonbush	0	0.0%

Total Stems Surviving for Monitoring Area #2 451/Acre

Total Percent Stem Survival* 83.5% (451/540)

Species Richness = 8

* Total Percent Stem Survival = Total Surviving Stems / 540 trees per acre planted on
9' x 9' spacing.

Monitoring Area #3 Approximately 1 Acre (208' x 208')

Species List	Total Stems Surviving by Species	% Stem Survival by Species
Bur Oak	70	13.9%
Pin Oak	138	27.4%
Swamp White Oak	97	19.2%
Swamp Chestnut Oak	18	3.6%
Green Ash	49	9.7%
Sycamore	31	6.2%
River Birch	60	11.9%
Shellbark Hickory	0	0.0%
Overcup Oak	2	<1%
Silky dogwood	39	7.7%
Red Osier Dogwood	0	0.0%
Buttonbush	0	0.0%

Total Stems Surviving for Monitoring Area #3 504/Acre

Total Percent Stem Survival* 93.3% (504/540)

Species Richness = 9

* Total Percent Stem Survival = Total Surviving Stems / 540 trees per acre planted on
9' x 9' spacing.



LOCATION MAP A
Fort Wayne Reduction Site
Allen County, Indiana

1N

Nail Road

13.5
Acres
TO
Trees

2AC
wetland

Tree
Planting



+PS

Monitoring
Area #1

+PS



Monitoring
Area
#3

Tree
Planting

Monitoring
Area 2



+PS

+PS = Photo
Station

Scale: 1" = 400'

Parrott Road

Hartzell Road

