

**Mahar Property at the Mill Seat Landfill Facility
Waste Management of New York, LLC**

**Town of Riga
Monroe County, New York**

Wetland Delineation Report

December 2011

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1.0 Introduction

This report describes the wetland resources located on the approximately 207 acre Mahar Property. The Mahar Property was recently acquired by Waste Management of New York, LLC (WMNY), the operator of the adjacent Mill Seat Landfill Facility. The 385-acre Mill Seat Landfill is located in the Town of Riga, Monroe County, New York (site location map, Figure 1), and is currently owned by Monroe County. The Mahar Property is located south of the current landfill, along the south side of Bovee Road.

A wetland delineation was completed by Barton & Loguidice, P.C. (B&L) on October 4 and 7, 2011, to map the existing freshwater wetland and water resources on the Mahar Property. The locations and sizes of these regulated areas are important to consider during future site planning. The wetlands located on the Mahar Property were delineated using the Routine Delineation Method set forth in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2009). These methods were used to identify wetlands located on the Mahar Property that are subject to federal jurisdiction by the U.S. Army Corps of Engineers (USACE).

This report contains a description of the Mahar Property including the site ecology, the methods used to determine the wetland boundaries, agency resource information obtained for the site, and the results of the wetland field delineation. Wetland delineation field data sheets and photographs of the wetland resources located on the Mahar Property are found in Appendices A and B at the end of this report.

2.0 Site Description

2.1 Location

The Town of Riga is located in the southwest corner of Monroe County, along the County boundary between Monroe and Genesee Counties, and adjacent to the Town of Bergen. The Mill Seat Landfill is located off State Route 33A (Chili Avenue), bisecting Brew Road into two sections: a north section and a south section. The west side of the Mill Seat Landfill property abuts the right-of-way boundary for Interstate 490. The approximately 207 acre Mahar Property borders the south side of Bovee Road, located south of the landfill facility.

2.2 Site Use

Aside from the landfill facility, land use surrounding the Mahar Property is predominantly agricultural. WMNY leases sections of its property to individuals for crop production and haying. Many of these leased agricultural lands are located north of Bovee Road and west of Brew Road (Figure 1). Within the general area, residential properties are mainly scattered along the north side of Bovee Road, though there are two (2) residential parcels that form outparcels along the north side of the Mahar Property. During the wetland field delineation, numerous active agricultural fields, planted with corn or alfalfa, were observed within the Mahar Property limits. Areas that were not observed to be in agricultural production during the site visit were associated with wetland areas or areas of steep topography, as evident in Figure 2. The lands located within the Mahar Property are included in agricultural district MONR002, created in 1974.

2.3 Surface Water

The Mahar Property and surrounding lands are located within the Upper Genesee Drainage Basin, recognized under Title 6, Chapter 10, Article B, Part 821 in the New York Codes, Rules, and Regulations (NYCRR). One (1) stream is mapped by the New York State Department of Environmental Conservation (NYSDEC) near (within 1,500 feet) the Mahar Property. Hotel Creek, designated by NYSDEC as waterway Ont. 117-19-9, flows eastward just north of Bovee Road and crosses Brew Road approximately 900 feet north of the Mahar Property. Hotel Creek is a tributary of Black Creek, which is the nineteenth tributary to the Genesee River. Hotel Creek originates as hillside runoff in the Town of Bergen in Genesee County and then flows east across the county boundary between Monroe and Genesee, south of the Mill Seat Landfill and north of the Mahar Property. Eventually, Hotel Creek discharges into Black Creek within the Town of Riga, just north of Robertson Road.

Hotel Creek was observed in the field during a previous wetland delineation of WMNY and Monroe County properties located south of the landfill facility and north of Bovee Road. Wetlands adjacent to Hotel Creek were mapped in the field during this delineation effort (B&L, 2009).

3.0 Agency Resource Information

Prior to undertaking the field wetland delineation, a desktop information search was completed to review the mapped soils, mapped wetlands, and site topography associated with the property. This information review included the USA topographic mapping service, soils information from the Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database, National Wetland Inventory (NWI) mapping (Churchville area coverage), and NYSDEC freshwater wetland mapping (Monroe County coverage).

3.1 Topographic Mapping

Topographic mapping for the Mahar Property is illustrated by Figure 2. Three (3) drumlins intersect the Mahar property: Science Hill along the north-central boundary, Blue Hill along the east property boundary, and Pinnacle Hill along the southeast/south-central portion of the property. Two (2) low-lying and presumably wetland areas are also shown at the southeast and southwest corners of the property. The central portion of the property is gently sloping towards the southeast and southwest. The USA topographic mapping service, provided by ESRI through ArcGIS Online, provides scanned images of United States Geological Survey (USGS) topographic maps. The Mahar Property is included on the USGS' 7.5 minute Churchville quadrangle. The highest point on the Mahar Property is located along the south edge of the property at the top of Pinnacle Hill, an elevation of 760 feet above mean sea level. The lowest topographic point on the Property is located near the northeast corner of the property, at an elevation of 650 feet above mean sea level.

3.2 Soils Information

The NRCS SSURGO Database was reviewed to determine the types of soils mapped within the limits of the field delineated area. Figure 3 displays the soil symbols, series, and phases of these mapped soil types. Table 1 lists the mapping unit and drainage classification information that corresponds to each soil symbol mapped within the Mahar Property.

Table 1 Soil Survey Information			
Soil Symbol	Mapping Unit	Drainage Classification	Acreage Within Project Limits
<i>ApA</i>	<i>Appleton loam, 0-3% slopes</i>	<i>Somewhat poorly</i>	<i>0.04</i>
BcB	Benson channery loam, 0-8% slopes	Somewhat excessively	0.39
<i>BrA</i>	<i>Brockport silty clay loam, 0-2% slopes</i>	<i>Somewhat poorly</i>	<i>16.38</i>
Ca (Cd)	Canandaigua silt loam	Very poorly	25.95
<i>ChA</i>	<i>Churchville silt loam, 0-2% slopes</i>	<i>Somewhat poorly</i>	<i>16.91</i>
Ed	Edwards muck	Very poorly	3.91
Fw	Freshwater marsh	--	4.10
HIA	Hilton loam, 0-3% slopes	Moderately well	2.02
HIB	Hilton loam, 3-8% slopes	Moderately well	7.81
HnB	Honeoye silt loam, 3-8% slopes	Well	20.79
HoB	Honeoye silt loam, limestone substratum, 3-8% slopes	Moderately well	3.48
LnA	Lima silt loam, 0-3% slopes	Moderately well	4.69
LnB	Lima silt loam, 3-8% slopes	Moderately well	6.29
LoB	Lima and Cazenovia silt loams, limestone substratum, 0-6% slopes	Moderately well	19.49
OfB	Ontario fine sandy loam, 3-8% slopes	Well	0.52
OfC	Ontario fine sandy loam, 8-15% slopes	Well	0.85

Table 1 Soil Survey Information			
Soil Symbol	Mapping Unit	Drainage Classification	Acreage Within Project Limits
OnB	Ontario loam, 15-25% slopes, eroded	Well	6.54
OnC	Ontario loam, 3-8% slopes	Well	10.79
OnD3	Ontario loam, 8-15% slopes	Well	9.57
OnF	Ontario loam, 25-60% slopes	Well	4.29
Pu	Pits and quarries	--	8.03
RgB	Riga silt loam, 2-8% slopes	Moderately well	15.60
St	Sun loam, moderately shallow variant	Poorly	5.84
WcB	Wampsville cobbly loam, 3-8% slopes	Well	9.70
WcC	Wampsville cobbly loam, 8-15% slopes	Well	3.21

Local Hydric Soil Unit (NYS) – Bold

Hydric Inclusions - Italicized

The hydric soil units and areas of hydric inclusions that are mapped within the Mahar Property correspond well with the areas of inundation and other wetland characteristics that were observed during the field delineation.

3.3 New York State Department of Environmental Conservation Freshwater Wetlands Mapping

Figure 4 shows that NYSDEC regulated wetland RG-33 is the sole state mapped wetland located on the Mahar Property. As Figure 4 illustrates, RG-33 is located within a forested area in the southeast corner of the Mahar Property, located between Blue Hill and Pinnacle Hill. RG-33 is recognized as a Class 3 wetland and reported by the NYSDEC as being 100.5 acres in size. Additional NYSDEC mapped wetlands are located north of Bovee Road on lands owned by WMNY. A delineation of those wetlands was completed in 2009.

3.4 National Wetland Inventory Mapping

Figure 4 also depicts the National Wetlands Inventory wetlands mapped within and adjacent to the Mahar Property. There are two (2) NWI wetland polygons mapped on the Property. These mapped polygons represent the following wetland types: palustrine emergent and palustrine forested/scrub-shrub. The locations of these mapped wetlands concur with the mapped location of NYSDEC freshwater wetland RG-33 (discussed in section 3.3) and the freshwater wetlands delineated in the field (discussed in section 6). Additional NWI wetland polygons are mapped north of Bovee Road on lands owned by WMNY. Those wetlands were previously delineated in 2008 and 2009.

3.5 Results of Background Information Review

A preliminary review of background information conducted prior to the wetland field investigation indicated a high likelihood for potential federally-regulated wetlands to be located on the Mahar Property. This determination was based on the identification of mapped NYSDEC and NWI wetlands and the presence of hydric soils mapped at various locations within the Property. A field-based wetland delineation was conducted to confirm these preliminary findings and identify the limits of all existing wetland locations.

4.0 Site Ecology

4.1 General Cover Types

Most of the Mahar Property is currently associated with agricultural practices. Most of the cover types observed within the project limits were croplands (corn) or hay fields (alfalfa) bordered by hedgerows. The southeast and southwest corners of the property and a portion of the property center are not actively farmed and are instead dominated by deciduous forest and shrubland. A single residence is located within the Mahar Property; two other residences are located on adjacent parcels.

4.2 Habitat Types

The distribution of plant and animal species corresponds with the different ecoregions mapped within the project area. The project is located within the Great Lakes Plain (Zone B), Erie-Ontario Plain Ecological Zone of New York State (NYSDEC, 2008). Characteristics of this zone are provided in Table 2.

Table 2 – Characteristics of the Great Lakes Plain and Erie-Ontario Plain Ecological Zones	
Topography	This zone is similar to a plateau with horizontal rock formations – basically a flat plain with minimal rise above adjacent land
Elevation	The majority of this ecological zone is under 800 feet in elevation
Soils	Generally limy and situated on glacial till over undulating to rolling terrain – soils tend to be medium to fine textured
Vegetation	This zone is located in the elm-red maple northern hardwood natural vegetation zone. Only about 1/5 of the land is forested (the average Town in this Zone is 15% wooded)
Land Use	Manufacturing is the primary source of income with agriculture as a secondary source. Vegetable, grain, and fruit farms are the major agricultural activities.

Table 2 – Characteristics of the Great Lakes Plain and Erie-Ontario Plain Ecological Zones	
Mean July Temperature	70 – 75 degrees Fahrenheit
Mean January Temperature	20 – 25 degrees Fahrenheit
Mean Annual Snowfall	60 – 80 inches
Growing Season	160 – 180 days in length

4.3 Wetland Cover Types

General wetland cover types identified within the field delineated area include emergent, scrub-shrub, and forested. A brief description of each of these wetland cover types is presented below:

Emergent: Erect, rooted, herbaceous hydrophytic plants characterize emergent wetlands. This vegetation can be observed throughout most of the growing season. These wetlands typically have standing water above the soil surface for a portion of the year and often include fringe communities on open water edges.

Scrub-Shrub: This wetland cover type is primarily found in areas that were formerly open or otherwise cleared. Scrub-shrub wetlands are often found in areas of shallow standing water. Woody vegetation that is less than 20 feet in height define these wetlands. Within the project area, scrub-shrub wetlands were observed bordering emergent wetlands or noted as localized pockets within larger forested wetland areas.

Forested: Forested wetlands are dominated by woody vegetation taller than 20 feet, where soil is at least periodically saturated or inundated. Forested wetlands within the delineated wetland area commonly included deciduous trees with an understory of hydrophytic herbaceous vegetation. The density of the understory was observed to vary by location.

5.0 Wetland Delineation Methodology

The background data described in Section 3.0 was reviewed prior to undertaking the wetland field investigation. The Routine Wetlands Determination Method with Onsite Inspection (Environmental Laboratory, 1987) and Northeast/Northcentral Regional Supplement to the 1987 Corps of Engineers' Manual were used to identify wetlands located within the project area that are subject to jurisdiction by the U.S. Army Corps of Engineers (USACE).

B&L performed data collection and delineation of the wetland boundaries on October 4 and 7, 2011. Observations of vegetative communities, soils, and hydrological characteristics were documented and used to determine the extent of wetland boundaries in the field.

The boundaries of all delineated wetlands are collectively mapped on Figure 5. All of the data collected in the field were recorded on field data sheets (located in Appendix A). The upland and wetland data plot locations associated with each delineated wetland are pictured on Figure 6.

The first step of the wetland field delineation was to determine whether normal conditions were present at each identified wetland location. Each site was then examined for evidence of natural or human induced alteration of vegetation, soils, or hydrology. These investigations were followed by analyzing the surrounding area and determining the location of the wetland/upland interface. Selected points were sampled for vegetation, hydrology, and soils to help determine the location of this boundary.

5.1 Vegetation

The presence of wetland vegetation was determined by evaluating the indicator statuses of dominant plant species in each vegetative stratum (i.e., herbaceous layer, shrub/sapling layer, tree layer, and woody vine layer). Dominant plant species were determined using percent aerial coverage estimates. The plant species that immediately exceeded 50% of the total dominance measure for a given stratum (when ranked in descending order of abundance and cumulatively totaled), plus any additional species comprising 20% or more of the total dominance measure for that stratum, were considered to be the dominant vegetative species for the data plot.

The wetland indicator statuses (obligate - OBL, facultative wetland - FACW, facultative - FAC, facultative upland - FACU, or upland - UPL) for all dominant plant species identified in the sample plots were determined from the *National List of Plant Species That Occur in Wetlands: 1988 National Summary* (U.S. Fish and Wildlife Service, 1988).

The USACE's Regional Supplement uses a sequence of four tests to establish the presence or absence of a dominance of hydrophytic vegetation. The four tests are done in a sequence on an if/then logic test basis. Proceeding to the next indicator level should only be completed if the preceding indicator did not determine a dominance of hydrophytic vegetation at the sampling location. Indicator 1 is the rapid test for hydrophytic vegetation. This indicator is applied if all dominant species across all vegetation strata are rated OBL or FACW. Indicator 2 is the dominance test. Vegetation is considered to be hydrophytic if more than 50% of the dominant plant species across all strata are rated OBL, FACW, or FAC. The dominance test uses the 50/20 rule to determine the dominant species within a vegetative plot.

The third indicator of hydrophytic vegetation is linked to the prevalence index. This prevalence index ranges from 1 to 5. In order for a sample area to contain hydrophytic vegetation the plot must have a prevalence index of 3 or less. The prevalence index is a weighted-average of wetland indicator statuses of all plant species in the sampling plot. The wetland indicator status of each species is assigned a value according to the following scale: OBL-1, FACW-2, FAC-3, FACU-4, and UPL-5. These assigned values are multiplied by the absolute percent cover of all species with that particular indicator status. The product of each indicator value is then summed and divided by the total percent cover, resulting in the prevalence index for that vegetation plot. The equation is as follows:

$$\text{Prevalence Index} = \frac{A_{obl} + 2 * A_{facw} + 3 * A_{fac} + 4 * A_{facu} + 5 * A_{upl}}{A_{obl} + A_{facw} + A_{fac} + A_{facu} + A_{upl}}$$

where A(x) is the absolute percent cover

Indicator four consists of morphological adaptations. Certain plant species exhibit morphological changes in order to survive in areas that are saturated or flooded for prolonged periods of time. Some common vegetative morphological adaptations in the northeast consist of adventitious roots, hypertrophied lenticels, multi-stemmed trunks, and shallow root systems.

Plant community data recorded from each sample plot are included on the wetland delineation field data sheets found in Appendix A.

5.2 Hydrology

The presence of primary hydrologic indicators (such as surface (indicator A1), saturation (indicator A3), or a high water table (indicator A2)) or secondary hydrologic indicators (such as drainage patterns (indicator B10), geomorphic position (indicator D2), or FAC-neutral test (indicator D5)) was determined through visual observations at the data plot locations and surrounding areas. Soil saturation was determined by sampling the soils at each plot to a minimal depth of 10-inches, if possible. These soil test holes were observed in order to record the depth to which water rose in the hole. Hydrologic data gathered in the field at each sample plot is included on the wetland delineation field data sheets found in Appendix A.

5.3 Soils

The presence of hydric soil indicators was determined by extruding soil samples with a soil auger up to a minimal depth of 10-inches, if possible. A Munsell Soil Color Chart (2009 Edition) was used to determine soil color for all encountered horizons within the soil profile, including different layers within the same horizon, if encountered. Soil profiles were compared to hydric soil indicators for the USDA Subregion Land Resource Region (LRR) R – Northeastern Forests, included within the Northcentral and Northeast Regional Supplement (USACE, 2009). Soil color information and other observations made at each sample plot are included on the wetland delineation field data sheets found in Appendix A.

A wetland determination was made at each sample plot after characterizing the vegetation, hydrologic indicators, and soil characteristics. If the hydrophytic vegetation, hydrology, and hydric soil criteria were met, the area

was determined to be a wetland. If the criterion for one or more of the three-wetland indicators was not met, the area was determined to not be a wetland.

5.4 Mapping

The boundaries of each wetland location were surveyed in the field using a handheld Global Positioning System (GPS). Two hand-held Trimble GeoXH models with sub-foot and decimeter accuracy, respectively, were used to gather each point location and map each wetland boundary on the Mahar Property. The wetland boundaries were later added to the Geographic Information System (GIS) base mapping for the site. Representative photographs taken at wetland locations throughout the Property are included in Appendix B.

6.0 Results

6.1 Wetland Labeling

As part of this wetland delineation field effort, a total of five (5) wetland areas were identified and delineated within the limits of the Mahar property (see wetland delineation map Figure 5).

Identified wetland areas were individually labeled alphabetically from A to E. Vegetative, soil, and hydrologic characteristics of each delineated wetland can be viewed on the corresponding field data sheets located in Appendix A. No mapped or unmapped streams or other Waters of the U.S., aside from the wetland locations, were observed on the Property.

6.2 Delineated Wetlands

Delineated wetlands A, B, C, and E were determined in the field to be ‘isolated’ wetlands, meaning that these areas are not hydrologically, biologically, or chemically connected to a Traditionally Navigable Water (TNW), as defined by the USACE. Wetlands B, C, and E represented wooded depressional areas in the landscape that were seasonally inundated. These areas were surrounded by upland forest; the slight rise in topography from the wetland to the surrounding areas is evident in the site photographs provided in Appendix B. Figure 7 is a reference guide for the site photographs; the locations and view points for each photograph are included on this figure.

Wetland A was located at a low spot along Bovee Road. Stormwater runoff from the roadway collected in this area; however, no culverts were observed at this location that hydrologically connected Wetland A with any

wetlands or waters north of Bovee Road. Because hydrological, chemical or biological connections between Wetlands A, B, C, or E to any TNWs could not be established in the field, it is likely that these areas are not under federal jurisdiction by the U.S. Army Corps of Engineers. A Jurisdictional Determination, which would include field verification by agency personnel, would need to be requested from the USACE to confirm this determination.

Wetland D, which represented NYSDEC mapped wetland RG-33, drains southeast from the Mahar property and then east where it flows into a NYSDEC mapped stream, Ont. 117-19-4-P11-1-2-a. Wetland D represents the headwater wetlands of tributary a of tributary 2 to Mill Creek (also known as Blue Pond Inlet). Wetland D is a state and federally regulated wetland and would require authorization from the USACE for discharges within it, or a permit from USACE and NYSDEC if development activities were proposed in or within 100 feet of it.

Wetland and upland data plots were performed and recorded for each delineated wetland. The locations of these data plots are included on Figure 6. Information regarding soil characteristics, hydrology, and vegetation at each data plot can be viewed on the field data sheets located in Appendix A. Figure 5 shows the delineated boundaries of all five (5) wetlands located during the field investigation. The characteristics of these wetlands are further detailed in Table 3. Data recorded at each wetland plot location is displayed in this Table to provide a summary of the characteristics of each delineated wetland.

Table 3 – Wetland Data Plot Information and Wetland Jurisdictional Criteria

Resource ID	Plot ID	Cover Type(s)	Dominant Vegetation	Vegetative Indicator(s) ¹	Hydrologic Indicator(s) ²	Soil Indicators(s) ³
Wetland A	Plot 1	Scrub-shrub	Narrow-leaved cattail, pussy willow, riverbank grape	Rapid test	A2, A3, D2	F3
Wetland B	Plot 1	Forested	Poison ivy, silver maple, green ash	Dominance test	B1, B9, D2	F3
Wetland C	Plot 1	Forested	Red maple, silver maple, poison ivy, false nettle	Dominance test	B1, B9, D2	F3
Wetland D	Plot 1	Forested	Red maple, green ash, poison ivy	Dominance test	C9, D2	F3
Wetland D	Plot 2	Forested	Red maple, green ash, silver maple	Dominance test	B1, B9, C9, D2	F3
Wetland D	Plot 3	Forested	Red maple, green ash	Dominance test	A3, B9	F3, S3
Wetland D	Plot 4	Scrub-shrub, emergent	Silky dogwood, cattail hybrid, NY aster, rice cut grass	Rapid test	A3	F3
Wetland D	Plot 5	Scrub-shrub	Red maple, silky dogwood, green ash, Canada goldenrod	Dominance test	A3	F3
Wetland D	Plot 6	Scrub-shrub	Green ash, silky dogwood, lance leaved goldenrod	Dominance test	A3, B9	A11, F3
Wetland E	Plot 1	Forested	Silver maple, green ash	Rapid test	B1, B9, D2	F3

¹ Refer to Hydrophytic Vegetation Indicators in the *Interim Regional Supplement*

² Refer to Wetland Hydrology Indicators in the *Interim Regional Supplement*

³ Refer to Hydric Soil Indicators in the *Interim Regional Supplement*

7.0 Summary and Conclusions

This wetland delineation was completed to determine the locations of freshwater wetlands and waters on the Mahar Property. Information from various desktop resources were reviewed prior to the field investigation and used to focus on particular areas of the Property. Five (5) wetlands were identified on the Mahar Property.

Based on the characteristics of Wetland D, this wetland is assumed to meet state and federal jurisdiction criteria. Any proposed impacts to this wetland in the future would require a review by the NYSDEC and the USACE in association with Article 24 of the New York State Environmental Conservation Law and Sections 401 and 404 of the Clean Water Act. Based on NYSDEC Freshwater Wetland Mapping, Wetland D is under the jurisdiction of the NYSDEC. The wetland and its 100-foot adjacent area are regulated by the NYSDEC. Any impacts to this wetland or the adjacent area would require coordination with the NYSDEC. Because hydrological, chemical, or biological connections were not observed in the field for Wetlands A, B, C, and E, these resources are assumed to be isolated, and therefore may not meet criteria for federal jurisdiction. A review by the USACE is required to confirm the preliminary isolated determination and their jurisdiction over Wetland D. An Approved Jurisdictional Determination can be requested from the USACE prior to a permit request.

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