WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES

SOLID WASTE FACILITY INCLUSION APPLICATION

Application for inclusion into the Wayne County Solid Waste Management Plan is hereby made to the Wayne County Solid Waste Facility Inclusion Committee c/o ,Wayne County Department of Public Services, Environmental Services Division.

1. Disposal Area Name and Location

Riverview Land Preserve			734-281-4263
Name of Facility			Telephone
20863 Grange Road	Riverview	Michigan	48193
Street	City	State	Zip

2. Applicant

City of Riverview			Douglas Drysdale, City Manager
Name of Operating Organization			Contact
14100 Civic Park Drive	Riverview	Michigan	48193
Street	City	State	Zip
734-281-4230		9600 exp. 5/07/2025	
Telephone		Operating License Numbers (if expanding an existing facility)	

3. Property Owner

City of Riverview		Douglas Drysdale, City Manager	734-281-4230
Name of Property Owner		Contact	Telephone
14100 Civic Park Drive	Riverview	Michigan	48193
Street	City	State	Zip

4. Type of Disposal Facility

40,552,240 current permitted airspace

Sanitary Landfill Type II	*	Type III	*	Incinerator	**
Transfer Station Type A	**	Type B	**	Processing	**

* Total design capacity in cubic yards

** Design capacity in cubic yards per day

5. Applicant Signature and Review Fee Fee Included $15,000 under separate cover

I hereby certify that the information provided is correct and complete

Signature Douglas Drysdale Title City Manager Date 1/5/2021

Review Fee

Wayne County Department of Public Services based on the facility proposed will establish review fees. The maximum review fee will be $20,000 for a sanitary landfill or $10,000 for transfer & processing facilities. Please contact Wayne County Department of Public Services Environmental Services Division at (734) 326-3936 for a determination on the applicable fee. Make check payable and submit with application to Wayne County Department of Public Services, 3600 Commerce Court, Bldg. E, Wayne, MI 48184.

Wayne County
Solid Waste Management Plan
Facility Inclusion Request

Riverview Land Preserve

JANUARY 4, 2021
209-4201587.017

PRESENTED FOR

City of Riverview
14100 Civic Park Drive
Riverview, MI 48193

SUBMITTED BY

Tetra Tech
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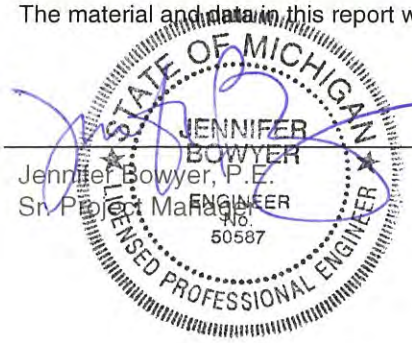
REPORT CERTIFICATION

The material and data in this report were prepared under the supervision and direction of the undersigned.



1/4/21

Jennifer Bowyer, P.E.
Sr. Project Manager

Date

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
M-EGLE	Michigan Department of Environment, Great Lakes and Energy
WCSWMP	Wayne County Solid Waste Management Plan
RLP	Riverview Land Preserve
GCCS	Gas Collection and Control System
LFG	Landfill Gas
FIR	Facility Inclusion Request
WCSWO	Wayne County Solid Waste Ordinance

1.0 GENERAL PROJECT INFORMATION

The City of Riverview (City) and the Riverview Land Preserve (RLP) are presenting this Facility Inclusion Request (FIR) for a horizontal expansion of the RLP. This FIR presents a description of the proposed expansion to amend the Wayne County Solid Waste Management Plan (WCSWMP), and plans and details depicting the additional disposal area and the control measures for it. The proposed expansion includes about 45 acres of new disposal area which is hereafter referred to as Cell 8. Cell 8 will extend eastward from the east side of the RLP, overlying the existing permitted landfill on the west.

1.1 FACILITY OVERVIEW

The RLP is a licensed municipal solid waste (Type II) landfill owned and operated by the City of Riverview since 1968. The facility design and operation meet or exceed federal Resource Conservation and Recovery Act (RCRA) Subtitle D and Michigan solid waste regulations, making it possible to manage a variety of non-hazardous solid wastes in an environmentally responsible manner. The RLP is located at 20863 Grange Road, in the City of Riverview, Wayne County, Michigan. The current landfill footprint includes approximately 212 acres of solid waste disposal area, situated on 403 acres of property in the City of Riverview. Public access to the site is restricted to the Grange Road entrance off King Road. The site is enclosed and has 24-hour security.

The RLP operates under Operating License #9600 (expiration date May 7, 2025) through the Michigan Department of Environment, Great Lakes and Energy (M-EGLE) Materials Management Division (Facility ID 399054). The current permitted capacity is 40,552,240 cubic yards, and as of October 2020, approximately 8,046,900 cubic yards of permitted airspace remained.

The proposed expansion area, which is the subject of this request, includes approximately 45 acres of property, extending eastward onto the adjacent City-owned property occupied by the Riverview Highlands Golf Course. The proposed area is identified as Cell 8, which will be constructed in two or more phases when permitted.

The property proposed for the expansion area is also owned by the City of Riverview, as the Riverview Highlands Golf Course. As a result of the proposed expansion, the 18 hole course will be modified to accommodate the Cell 8 footprint, and a portion of the Frank and Poet Drain (a County drain) will be relocated approximately 1,200 feet east, as a water feature within the redesigned golf course layout. The new drain channel will be designed and permitted according to EPA, State of Michigan, and Wayne County requirements.

1.2 PROPOSED EXPANSION

The proposed expansion will consist of about 45 acres. Within the proposed Cell 8, the landfill operating systems will be similar to existing systems. The liner system will be a single-composite liner system with a natural clay liner base. Groundwater monitoring wells and gas perimeter probes will be installed to monitor the groundwater quality and detect off-site gas migration. Leachate collection will be handled with gravity piping in the cell floor, with automated pumps and forcemain piping to transport the leachate for disposal into the sewer. Landfill gas collection and control will be designed and installed as a continuation of the existing system, with additional system controls and vacuum sources installed as needed to handle the volume of gas generated. Interim and final cover will be installed in accordance with state and County requirements.

1.3 ALTERNATIVES ANALYSIS

The selection of the expansion area to the east was decided based upon best use and available opportunity for the base property. Given the highly developed nature of the Downriver area and the limited space in the City, expansion alternatives were only considered on adjacent areas to the RLP.

For this proposed expansion, options were explored in all directions from the existing landfill boundary, and the positive factors weighed against negative to make a determination of the best feasible option. The east adjacent property is wholly owned by the City of Riverview and is operated as the Riverview Highlands golf course. The RLP is relatively land-locked on the remaining three sides, bounded by Sibley Road to the north, King Road to the south, and residential properties backing up against the northwest corner. Alternatives that were considered are summarized below.

1.3.1 Southwest Property

The southwest corner of the property is currently used as a borrow source for the landfill soil needs, as well as a stockpile area for suitable (clean) soil brought to the landfill as surplus soils. The property is bisected by the Blakely Drain and a constructed wetland under conservation easement.

The loss of the borrow area, even if developed as a landfill expansion, would be a hardship for the RLP at this time, because it would eliminate the stockpile area for permit-required clean cover soil, and soil for site use would have to be imported (at high cost) for use as cover material for site closure. The borrow area has capacity to provide up to 1.5 million cubic yards of clean soil for final and daily cover.

In addition, the RLP has long-term lans to locate a recycling center (operated and maintained by the RLP) from its current location at the King Road entrance, to the recently acquired property off Allen Road. Other uses for the southwest property may include a city park, access to neighboring businesses, and renewable energy projects. The Allen Road parcel may also potentially be used for access to the landfill as well as landfill maintenance and equipment facilities.

The Blakely Drain, which crosses the property, is a significant drainage channel in Wayne County, with a large drainage area and has many tributaries, including the Gudith Drain. The Blakely Drain also has a large acreage of ponded water and associated wetland area, discharging into the Marsh Creek (a county drain). Disruption of this drain would impact a larger area and could impact other drainage patterns in that area. This parcel was considered unsuitable during the early planning stages due to the municipality situation, the existing wetland easement, larger more complex project scope requiring relocation of the Blakely Drain, and the on-going need for a borrow area for landfill operations.

1.3.2 North and Northwest Property

An expansion to the north would be limited by current property ownership and uses. The onsite northern portion, currently used as the golf practice facility, is currently a closed pre-Subtitle D landfill, redeveloped with contoured cover soils to form practice greens and tees and a driving range. Expansion in this location would be limited to vertical expansion due to property boundaries and existing infrastructure.

The adjacent property on the northwest corner consists of a densely populated residential subdivision, and immediately adjacent is a high-power radio signal boosting station. Within the RLP property limits, the northwest corner also hosts the gas-to-energy generation facility operated by Riverview Energy Systems and is the site of the proposed renewable natural gas (RNG) facility.

Development in this area was not considered a viable option due to the property characteristics and infrastructure. A vertical expansion in this area would provide a minimal amount of airspace and would be limited to the current solid waste boundary (no lateral expansion).

1.3.3 South

To the south, the RLP is bordered by multiple commercial properties and King Road. The RLP is currently meeting property line offsets and expansion to the south would require property acquisition with minimal gain. Many of the existing commercial properties are occupied, many of which house successful businesses, and would require a zoning analysis. This would also bring the landfill closer to the neighboring residential community of Trenton, which would be undesirable. Expansion to the south is not a viable option.

1.3.4 East

The eastern adjacent property is owned by the City of Riverview and is currently developed as the Riverview Highlands Golf Course. The City is willing to reduce the footprint of the golf course to provide property for the RLP expansion. Even with this option available, an expansion will require relocation of the Frank and Poet Drain, and a portion of the Huntington Drain, which are both Wayne County drains.

This option provides the opportunity to make positive environmental impacts. Relocation of the Frank and Poet will benefit the communities environmentally in several ways: the redesign of the Drain would improve the channel for increased flow; the Drain design improvements would increase flood storage areas, relieving some flooding issues currently affecting the residents; the Drain channel would be improved and elevated in quality, habitat and appearance. Economically, the relocated channel will enhance the golf course experience by providing more interest and challenge for players, drawing more players to the course and creating repeat business.

The proposed property provides ample space to meet regulatory offsets and setbacks. The regulatory offset requirement is 300 feet from a residence to the solid waste boundary. The golf course currently provides a large green space separation of approximately 2,500 feet to the east and 500 feet to the south. With the expansion at its full reach, the separation distance on the east side of the expansion area will maintain a green space of 1,200 feet (minimum), and the south separation will actually be increased to 800 feet to the property line. The ample space also allows the expansion to be designed with the most efficient geometry, to maximize airspace while minimizing the footprint.

The City recognizes opportunities to enhance the visual barriers surrounding the proposed expansion through landscaping on the perimeter of the expansion, as well as through improvements to the golf course landscaping with contouring and additional tree plantings, and improved and landscaped water features, including the relocation of the drain.

Given all these considerations, the east property, owned and operated by the City, provides the best economical, efficient and environmentally beneficial opportunity to expand the RLP. Therefore, this inclusion request is based on expansion of the RLP to the east, with relocation of the Frank and Poet Drain.

1.4 COMMUNITY IMPACTS

The RLP is situated in the City of Riverview, Wayne County, Michigan, which is a largely developed small community in the Downriver area of metropolitan Detroit. The Downriver area consists of 14

contiguous communities which generally share common goals and partner together to maximize resources and mutual benefit.

With the closure of the Detroit Incinerator recently, the downriver area is somewhat limited in its disposal options. The RLP provides a regional resource to meet this need and provide economic support to the region. The approval of this expansion will allow the RLP to continue to provide local disposal options for neighboring communities as an economic development tool.

Distances to the nearest existing residential, commercial, and industrial facilities are listed in Table 1 of Appendix B. Figures showing both general surrounding areas is included as Appendix B, Figure B1 and on Drawing Sheet 3 .

1.4.1 Economic Benefits

The expansion of the RLP and associated projects will have positive economic impact the Downriver community. This expansion will necessitate updates to the Riverview Highlands Golf Course, which draws tourism to the Downriver area, of which Riverview is centrally located. The golf customers will travel to and through surrounding communities for shopping, restaurants, and fuel.

The RLP contributes to the City of Riverview budget, providing up to $3.5 Million to the general fund on an annual basis. These dollars not only offset Riverview residents' tax rates, but additional contributions directly support services such as public safety. If the RLP is closed, tax rates for Riverview residents would necessarily be increased to compensate for the loss of income – as much as 11 to 13 mils. Riverview residents would also lose the benefit of free disposal at the RLP and would thus have to contract for collection and disposal services.

The centralized location of the RLP within the Downriver community minimizes disposal fees for the entire Downriver area. Downriver communities generally have contracts with the RLP that include sliding scale rates for disposal. The close proximity to RLP also means they can opt to self-serve their trash collection services, use local employees and maximize collection equipment life. Without the RLP nearby, the closest solid waste disposal site is approximately 20 miles away, with a travel time of at least one hour (round trip). This will necessarily increase labor costs, increase fuel and maintenance costs, and decrease serviceability for the residents as much stricter schedules will have to be followed.

Further losses would be realized as the current RLP employees – about 25 total - would lose their employment. These employees live in the surrounding communities and contribute to the local economies. This expansion will add at least 12 years of disposal capacity to the RLP, extending the employment of these personnel and the economic benefits to the Downriver Community.

The relocation of the Frank and Poet Drain will also benefit the Downriver area economically. Improvements to the Drain's flow and flood storage will help homeowners by alleviating concerns of property flooding. The relocated drain will also result in improvements and modifications to the golf course. The improved golf course will be a draw for people to come into the surrounding communities for services before and after recreation at the golf course. The golf course is also open to the public for walking as a community benefit. The golf course hosts many golf outings which can benefit charities and local fundraisers. Improvements at the golf course will encourage participation in these events, further supporting the local economy.

Economic benefit may also be realized from these supplemental projects in residential property value stabilization or increases resulting from the golf course improvements generated by the RLP expansion

project. Well-maintained golf courses have increased nearby property values during economic growth and are shown to stabilize property values during economic downturns.

1.4.2 Ecological Benefits

The construction of the new cell at the RLP (and associated projects) will result in various ecological benefits to the City of Riverview, Riverview Highlands, and surrounding areas.

The Riverview Land Preserve got its name because the property is reserved by the City for future use as a wildlife refuge, public park for hiking and bicycling, continued golf functions, and other recreational uses. The existing landfill is already a safe haven for birds of prey (eagles, hawks, vultures), deer, small mammals, water fowl (heron, egret) and other wildlife. The expansion area will similarly be reserved for non-invasive use by the public.

The boundaries of the expansion area will include the regulation-required setback of at least 100-feet from the property line. This setback area will be used to provide greenspace to include the drain corridor, landfill perimeter berm and barriers. This space will be untouched by the landfill or the golf course.

As discussed above, a portion of the Frank and Poet Drain must be relocated to accommodate the expansion. Currently, the drain runs adjacent to the golf course, but is overgrown and poorly maintained. Re-channelizing the drain will improve flow and stabilize the banks. The proposed relocation will include a wider corridor with low areas adjacent to the drain to provide additional floodplain storage. Furthermore, by incorporating the drain into the golf course design, future access for cleaning and maintenance of the drain will be ensured. These improvements will "uplift" the quality of the drain and should improve the overall water quality for biologicals.

The golf course itself will require modification to accommodate the proposed expansion. Environmental benefits will be realized by improved wetlands and stormwater controls, and new golf course plantings which are more drought- and pest-resistant and require less intensive maintenance (less watering, fertilizers and pesticides). The impacted golf areas can also be improved with better drainage and irrigation systems to maximize efficiency.

Any wetlands impacted by the proposed expansion will be relocated within the City of Riverview properties or banked property within the County. Most of the wetlands being affected are located along the current Frank and Poet Drain corridor and its confluence with the Huntington Drain. Replacement wetlands will be located in low areas of the golf course, adjoining water features or along the drain corridor. Additional wetlands may be created on the RLP property or the golf course north of Sibley Road.

1.5 PROJECT CONSISTENCY WITH WCSWMP

The Wayne County Solid Waste Management Plan (WCSWMP) lists several goals for the Solid Waste Planning program. The RLP is fully committed to maintaining its synergistic relationship with the County and helping the County to realize its goals. To that end, the discussion below describes the County's goals and how the RLP is helping to meet those goals, now and with the proposed expansion.

1. **Reduce the amount of solid waste generated that must be landfilled.** To comply with the first goal of reducing dependency on landfills for disposal of unwanted items, the City already has in place an onsite recycling collection (described in later sections), and has provided resources to Wayne County to assist in their household hazardous waste (HHW) collection program, and other programs. As facility planning

progresses for the Cell 8 expansion, the City is proposing to further expand services which will keep materials out of the RLP and promote recycling efforts in several ways:

- *Household shred day.* The City provides free paper shredding service to Downriver residents approximately 2x per year. The shredded material is recycled by the vendor.
- *Increased recycling availability*. In addition to the already-extended recycling dropoff hours at the RLP, the City of Riverview has applied for a State of Michigan grant to relocate, improve and expand the recycling drop off center. This would allow the City to offer drop off services to the neighboring communities of Trenton and Brownstown.
- *Prescription medication collection*. The City has implemented a prescription drug take-back program with its police department, to collect and dispose of solid medications.
- *Household hazardous waste collection.* The City has in the past and will in the future, offer the RLP (or alternate facility) as an annual dropoff location for the County. As host of an annual dropoff, the RLP will provide facilities for collection, including the necessary totes or roll off boxes for storage of the materials, and will share staffing the collection with the County personnel.

2. **Optimize the use and life of existing solid waste disposal areas.** The RLP uses global-positioning-satellite (GPS) equipment to track waste placement, compaction efforts and grading information. The GPS display in select pieces of equipment allows the operators to track waste placement parameters to maximize compaction, reducing the consumed airspace for each ton of waste placed. The GPS is also used to monitor elevations and ensure that permitted grades are not exceeded. Annual surveys of the waste surface are used to evaluate the remaining airspace. These annual surveys are reported to the Michigan Department of Environment, Great Lakes, and Energy (M-EGLE) and WCDPS as part of the required monitoring programs.

   Another space-optimizing procedure is the use of alternate daily cover (ADC) materials to fulfill the Part 115 requirement for 6-inches of daily cover. RLP uses wood chips, approved soils, spray-on foam, and other approved alternate daily covers to eliminate loss of airspace for cover. These ADC materials are left in place as part of the waste mass and do not use up permitted air space.

3. **Ensure local and public participation in the development and implementation of the solid waste management plan.** The City of Riverview maintains active communication with the surrounding Downriver communities and meets regularly with their leadership to discuss waste disposal and environmental programs. The City Manager has recently met with the following communities: Woodhaven, Allen Park, Southgate, Gibraltar, Huron, and others. Many community leaders have come to site tours and participated in active discussions about future waste disposal needs.

   Current discussions with the surrounding communities for other programs have included implementation of a curbside recycling program, promotion of recycling opportunities (such as the Wayne County Household Hazardous Waste dropoff days), and open committee meetings where public comment is welcomed. The City and the RLP regularly interact with Wayne County personnel to keep up to date on projects and keep communication open. Riverview has also created a public information website where information about the RLP can be reviewed, and residents can ask questions and voice concerns.

4. **Sustain and enhance compliance and enforcement programs.** The RLP is firmly committed to maintaining compliance with local, state and federal regulations. The RLP has worked closely with Wayne County to install, monitor and maintain the existing landfill to current regulations and in accordance with the Wayne County Solid Waste Management Plan. The RLP is designed and permitted according to all Part 115 regulations.

The RLP construction program includes geosynthetic liner and cover systems, leachate collection piping, landfill gas extraction and collection, and a daily and interim cover placement program. Stormwater is handled to minimize leachate production. RLP personnel perform daily, weekly and monthly inspections. The RLP has consistently been cooperative with the County to resolve any shortfalls and has been responsive to County input.

- *Stormwater Management.* All storm water runoff is directed to perimeter channels which convey the water to onsite detention basins, where the water is discharged at a controlled rate to the receiving surface waters. The RLP currently uses stormwater for dust control, so the detention ponds currently act more like retention ponds with minimal discharge.
- *Leachate Management.* Leachate is transferred from the landfill liner to perimeter piping, from which it is either directly discharged to the sanitary sewer or goes through pretreatment for sewer disposal. If permit discharge requirements are not met, the leachate is hauled off-site for treatment and disposal.
- *Air Compliance and Monitoring.* The landfill gas collection system is operated and maintained by RLP. The data collected is reported to state and federal agencies to maintain compliance with M-EGLE Air Pollution Control Rules and Renewable Operating Permit (ROP) requirements.

As the City pursues the proposed Cell 8 expansion, the RLP continues its efforts to align itself with Wayne County's objective of *properly managing solid waste while reducing its dependence on landfills*. The Cell 8 design will continue to provide proper management of the Downriver waste, while improving upon operational practices already in place, and supplementing existing systems and components with technological advances. While newer technologies and operations are being developed and implemented to help reduce the county's dependency on landfills, the need for disposal will still remain.

Other tangential benefits from the Cell 8 Expansion will be realized in infrastructure, economy, ecological improvements, and renewable energy.

- **Infrastructure benefits.** The RLP is in the heart of the Downriver communities, comprised of 14 communities working together to provide services to residents. The nearest disposal site with capacity is located on the southwest side of the County, at least a 30-minute drive. If forced to travel this distance to dispose waste, not only will costs go up, but the increase in hauling will require more trucks on the road, increase road wear and congestion, as well as create additional truck and diesel emissions.
- **Economic benefits.** If this expansion is not approved, trash removal costs for the 14 nearby communities currently utilizing the RLP will increase. Transportation costs for each community will increase due to the longer haul distance. Disposal rates at publicly owned sites are more susceptible to increases and may not have contractual guarantees. These are direct costs to the residents of the Downriver.
    - RLP also benefits **business development** in the region. Business (and home) renovations have a local location to dispose of debris. This helps keep construction costs lower and economically feasible.
    - The City of Riverview itself stands to lose a primary economic driver if the landfill closes. During the 2019-2020 budget year, the RLP is projected to transfer approximately $3.5 million for the city general fund, which provides city services. When the RLP funding ceases, residents will either be subjected to a very significant tax rate increase (11-13 mils), or a severe reduction in services. These municipal services include utilities, public safety, library and roads.
    - Approval of the Cell 8 Expansion project will allow the economic benefit from the RLP to continue for another 12 to 20 years, while providing a necessary service to the area residents.
- **Ecological benefits.** The construction of the new cell at RLP will provide ecological benefits to the community, by improvements to the Frank & Poet Drain. The Drain has become channelized over time.

Reconstructing the Drain will replace the riparian zones along the drain and habitat will be better suited for wildlife and plant species. A wider drain corridor and low areas adjacent to the drain will provide additional floodplain storage, protecting downstream areas and facilities.

- **Renewable energy projects.** The RLP currently hosts two renewable energy projects: the DTE landfill-gas-to-energy (electricity) plant, and the renewable natural gas (RNG) vehicle fueling station. These projects use about 70% of the landfill gas currently generated. Additional projects are planned to utilize the unused portion of the landfill gas as a renewable resource.

The City recognizes that, as of the 2019 annual reporting, Wayne County landfills approved in the WCSMP provide approximately 75 million cubic yards of airspace, or about 12 years of disposal volume. About 70% that (permitted) airspace is provided by a single landfill, Carleton Farms, which is located in the southwest corner of the County. We are also aware that Woodland Meadows was recently approved, by Wayne County, for a large expansion but may not yet have received M-EGLE approval.

RLP is the only disposal site on the east side of the County. While we acknowledge that there currently appears to be ample disposal space available in the County as a whole, at current disposal rates the airspace in three of the four disposal sites (including RLP) will be used up in about 6 years. By obtaining this expansion, RLP can provide continuous local service to the Downriver residents of Wayne County.

1.6 CURRENT RESOURCE RECOVERY ACTIVITIES

1.6.1 Recycling and Composting

Currently, Riverview residents can participate in recycling various materials *at no cost* by delivering the materials or yard waste to two existing collection centers located at the RLP and City Hall. Other communities are welcome to utilize the drop off location but may be subject to a drop off fee.

Riverview was recently awarded a M-EGLE grant to expand the City recycling program. The funding received will allow Riverview to implement Phase 1 of the recycling plan, which includes two components: City purchase of recycle totes/boxes for residents (used to transport their recyclable materials), and creating a satellite recycling drop off location on the northeast side of the City. The totes will be available to residents wishing to participate in the recycling program at no cost to the resident. The satellite recycling drop-off location will provide a convenient access for residents who might otherwise not be able to drive to the RLP. The City will seek out future grant monies to allow further expansion of recycling to relocate the RLP drop-off location and increase City recycling by installing collection bins in parks and City buildings. The additional funding will also allow the City to open the recycling program to adjoining communities such as Wyandotte and Trenton.

The Riverview City Hall collection center accepts household batteries and ink jet printer cartridges and toner. The City Hall collection center is located at 14100 Civic Park Drive, Riverview, MI 48193. City Hall is open during normal business hours, excluding holidays. City Hall internally collects office paper for recycling and has recycle bins located throughout the building for small quantities of paper for recycling.

The RLP is open for recycling drop-off from 7 a.m. – 4 p.m., Monday through Friday and 7 a.m. – 11 a.m. on Saturdays. In an effort to increase residents' participation in the recycling program, extended hours were made available on Wednesdays until 7 p.m. The recyclable materials are sorted by residents into the appropriate bins, which are emptied as needed.

Currently, the RLP provides a roll off box for source-separated recyclables including:

- Mixed papers
- Plastics
- Metals
- Glass (clear and colored)

- Cardboard
- E-waste (universal waste)
- White goods (separate area)
- Household batteries, car batteries, lead-acid batteries
- Household used oil.

Each bin or storage area is located on a concrete pad serving as secondary containment. Spill kits are located nearby in the event of a release. If a release were to occur, appropriate notifications would be made, in accordance with the site's Integrated Contingency Plan, which includes the required Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control and Countermeasures Plan (SPCC).

Debris and loose materials in the recycling area are cleaned up every weekday, to maintain a clean and safe area for residents' access, as well as managing site cleanliness from blowing debris and storm water runoff.

Appendix C provides current recycling quantities separated by type of material. Because RLP is a drop off site, the materials are accumulated on site until a sufficient quantity is available for pick up.

1.6.2 RLP Generated Recyclables

The RLP performs its own equipment and vehicle maintenance, including hydraulic fluid and oil change services. The shop area has a dual-contained waste/used oil tank which is emptied on a periodic basis for recycling. The shop floor drains also pass through an oil-water separator tank which is cleaned out and sent for recovery.

1.6.3 Composting

Woody tree debris and brush is hauled to the disposal area and stockpiled until it can be ground for use as alternate daily cover. The City also collects leaves and yard waste by curbside pickup and at the Land Preserve. The yard waste is delivered to a compost facility for processing.

Yard waste brought by customers to the RLP is diverted to the Taylor Hills Compost Site located about 5 miles northwest.

1.6.4 Separation and Salvaging of Recyclables

Scavenging of any object or commodity from the trash for personal use is strictly prohibited. The City occasionally operates a scrap recovery program for steel, aluminum and copper. However, the high-traffic volume in the active disposal area is not conducive to this type of operation, which also requires additional human resources and results in minimal return.

The Land Preserve Director may designate personnel to collect salvageable material such as metals during the work shift. All salvaged materials are the property of the City of Riverview.

1.6.5 Scavenging

For safety purposes, scavenging through the deposited waste for materials is prohibited at all times.

2.0 SITE CHARACTERISTICS

2.1 BOUNDARIES

The property boundaries for both the RLP and the golf course are shown on Plan Sheet 1 of the FIR Plan Set. Legal descriptions of both parcels are provided on the plans. The current solid waste boundary for the RLP is also shown and described.

2.2 TOPOGRAPHY

The topography of the area is generally flat, with a gentle decline in elevation to the east and southeast, toward the Detroit River and Lake Erie. The RLP permitted top of final cover grades are peaked at elevation 850 AMSL. The proposed Cell 8 top of waste grades will not exceed the current maximum permitted elevation.

As mentioned above, the riparian areas along the Frank and Poet Drain will provide additional flood storage and create temporary water features that will drain quickly once the storm is abated. It is anticipated that the grading work for the drain will be balanced with cut and fill areas.

2.3 SOIL TYPES

The Natural Resources Conservation Service (NRCS) website was reviewed to determine the soil types present in the surficial soils of the expansion area. The portion of the City property adjacent to the Frank and Poet Drain is mapped as three (3) main soil types:

- Pewamo loam (Pe), primarily found in narrow, linear areas along the Frank and Poet and Huntington drainage channels and the adjacent flood plain areas. This material is poorly drained and is subject to ponding.
- Glynwood loam, 2 to 6 percent slopes (GnB), primarily located in narrow strips alongside the Pewamo soil deposits found along the drain corridor(s). The Glynwood formation is typically end moraines on till plains and is moderately well drained.
- Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes (BfA), primarily located in larger areas alongside the Glynwood soil deposits. This soil type comprises approximately 60% of the proposed expansion area.

A copy of the soil survey report including soil descriptions obtained from the NRCS website, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx is included as Appendix D.

Below these mapped surface soils, the regional geology known thus far is relatively consistent. Previous studies for the RLP have shown that the local geology consists of glacial clay ranging in depth from 35 to 55 feet thick, overlying limestone bedrock. The glacial clay is classified as gray, silty clay.

The underlying bedrock is limestone of the Dundee formation, described as “high-calcium limestone with significant fracturing and some evidence of solution features, i.e. vugs and solution channels.” (NTH, 1998) The Dundee Limestone is generally found around elevation 540 to 550 AMSL and remains relatively level to the east. Under the Dundee Limestone is the Detroit River Group Formation, which consists primarily of dolomite. The Detroit Formation is found at approximate elevation 490, which is about 65 feet below the design floor elevation of the proposed expansion.

Additional information from the Sibley Quarry, located approximately 1 mile to the east, shows a consistent soil profile. This information was compiled and presented in previous hydrogeolocial studies conducted in support of past RLP construction license applications. These reports include:

NTH Ltd., “Report on Preliminary Hydrogeologic Investigation,” May 24, 1998

Cornerstone Environmental Group, LLC., “Hydrogeologic Monitoring Plan,” February 2007

2.4 HYDROGEOLOGICAL CHARACTERISTICS

The information currently available from historical investigations indicates that the geological conditions for the proposed expansion area are similar to those encountered in the current RLP property, thus indicating that the hydrogeological conditions will also be similar.

Based on the evaluation found in the 1988 hydrogeological investigation (NTH Consultants, Inc.), the groundwater aquifer is located in the Dundee Limestone. Due to dewatering activities at the Sibley quarry, the static water level has dropped significantly from previously reported levels. Due to this dewatering, the aquifer may no longer be completely confined by the rock-clay interface. Currently the water level near the proposed expansion area fluctuates around 525 AMSL.

Subsequent to the 1988 investigation, the routine monitoring data consistently indicates that groundwater flows to the east, toward the Detroit River, at a rate of about 175 feet per year.

Groundwater in this area is not suitable for consumption due to high sulfur content. Very little groundwater is utilized in this region, other than the pumping operation at the Sibley Quarry. Potable water for the entire Downriver area is supplied by the Great Lakes Water Authority (formerly Detroit Water and Sewer Department).

2.5 BUILDINGS

Cell 8 will not include any new buildings or habitable structures. The only permanent facilities will be pump controls and manhole structures if needed.

Existing buildings in the proposed Cell 8 area include a cell/ communication tower, backup generator buildings for the tower, and an irrigation pump house for the golf course. These buildings and structures will be relocated to appropriate areas as construction progresses. The irrigation pump house will be relocated to the golf course property.

2.6 ONSITE WATER BODIES INCLUDING WETLANDS

The RLP is bounded on the west by the Blakely Drain, which discharges to the Marsh Creek (a County drain). Several tributaries also feed into the Blakely Drain, including the Von Kleef Drain, Gudith Drain, and Kaufman Drains. Along the banks of the Blakely are large wetland areas, a portion of which is under a conservation easement.

On the east, the RLP is bounded by the Frank and Poet Drain, and the Riverview Highlands Golf Course. The Huntington Creek Drain also contributes to the Frank and Poet Drain, from the city’s Memorial Pond located north of Sibley Road. The Huntington Creek Drain also flows northeast from the pond to the Detroit River.

On site water bodies include the three (3) stormwater detention ponds which collect surface run off and provide water for dust controls at the RLP.

The Frank and Poet Drain and the Golf Course likely contain areas of regulated and unregulated wetlands. Off-site wetlands mapped by the US Fisheries and Wildlife Service within a 1-mile radius, are depicted on Figure E1 in Appendix E.

2.7 PUBLIC UTILITIES

The RLP is currently serviced by City of Riverview water and sanitary sewer (Detroit Utility Wastewater Authority, DUWA), DTE (formerly known as MichCon) for natural gas, and DTE (formerly known as Detroit Edison) for electricity. Known utility locations including storm and sanitary sewers, water mains, and fire hydrants are indicated on the site plan included as Sheet 2. Additional utilities proposed to service Cell 8 are also shown on Sheet 4.

2.8 NEARBY OFFSITE WATER BODIES

Distances to offsite water bodies within one mile of the site boundary are provided in Appendix E of this report. The Detroit River is approximately 1.3 miles to the east. Figure E1 in Appendix E shows the location of water bodies within the watershed area.

2.9 TRUCK ROUTING

The public entrance to the RLP is at Grange Road, located north of King Road between Allen Road and Fort Street (M-85). The location of the entrance, exit, and access areas are shown on the existing and proposed site plans, Sheets 2 and 4. The entrance area includes a gate which restricts site access to unauthorized personnel and provides site security after business hours. The nearest truck route from the landfill entrance to the nearest interstate (I-75) is shown on Sheet 7 of the plan set.

The truck traffic coming down King Road, whether for landfill disposal or continuing east to Fort Street, has been a main complaint of Trenton residents. The City is currently evaluating other options for entrance locations and plans to include a proposed alternate location in the M-EGLE Construction Permit application.

2.10 LANDFILL OPERATION

The RLP currently operates in accordance with approved Operations Plans, including a Comprehensive Operations Plan, Integrated Contingency Plan (including SWPPP and SPCC Plans), Leachate Management Operations Plan, Explosive Gas Monitoring Plan, and others. The proposed Cell 8 will be integrated into those plans and the Land Preserve will continue to operate in accordance with applicable state and local regulations.

3.0 WASTE PLACEMENT

Various types of waste are accepted at RLP. The accepted waste can be categorized as follows:

- Appliances (white goods)
- Construction & Demolition (C&D) – concrete, dirt, building materials
- Commercial
- Cover (Clean Soil)
- Event Commercial
- Event Demolition
- Event Municipal
- Industrial
- Municipal
- Residential
- Road Materials
- Special Waste (Non-Hazardous Waste)
- Wood Chips (used as daily cover)

The current life expectancy of the landfill is approximately 10 years as of the most recent annual capacity report (submitted to Wayne County in October 2020). The remaining permitted airspace is approximately 8,046,000 cubic yards as of October 30, 2020. The estimated daily volume of waste accepted at the landfill is between 1,500 to 3,000 tons per day. The 2019 and 2020 Combined Solid Waste Reports submitted to the M-EGLE are attached as Appendix F.3 for reference.

Based on a five-year average annual consumption of 755,300 cubic yards of airspace per year and five-year average placement density of 1,990 pounds per cubic foot in place, the proposed Cell 8 will add approximately 16.5 million cubic yards of waste disposal to the landfill's capacity, or about 22 years of waste disposal. This will result in a projected closure date of 2051, as compared to the current closure expected in late 2029. As continuously improving methods for waste placement and compaction, greater decomposition rates, and increasing recycling efforts all contribute to less airspace consumption annually, the lifespan may be longer.

3.1 GEOGRAPHIC SERVICE AREAS/WASTE PERCENTAGES

The geographic service areas for RLP, including Michigan counties and Canada, are depicted in Appendix F.1. Estimated percentages of waste from each service area are included in Appendix F.2.

Also included in Appendix F.3 are the annual M-EGLE Combined Solid Waste Reports listing waste by type (commercial, MSW, special waste, industrial waste, etc.) and geographic service location for the past two years (2019 and 2020).

3.2 SPECIAL WASTE ACCEPTANCE PROCEDURES

The RLP evaluates requests for non-MSW disposal under its special waste program. The program is described in detail, along with the necessary forms and review procedures, in Section 6 of the site's Comprehensive Operations Plan. As required by the M-EGLE, the RLP classifies special wastes as solid waste materials generated by commercial or industrial sources that require detailed evaluation and disposal management due to waste characteristics or generating process. The special waste evaluation process helps to ensure the waste is not:

- a hazardous or toxic waste as defined by applicable federal and state regulations;
- injurious to human health and safety; or

- otherwise prohibited from disposal by federal, state, county or local regulations and ordinances.

Typical waste materials that require consideration as a special waste include, but are not limited to:

- Automobile and other shredder fluff;
- Asbestos-containing materials (RLP accepts only non-friable asbestos);
- Demolition waste generated from the demolition of facilities with industrial, manufacturing or chemical processes;
- Discontinued or off-specification products;
- Drilling wastes;
- Dry cleaning wastes;
- Electrical transformers and capacitors;
- Grease trap grit and grit trap wastes;
- Industrial process equipment;
- Industrial manufacturing wastes;
- Oil filter and other filtration wastes used in manufacturing and maintenance;
- Paint spray booth wastes;
- Pollution control wastes, including air emission control devices;
- Printing and photographic wastes;
- Refractory brick (non-radioactive or under TNORM);
- Remediation wastes, including personal protective equipment and other debris;
- Sandblasting residue;
- Street sweepings;
- Soils and other media contaminated by fuels, oils or other contaminants; and
- Treated wood, including railroad ties, telephone poles, and industrial flooring.

All special waste material is characterized by the waste generator with submittal of appropriate physical and chemical waste analysis prior to waste disposal. The RLP Waste Characterization Report (WCR) form is used as part of the waste evaluation. Laboratory analyses of the waste may be required to confirm that the waste is non-hazardous (per EPA definition of toxicity). The specific analyses that are required is dependent on whether or not the waste generating process is known, and what hazards could be present in the waste. The completed WCR form and laboratory analyses are reviewed by the site and/or a third party to determine acceptability for disposal. Waste delivered to the RLP must have proper documentation accompanying each load (i.e. waste manifests, chain of custody, etc.).

4.0 LANDFILL GAS RECOVERY

As waste decomposes, it creates methane gas (and other gases) and liquid. Both of these byproducts must be controlled to protect the environment. This section deals with the collection and handling of the landfill gas (methane and other gases) and gas condensate.

4.1 LANDFILL GAS COLLECTION AND CONTROL SYSTEM (GCCS)

The RLP currently has an active gas collection and control system (GCCS) in accordance with Michigan Part 115 Rules and Section 180 of the Wayne County Solid Waste Ordinance (WCSWO). The existing GCCS consists of vertical and horizontal gas extraction wells, transmission pipes, a vacuum source, and destruction units (turbines and flares).

Landfill gas extraction wells are installed in the waste mass, in both final grade and active fill areas. The wells are drilled into the waste, and vacuum is applied to the extraction wells. The RLP has redundant vacuum sources: DTE turbines are the primary source, but the blowers on the flares provide 100% backup capacity should one or both turbines fail. Each well is fitted with a control valve and pipe connections to transfer the landfill gas from the waste into lateral pipes and then to larger header pipes which feed the RES plant and utility flares.

Liquid condenses out of the warm gas as it travels to the plant and cools down. The liquid, or condensate, is collected and either discharged into the existing leachate collection system, or is separately pumped to the northwest storage tanks for disposal.

The LFG wellfield is expanded on an annual basis (minimum), to keep up with waste placement. Current as-built plans for the GCCS are maintained in the Operating Record and are regularly updated.

A gas management plan was submitted in December 2003 and revised in March 2004 as part of the RLP's vertical expansion application. This proposed Cell 8 expansion will continue the GCCS expansion under the same general parameters, installing wells as waste depths reach sufficient capacity, or in accordance with New Source Performance Standards (NSPS) rules for municipal solid waste landfills. A proposed gas plan is included in the FIR Plan Set as Sheet 6.

4.2 GCCS OPERATION

The existing GCCS is currently operated in accordance with the requirements of the RLP's Renewable Operating Permit (ROP). As part of the Part 115 Construction Permit Application for this expansion, and subsequent construction projects, the ROP will be updated to include the anticipated landfill gas generation models, proposed control and destruction devices, monitoring, testing, and recordkeeping requirements. The ROP will be reviewed as needed and revised with any updates to the GCCS to stay in compliance with all applicable Air Pollution Control Rules.

The current LFG wellfield consists of over 220 landfill gas extraction wells and thousands of feet of collection piping, drain lines, headers, and air supply lines. As additional waste is placed in the existing permitted disposal areas, the amount of gas collection is estimated to increase. The RLP currently expands the wellfield collection system on an annual basis, to maximize collection and make the best use of the landfill gas potential.

Currently, the majority of the landfill gas collected is used for the renewable energy project, the existing landfill-gas-to-energy (LFGTE) plant, owned and operated by DTE (dba Riverview Energy Systems). In 2013, the City installed a renewable natural gas (RNG) fueling station which draws off up to 100 scfm additional landfill gas, purifies it, and converts it to vehicle fuel. The fueling station is available to municipal and private vehicles as an alternate, clean fuel source.

The RLP also operates two (2) existing utility flares to combust the excess landfill gas, but with no benefit derived from the gas. The City of Riverview has recognized this is an untapped resource. The City has therefore considered potential projects for developing projects with the excess landfill gas. The current projects under consideration are high-Btu pipeline/utility gas, and increased vehicle fuel (compressed renewable natural gas or CNG). Either of these projects will require the LFG to be cleaned and compressed before it can be used, so capital expenditure, permitting, and contractual agreements will take some time to complete.

The existing utility flares provide full backup capacity (6,300 scfm total available) to destroy the landfill gas collected from the landfill. If there is a power loss, the flares are equipped with a transfer switch to allow a quick connection to a mobile generator, which was purchased and designated specifically for this purpose and is on permanent standby.

4.3 LANDFILL GAS

Landfill gas from the proposed expansion will be collected in a similar manner as the existing GCCS. As waste placement progresses, gas extraction wells will be installed in accordance the proposed Gas Phasing Plan included in this request. The RLP has been proactive in installing gas extraction wells well ahead of NSPS requirements, to enhance odor controls at the site. While continuation and growth of the renewable energy projects is anticipated, additional destructive capability in the form of a utility flare(s) will be installed to provide 100% backup capacity in the event of renewable project failures.

4.3.1 Gas Collection and Control System (GCCS)

The landfill gas generated from the proposed expansion area will be collected using vertical and horizontal collectors. The collectors will be linked to the existing control system including blowers, flares and beneficial use projects. Collectors will be designed based on the calculated radius of influence (ROI), which uses factors such as waste depth, age of waste, cover materials, pipe sizes and other characteristics to determine the area influenced by each well location. Typical ROI values are 150 to 200-feet. An updated GCCS Plan will be submitted with the Construction Permit application which will include the calculated ROI and proposed well locations.

Additional control measures may be required to control the volume of landfill gas generated. This can be achieved through several courses of action, the most desirable being expanded beneficial use programs such as gas-to-energy or renewable natural gas (RNG) projects. Additional backup destruction equipment capacity (flares) will be installed as gas volumes increase, to provide 100% of the anticipated landfill gas generation.

4.3.2 Gas Migration Detection System

The RLP currently has a perimeter gas migration detection system, consisting of 21 perimeter gas probes, with additional building monitors located inside all occupied structures. In accordance with the site's license and its Landfill Gas Monitoring Plan (1997), these probes are monitored on a quarterly basis to determine if landfill gas is migrating through the soil to potential offsite receptors. As part of this proposed expansion, up to seven (7) additional perimeter gas monitoring probes will be installed. Monitoring of the probes will follow the current protocol, described in the Methane Monitoring Program section below.

4.3.3 Methane Monitoring Program

The RLP has implemented a routine methane monitoring program to ensure that the requirements of regulatory rules are met. Quarterly methane monitoring is conducted at the facility perimeter and within the facility structures.

There are currently 21 gas probes installed around the facility perimeter to allow detection of offsite migration of landfill gas. Additional gas probes will be included in the monitoring program for the expanded area. If methane gas levels exceeding the limits (as required by Rule R299.4433(1)) are detected, the RLP is required to take corrective action:

- Immediately take all necessary steps to ensure protection of human health and notify the M-EGLE.
- Within 7 days of detection, submit to the M-EGLE and place in operating record, the methane gas levels detected and a description of the steps taken to protect public health.
- Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the M-EGLE that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

5.0 LEACHATE COLLECTION AND CONTROLS

5.1 LEACHATE COLLECTION AND REMOVAL SYSTEMS

The RLP currently operates leachate collection and removal systems in accordance with the M-EGLE Part 115 rules and Section 170 of the WCSWO. The RLP was issued Class D Wastewater Discharge Permit No. D-10804 by the Wayne County Department of Public Services (WCDPS) (expires 1/20/2025). This permit allows discharge from the RLP, meeting certain conditions, into the City of Riverview sanitary sewer system and the Downriver Utility Wastewater Authority (DUWA) treatment plant.

The leachate management system at RLP is operated and maintained as described in the RLP's Leachate Management System Operation and Maintenance Manual (O & M Manual). The proposed Cell 8 expansion will continue leachate handling as it is performed now. The design will include a similar leachate collection and disposal system. It is anticipated that up to four sumps will be located in the 45-acre cell area, with four independent control panels, transducers, and flow meters to record discharge information. All monitoring, management and operations will be performed as they are currently permitted.

5.2 LEACHATE COLLECTION

At each primary leachate sump area, submersible pumps, pressure transducers, flow meters and control panels are utilized to pump leachate as often as necessary to maintain a maximum leachate head of 1 foot on the liner system (excluding the sump). Provisions exist to return to compliance immediately after a significant storm event.

The submersible pumps, transducers, flow meters and control panels of the leachate collection system are inspected and cleaned annually. These items will be repaired or replaced as necessary. Additionally, the leachate collection pipes will be cleaned through pipe jetting or other approved means, as necessary to ensure proper continued operation.

5.3 LEACHATE REMOVAL

Leachate at the RLP will be discharged into the City of Riverview sanitary sewer system and the DUWA treatment plant, in accordance with the facility's wastewater discharge permit, or will be collected and hauled for disposal at a proper facility. Leachate is monitored on a quarterly basis, with the laboratory analysis and discharge quantities reported to the agency. If, at any time, it becomes known that the leachate from any particular system cannot meet permit discharge requirements, the RLP will either pump and haul the leachate as liquid industrial waste for treatment and disposal offsite or evaluate the installation of an onsite wastewater treatment system to allow for the pretreatment of leachate in order to meet the permitted discharge requirements.

The RLP is currently permitted to conduct leachate recirculation back into the waste mass of Cells 4, 5, and 6 of the existing landfill, after approval of the process by the M-EGLE and the WCDPS. However, the RLP is not currently recirculating leachate nor are there any plans to begin this operation.

6.0 SURFACE AND GROUNDWATER MONITORING

Groundwater, surface water and leachate monitoring are conducted in accordance with the Hydrogeologic Monitoring Plan (HMP, 2007). Each liquid type is sampled quarterly for a specific list of parameters as required by the HMP and Part 115 NREPA, 1994 PA 451 Rules. As part of the permit application for this expansion, the HMP will be updated for approval by M-EGLE and Wayne County.

6.1 SURFACE WATER

RLP storm water run off is conveyed from the cover to perimeter ditches, where it flows to one of several detention basins located around the perimeter of the site. Basin 2 currently discharge to the Blakely Drain on the west side of the property, and Basins 3 and 4 discharge to the Frank and Poet Drain on the east side of the property.

The proposed Cell 8 area will overlay a portion of Cell 7 and create a new drainage pattern on the east side of the RLP. The existing basins on the east side of Cell 7 will be reconfigured and/or replaced with new basins sized for the calculated run off volume. The new basins will be designed in accordance with the Wayne County Storm Water Management Program, with forebays and controlled discharge. The outlet structures will discharge into the (relocated) Frank and Poet Drain.

The stormwater controls and final cover system are proposed in compliance with Section 190 of the WCSWO, to minimize erosion and sediment transport through use of diversion berms, swales, and ditches. All cover drainage components will be monitored and maintained as needed to provide the capacity required by the final design.

As required by the approved HMP, surface water quality is monitored by sampling on a quarterly basis. With the new design, the receiving water (in this case, the Frank and Poet Drain) will continue to be sampled for the required parameter list, with the results being submitted to the regulatory agencies (State and County) each quarter. The basins will also be inspected monthly as part of the site's inspection program, and as required by the Integrated Contingency Plan and stormwater maintenance program.

6.2 GROUNDWATER

Groundwater is currently monitored at seventeen (17) locations around the perimeter of the existing solid waste boundary. The wells are sampled on a quarterly basis for the list of primary inorganic indicator parameters (PIIP), alternate indicators, heavy metals and volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) listed in the approved HMP. This expansion proposal includes six (6) new groundwater monitoring wells, to replace and supplement the five (5) wells to be abandoned as a result of the expansion area construction.

7.0 LANDSCAPING PLAN

The Comprehensive Operations Plan for the RLP outlines the landscaping plan for the current permitted landfill. The landscaping guidelines in the Comprehensive Operations Plan were written and approved, in accordance with Section 200 of the WCSWO to provide a greenbelt surrounding the landfill and to provide a visual barrier. In accordance with Rule R299.4911(1)(b), the existing RLP has an approved landscaping plan to identify and locate existing vegetation to be retained and proposed vegetation to be used for cover, screening and other purposes. Additional proposed landscaping and vegetation for Cell 8 is shown on Sheet 8 of the FIR Plan Set.

7.1 LANDSCAPING REQUIREMENTS

The landscaping requirements recommended by the WCDPS and prescribed in the RLP operations plan are:

- Landfilling operations shall be conducted and progressed in a way to preserve the natural screening vegetation as long as practical.
- Where screening berms are not required by Rules R299.4305 and R299.4412, greenbelt areas around the site perimeter shall be established to provide a visual buffer between the landfill and adjacent property.
- Where screening berms are required by Rules R299.4305 and R299.4412, the berms shall be stabilized and vegetated with a combination of deciduous trees, evergreen trees, shrubs and grasses or ground cover. Bare earth slopes and disturbed areas shall be stabilized with topsoil, seed, and straw mulch or equivalent and should confirm to the following procedures:
- A minimum of three (3) inches of topsoil cover shall be utilized when establishing vegetation on all landscaped areas not planted with trees or shrubs. Vegetation shall be either suitable grasses or final cover.
- Greenbelts must be landscaped with a minimum of one tree per 3,000 sq. ft. of greenbelt area. The trees may be either deciduous or evergreens and may be planted in rows, random spacing or groupings so as to be visually appealing.
- Berms must be landscaped with a minimum of one tree and one shrub per 30 linear feet of berms. The trees may be either deciduous or evergreens and may be planted in rows, random spacing or groupings so as to be visually appealing.

The trees and shrubs when planted must meet the following minimum standards.

- Deciduous trees must be at least 2.5 inch caliper.
- Evergreens must be at least 4 feet in height.
- Shrubs must be at least 2 feet in height.
- The following trees are not acceptable: Box Elder, Soft Maples, Elms, Poplars, Willows, Horse chestnuts, Tree of Heaven and Catalpa.

The RLP currently complies with these requirements and will continue to do so with the Cell 8 expansion. Golf course landscaping is not part of this FIR request. However, in the interest of visual appeal and aesthetics, additional plantings and preservation of existing vegetation will be a focus of the golf course design.

7.2 PROPOSED LANDSCAPING PLAN

The proposed Cell 8 will be enclosed by an earth perimeter berm, which will support the utility corridors and perimeter/access road for the landfill. The exterior of the perimeter berm will be landscaped to provide screening. Landscaping will include native species of shrubs, trees and ground cover plants. On the golf course and along the drain, decorative fencing will be used to create a barrier and provide security for the landfill.

The golf course will provide a 1,000-foot wide (minimum) swath of green space with its landscaping design on the north, east and south sides of the expansion. The relocated Frank and Poet Drain will provide an additional landscaped area with native plants and trees to create visual interest.

At the landfill entrance on Grange Road, additional plantings and berms will be installed. There is minimal space to screen the view down Grange Road but by maintaining slope vegetation and installing a screening berm and trees, the visual impact for the neighboring areas will be improved.

7.3 GROUND COVER

The perimeter berm of Cell 8 will be planted with grasses and rye plants to quickly establish a root structure for erosion protection. Additional plantings of native species will be planted on the lower slope of the perimeter berm, including shrubs and other plants that will provide berries and other food for birds and wildlife. The Cell 8 final cover will be planted with hardy, native grass species. During construction and filling operations, temporary ground cover consisting of rye and fescue grasses may be planted to stabilize the surface soils.

8.0 PROJECT INFORMATION

8.1 OWNERSHIP AND MANAGEMENT

The RLP has been owned and operated by the City of Riverview since opening in 1968. The City of Riverview currently operates the RLP as an enterprise fund to provide a high level of service for its residents and add value to the community.

The City operates under a Council structure. The City Manager reports to the City Council, and other department heads, such as the Land Preserve Director, report to the City Manager. Committees have also been designated to provide oversight of various departments and enterprise funds and to make recommendations to the full City Council.

The City Council of the City of Riverview has authorized the Riverview City Manager, the Land Preserve Director, and its designees to pursue the necessary permits, licenses and permissions to obtain an expansion of the RLP. The City has designated a portion of the Riverview Highlands Golf Course to be set aside for this expansion. As a necessary consequence of the expansion, the City Council approval includes authorization to move forward with the necessary ancillary projects including rerouting the Frank & Poet Drain and redesign of the Riverview Highlands Golf Course.

8.2 STAFFING

There are currently about twenty-five (25) fulltime and a varying number of part-time employees at the RLP. Additionally, the RLP utilizes temporary staff from the local area on an as needed basis for litter control and to supplement the equipment operators. The RLP employees hold the following positions:

Position	# of Employees
Land Preserve Director (Director)	1
Assistant Land Preserve Director – Sales Director (Assistant Director)	1
Office staff	3
Data Entry/Gate Attendant (Attendant)	3
Equipment Operators (Operator)	10-12
Serviceman	1
Maintenance Workers	3-4

The Director is responsible for overall facility management and is designated as the contact person for regulatory compliance matters, the facility's site development plan and as the emergency coordinator. The Assistant Director is responsible for fulfilling these duties in the event that the Director is unavailable. The Assistant Director is also responsible for marketing and community outreach activities.

- The Office Staff and Attendants, are primarily responsible for maintaining complete and accurate records, including tracking vehicles and solid waste entering the facility. Attendants are trained in site procedures, to visually check for unauthorized wastes, to weigh vehicles, and to collect waste disposal fees.

- Operators are responsible for the safe operation of the equipment they operate. These employees are responsible for being alert for potentially dangerous conditions, or careless and improper actions on the part of non-employees and other persons while on the premises, or unauthorized waste.
- Other site personnel or laborers may be employed from time to time in categories such as maintenance, construction, litter abatement, and general site cleanup.

8.3 EQUIPMENT

Equipment expected to be available on a daily basis for use at the facility include trash compactors, dozers, loaders, excavators, articulated (off-road) dump trucks, water truck, street sweeper, and pickup trucks.

- The landfill compactors are used for pushing and compacting the waste as it is deposited.
- Dozers, articulated dump trucks and excavators are used for sourcing, hauling and placing daily and intermediate cover material.
- The street sweeper is used for dust control on paved surfaces and will also minimize tracking of dirt and debris onto Grange and King Roads.
- Loaders, tractors and mowers are used for general site maintenance, including snow removal, erosion repairs, seeding, and mowing.

8.4 HOURS OF OPERATION

The facility hours are 6:30 a.m. to 5:00 p.m., Monday through Friday, and 7:00 a.m. to 12:00 a.m. on Saturday. The site is closed on Sundays and holidays. The hours of operation may be adjusted (i.e., reduced winter hours, extended due to holidays, extended due to traffic delays of incoming waste). Landfill equipment may continue to operate after the gates are closed in order to compact and cover the refuse received during normal gate hours. Additionally, construction equipment may continue to work after the gates are closed. The proposed hours of operation are consistent with the currently permitted hours of operation.

On special occasions and during times of emergency, operating hours may be extended to allow access to the site. In the event of significant and/or permanent changes to the hours of operation, the M-EGLE and WCDPS will be notified to describe the extenuating circumstances requiring extended operating time. Landfill personnel will be onsite during all periods when the gate is open for delivery vehicles.

8.5 PROPOSED FINANCING OF CONSTRUCTION

The RLP collects tipping fees for all waste disposed. A portion of the collected fees are sequestered in an capital/environmental escrow account, which is used to fund large capital projects and environmental restoration and protection projects. Expenditures are tracked by the City and must be approved as applicable costs.

In general, 10% of revenue is set aside to the escrow accounts, to provide capital funding and perpetual care. The accounts are managed following City protocols, with a review process to monitor and document escrow spending. In a typical year, the escrow deposits are approximately $1.0 to $1.4M per year plus accrued interest.

The City has been planning for this expansion project and is continuously setting aside funds to prepare for the capital costs of this expansion and associated projects. Construction of the drain relocation and golf course renovation are anticipated to begin in 2024, and the Cell 8 construction will begin shortly thereafter.

The current capital escrow fund balance is approximately $18,700,000. Annual deposits are made to the escrow fund to make additional funds available.

8.6 PROPOSED FINANCING OF OPERATION

As an enterprise fund, the RLP funds itself and is responsible for budgeting for expenses and capital projects. The RLP collects tipping fees for all waste disposed, which are deposited in appropriate City accounts to pay landfill employees, equipment expenses, maintenance costs, monitoring fees, surcharges and fees, and other budgeted expenses. In addition to funding its own expenses, the RLP contributes to the City's general budget and contributes about $3.5M per year to the general fund.

The City has established line items within the operating budget for the RLP which are reviewed on an annual basis, and are adjusted based on projected operating costs, waste receipts, and other factors.

8.7 PROPOSED FINANCING OF CLOSURE

The City maintains separate escrow and bond accounts which are balanced on an annual basis to meet both internal audit procedures and state-required funding for closure and post-closure estimates. The escrow account is reviewed on at least an annual basis, to determine if sufficient funds are available to satisfy the closure/post-closure estimated costs, anticipated capital costs, and other environmental projects. If the escrow accounts are insufficiently funded, the City transfers RLP revenue into the account. These closure escrow fund balances are filed with the M-EGLE on an annual basis as part of the licensing requirements for operation.

The current perpetual care and closure/post-closure escrow fund total balance is approximately $18,700,000. Annual deposits are made to the escrow fund to make additional funds available, and to meet the minimum requirements set forth by EGLE.

9.0 NUISANCE MITIGATION MEASURES

The proposed expansion will be operated as approved in the COP and other maintenance plans, and in accordance with the requirements of R336.1372 and Section 210 of the WCSWO.

9.1 DUST CONTROL

Dust control is performed mainly by keeping gravel haul roads and disposal areas wetted to prevent dust generation due to high traffic. If water application is not sufficient to prevent fugitive dust, chemical application may be utilized. The RLP typically applies calcium chloride two (2) times per year, depending on conditions. Contractors performing work onsite are required to maintain dust control associated with their hauling operations and work areas.

RLP maintains paved entrance areas and haul roads around the scales and into the landfill. These on-site roads are cleaned daily using a street sweeper. The sweeper cleans up tracked soil and debris to prevent dust created by soil tracking outside the gates of the landfill. The sweepers run on the following pavement sections:

- Paved entrance area and scales,
- Paved haul road into the landfill,
- Grange Road from the entrance and scales out to King Road,
- King Road to Allen Road (greater than 2500 feet), and
- King Road from Grange toward Fort Street.

9.2 ODOR CONTROL

The RLP is very aware of their proximity to residential areas and nearby businesses. Great effort is made to control odors and prevent their migration to offsite receptors. Routine odor awareness is part of the employee training program and includes:

- All personnel are trained to be aware of potential odors and, if detected, take action to mitigate odors.
- Efforts are made to limit the number of open systems (i.e. active area, trenches, pipes, etc.) to minimize the potential for off-site generation.
- Tarps, blowers, earthen covers and daily cover materials are evaluated and implemented as means to minimize the offsite migration of any odors depending on the particular circumstance.
- Odor neutralizers or deodorant are employed daily.

Some waste types, such as sludge, are inherently more odorous and therefore RLP has voluntarily prohibited acceptance of sludge materials. Other waste types, such as food waste, can be handled in specific manner to minimize exposure and odor dispersion. One such method is to place the waste in prepared trenches or pits, allowing cover to be placed more quickly, and keeping the waste below the surface, away from where wind can reach it.

There are three main odor control systems at the RLP: the landfill cover, the GCCS system, and a deodorizer dispersal system. Cover, whether daily cover, interim cover, or final cover, is one of the best ways to prevent odors from the landfill. The cover seals the waste, trapping odors and allows the GCCS to extract the odor-causing gases.

The GCCS provides gas extraction throughout the landfill mass and is continuously monitored and reviewed. Each of the over 200 extraction well is checked monthly for operation, adjusted to favorable operating parameters, and recorded. The RLP budget includes funds for a GCCS expansion in every fiscal year, to keep collection of landfill gas current with waste placement. The wellfield, header pipes, and flares are constantly evaluated and maintained to provide continuous operation. During the daily and monthly inspections, failing

components are identified and repaired or replaced as needed. Surface monitoring is performed quarterly to identify any areas where gas collection coverage could be improved.

The third odor control system is the deodorizer dispersal system. This is accomplished using an automated, mechanical system which vaporizes biodegradable deodorizer and uses compressed air to disperse it around the perimeter of the landfill and/or active area. The RLP has a permanently operating system at the southeast corner of the landfill, and utilizes mobile, temporary systems as needed to supplement coverage.

9.3 NOISE CONTROL

This section describes methods to operate at the RLP in such a way to maintain compliance with Rule R299.4430 of Part 115. Per Rule, operations shall not result in noise exceeding the following levels when measured at the common property line nearest the active work area:

- For adjacent residential property, 75 dBA
- For adjacent commercial property, 85 dBA
- For adjacent industrial and other property, 90 dBA

Generally, noise at the RLP is associated with construction and waste disposal equipment, and from waste hauling vehicles entering and leaving the facility. Noise is controlled by maintaining equipment mufflers and operating within approved business hours. Landscaped areas and screening can also mitigate noise intrusion off site. The proposed expansion includes additional screening berms and vegetation to block noise at the property boundaries.

9.4 BLOWING DEBRIS

The RLP actively maintains ancillary and off-site areas to collect any stray wind-blown debris. The site is surrounded by fencing which collects most of the blowing debris from the active area. To prevent blowing litter outside the active area, RLP does not permit loads to be untarped until the truck is at the active disposal area. Once the waste exits the delivery truck, it is compacted and covered as soon as possible, and before the end of the working day.

Blowing litter at the landfill is controlled by one or more of the following methods:

- Permanent litter fencing. Litter fencing locations are evaluated periodically to determine the effectiveness of the location and type of fencing in use. Modifications or additions are made as needed, including routine extension of the perimeter fencing.
- Application of an approved daily cover material such as approved soil, wood chips, spray-on cover, or other approved material.
- Temporary litter fencing (movable fence sections) can be located where needed until permanent fencing can be installed.
- Hand picking of blown litter is a daily operational activity. Crews range in size from 4 to 15 people depending on the weather conditions, size of debris area, and severity of blown debris.

Operations during high winds, when potential for blown litter significantly increases, is modified by one or more the following methods, depending on the severity of the conditions:

- Relocation of operation to a shielded area.
- Application of daily cover immediately after unloading.
- Suspension of unloading.

9.5 VEHICLE TRACK-OUT

Vehicle track-out is controlled in accordance with the Comprehensive Operations Plan, and as described below.

Equipment and vehicles are washed periodically in the maintenance building or at the active area. The debris, mud and wash water are collected for proper disposal.

Other traffic, including customer vehicles leaving the active disposal area, may track out mud and debris on their tires. A significant portion of the customer haul road has been paved to provide a "knock-off" area before the trucks go across the outbound scales or leave the site. The paved section within the RLP boundary is approximately 1 mile. The soil and debris is cleaned up by daily sweeper runs, preventing further tracking. The sweeper is operated more frequently if conditions require. The sweeper is utilized on all paved areas within the RLP, and outside the property on Grange and King Roads.

9.6 OFFSITE ROAD MAINTENANCE PLAN

In accordance with Section 160 of the WCSWO, and as described in the Comprehensive Operations Plan, in addition to dust and blowing litter control, the RLP will maintain the onsite and offsite roads. Efforts are made to eliminate soil from truck wheels before public roads are reached, and onsite road are swept regularly, as described above, using a street sweeper. All paved site roads, entrance and exits are included in the daily routine sweeps. If soil is tracked onto streets immediately adjacent to the facility access points, the sweeper also makes regular rounds onto King Road. All solid waste material, mud, and dust that are removed from public offsite roads are disposed of as solid waste.

9.7 METHODS TO LIMIT UNAUTHORIZED SITE ACCESS

During non-operating hours, site access is restricted by natural barriers and fences. The site is monitored by contract security personnel to detect any unauthorized activities during non-operating hours.

Access control berms and/or fencing are located at the property boundaries on the north, south, and west sides of the site to prevent unauthorized access to the site during the operational life and post-closure care period. The Frank and Poet Drain restricts access on the east side of the RLP. Gates with locks are provided at selected locations along the fence to control site access.

9.8 FIRE PROTECTION

Open burning of solid waste at the facility is prohibited. The following measures are taken to prevent any fire:

- Burning or "hot loads" are not be placed in the active area of the landfill. The operators are alert for any signs of burning waste such as smoke and/or steam being released from incoming waste.
- Smoking is discouraged at the active areas.
- Any fuel spills are contained and cleaned immediately.
- Dead trees and brush adjacent to the landfill are removed immediately.
- Earthen daily cover material adjacent to the active area can be used for fire protection.
- Equipment and the scale office are equipped with fire extinguishers for small fires in structures or on equipment.

In the event a fire does break out in the waste disposal area, the City of Riverview Fire Department and the Trenton Fire Department are both within short distance of the RLP. The two communities share resources and will work together to quench any fire outbreaks. The RLP also has resources onsite; the water truck is equipped with a spray bar and is readily available to deploy up to 10,000 gallons of water per load.

Subsurface fires can be caused if oxygen is introduced into the waste mass, or if a chemical reaction occurs from two incompatible types of waste. The RLP takes great care to ensure neither of these happen. The GCCS system is monitored to keep oxygen levels low. If oxygen is detected, corrective measures are quickly taken to

identify and resolve the problem. During waste acceptance reviews, the chemical composition of each type of waste is reviewed and recommendations for waste handling are made.

10.0 LIMITATIONS

The work product included in the attached was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and thus should be relied upon and used by our client recognizing these considerations and limitations. Cornerstone shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.

TABLES

RIVERVIEW LAND PRESERVE
ONE-MILE RADIUS PROPERTY LISTING
FACILITY INCLUSION REQUEST - APPENDIX B

ZONING GROUP	MILES FROM FACILITY
1R	<0.1
2R	0.85
3R	0.55
4R	<0.1
5R	<0.1
6R	<0.1
IC	<0.1
2C	<0.1
3C	<0.1
4C	<0.1
5C	0.49
6C	<0.1
7C	0.79
8C	0.44
9C	0.50
10C	0.15
1I	0.57
2I	0.39
3I	<0.1
4I	0.50
5I	0.71

NEARBY PROPERTY NAME	MILES FROM FACILITY
Coachwood Park	<0.1
WJR Am Detroit	<0.1
Orlando Familia Banquet Center	<0.1
Riverside Child Care & Learning	0.03
Aubrey Beauty Salon	0.07
All About You By Sue	0.08
Ferndale Cemetery	0.08
The Church of Jesus Christ of Latter-Day-Saints	0.11
Kingswood Park	0.12
Young Patriots Park	0.20
Rite Aid	0.34
Riverview Commons Shopping Center	0.36
Two Men and A Truck	0.38
Hungry Howie's Pizza	0.39
Forest View Assisted Living	0.39
American House Riverview	0.40
PNC Bank	0.41
Leo's Coney Island	0.42
Elmcroft of Downriver	0.42
McLouth Park	0.43
Burger King	0.43
Bill Ritchie Complete Vehicle	0.43
CVS	0.44
BP	0.45
Detroit Business Institute-Downriver	0.45
Riverside Family Physicians	0.46
Brownstown Dental Care	0.47
Taco Bell	0.47
Gorno Food	0.48
Abbasi Dermatology	0.49
Anderson Elementary School	0.51
Chase Bank	0.53
Glens Park	0.55
Industrial Quarry	0.55
Seitz Middle School	0.56
Drink's Saloon	0.57
7-Eleven	0.59
Systrand Manufacturing	0.60
Slip Mahoney's	0.60
Public Storage	0.63
Huntington Elementary School	0.63
Rain for Rent	0.63
Zobra's Coney Island	0.67
Sportway of Brownstown	0.69
DFCU Financial	0.71
Our Lady of Hope Cemetery	0.75
Chase Bank	0.79
Emagine Woodhaven	0.80
McShane Park	0.81
Waddle's Truck Tire Sales	0.81
Kennebec Park	0.83
Fifth Third Bank & ATM	0.83
Affolter Park	0.84
Sneaky's Sports Bar & Grill	0.87
Pennbrook Place Apartments	0.87
Huntington House Apartments	0.91
Jerzey's Sports	0.93
Gabriel Richard Catholic High School	0.93
Trenton High School	0.96
Trenton Veterans Memorial Library	0.97
TV's Deli & Diner	0.98
CMAC Transportation	1.00

RIVERVIEW LAND PRESERVE
ONE-MILE RADIUS WETLANDS MAPPING
FACILITY INCLUSION REQUEST - APPENDIX E

MAP ID	WETLAND TYPE	DISTANCE TO SITE (MI)
W1	Riverine	1.33
W2	Freshwater Emergent Wetland	0.76
W3	Freshwater Pond	0.73
W4	Freshwater Pond	0.15
W5	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.27
W6	Freshwater Emergent Wetland/Riverine	0.59
W7	Freshwater Forested/Shrub Wetland	0.45
W8	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.56
W9	Freshwater Pond/Riverine	0.82
W10	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.13
W11	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.63
W12	Freshwater Forested/Shrub Wetland/Riverine	0.83
W13	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.80
W14	Freshwater Emergent Wetland	<0.1
W15	Freshwater Pond/Riverine	0.42
W16	Riverine	0.42

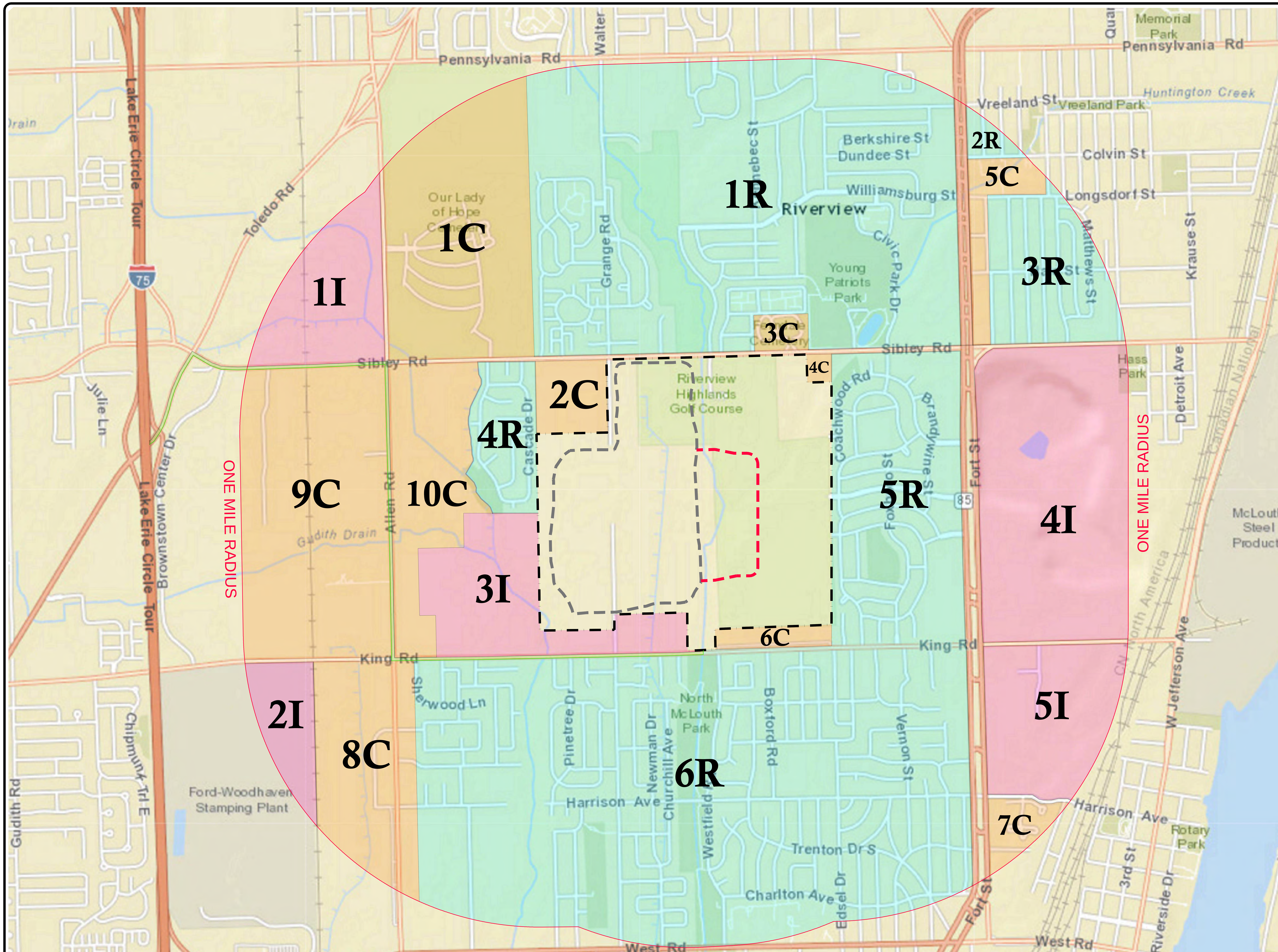
*All distances measured from the edge of the properties' boundary to the centroid of the wetland area.

RIVERVIEW LAND PRESERVE

PERCENTAGE OF WASTE PER SERVICE AREA
FACILITY INCLUSION REQUEST - APPENDIX F.2

SERVICE AREA	2017 CY (gate)	2017 % of Total	2018 CY (gate)	2018 % of Total	2019 CY (gate)	2019 % of Total	2020 CY (gate)	2020 % of Total
Michigan Counties								
Hillsdale	0	0%	27	0%	0	0%	0	0%
Lenawee	56	0%	3,966	0%	4,206	0%	3731	0%
Livingston	111	0%	111	0%	0	0%	0	0%
Macomb	247,744	12%	74,241	4%	50,824	3%	21,538	1%
Monroe	338,149	16%	328,089	17%	300,262	15%	304,446	14%
Oakland	31,602	2%	59,637	3%	17,534	1%	18,231	1%
Washtenaw	579	0%	6,150	0%	1,804	0%	356	0%
Wayne	**1,025,189**	**50%**	**1,245,459**	**64%**	**1,333,977**	**69%**	**1,620,773**	**75%**
Hillsdale	0	0%	27	0%	0	0%	0	0%
Lenawee	56	0%	3,966	0%	4,206	0%	3,731	0%
Livingston	111	0%	111	0%	0	0%	0	0%
Ohio	0	0%	0	0%	0	0%	528	0%
Canada	420,899	20%	232,502	12%	231,472	12%	201,764	9%
Total Waste (CY)	2,064,329	100%	1,950,182	100%	1,940,131	100%	2,171,367	100%

FIGURES



N

0 600 1200
SCALE IN FEET

LEGEND

PROPERTY BOUNDARY
EXISTING SOLID WASTE BOUNDARY
EXPANSION AREA BOUNDARY
RESIDENTIAL AREA
INDUSTRIAL AREA
COMMERCIAL AREA
TRUCK ROUTE TO NEAREST INTERSTATE

NOTE:

All Geographic Information Systems (GIS) data obtained from the Wayne County Parcel Viewer. The Wayne County Parcel Viewer provides public access to Wayne County Aerial Imagery and parcel property information located within Wayne County boundaries. The County of Wayne, MI Wayne County Parcel Viewer provides online access to property information currently maintained by 43 Wayne County Municipalities. GIS data is provided in good faith, and is to be used for references purposes only. Efforts have been made to ensure that the data is accurate and reliable, but errors and omissions are possible. Variable conditions originating from physical sources used to develop the database may be reflected in the data supply.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21 — DRAWN BY JH — DESIGNED BY JH — CHECKED BY JEB — APPROVED BY DH

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
NEARBY MAJOR ZONING AREAS

SHEET NO.
B1
PROJECT NO.
209-4201587

W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
W11
W12
W13
W14
W15
W16
ONE MILE RADIUS
ONE MILE RADIUS
Pennsylvania Rd
Pennsylvania Rd
Huntington Creek
Huntington Drain
Riverview
Young Patriots Park
Sibley Rd
King Rd
West Rd
Hass Park
McLouth Steel Products
Detroit River
Detroit River
W Jefferson Ave
Telegraph Rd
Lake Erie Circle Tour
Allen Rd
Toledo Rd
Dix Toledo Hwy
Blakely Drain
Blakely Drain
Frank & Poet Drain
Frank and Poet Drain
Marsh Creek
Our Lady of Hope Cemetery
Riverview Highlands Golf Course
Thorn Park
West Shore Golf and Country Club
Trenton
24
75
85
1:55,522
0 0.475 0.95 1.9 mi
0 0.75 1.5 3 km
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov
N
LEGEND
PROPERTY BOUNDARY
EXISTING SOLID WASTE BOUNDARY
EXPANSION AREA BOUNDARY
NOTE:
Wetlands information obtained from U.S. Fish & Wildlife Service National Wetlands Inventory Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html). The Wetlands Mapper is developed to deliver easy-to-use, map like views of America's Wetland resources. It integrates digital map data along with other resource information to produce current information on the status, extent, characteristics and functions of wetlands, riparian, and deepwater habitats.

January 4, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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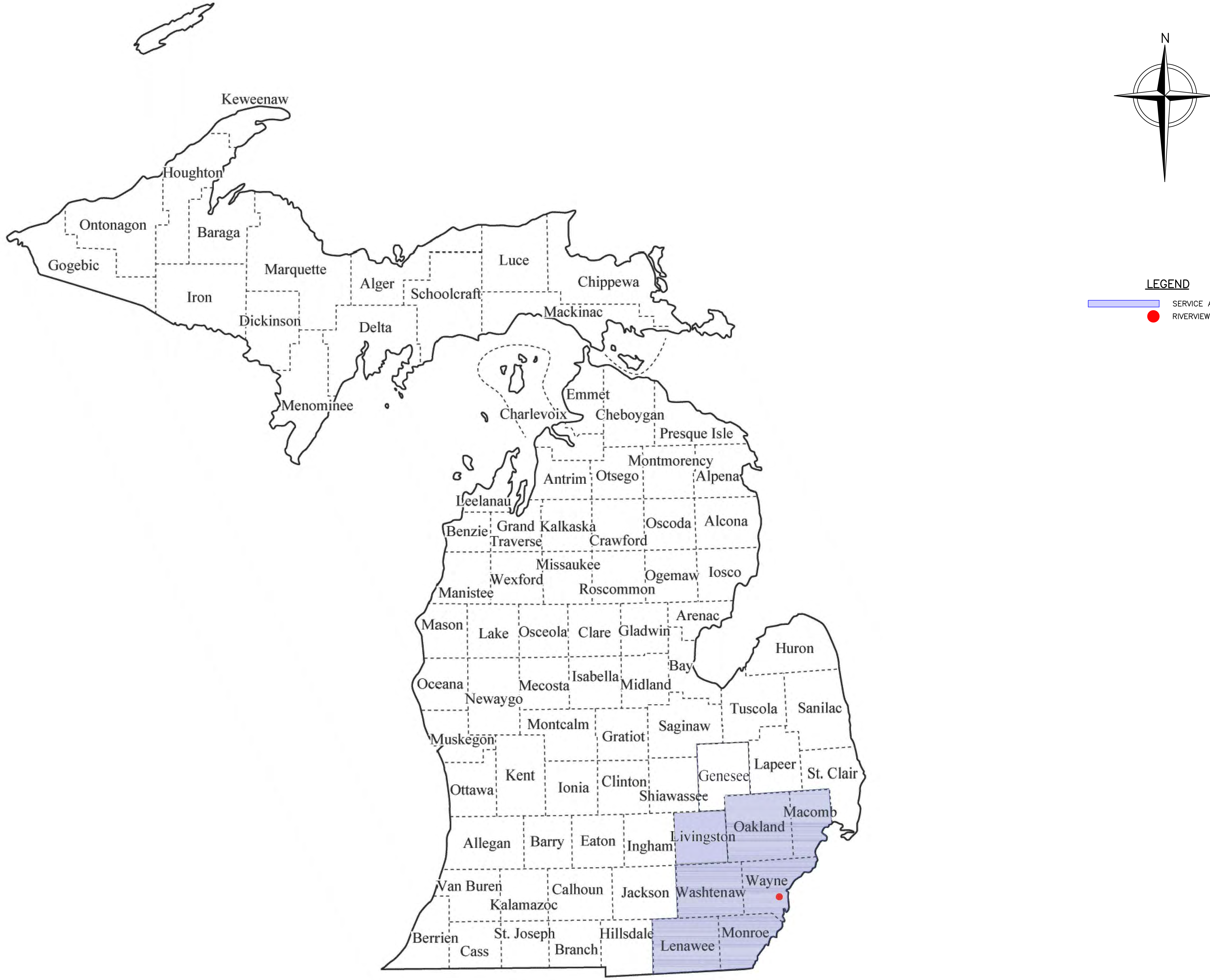
CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
OFFSITE WETLANDS AND WATERBODIES

SHEET NO. E1

PROJECT NO. 209-4201587



LEGEND

SERVICE AREA

RIVERVIEW LAND PRESERVE

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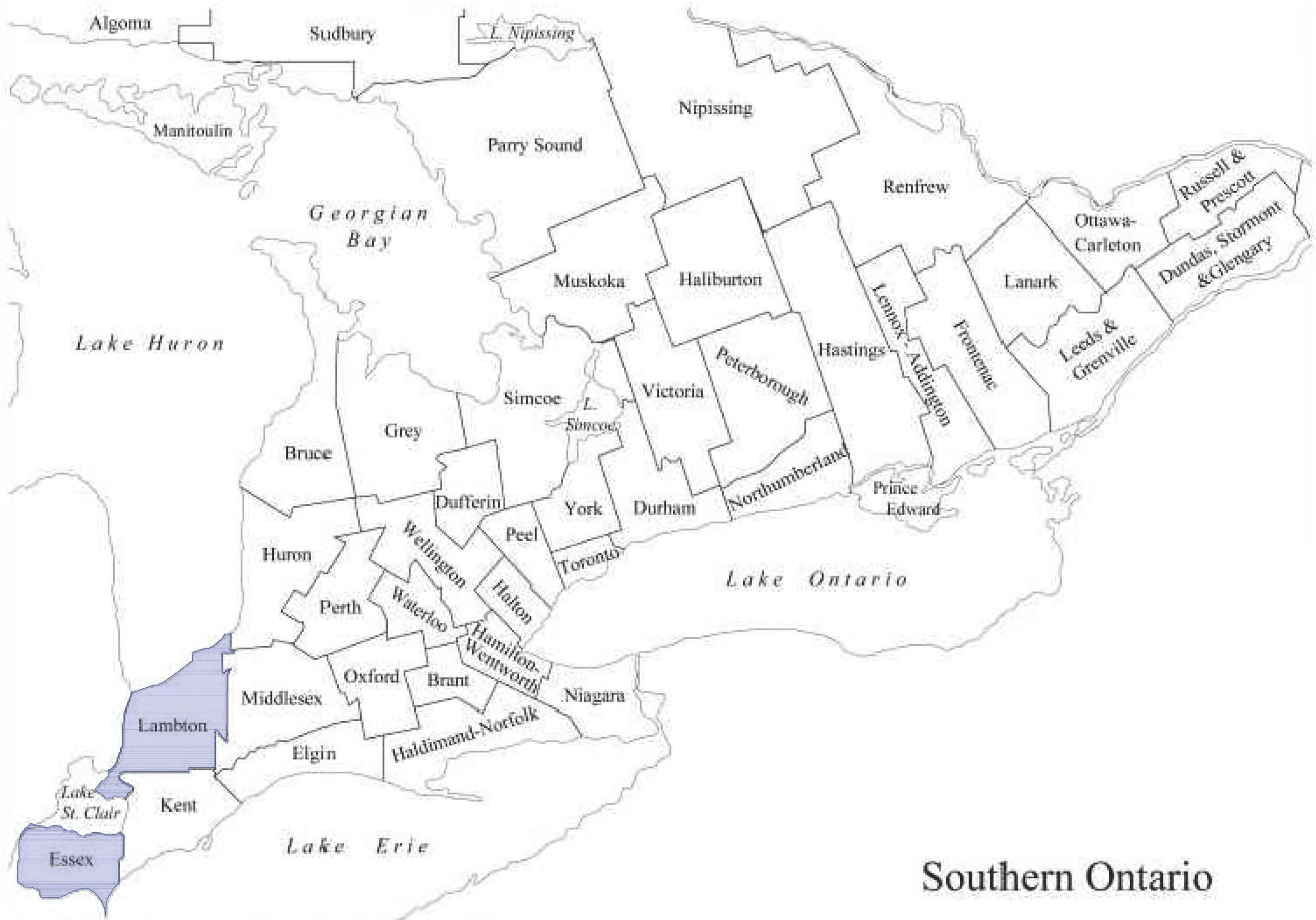
CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
MICHIGAN SERVICE AREAS

SHEET NO.
F1A

PROJECT NO.
209-4201587


Algoma
Sudbury
L. Nipissing
Nipissing
Manitoulin
Parry Sound
Georgian Bay
Renfrew
Russell & Prescott
Ottawa-Carleton
Dundas, Stormont &Glengary
Muskoka
Haliburton
Lanark
Lake Huron
Lennox Addington
Frontenac
Leeds & Grenville
Hastings
Peterborough
Victoria
Simcoe
L. Simcoe
Grey
Bruce
Dufferin
York
Durham
Northumberland
Prince Edward
Peel
Huron
Wellington
Toronto
Halton
Lake Ontario
Perth
Waterloo
Hamilton-Wentworth
Oxford
Brant
Middlesex
Niagara
Lambton
Haldimand-Norfolk
Elgin
Lake St. Clair
Kent
Lake Erie
Essex
Southern Ontario

N

LEGEND

SERVICE AREA

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21
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CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
ONTARIO SERVICE AREAS

SHEET NO.
F1B

PROJECT NO.
209-4201587

DRAWINGS

Title Sheet: FACILITY INCLUSION REQUEST – WAYNE COUNTY SOLID WASTE MANAGEMENT PLAN for the City of Riverview – Riverview Land Preserve

01 Vicinity Map and Legal Description

02 Existing Conditions 2020

03 Proximity Map – 1 Mile Radius

04 Expansion Area – Site Plan

05 Expansion Area – Final Cover Grades

06 Gas Collection and Control System Plan

07 Expansion area – Truck Routing Plan

08 Expansion Area – Landscaping Plan

09 Expansion Area – Cross Sections

10-11 Details

APPENDIX A

VERIFICATION OF SUBMITTAL

APPENDIX A.1 HOST COMMUNITY AGREEMENT

HOST COMMUNITY AGREEMENT

This **Host Community Agreement** (hereinafter "Agreement") is made this 4th day of JANUARY, 2021 by and between the **CITY OF RIVERVIEW** (hereinafter "Riverview") located at 14100 Civic Park Drive, Riverview, Michigan 48193, and the **RIVERVIEW LAND PRESERVE** (hereinafter "RLP" , "Facility", "Landfill Facility" or the "landfill") located at 20863 Grange Road, Riverview, Michigan 48193 (hereinafter collectively referred to as "the Parties").

WHEREAS, Riverview owns the existing sanitary Landfill Facility known as the RLP, containing approximately 211.28 acres of waste disposal area on the total 403 acre landfill site, which is located in the City of Riverview, and which is more particularly described in Exhibit A to this Agreement; and

WHEREAS, pursuant to Riverview's Charter, the RLP is a business enterprise of Riverview which provides a public utility to Riverview residents for garbage disposal facilities. The RLP serves various municipalities, residents and commercial contractors; and

WHEREAS, the RLP employs approximately thirty (30) employees. RLP personnel requirements include administrative staff for management, sales, and marketing, invoicing and operational support functions; equipment operators for disposal and site maintenance operations, and maintenance personnel to service owned heavy equipment and ancillary equipment; and

WHEREAS, Wayne County's Solid Waste Management Plan (Wayne County Solid Waste Management Plan 2000 Update) specifically requires that solid waste disposal facilities enter into a Host Community Agreement prior to seeking inclusion as negotiation of these types of agreements allows host communities the opportunity to resolve all local ordinance issues with the operator; and

WHEREAS; Wayne County authorizes all local municipal solid waste ordinances and regulations as of continuing legal effect provided that they are not in conflict with the goals of Wayne County's Solid Waste Management Plan or Part 115 of PA 451 of 1994 and the requirements have been incorporated into the Host Community Agreement; and

WHEREAS, the Parties desire to enter into a "**Host Community Agreement"** that will allow the RLP to construct and operate a modest expansion of the existing sanitary Landfill Facility on the landfill site, to be regulated under the Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act 451, which can be found at Michigan Compiled Laws (MCL) 324.101, *et seq.*, and the rules promulgated thereunder (hereinafter collectively referred to as "Act 451", as used herein "Act 451" includes any successor act or amendment which may later be enacted); and

WHEREAS, the current RLP is a Michigan licensed municipal solid waste Landfill Facility that has been owned and operated by Riverview since 1968. The current facility design and operation meets or exceeds federal subtitle D and Michigan regulations, making it possible

to manage a variety of non-hazardous solid wastes in an environmentally responsible manner; and

WHEREAS, Riverview maintains a strong commitment to its residents and customers including other local communities to provide the best service while protecting environmental resources. This commitment has made Riverview a leader in developing innovative approaches to solid waste opportunities for over fifty-years and makes success in solid waste management a strategic part of its every day business; and

WHEREAS, the RLP is a regional resource serving downriver customers with disposal services. The RLP's facilities and services have been designed to meet the customized needs of our municipal, residential, commercial and industrial clients, including secure disposal, recycling or reuse of residential, construction, demolition, commercial and special wastes. The facility also offers tree wood management and other services. The wide variety of acceptable waste types, full range of waste services provided by the RLP, and the commitment to excellence by RLP's management and staff, ensure that the RLP has the flexibility to develop solutions that meet long-term solid waste management needs; and

WHEREAS, the RLP serves sixteen (16) local downriver municipalities and is a downriver partner with communities and regulatory to provide a safe, accessible, economical waste disposal for the downriver area. The RLP in addition to supporting resident recycling and neighboring areas, also supports Wayne County recycling programs and local enrichment programs. The RLP further supports business developments in Riverview and throughout the downriver community. The RLP also provides the following benefits to the City and its citizens:

- Greenhouse Gas Reduction
- Clean Electricity Production
- Creation of Recreation Area at Landfill Site
- Utility and Industry Working with Community; and

WHEREAS, the RLP maintains strict compliance with local, state and federal regulations. The RLP facility is already regulated under several environmental regulations and is subject to multiple environmental regulatory programs, carried out by multiple government agencies. Each agency issues separate permits or licenses under the authority they are assigned under their regulations. The permit or license issued by each agency identifies what must be done to operate properly, to prevent the release of contaminants to the environment, and to limit any allowed discharge of contaminants to levels determined to be protective of human health and the environment. Each agency requires monitoring and performs independent oversight to ensure the facility is operated in a protective manner that meets its agency's particular requirements. The agencies also share information to ensure compliance. The following governmental agencies are currently involved with inspecting and regulating the RLP:

- The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Waste Management and Radiological Protection Division (WMRPD) licenses and inspects the Facility's hazardous waste and solid waste operations separately. The WMRPD inspects the hazardous waste operations at least four times per year and

the solid waste operations at least once per year. The inspections are performed to verify the operations meet the Facility's license requirements. EGLE evaluates the Facility's solid and hazardous waste storage, treatment, emergency planning, employee training, and recordkeeping. Wayne County officials also inspect the solid waste operations at the Facility to ensure compliance with Wayne County's ordinance.

- EGLE, Air Quality Division (AQD) issues a permit for air emissions from the facility. The AQD inspects the Facility to evaluate compliance with the air quality requirements and reviews the Facility's monitoring data.

- The Great Lakes Water Authority (GLWA) issues the permit for the discharge of treated wastewater into the sanitary sewer system. The GLWA inspects the Facility, reviews monitoring data, and conducts sampling of the Facility's discharge. EGLE's, Water Resources Division (WRD) oversees GLWA's regulatory program for industrial dischargers and may also inspect the Facility to audit GLWA's program implementation. Although the U.S. Environmental Protection Agency (EPA) does not permit or license the Facility, it may also conduct inspections of the Facility to verify compliance with air, water, and waste regulations; and

WHEREAS, The RLP has set up a hotline for Riverview residents to contact the RLP if they smell something that may be coming from the RLP. The RLP also maintains a current website listing instructions for filing a complaint with the RLP; and

WHEREAS, Host Community Agreements are common between solid waste management facilities and their host communities. These agreements typically include unique local requirements that benefit the community where they are sited; and

WHEREAS, Riverview is proposing to expand the RLP. The proposed expansion area includes approximately 45 acres of property, extending eastward onto the adjacent City-owned property occupied by the Riverview Highlands Golf Course ("Golf Course"). The proposed area is identified as Cell 8, which will be constructed in two or more phases when permitted. The property proposed for the expansion area is also owned by the City of Riverview, as the Riverview Highlands Golf Course. As a result of the proposed expansion, the 18 hole course will be modified to accommodate the Cell 8 footprint, and a portion of the Frank and Poet Drain (a County drain) will be relocated approximately 1,200 feet east, and a portion of the Huntington Drain (a County drain) will also be relocated, possibly as a water feature within the redesigned golf course layout to form a boundary/barrier between the golf course and the RLP. The new drain channel will be designed and permitted according to EPA, State of Michigan, and Wayne County requirements; and

WHEREAS, Riverview has started a multi-year process to increase the life of the RLP. The RLP contributes revenue to Riverview's general fund and offers other economic advantages to the region. The RLP generates revenue for Riverview (about $3.5 million in 2019-2020)

keeping the tax base low. Businesses and land developers benefit from the locality of the RLP as well; and

WHEREAS, the Parties have developed a Plan for the RLP's expansion. The following is a summary of benefits of the Plan:

The benefits of proceeding with this project are:

- **Improved flood storage.** The redesigned drain corridor will include channel restoration and flood storage during rain events. The Plan moves and widens the Frank and Poet Drain corridor and the Huntington Drain corridor, improving flow and helping to protect residences and businesses from storm water backups that have become more frequent.

- **Updated and modernized Golf Course.** The Plan will allow updates and reconfiguration of a portion of the Golf Course which, at 40 years old, is outdated and somewhat in disrepair. The improvements will include new water features and landscaping for a park-like setting.

- **Wildlife habitat.** The restored Frank and Poet Drain and Huntington Drain channel will provide improved habitat for fish and bird species. Landscaping along the relocated Frank and Poet Drain will screen the RLP and provide additional flora for habitat.

- **Continued revenue and lower taxes.** The RLP transfers a significant amount each year to the General Fund, as well as the Rubbish Fund and the Capital Improvement & Equipment Fund. These transfers amount to approximately 10-12 mills of property tax revenue that is not charged to the residents. For purposes of this Agreement, the above statement regarding potential revenue for Riverview is based on historical records and is in no way a guarantee as to further generation or projection of revenue that Riverview may draw upon from the RLP. The RLP will continue to contribute to Riverview's general fund for the duration of the expansion life, keeping property taxes low while maintaining the same high level of city services, including fire, police, and library. Other communities benefit from lower cost disposal options which benefit business development and construction project.

- **Clean energy.** The new disposal area will generate additional landfill gas which can be developed into a Renewable Natural Gas project, resulting in revenue to the City, over and above existing renewable projects in place or in development. A portion of the landfill gas currently generated is sold to a private company to create clean electricity.

The process:

The Riverview City Council or the City of Riverview placed this matter on its agenda at the regular Council meeting of December 21, 2020 and invited public comment to be held at its January 4, 2021 meeting and said public hearing took place on January 4, 2021 and thereafter adopted this Agreement by passing a resolution in support of a Host Community Agreement. (The current landfill is composed of seven segments, or cells. The expansion is sometimes referred to as Cell 8.) The conceptual plans for this expansion are attached to this Agreement for City Council approval.

The conceptual plans will be submitted to Wayne County Department of Public Services and the Facility Inclusion Committing (Siting Committee) to request inclusion in the Wayne County Solid Waste Management Plan.

In addition to Riverview approval, a Construction Permit Application will be submitted to EGLE. Ancillary permit applications for drain relocation, wetland mitigation, and other considerations will be reviewed by Wayne County Department of Public Services (WCDPS) and the US Army Corps of Engineers. All applications must be reviewed and approved before construction can begin. The permitting process could take as long as two (2) years.

If all permits are approved, the earliest permit issuance date is expected to be in the third quarter of 2022. Construction could begin on the relocation of the Frank and Poet Drain and the Huntington Drain immediately thereafter, followed by the first phase of Cell 8 in 2023.

Project Considerations

(Flood Controls)

The Frank and Poet Drain, and Huntington Drain relocation will improve flood controls in two ways: the channel will be restored and uplifted, and flood storage will be created. The channel restoration will provide unimpeded flow for the drain itself, and banks will be designed to contain the storm events. The improved flow will provide controlled runoff discharge to downstream communities. Additional flood storage will be created along the banks of the Drain and within the modifications to the Golf Course. The flood storage will reduce the risk of major storm events to residents of Colonial Village, Pheasant Run, The Glens and The Forest neighborhoods.

(Storm Water Controls)

Storm water runoff from the landfill itself will be collected in new sedimentation ponds located adjacent to the Frank and Poet Drain and the Huntington Drain, on the landfill property. Wayne County storm water ordinances require that the ponds settle solids out of the runoff and discharge it at a controlled rate into the drain. The ponds will also contribute to the aesthetics of the landfill and Golf Course, and provide additional wildlife habitat.

The landfill is designed to ensure that only runoff from covered areas is allowed into the ponds and, thus, into the drain. During construction and operation, any storm water coming into contact with waste ("leachate") is carefully controlled and sent to the sanitary sewer.

(Aesthetic Impact)

Visual aesthetics will be temporarily affected for residents of The Forest subdivision once construction begins. Residents on Coachwood Road can expect to see and hear construction equipment, the loss of trees and other vegetation from the west side of the existing Golf Course, and possible loss of green views for at least one season. As many old-growth trees as possible will be salvaged, and supplemented with replacement trees and landscaping. The aesthetic impact will be short lived, and the final landscape will be similar to the existing park-like setting.

Construction of the Frank and Poet Drain and the Huntington Drain will take place prior to landfill construction. The floodplain and drain corridor will be allowed to revegetate and become established.

Cell 8 will be constructed in phases with the first phases closest to the existing landfill. The perimeter berm and vegetation will block the view of Cell 8 for many years, until the last phases are constructed and filled. A separation of at least 1,000 feet will be maintained between the Cell 8 berm and The Forest property lines. As the cell is built, the exterior slopes will be covered with soil and grass seed planted. This is both a regulatory requirement and good environmental management practice. It will be several years after construction begins before waste placement in the new cell is even visible. The height limit and setback of the RLP for the proposed expansion shall be consistent with the conceptual plans for cell 8 expansion and the RLP's Facility Inclusion Request.

(Landfill Gas)

Some of the landfill gas generated from Cell 8 will be sold to a private company for electricity generation. If there is excess uncommitted landfill gas, the City of Riverview could potentially use it for other natural gas-powered projects, to generate additional revenue.

Construction of the landfill gas collection and control (GCCS) system will coincide with the landfill's construction. The GCCS design will also include backup destructive capacity (flares) if the energy project(s) fails at any time. The GCCS systems are highly regulated, and Riverview has an excellent compliance record on the existing RLP.

(Leachate)

Leachate is the liquid waste produced as trash decomposes. It is non-hazardous and generally can be disposed of as industrial wastewater, but may require pre-treatment on site and final treatment at the wastewater plant. It is continuously collected and removed, following strict standards. The base liner for Cell 8 will contain the most current control mechanisms to remove the leachate from the cell and dispose of it. The Plan calls for coordination with the wastewater treatment plant during permitting and construction to include the new leachate source in the site's industrial discharge permit at lowest cost. Incoming waste is screened to prevent contamination, and all leachate will be monitored to ensure compliance with the permit requirements.

(Life Span)

It is estimated that Cell 8 will add approximately fifteen (15) years (about 16.5 million cubic yards of waste disposal) to the RLP's capacity, but it could be more if decomposition rates and recycling increase and methods of trash placement and compaction are improved; and

WHEREAS, in order to provide for the regulation and management of solid waste, Act 451 requires that each County approve and submit to EGLE for further approval, a Solid Waste Management Plan ("Plan") which includes an enforceable program to assure that the non-hazardous solid waste generated in the County is collected, recovered, processed, and disposed of at disposal areas which comply with Act 451; and

WHEREAS, Wayne County's original Plan was approved and submitted to EGLE and approved by EGLE on November 8, 1984 and last updated in 2000; and

WHEREAS, this Agreement, and the provisions made herein, are consistent with the statutory obligations of Wayne County under Act 451 and protects the health and welfare of the residents of Wayne County; and

WHEREAS, Wayne County's Solid Waste Management Plan includes a requirement that all municipalities in the County institute a program for recycling. The City of Riverview supports that objective and has taken steps to satisfy that on behalf of itself and its constituent municipal customers; and

WHEREAS, the proposed expanded Landfill Facility is more particularly described through the proposed construction plans and other documentation (the "Landfill Facility Expansion Plans") provided, or to be provided, by Riverview to the Wayne County Solid Waste Implementation Committee (the "Implementation Committee") (as used herein, "Implementation Committee" includes any solid waste management committee or siting committee or other County agency or body with authority for Act 451 planning or implementation); and

WHEREAS, the Parties have, or will be filing an administratively complete application with the Implementation Committee and requesting that the County's Solid Waste Management Plan be amended pursuant to the "Fast Track" provisions of the Plan to include the Parties' proposed expanded Landfill Facility, as a condition precedent to the issuance of any Act 451 construction permits or operating licenses; and

WHEREAS, Wayne County's Solid Waste Management Plan encourages written agreements for negotiated settlements between applicants for Plan amendments and host communities, and this Agreement is in furtherance of public policy and the public health, safety and welfare; and

WHEREAS, the RLP has received written correspondence from Riverview as well as from local communities that the RLP serves expressing complete support for the proposed

expansion of the RLP. The letters of support from Riverview and the local communities are attached as Exhibit E; and

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING RECITALS AND THE COVENANTS AND UNDERTAKINGS HEREINAFTER CONTAINED, IT IS MUTUALLY AGREED BY THE PARTIES AS FOLLOWS:

1. Effective Date

This Agreement shall become effective immediately between the City and the RLP upon the execution of this Agreement by the Parties. It is expressly agreed that the Resolution attached as Exhibit B was made in express and direct contemplation of the terms of this Agreement. In the event the County fails to approve this Agreement, either the RLP or the City may elect to terminate this Agreement and the Resolution shown in Exhibit B.

2. Intent and Consideration

The intent of this Agreement is to: (1) permit expansion of the existing Landfill Facility at the RLP site; and (2) to assist the County in managing its municipal waste consistent with its stated goals.

3. Riverview's Consent

In consideration of the mutual undertakings herein, Riverview consents to be the host municipality for the expanded RLP, which is a sanitary landfill that will operate over an anticipated period of approximately fifteen (15) additional years.

4. Expansion Plans

The Landfill Facility Expansion Plans shall be the permit plans and subsequent construction plans to be submitted by the Parties to Wayne County and/or EGLE. The Parties acknowledge, however, that revisions to the Landfill Facility Expansion Plans may occur at the direction of Wayne County/EGLE or due to other factors during final planning and construction. The Parties further agree that the Landfill Facility Expansion Plans will not be revised or modified to allow the Facility to handle "hazardous waste" as defined in Act 64 of 1979; nor any type or form of waste prohibited by this Agreement. The Parties expressly acknowledge that this Agreement may be more restrictive than Wayne County/EGLE rules or statute. To the extent that the provisions of this Agreement are more restrictive, then this Agreement shall govern, and the Parties agree to be bound by each of the limitations and restrictions hereunder. Provided however, nothing herein shall grant authority to Riverview to regulate those matters which are pre-empted by Act 451.

5. Expansion of Landfill Facility

The Parties will expand the existing Landfill Facility to include the following, which shall be consistent with the attached Exhibits.

(a) The creation of Cell 8 as shown on Exhibit "D".
(b) Modification of the Riverview Highlands Golf Course as necessary to accommodate the RLP expansion of Cell 8.
(c) Relocation, redesign and upgrade in function of a portion of the Huntington Drain and the Frank and Poet Drain approximately 1,200 feet east, to provide functional stormwater drainage and flood storage, while serving as a boundary and a water feature between the RLP and the Riverview Highlands Golf Course.

6. Riverview Will Not Object to Permit

Riverview, as the host community, shall not object to a permit being issued for the expansion of the Landfill Facility which is consistent with the Agreement and with Landfill Facility plans submitted to Wayne County/EGLE.

7. Free Disposal

(a) Commencing upon the effective date of this Agreement, RLP shall continue to provide weekly trash disposal for Riverview and for all privately owned and occupied residential properties within Riverview, including owner occupied condominiums, residential cooperatives and townhouses. This disposal will be provided without charge to Riverview and/or its residents for a minimum of twenty (20) years or the life of the Landfill Facility, whichever is longer.

(b) During the term of this Agreement, Riverview residents may dispose of any excess or other Act 451 waste or compost at the Landfill Facility each non-holiday Saturday between 8:00 a.m. and 12:00 p.m., without charge, upon satisfactory evidence of City residency.

(c) Residents are allowed 4 free drop offs of household waste per fiscal year. This will continue under the expansion agreement.

(d) Residents are allowed unlimited free drop offs for recyclable materials at the citizen drop off location. This will continue under the expansion agreement.

8. Operation of Expanded Landfill Facility

(a) The Parties will continue to own and operate the expanded Landfill Facility in accordance with applicable County, State and Federal laws.

(b) Only Act 451 waste will be accepted and no hazardous waste will be accepted or permitted for acceptance. Riverview, through its City Council, has prohibited the construction of any incinerator, and has prohibited the acceptance of ashes, incinerator ash or incinerator residues, however defined, or sewage, sewage sludge or municipal or industrial sewage sludges, however defined, or known PCB contaminates or

contamination, however defined, or asbestos-containing materials, however defined, except as may be approved by Wayne County.

(c) The expanded Landfill Facility may be operated from 7:00 a.m. to 6:00 p.m., Monday through Saturday.

(d) The main truck entrance and exit will be on King Road. RLP will seek approvals from Brownstown Township and the State of Michigan to relocate the entrance way to the RLP of off property that was acquired in Brownstown Township for that purpose.

9. Local Ordinance

The RLP recognizes that Riverview has enacted certain ordinances governing land use. The RLP has been furnished a copy of all such ordinances or proposals for such ordinances. The RLP does acknowledge that it shall be bound by all local ordinances which are not otherwise pre-empted, voided, or in conflict with any statutory requirements under Act 451, nor in conflict with any rules, regulations, permits or approvals of the EGLE pursuant to said Act 451. Pursuant to said Act 451, examples of matters which are currently regulated by EGLE include landfill layout and designs. To the extent any requirement of any Riverview ordinance is more stringent than any provision of this Agreement, then such ordinance shall control. In such event, it shall be the responsibility of the RLP to obtain any necessary waivers, variances, amendments, or approvals from Riverview. In the event ordinance or regulation which is deemed to be applicable has a direct and material adverse impact on the ability to receive Act 451 waste at the facility, then the provisions of Section 16 may apply.

10. Environmental Protection

In addition to the duties and obligations set forth within this Agreement, as well as the rules and regulations adopted pursuant to Act 451, the RLP shall at all times conduct its operation so as to avoid environmental damage to the natural assets or citizens of Riverview. In the event of any environmental accident, RLP shall act promptly and shall have in place emergency procedures to assure a minimization of any such damage. All required reporting protocols and remediation measures will be implemented to protect human health and the environment.

11. RLP's End-Use Obligations

(a) No later than twelve (12) years from the effective date of the Agreement, Riverview shall notify the RLP, in writing, of its desired end-use of the Landfill site. Such possible end-uses shall not be expressly limited to those set forth below.

(i) low impact recreational facility, including such activities as hiking and cross-country ski trails, fitness trails and the like

(ii) solar energy

(iii) commercial greenhouse

In the event the Parties determine that such elected end-use is not acceptable due to applicable law, good engineering practice, safety considerations or environmental protection concerns, the Parties shall mutually agree upon an alternate appropriate end-use.

(b) The Parties shall be jointly responsible for compliance with all closure and post-closure obligations required by applicable laws and regulations.

(c) Upon closure of the Landfill Facility, RLP may continue to perform the following activities at the Landfill site until functional stability is achieved or the 30-year maintenance period is concluded, whichever is longer:

(i) Recycling activities

(ii) Methane gas recovery

(iii) Leachate treatment for leachate generated only at this Landfill Facility

(iv) Activities permitted or required by law

(v) Activities appropriate for closure and post-closure, and not inconsistent with this Agreement

(vi) Those end-use activities agreed upon by the Parties as set forth above

(vii) Such other activities as may be agreed upon in writing in advance by Riverview, consistent with any deed restrictions as required by Act 451.

12. Force Majeure

As long as RLP is accepting waste for disposal at the Landfill site, RLP assumes the full risk, responsibility and liability for any inability or failure to perform hereunder due to any contingencies, whether beyond its reasonable control or not. It is expressly understood that this Section creates an assumption of risk on the part of RLP that it will perform faithfully its duties and obligations under the terms of this Agreement. This Section serves to assign such risk of non-performance to RLP, whether such non-performance is due to any act of God, strike, riot, war, fire, pandemic, or compliance with any rule or regulation of any governmental agency or body.

13. Notices

Any notice, communication or statement required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been sufficiently given when sent, if sent by registered or certified mail, postage prepaid, return receipt requested, to the address of the respective party set forth below, and if sent by other means, when delivered to the respective party at the address set forth below:

If to the City:

City of Riverview
City Clerk
14100 Civic Park Drive
Riverview, MI 48193

If to Riverview Land Preserve:

Riverview Land Preserve
20863 Grange Road
Riverview, MI 48193

If to Wayne County:

Wayne County Executive
600 East Randolph
Detroit, MI 48226

The Parties may, by notice given hereunder, designate any further or different addresses to which subsequent notices, certificates or requests or other communications should be sent, provided that no more than four (4) persons may be designated to receive such notice by any party.

14. Amendment

No provision of this Agreement may be amended without the express written approval of the party to be bound. No approval of Riverview for any amendment, nor any permission which may be granted hereunder, shall be effective without a duly adopted Resolution of the Riverview City Council (except as matters may be delegated to Riverview Planning Commission).

15. Other Terms

(a) This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns. RLP may not assign this Agreement except to an affiliate, without the consent of Riverview. Should RLP seek to transfer ownership of the Landfill Facility, directly or indirectly, during the term of this Agreement, RLP shall provide notice of same to Riverview at least one hundred eighty (180)

days prior to that transfer and shall make the assumption of this Agreement a requirement of said transfer. No transfer shall relieve RLP of its guarantees hereunder without an express written release by Riverview.

(b) Nothing in this Agreement shall grant any rights to third parties, except as expressly set forth herein.

(c) No waiver of any breach of any term or condition of this Agreement shall constitute waiver of same in any proceeding, nor shall any succeeding breach of the same or any other term or condition.

(d) This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

(e) Any provision of this Agreement which is prohibited or unenforceable under applicable law shall be ineffective to the extent of such prohibition or
unenforceability without, however, invalidating or rendering unenforceable the remaining provisions of this Agreement.

16. Termination of RLP's Duties and Obligations

RLP shall not be bound by any provision of this Agreement, shall have no duties or obligations hereunder, or be subject to any term or condition hereunder, and shall not be liable for the breach of any provisions of this Agreement, irrespective of any provision to the contrary contained herein, upon occurrence of either (a) or (b) below:

(a) The Parties' application for an Act 451 expansion permit, an Act 451 operating, or any other legally required authorization has been denied, and/or RLP has notified Riverview, in writing, that RLP has abandoned its expansion application, and RLP has similarly notified the Implementation Committee, and has required that the Implementation Committee remove the expansion of the Landfill Facility from the Plan; the provisions of this subparagraph may be invoked and shall have effect only until a period of six (6) calendar years from the effective date of this Agreement and shall not have any effect thereafter; or

(b) RLP has permanently ceased to accept waste for disposal at the Landfill Facility. In the event of termination, RLP shall not be relieved of its closure and post-closure obligations as provided by applicable law, or any end-use obligations set forth in this Agreement. For purposes of this subparagraph, RLP shall be deemed to have permanently ceased to accept waste for disposal when it has ceased receiving any waste for disposal whatsoever for a period of twelve (12) consecutive months/ three hundred sixty-five (365) consecutive days. Provided however, RLP shall incur no obligation for financial grants and payments set forth herein during such

twelve (12) month period. However, should the Landfill site or operations therein be re-activated, reinstituted or continued, then all obligation under this Agreement shall have remained in full force and effect and in such case, there shall have been no break, interruption or reduction of any obligations owed to the City herein. This Section contemplates that any termination shall be a final and absolute termination and, if not, that all obligations of this Agreement shall remain in full force and effect.

17. Operational Rules

Customers of the RLP shall comply with all rules and regulations promulgated by Riverview from time to time, governing the delivery of material to the landfill, including speed limits, the level of skill and experience of customer's drivers, and other safety concerns. A copy of the current Operational Rules is attached to this Agreement as Exhibit C. It is understood and agreed that these Operational Rules may be modified by Riverview from time to time and shall become effective immediately upon dissemination to customers. It is further understood and agreed that customers and their drivers shall comply with any orders issued by the RLP during any time that exigent conditions at the landfill warrant the issuance of such orders in the sole discretion of Riverview. Customers shall inform their drivers, agents and subcontractors, if any, of the then-current rules prior to entry into the landfill.

18. Definitions

As used herein:

"Act 451 waste" or "refuse" or "waste" shall mean all wastes accepted for disposal at the Landfill Facility that are not classed as hazardous wastes pursuant to P.A. Act 64 of 1979 (hereinafter "Act 64"), including any successor statute or amendment and shall specifically include wastes eligible for disposal at Act 451 facilities that are excluded from the definition of "solid waste" by Act 451.

"Act 451 residential refuse" shall mean Act 451 waste collected by a municipality, an agent or a contractor of a municipality from residents in a municipality; and

"City waste" shall mean refuse from City occupied offices, facilities and City parks of Riverview.

"Gate Yard" shall mean one cubic yard of waste as received at the gate of the Landfill Facility, for disposal in the Landfill Facility.

"Hazardous waste" shall mean all hazardous or toxic wastes so classified pursuant to Act 64 of 1979, or any successor statute or amendment, or other applicable statute.

"Municipal Solid Waste" shall mean waste which may be disposed of in a Type II sanitary landfill pursuant to Part 115 of Act 451 of the Public Acts of 1994, as amended,

being MCLA 324.101, *et seq.*, and known as the Natural Resources and Environmental Protection Act, or any successor law, but excluding Unacceptable Waste.

"Regulated Hazardous Waste" shall mean:

(a) any material or substance which, by reason of its composition or characteristics, is: (1) toxic or hazardous waste as defined in (A) either the Solid Waste Disposal Act, 42 U.S.C. Sec 6901, *et seq.*, or Section 6(e) of the Toxic Substances Control Act, 15 U.S.C. Sec 2605(e), or any laws of similar purposes or effect, and any rules, regulations or policies promulgated thereunder, or (B) any laws of similar purpose or effect, and any rules, regulations or policies promulgated thereunder; or (2) special nuclear or by-products materials within the meaning of the Atomic Energy Act of 1954;

(b) any waste managed as hazardous waste as regulated under Act 451 of the Public Acts of 1994, as amended, being MCLA 324.101, *et seq.*, and known as the Natural Resources and Environmental Protection Act, or any successor law; and

(c) any other materials which the EGLE or any governmental agency or unit having appropriate jurisdiction shall determine from time to time is ineligible for disposal in the landfill, whether by reasons of being harmful, toxic or dangerous or otherwise.

"Residential Waste" shall mean material generated by and collected from a domicile in which the material is not sorted for recycling by the domicile.

"Rubbish" shall mean nonputrescible solid waste, such as paper, metal, cardboard, wood or glass, generated from activities other than those from a residence.

"Special Waste" shall mean non-hazardous, non-toxic solid waste generated by a commercial or industrial source, and excluding a household source, that has characteristics or a waste generation process that requires evaluation to determine its acceptability for disposal at the landfill. Special waste is subject to characterization and certification by the waste generator as determined by the landfill, and approval for disposal by the landfill prior to disposal. The designation of any waste as a Special Waste is at the sole discretion of the landfill.

"Unacceptable Waste" shall mean:

(a) Regulated Hazardous Waste as defined above; and

(b) any other material or substance which, in the reasonable judgment of Riverview, will be specifically communicated to Authority which: (1) may present a substantial endangerment to health, safety or the environment; (2) contains less than thirty percent (30%) solids, as established by an applicable Federal, State or County regulation; (3) may affect the integrity of the landfill's liner or other aspects of the landfill's construction; (4) may adversely affect the ability of the landfill's leachate treatment facility to treat leachate to a quality required by any applicable law or permit

requirements; (5) may cause sludge generated by the landfill's leachate treatment facility to become a Regulated Hazardous Waste; or (6) has a reasonable possibility of otherwise adversely affecting the operation of the landfill. Unacceptable Waste includes, by way of example and not limitation; certain uncrushed barrels; explosives, including but not limited to dynamite, hand grenades, blasting caps, shotgun shells, fireworks, gasoline, kerosene, turpentine, waste oil, ether, naphtha, acetone, solvents, certain paints, alcohol, hydraulic oil, petroleum, caustics sewage or process waste waters contaminated soil in excess of the limits established pursuant to Act 451 of the Public Acts of 1994, as amended, being MCLA 324.101, *et seq.*, and known as the Natural Resources and Environmental Protection Act, or any successor law Remediation Criteria and Acceptable Method Detection Limits for Soil, as amended; dusty- type material; flammable or volatile liquids; any other liquids; or chemical liquid wastes; friable asbestos; infectious, pathological, chemotherapeutic, biological and other regulated medical waste; municipal solid waste incinerator ash; radioactive materials; human or animal remains; lead-acid batteries, except household batteries; and any other material determined from time to time to be unacceptable by the RLP Director;

(c) yard waste prohibited by Part 115 of Act 451 of the Public Acts of 1994, as amended, being MCLA 324.101, *et seq.*, and known as the "Natural Resources and Environmental Protection Act", or any successor law;

(d) All waste prohibited by 1994 PA 451, as amended, being MCLA 324.11503, 324.11514, and 324.11545, and entitled "Natural Resources and Environmental Protection Act" as amended by 1998 PA 466 and section 11514 as amended by 2004 PA 34, or any successor law;

(e) All waste prohibited by 1994 PA 451, as amended, being MCLA 324.20129(a), and entitled "Natural Resources and Environmental Protection Act" as amended by 2004 PA 34, or any successor law;

(f) All waste prohibited by 1994 PA 451, as amended, being MCLA 324.11502, and entitled "Natural Resources and Environmental Protection Act" as amended by 2004 PA 35, or any successor law; and

(g) Any other waste prohibited by Riverview Ordinance 557, as amended.

"Utility Spoils" shall mean solid waste generated from the repair or installation of water or storm water pipes and accessories. Utility Spoils specifically excludes waste generated from the repair or installation of sanitary sewer pipes and accessories.

"Waste Handlers" shall mean private or public collection or transportation operator delivering waste to the Landfill Facility.

"**Wayne County Solid Waste Management Plan**" shall mean the plan as updated at https://www.waynecounty.com/departments/environmental/landresources/solid-waste-planning.aspx

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date first above written.

Witnesseth:

Douglas W. Dysdal

CITY OF RIVERVIEW

Andrew M. Swift

By: ANDREW M. SWIFT

Its: Mayor

Douglas W. Dysdal

RIVERVIEW LAND PRESERVE

Jeffrey E. Dibek

By: Jeffrey E. DIBEK

Its: Director

EXHIBIT "A"

LEGAL DESCRIPTION

EXHIBIT "B"

CITY COUNCIL'S HOST COMMUNITY AGREEMENT

RESOLUTION

EXHIBIT "C"

RLP'S OPERATIONAL RULES

1. All waste delivery vehicles are to be cleaned in the area designated by the landfill after completing waste delivery. Vehicles cleaned in non-designated areas will be required to clean up the area or, if the clean-up is performed by landfill personnel, subject the Customer to an additional fee for clean-up.
2. The landfill speed limit is 15 miles per hour. Drivers shall reduce speed based on specific traffic and road conditions.
3. Drivers shall yield to landfill equipment.
4. Vehicle shall be backed up to dump area as far as safely possible. Driver shall not spread load away from the dump area. Vehicle is to be pulled far enough ahead after discharger load to allow landfill equipment adequate area to push load.
5. Drivers shall not pass other moving vehicles and exercise caution when passing stopped vehicles.
6. Drivers shall wait their designated turn to discharge load.
7. Waste container doors are to be secured prior to discharging load.
8. Drivers shall operate vehicles only in/on designated site entrance and exit roads.
9. No loitering or scavenging.
10. Drivers shall follow directions of landfill equipment operators and management at all times.
11. Drivers are to advise landfill upon arrival of "hot loads" with visible smoke or fire to wait for landfill direction before discharging load.
12. Loads must be covered with a tarpaulin, or similar, upon arrival at the landfill. Loads are to be un-tarped in designated areas only.
13. Trucks are to be outfitted adequate equipment for pulling.
14. All trucks must pass over scales before proceeding to landfill dump area and upon exiting if so directed by landfill.
15. The designated truck route is King Road to Grange Road.

16. Drivers may access communication with landfill operators via channel 20 on citizen's band radio.
17. No smoking or open flame on landfill premises.
18. Waste delivery truck occupants are to use only designated toilet facilities.
19. All waste delivery vehicles, trailers and containers are to have a clearly visible and unique identification number permanently placed on them.

EXHIBIT "D"

CONCEPTUAL PLANS FOR CELL 8 EXPANSION

EXHIBIT "E"

LETTERS OF SUPPORT

APPENDIX A.2 EGLE ADVISORY ANALYSIS (2017)

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHEAST MICHIGAN DISTRICT OFFICE

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

March 29, 2017

APR 3 2017

Mr. Robert Bobeck, Director of Solid Waste
City of Riverview
14100 Civic Park Drive
Riverview, Michigan 48192

Dear Mr. Bobeck:

SUBJECT: Advisory Analysis - Proposed Expansion of Type II Landfill
Riverview Land Preserve, 20863 Grange Road, Riverview,
Wayne County, Michigan
Waste Data System Number: 399054

On March 2, 2017, staff of the Department of Environmental Quality (DEQ), Waste Management and Radiological Protection Division (WMRPD) conducted an advisory analysis at the existing Riverview Land Preserve Type II Landfill (Facility) pursuant to Section 11510 of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 115). The advisory analysis was requested by the Facility's engineering consultant and was performed by WMRPD staff in order to evaluate issues relating to the proposed lateral and vertical expansion of the existing type II landfill.

The Facility is currently a type II landfill. The proposal is for a lateral expansion of the current landfill unit to the east and a vertical expansion over the eastern portion of the existing disposal area.

During and prior to the advisory analysis the following items were discussed that must be addressed prior to submittal of an Application for Permit to Construct a Solid Waste Disposal Area (Application) package:

- The proposed landfill lateral expansion area is not currently included in the Wayne County Solid Waste Management Plan (County Plan). An Application package submitted to the DEQ must include documentation from the designated County solid waste planning agency that the proposed expansion is consistent with the County Plan. Upon receipt of an administratively complete Application, a consistency analysis would also be conducted by staff in the Sustainable Materials Management Unit of the WMRPD. Please continue to coordinate with the Wayne County Department of Public Services (DPS), Land Resource Management Division, regarding the requirements and process for requesting inclusion of the expansion area into the County Plan.

- The Facility's consultant identified areas of regulated wetlands that would be impacted by the proposed lateral expansion of the landfill. The portion of the proposed expansion in the area of regulated wetlands must meet the requirements

of R 299.4416 which includes, in part, the owner/operator obtaining a permit under Part 303 of Act 451 from the Water Resources Division (WRD) of the DEQ. Please continue to coordinate with WRD staff regarding the Part 303 permit requirements and process.

- The proposal for expansion of the landfill includes a proposal to relocate a substantial length of the Frank and Poet Drain, which is regulated as an inland stream under State law and is also a designated Wayne County drain. The relocation of the drain will require obtaining a permit under Part 301 of Act 451 from the WRD. Please continue to coordinate with WRD staff regarding the Part 301 permit requirements and process. In addition, the relocation of the drain will require approval/permitting by the Wayne County Drain Commissioner and/or the Wayne County DPS.

  For portions of the proposed expansion that are subject to the above conditions, the necessary permits and authorizations must be granted prior to submitting the Part 115 Application, if it is to be considered administratively complete.

The following items should also be considered, evaluated, and addressed, as necessary, during the process of developing a Part 115 Application:

- At the time of the advisory analysis, the Facility had not yet completed an exhaustive evaluation relative to the locations of public and private water supply wells in the vicinity of the landfill, although preliminary indications are that few, if any, such wells would be located near to the proposed expansion area. Such an evaluation must be completed prior to the submittal of an Application to ensure that there are no wells within the respective, required isolation distances under R 299.4412 of the Part 115 administrative rules.

- Under the requirements of the National Pollutant Discharge Elimination System (NPDES) general storm water permit, the Facility is required to update their Storm Water Pollution Prevention Plan (SWPPP) when changes to operations occur. If a permit is issued for the lateral expansion of the landfill, the SWPPP would have to be updated periodically as construction of new landfill areas and storm water control structures progresses.

- The facility must contact the local soil erosion and sedimentation control (SESC) agencies to determine if the proposed expansion will necessitate modifications to the current SESC permit. If the current permit must be modified, this must be completed prior to construction of the proposed expansion.

- The Facility should contact the appropriate county offices to ensure that local requirements for storm water controls will also be met. Some counties and municipalities have more stringent requirements for storm water management than those prescribed by Part 115 (e.g. basins may be required to be designed to

accommodate larger storm events, etc.). This evaluation should be completed during the design phase of developing an Application package in order to ensure that all State, County and local requirements for storm water management will be addressed by the proposed design.

- The Facility must conduct "potential to emit" calculations to determine if the proposed expansion will make the Facility subject to the permitting requirements of the Prevention of Significant Deterioration (PSD) permitting program under the Clean Air Act. The Facility should notify the DEQ's Air Quality Division (AQD) as to whether or not they believe PSD permitting will be applicable to the Facility based on the proposed expansion. Please contact Mr. Jon Lamb at 313-456-4683, with the AQD to discuss the "potential to emit" calculations and PSD evaluation.

- The Facility plans to develop a hydrogeological investigation work plan in advance of submitting a Part 115 Application in order to lay out a strategy for defining the hydrogeology beneath the proposed expansion area. Please contact Mr. James Bakun with the WMRPD at 586-753-3834, to discuss the work plan as it is being developed.

- WMRPD District staff has some preliminary engineering concerns related to the proposed vertical expansion over the eastern portion of the existing landfill. This area is already permitted for a vertical expansion (Cell 7) including the installation of an overfill liner system over older landfill areas having only a natural soil liner. Currently the downslope portion of Cell 7 North has already been constructed. The current design of Cell 7 relies on the construction of a perimeter berm to accommodate waste filling and leachate collection. Cell 7 North currently includes multiple liner penetrations at the perimeter berm to drain leachate via gravity flow to a gravity sewer located beneath the perimeter berm. There are currently access structures for the gravity sewer, the dual contained leachate discharge pipe, and the leachate collection system (cleanouts and transducer pipes) at various locations along the berm. Preliminary concerns related to additional overfilling in this area are listed below:

    - Stability of existing liner system components with additional vertical expansion.
    - Structural integrity and minimum slope of existing Cell 7 leachate collection system piping.
    - Maintenance and monitoring of Cell 7 leachate collection piping/sumps (cleanouts, transducer pipes).
    - Maintenance and monitoring of existing leachate gravity sewer beneath Cell 7 perimeter berm (cleanouts, leak monitoring).

- The requirements for the contents of a construction permit application can be found in the Part 115 administrative rules (R 299.4902 through R 299.4911), an electronic copy of which is available on the DEQ internet site. The Application forms and

instructions as well as a checklist for administrative completeness can also be obtained from the DEQ internet site.

The results of this advisory analysis do not constitute an endorsement of the ultimate suitability of the proposed expansion area for use as a solid waste disposal area. The site is subject to all applicable requirements of Part 115, Solid Waste Management, of Act 451 and the administrative rules promulgated there under.

Should you require further information regarding this letter, please contact me at 586-753-3852; by e-mail at morrowg@michigan.gov; or by mail at DEQ, WMRPD, 27700 Donald Court, Warren, MI 48092.

Sincerely,

Greg Morrow
Environmental Engineer
Waste Management and Radiological Protection Division
Southeast Michigan District

cc: Mr. Douglas Drysdale, City of Riverview
Mr. Patrick Cullen, Wayne County Department of Public Services
Ms. Jennifer Bowyer, Cornerstone Environmental Group
Mr. Steve Wintheiser, Cornerstone Environmental Group
Ms. Rhonda Oyer, DEQ
Ms. Tracy Kecskemeti, DEQ
Mr. James Bakun, DEQ
Mr. Jon Lamb, DEQ
Mr. Andrew Hartz, DEQ
Mr. Brian Peters, Brownstown Township Clerk
Ms. Debra R. Devitt, City of Trenton Clerk
Ms. Kristie Keene, City of Woodhaven Clerk

APPENDIX A.3 WAYNE COUNTY ADVISORY ANALYSIS (2017 AND 2020)

A.3.1 2017 WAYNE COUNTY ADVISORY ANALYSIS

Warren C. Evans
Wayne County Executive

March 20, 2017

Ms. Jennifer Bowyer, P.E.
Cornerstone Environmental Group, LLC
39395 W. Twelve Mile Road, Suite 103
Farmington Hills, MI 48331

Re: **Advisory Analysis Request**
Proposed Horizontal Expansion (Cell 8) of Riverview Land Preserve
Located at: 20863 Grange Road Riverview, MI 48193-7600

Dear Ms. Bowyer:

In response to your written request on behalf of the City of Riverview, the Wayne County Department of Public Services Land Resource Management Division (LRMD) has completed an advisory analysis of the proposed horizontal expansion of the Riverview Land Preserve Municipal Solid Waste Landfill (RLP) located at 20863 Grange Road in Riverview, MI for inclusion into the Wayne County Solid Waste Management Plan (Plan).

During our review and site visit on March 2, 2017 we understood that the proposed expansion intends to overlay the existing Cell 7 and extend eastward for an approximate 40 total acres, resulting in at least 12 million yards of additional disposal airspace. The proposed expansion plans also include the relocation of the Frank & Poet Drain and the reconstruction of wetlands along the Drain banks and within the adjacent golf course. The actual landfill construction would not take place for several years, after approvals are received and work completed on the Drain relocation and wetland remediation.

Because the proposed landfill expansion will impact a Wayne County Drain and easement, a construction permit will be required from the Wayne County Construction Permit Office. Storm water runoff from the proposed construction must be managed in compliance with the Wayne County Storm Water Management Ordinance, Administrative Rules and Standards Manual. LRMD will also require a Soil Erosion and Sedimentation Control Permit for the project to ensure compliance with the Wayne County Soil Erosion and Sedimentation Control Ordinance and Part 91 of State Act 451. Additional environmental permits will be required by the Michigan Department of Environmental Quality.

To continue the process for RLP's proposed expansion to be included into the Plan, you must submit a formal application to the Wayne County Facility Inclusion Committee (FIC). The application requires the submission of a site plan, an operations plan, a copy of the Riverview City Council's resolution that supports the landfill expansion and a review fee. As discussed during our site visit, Wayne County currently has sufficient capacity at its existing municipal solid waste landfills. Emphasis in the application should be placed on any resource recovery activities affiliated with the RLP expansion and how the project meets the goals of the Plan.

DEPARTMENT OF PUBLIC SERVICES
LAND RESOURCE MANAGEMENT DIVISION/WATER QUALITY MANAGEMENT DIVISION
3600 COMMERCE COURT, BUILDING E, WAYNE, MICHIGAN 48184
(734) 326-3936 • FAX (734) 326-4421

Once your application is received, all potentially affected parties will be notified of your request for inclusion. The application will be made available for public review and a 30 day public comment period followed by a meeting of the FIC. The FIC makes the final determination regarding the consistency of the proposal with the Plan's goals and whether the expansion should be included into the Plan. Further details on the facility inclusion process are enclosed.

If you have any questions on the advisory analysis, the facility inclusion application or any Wayne County environmental regulations, do not hesitate to contact me.

Sincerely,

Patrick C. Cullen, Division Director
Wayne County Department of Public Services
Land Resource Management Division

Enclosures

cc: Tracy Kecskemeti, MDEQ
Aghogho Edevbie, Wayne County Corporation Counsel
Cindy Hutchison, Riverview City Clerk
Brian Peters, Brownstown Township Clerk
Debra R. Devitt, Trenton City Clerk
Kristie Keene, Woodhaven City Clerk
Wayne County Facility Inclusion Committee

A.3.2 2018 WAYNE COUNTY CLOSURE OF APPLICATION

Warren C. Evans
Wayne County Executive

JUN 27 2018

June 21, 2018

Doug Drysdale
City Manager
City of Riverview
14100 Civic Park Drive
Riverview, MI 48193

Dear Mr. Drysdale:

On September 14, 2017 a meeting of the Wayne County Facility Inclusion Committee (FIC) was held to consider the City of Riverview's application for an expansion of the Riverview Land Preserve (RLP) to be included in the Wayne County Solid Waste Management Plan (WCSWMP). At that meeting, the Committee requested that the City of Riverview submit a revised application that addressed the concerns of Wayne County and potentially affected parties.

Pursuant to the Facility Inclusion Process in the WCSWMP, the revised application and request for a new meeting of the FIC was due within 9 months and that deadline has now passed. Any future request for expansion of the RLP to be included in the WCSWMP will be treated as a new application.

If you have any questions, please do not hesitate to contact me at 734-326-4437 or pcullen@waynecounty.com

Sincerely,

Patrick C. Cullen

Patrick C. Cullen, Division Director
Wayne County Department of Public Services
Land Resource Management Division

cc: Wayne County Facility Inclusion Committee
Raynard Jones, Wayne County Corporation Counsel

DEPARTMENT OF PUBLIC SERVICES
LAND RESOURCE MANAGEMENT DIVISION/WATER QUALITY MANAGEMENT DIVISION
3600 COMMERCE COURT, BUILDING E, WAYNE, MICHIGAN 48184
(734) 326-3936 • FAX (734) 326-4421

A.3.3 2020 WAYNE COUNTY ADVISORY ANALYSIS RESPONSE

Bowyer, Jennifer

From: Patrick Cullen <PCULLEN@waynecounty.com>
Sent: Tuesday, December 22, 2020 10:34 AM
To: Bowyer, Jennifer
Cc: John Demerjian; Adil Siddiqi; Craig Bell; Jennifer DePaulis; Greg Morrow - MDNRE - WHMD (morrowg@michigan.gov)
Subject: RE: Riverview Land Preserve
Attachments: FACILITY INCLUSION APPLICATION PACKAGE 12-20.pdf; Wayne County Facility Inclusion Process.pdf; FIC Request 9-14-17.pdf; RLP 2017 Expansion Staff Recommendation Memo.pdf

Good morning Jennifer, as a follow up to our December 2 meeting I am forwarding the following documents:

- Facility Inclusion Application Package
- Facility Inclusion Process
- Request from the Facility Inclusion Committee at the September 14, 2017 meeting
- Wayne County Staff Recommendation Memo September 9, 2017

As discussed at our December 2 meeting, you are at step 3 in the Facility Inclusion Process. The next step for Riverview Land Preserve to request inclusion into the Wayne County Solid Waste Management Plan for their proposed expansion is to submit an application to our office. The details and requirements of the application may be found in the attached application package. Please note that the review fee for a Type II landfill expansion request is $15,000.

If you have any questions, do not hesitate to contact me.

Patrick Cullen
Division Director, Environmental Services
Deputy Drain Commissioner
Wayne County Department of Public Services
3600 Commerce Ct. | Wayne, MI | 48184
O: 734-326-4437 pcullen@waynecounty.com

Wayne County is taking proactive steps to slow the spread of COVID-19 in Michigan. To the extent possible, teleworking and virtual meetings are encouraged at this time and public access to our offices may be limited. We appreciate your understanding and cooperation in reducing COVID-19 risk to Wayne County residents. For more information regarding COVID-19, visit www.waynecounty.com or www.cdc.gov/coronavirus.

From: Bowyer, Jennifer [mailto:Jennifer.Bowyer@tetratech.com]
Sent: Monday, November 16, 2020 10:36 AM
To: Patrick Cullen; Greg Morrow - MDNRE - WHMD (morrowg@michigan.gov)
Subject: Riverview Land Preserve

Dear Patrick,

On behalf of the City of Riverview and the Riverview Land Preserve we are submitting the attached letter requesting an advisory analysis for a potential expansion of the Riverview Land Preserve. A hard copy will follow by mail early next week. We look forward to your timely response.

Please let me know if you have any questions or concerns.
Jennifer

Jennifer Bowyer | Operations Director | Senior Project Manager | Tetratech
Direct **+1 (248) 991-9592** | Business **+1 (630) 633-5802** | Mobile **+1 (517) 881-1166** | Jennifer.bowyer@tetratech.com

While we are operating remotely in response to COVID-19, Tetra Tech teams remain fully connected and hard at work servicing our clients and ongoing projects. We also would like to wish health and wellness to you and your family.

Tetra Tech | *Leading with Science®*
39395 W. Twelve Mile Road, Suite 103 | Farmington HIlls, MI 48331 | tetratech.com

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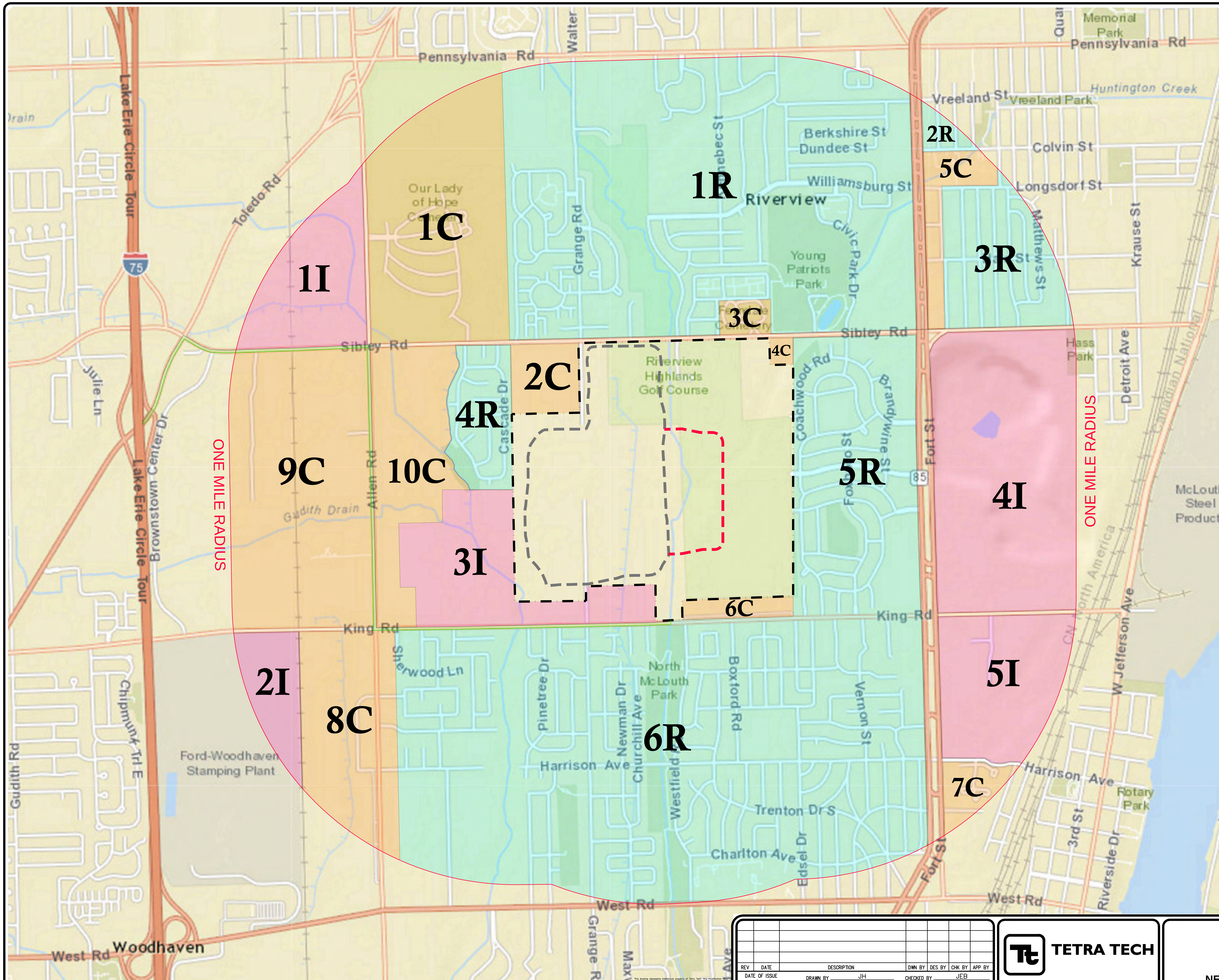
Please consider the environment before printing. Read more

TETRA TECH

APPENDIX B

NEARBY FACILITIES LISTING



N

0 600 1200
SCALE IN FEET

LEGEND

PROPERTY BOUNDARY
EXISTING SOLID WASTE BOUNDARY
EXPANSION AREA BOUNDARY
RESIDENTIAL AREA
INDUSTRIAL AREA
COMMERCIAL AREA
TRUCK ROUTE TO NEAREST INTERSTATE

NOTE:

All Geographic Information Systems (GIS) data obtained from the Wayne County Parcel Viewer. The Wayne County Parcel Viewer provides public access to Wayne County Aerial Imagery and parcel property information located within Wayne County boundaries. The County of Wayne, MI Wayne County Parcel Viewer provides online access to property information currently maintained by 43 Wayne County Municipalities. GIS data is provided in good faith, and is to be used for references purposes only. Efforts have been made to ensure that the data is accurate and reliable, but errors and omissions are possible. Variable conditions originating from physical sources used to develop the database may be reflected in the data supply.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21
DRAWN BY JH
DESIGNED BY JH
CHECKED BY JEB
APPROVED BY DH

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
NEARBY MAJOR ZONING AREAS

SHEET NO. **B1**
PROJECT NO. 209-4201587

RIVERVIEW LAND PRESERVE
ONE-MILE RADIUS PROPERTY LISTING
FACILITY INCLUSION REQUEST - APPENDIX B

ZONING GROUP	MILES FROM FACILITY
1R	<0.1
2R	0.85
3R	0.55
4R	<0.1
5R	<0.1
6R	<0.1
IC	<0.1
2C	<0.1
3C	<0.1
4C	<0.1
5C	0.49
6C	<0.1
7C	0.79
8C	0.44
9C	0.50
10C	0.15
1I	0.57
2I	0.39
3I	<0.1
4I	0.50
5I	0.71

NEARBY PROPERTY NAME	MILES FROM FACILITY
Coachwood Park	<0.1
WJR Am Detroit	<0.1
Orlando Familia Banquet Center	<0.1
Riverside Child Care & Learning	0.03
Aubrey Beauty Salon	0.07
All About You By Sue	0.08
Ferndale Cemetery	0.08
The Church of Jesus Christ of Latter-Day-Saints	0.11
Kingswood Park	0.12
Young Patriots Park	0.20
Rite Aid	0.34
Riverview Commons Shopping Center	0.36
Two Men and A Truck	0.38
Hungry Howie's Pizza	0.39
Forest View Assisted Living	0.39
American House Riverview	0.40
PNC Bank	0.41
Leo's Coney Island	0.42
Elmcroft of Downriver	0.42
McLouth Park	0.43
Burger King	0.43
Bill Ritchie Complete Vehicle	0.43
CVS	0.44
BP	0.45
Detroit Business Institute-Downriver	0.45
Riverside Family Physicians	0.46
Brownstown Dental Care	0.47
Taco Bell	0.47
Gorno Food	0.48
Abbasi Dermatology	0.49
Anderson Elementary School	0.51
Chase Bank	0.53
Glens Park	0.55
Industrial Quarry	0.55
Seitz Middle School	0.56
Drink's Saloon	0.57
7-Eleven	0.59
Systrand Manufacturing	0.60
Slip Mahoney's	0.60
Public Storage	0.63
Huntington Elementary School	0.63
Rain for Rent	0.63
Zobra's Coney Island	0.67
Sportway of Brownstown	0.69
DFCU Financial	0.71
Our Lady of Hope Cemetery	0.75
Chase Bank	0.79
Emagine Woodhaven	0.80
McShane Park	0.81
Waddle's Truck Tire Sales	0.81
Kennebec Park	0.83
Fifth Third Bank & ATM	0.83
Affolter Park	0.84
Sneaky's Sports Bar & Grill	0.87
Pennbrook Place Apartments	0.87
Huntington House Apartments	0.91
Jerzey's Sports	0.93
Gabriel Richard Catholic High School	0.93
Trenton High School	0.96
Trenton Veterans Memorial Library	0.97
TV's Deli & Diner	0.98
CMAC Transportation	1.00

APPENDIX C

RECYCLING REPORTS – MUNICIPAL AND RESIDENTIAL

C.1 MUNICIPAL RECYCLING REPORTS – 2018 AND 2019

MUNICIPAL RECYCLING REPORT

ANNUAL | 2018

City of Riverview

Residential Waste collection services provided:

Do you offer curbside recycling collection services? *

- ○ Yes
- ◉ No

Do you offer curbside yard waste collection services? *

- ◉ Yes
- ○ No

What frequency?

Weekly

Do you offer curbside special/bulky waste collection services? *

- ◉ Yes
- ○ No

What frequency?

Bi-weekly

Do you offer household hazardous waste collection services? *

- ○ Yes
- ◉ No

Do you have drop-off sites (please specify)? *

- ◉ Yes
- ○ No

Hours of operation:

Monday, Tuesday, Thursday and Friday : 7:00 am to 4:00 pm Wednesday: 7:00 am to 7:00 pm Saturday: 7:00 am to 11:00 am Sunday and National Holidays: Closed

Number of sites:

1

Do you offer other collection services? *

- ○ Yes
- ◉ No

Incinerator used by community (please indicate names and locations): *

N/A

Landfill used by community (please indicate names and locations): *

Riverview Land Preserve 20863 Grange Rd Riverview,MI 48193

Compost facility used by community (please indicate names and locations):

City of Taylor Compost Center 16300 Racho Rd Taylor,MI 48180

Markets or haulers for recyclables (list by material, if applicable)

	MATERIAL TYPE:	BUYER OR HAULER:	PHONE:
1	Corrugated cardboard	Taylor Recycling	313-291-7410
2	Mixed or other fibers	Taylor Recycling	313-291-7410
3	Glass(other)	Stevens Disposal	734-279-2611
4	Commingled aluminum/steel/tin	Stevens Disposal	734-279-2611
5	Mixed plastics (SPI 1-7)	Stevens Disposal	734-279-2611
6	Household batteries	Battery Solutions	248-446-3001
7	Used oil	Usher Oil	313-580-8364

What items are currently collected for recycling at the curbside/drop off stations in your community? (check all that apply)

Paper/Fiber

- [x] Corrugated containers
- [x] Magazines and catalogs
- [x] Mixed mail/junk mail/household paper
- [x] Computer paper
- [ ] Aseptic containers/juice boxes
- [x] Roll cores (e.g., paper towel cores)
- [x] Newsprint/newspaper
- [x] Office paper
- [x] Phone books
- [x] Boxboard
- [x] Pop and beer carriers/cartons
- [ ] Other paper/fiber (explain below)

Metal

- [x] Aluminum cans/foil
- [x] Steel/tin cans

- [x] Scrap metal, ferrous & non-ferrous
- [ ] Other metal (explain below)

Plastic

- [ ] PET (SPI Code 1) containers
- [ ] HDPE (SPI Code 2) containers
- [x] Mixed plastics (SPI code 1-7)
- [ ] Film Plastics
- [ ] Other plastic (explain below)

Organics

- [ ] Food Waste
- [ ] Non-recyclable paper
- [ ] Other organics (explain below)

Glass

- [ ] Food and beverage container
- [x] Other glass (explain below)

Other Recyclables

- [ ] Vehicle batteries
- [x] Used oil
- [ ] Waste tires
- [ ] Antifreeze
- [ ] Fluorescent and HID lamps
- [ ] Household goods
- [ ] Major appliances
- [ ] Used oil filters
- [ ] TVs and monitors
- [ ] Other electronics
- [ ] Textiles
- [x] Other (explain below)

If you selected other in any of the above categories please explain:

Glass: Clear Glass Other: Household Batteries

Other comments and/or changes in solid waste reduction, handling, reuse, composting, or recycling practice:

None

NOTE: Once you click 'Save' below, you will see a popup with two options.
If you need to return later to enter more data, click 'Save as Draft'.
If you have entered all data, click ‘Mark as Complete’. This will lock the data and you WILL NOT be able to update any of your data.

Response created on: Jan 28, 2019 at 12:58 PM CST by eherrera@cityofriverview.com

Response last updated on: Jan 29, 2019 at 08:42 AM CST by eherrera@cityofriverview.com

MUNICIPAL RECYCLING REPORT

ANNUAL | 2019

City of Riverview

Residential Waste collection services provided:

Do you offer curbside recycling collection services? *

- ○ Yes
- ◉ No

Do you offer curbside yard waste collection services? *

- ◉ Yes
- ○ No

What frequency?

Weekly

Do you offer curbside special/bulky waste collection services? *

- ◉ Yes
- ○ No

What frequency?

Bi-weekly

Do you offer household hazardous waste collection services? *

- ○ Yes
- ◉ No

Do you have drop-off sites (please specify)? *

- ◉ Yes
- ○ No

Hours of operation:

Monday, Tuesday, Thursday and Friday: 7:00am to 4:00pm Wednesday: 7:00am to 7:00pm Saturday: 7:00am to 11:00am

Number of sites:

1

Do you offer other collection services? *

- ○ Yes
- ◉ No

Incinerator used by community (please indicate names and locations): *

N/A

Landfill used by community (please indicate names and locations): *

Riverview Land Preserve 20863 Grange Rd. Riverview, MI 48193

Compost facility used by community (please indicate names and locations):

City of Taylor Compost Center 16300 Racho Rd. Taylor, MI 48180

Markets or haulers for recyclables (list by material, if applicable)

	MATERIAL TYPE:	BUYER OR HAULER:	PHONE:
1	Corrugated cardboard	Taylor Recycling	313-291-7410
2	Newsprint	Taylor Recycling	313-291-7410
3	Commingled aluminum/steel/tin	Stevens Disposal	734-279-2611
4	Other scrap: ferrous & non-ferrous	Stevens Disposal	734-279-2611
5	Glass(other)	Stevens Disposal	734-279-2611
6	Mixed plastics (SPI 1-7)	Stevens Disposal	734-279-2611
7	Used oil	Usher Oil	313-580-8364

What items are currently collected for recycling at the curbside/drop off stations in your community? (check all that apply)

Paper/Fiber

- [x] Corrugated containers
- [x] Magazines and catalogs
- [x] Mixed mail/junk mail/household paper
- [x] Computer paper
- [ ] Aseptic containers/juice boxes
- [x] Roll cores (e.g., paper towel cores)
- [x] Newsprint/newspaper
- [x] Office paper
- [x] Phone books
- [x] Boxboard
- [x] Pop and beer carriers/cartons
- [ ] Other paper/fiber (explain below)

Metal

- [x] Aluminum cans/foil
- [x] Steel/tin cans

- [x] Scrap metal, ferrous & non-ferrous
- [ ] Other metal (explain below)

Plastic

- [ ] PET (SPI Code 1) containers
- [ ] HDPE (SPI Code 2) containers
- [x] Mixed plastics (SPI code 1-7)
- [ ] Film Plastics
- [ ] Other plastic (explain below)

Organics

- [ ] Food Waste
- [ ] Non-recyclable paper
- [ ] Other organics (explain below)

Glass

- [ ] Food and beverage container
- [x] Other glass (explain below)

Other Recyclables

- [ ] Vehicle batteries
- [x] Used oil
- [ ] Waste tires
- [ ] Antifreeze
- [ ] Fluorescent and HID lamps
- [ ] Household goods
- [ ] Major appliances
- [ ] Used oil filters
- [ ] TVs and monitors
- [x] Other electronics
- [ ] Textiles
- [x] Other (explain below)

If you selected other in any of the above categories please explain:

Glass: Clear Glass and Colored Glass Other: Household Batteries Other Electronics: Anything but TVs and Monitors

Other comments and/or changes in solid waste reduction, handling, reuse, composting, or recycling practice:

None

NOTE: Once you click 'Save' below, you will see a popup with two options.
If you need to return later to enter more data, click 'Save as Draft'.
If you have entered all data, click ‘Mark as Complete’. This will lock the data and you WILL NOT be able to update any of your data.

Response created on: Feb 1, 2020 at 11:02 AM CST by eherrera@cityofriverview.com

Response last updated on: Feb 1, 2020 at 11:04 AM CST by eherrera@cityofriverview.com

C.2 RESIDENTIAL RECYCLING REPORTS – 2018 AND 2019

ANNUAL RESIDENTIAL RECYCLING, YARD WASTE, AND SOLID WASTE SURVEY

ANNUAL | 2018

City of Riverview

Do you collect recycling data single-stream? (i.e. all paper, plastics, metals, and other containers mixed in the collection bin rather than being separated.) *

- ○ Yes
- ◉ No

Residential Recycling

Paper

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Corrugated Cardboard	78,300.00	Pounds	39.15
Newsprint	45,320.00	Pounds	22.66
Magazine and Catalog		Tons	
Office Paper		Tons	
Phone Books		Tons	
Mixed or Other Fibers		Tons	
Paper Total			61.81

Glass

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Mixed Glass		Tons	
Brown Glass		Tons	
Clear Glass	30,020.00	Pounds	15.01
Green Glass		Tons	
Glass Total			15.01

Plastics

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
PET (SPI Code1)		Tons	
HDPE (SPI Code 2)		Tons	
Mixed Plastics (SPI code 1-7)	63,730.00	Pounds	31.87
Film Plastics		Tons	
Plastic Total			31.87

Metal

MATERIALS	AMOUNT	DISPOSED:	TOTAL TONS
Aluminum Cans/Foil		Tons	
Steel/Tin Cans		Tons	
Scrap Metal (Ferrous & Non-Ferrous)		Tons	
Other Metal (explain below)	31,760.00	Pounds	15.88
Metal Total			15.88

Residential Yard Waste

Yard Waste

MATERIAL	AMOUNT	DISPOSED	TOTAL TONS
Yard Waste (Compost)	4,500.00	Cubic Yards	1,500.00
Yard Waste Total			1,500.00

Residential Solid Waste

Solid Waste

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Material Sent to Landfill (including bulky/special)	8,381.72	Tons	8,381.72
Material Incinerated		Tons	
Solid Waste Total			8,381.72

Other Materials

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Vehicle Batteries		Tons	
Household Batteries	1,637.00	Pounds	0.82
Used Oil	700.00	Pounds	0.35
Major Appliances		Tons	
Antifreeze		Tons	
Waste Tires		Tons	
Electronic Waste		Tons	
Other (explain below)		Tons	
Other Materials Total			1.17

Other (describe):

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Response created on: Jan 28, 2019 at 12:25 PM CST by eherrera@cityofriverview.com

Response last updated on: Jan 29, 2019 at 08:42 AM CST by eherrera@cityofriverview.com

ANNUAL RESIDENTIAL RECYCLING, YARD WASTE, AND SOLID WASTE SURVEY

ANNUAL | 2019

City of Riverview

Do you collect recycling data single-stream? (i.e. all paper, plastics, metals, and other containers mixed in the collection bin rather than being separated.) *

- ○ Yes
- ◉ No

Residential Recycling

Paper

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Corrugated Cardboard	80,140.00	Pounds	40.07
Newsprint	41,260.00	Pounds	20.63
Magazine and Catalog		Tons	
Office Paper		Tons	
Phone Books		Tons	
Mixed or Other Fibers		Tons	
Paper Total			60.70

Glass

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Mixed Glass	10,020.00	Pounds	5.01
Brown Glass		Tons	
Clear Glass	23,520.00	Pounds	11.76
Green Glass		Tons	
Glass Total			16.77

Plastics

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
PET (SPI Code1)		Tons	
HDPE (SPI Code 2)		Tons	
Mixed Plastics (SPI code 1-7)	58,700.00	Pounds	29.35
Film Plastics		Tons	
Plastic Total			29.35

Metal

MATERIALS	AMOUNT	DISPOSED:	TOTAL TONS
Aluminum Cans/Foil		Tons	
Steel/Tin Cans		Tons	
Scrap Metal (Ferrous & Non-Ferrous)	37,660.00	Pounds	18.83
Other Metal (explain below)	49,620.00	Pounds	24.81
Metal Total			43.64

Residential Yard Waste

Yard Waste

MATERIAL	AMOUNT	DISPOSED	TOTAL TONS
Yard Waste (Compost)	4,665.00	Cubic Yards	1,555.00
Yard Waste Total			1,555.00

Residential Solid Waste

Solid Waste

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Material Sent to Landfill (including bulky/special)	6,047.30	Tons	6,047.30
Material Incinerated		Tons	
Solid Waste Total			6,047.30

Other Materials

MATERIALS	AMOUNT	DISPOSED	TOTAL TONS
Vehicle Batteries		Tons	
Household Batteries		Tons	
Used Oil	2,450.00	Pounds	1.23
Major Appliances		Tons	
Antifreeze		Tons	
Waste Tires		Tons	
Electronic Waste	15,300.00	Pounds	7.65
Other (explain below)		Tons	
Other Materials Total			8.88

Other (describe):

NOTE: Once you click 'Save' below, you will see a popup with two options.
If you need to return later to enter more data, click 'Save as Draft'.
If you have entered all data, click ‘Mark as Complete’. This will lock the data and you WILL NOT be able to update any of your data.

Response created on: Feb 1, 2020 at 11:09 AM CST by eherrera@cityofriverview.com

Response last updated on: Feb 1, 2020 at 11:09 AM CST by eherrera@cityofriverview.com

APPENDIX D

NRCS SOIL SURVEY REPORT

United States Department of Agriculture

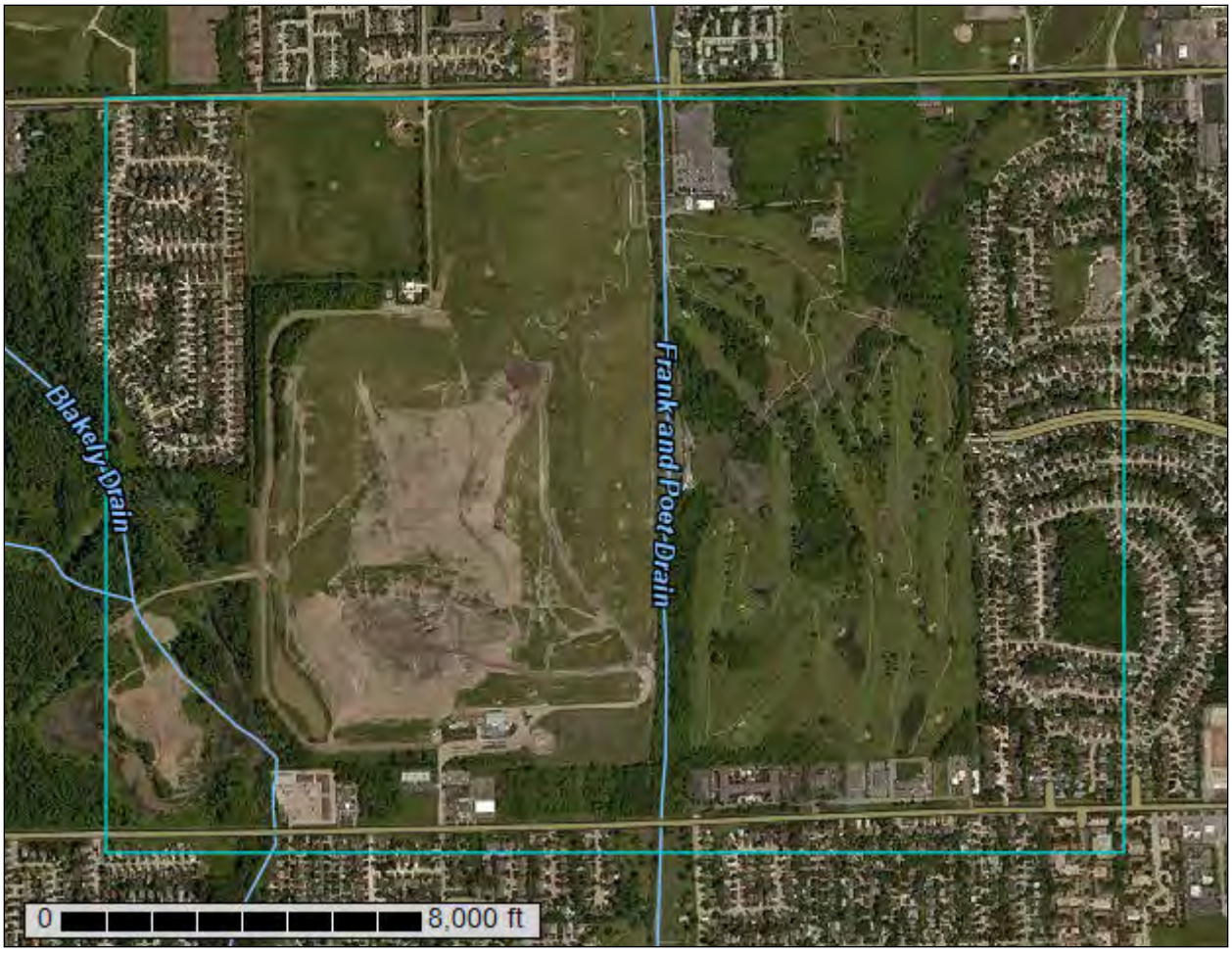
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Wayne County, Michigan

Riverview Cell 8



June 16, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

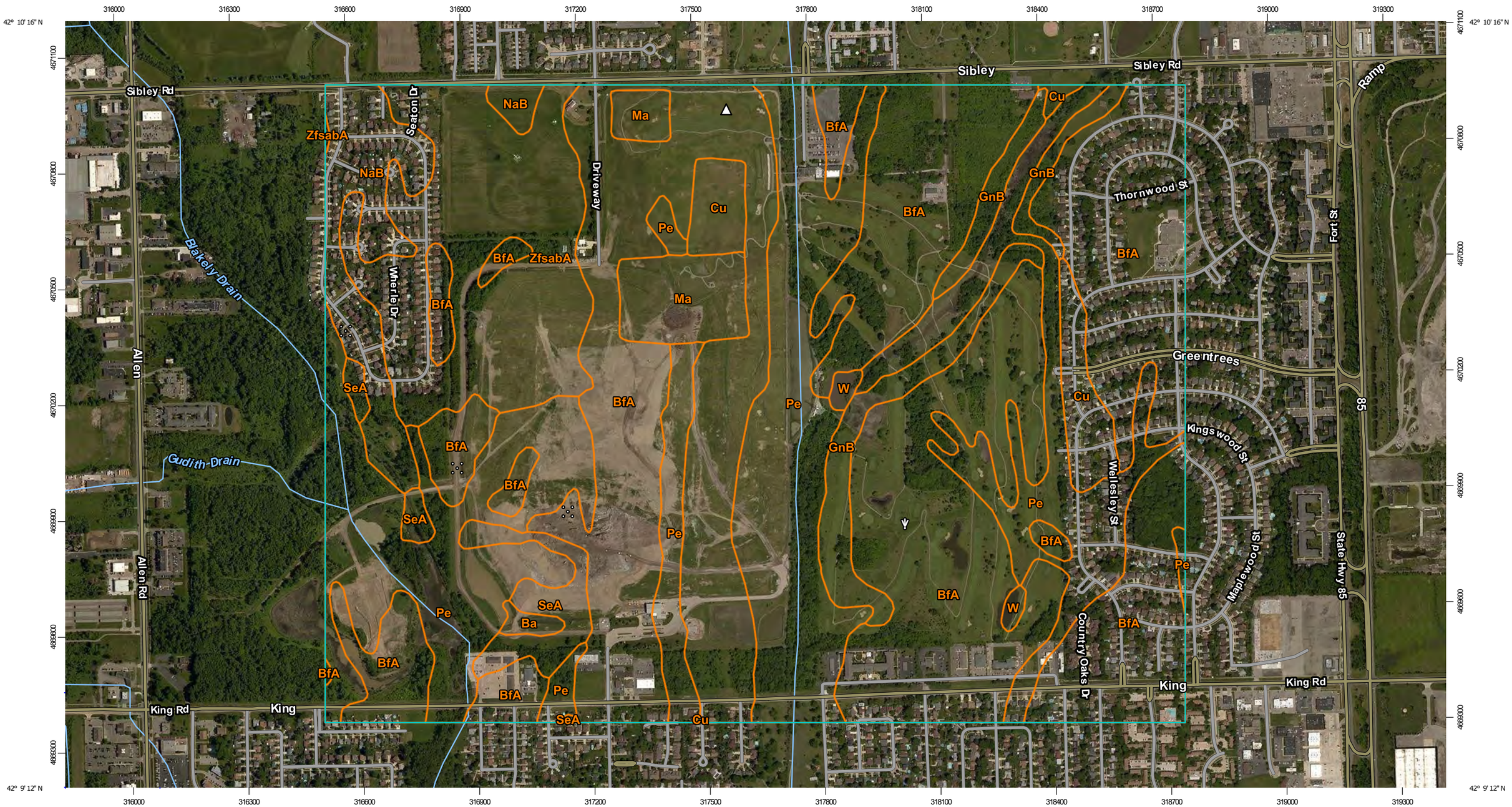
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Wayne County, Michigan
Survey Area Data: Version 2, Feb 15, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 31, 2014—Jun 15, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Wayne County, Michigan (MI163)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ba	Belleville loamy fine sand	2.2	0.2%
BfA	Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes	445.6	48.7%
Cu	Cut and fill land	21.8	2.4%
GnB	Glynwood loam, 2 to 6 percent slopes	31.2	3.4%
Ma	Made land	23.1	2.5%
NaB	Nappanee silt loam, 0 to 4 percent slopes	37.9	4.1%
Pe	Pewamo loam	238.7	26.1%
SeA	Selfridge loamy sand, 0 to 3 percent slopes	18.1	2.0%
W	Water	2.7	0.3%
ZfsabA	Ziegenfuss clay, 0 to 1 percent slopes	94.7	10.3%
Totals for Area of Interest		**915.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Wayne County, Michigan

Ba—Belleville loamy fine sand

Map Unit Setting

National map unit symbol: 6bjy
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Belleville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Belleville

Setting

Landform: Depressions on till-floored lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits over loamy till

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 30 inches: fine sand
H3 - 30 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Selfridge

Percent of map unit: 5 percent
Landform: Drainageways on till-floored lake plains
Landform position (three-dimensional): Rise

Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Tedrow

Percent of map unit: 5 percent
Landform: Drainageways on strand plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

BfA—Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2wb29
Elevation: 540 to 850 feet
Mean annual precipitation: 28 to 38 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 135 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount

Setting

Landform: Wave-worked till plains, nearshore zones (relict)
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Moderately fine-textured till

Typical profile

Ap - 0 to 9 inches: loam
Bt - 9 to 27 inches: clay
BC - 27 to 37 inches: clay loam
Cd - 37 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 19 to 49 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)
Depth to water table: About 6 to 12 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Pewamo

Percent of map unit: 7 percent
Landform: Wave-worked till plains, nearshore zones (relict)
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Microfeatures of landform position: Open depressions
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Metamora

Percent of map unit: 5 percent
Landform: Wave-worked till plains, nearshore zones (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Rises
Down-slope shape: Linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Selfridge

Percent of map unit: 3 percent
Landform: Wave-worked till plains, nearshore zones (relict)
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Rises
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Cu—Cut and fill land

Map Unit Setting

National map unit symbol: 6bk5
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 140 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Cut and fill land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

GnB—Glynwood loam, 2 to 6 percent slopes

Map Unit Setting
National map unit symbol: 2v4bq
Elevation: 700 to 1,060 feet
Mean annual precipitation: 34 to 38 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Glynwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood

Setting
Landform: End moraines on till plains, ground moraines on till plains
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Wisconsin till derived from limestone and shale

Typical profile
Ap - 0 to 9 inches: loam
Bt - 9 to 31 inches: clay
BC - 31 to 35 inches: clay loam
Cd - 35 to 79 inches: clay loam

Properties and qualities
Slope: 2 to 6 percent
Depth to restrictive feature: 28 to 45 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Rawson

Percent of map unit: 6 percent
Landform: End moraines on till plains, ground moraines on till plains
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Blount

Percent of map unit: 5 percent
Landform: End moraines on till plains, ground moraines on till plains
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pewamo

Percent of map unit: 4 percent
Landform: Ground moraines on till plains, end moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Ma—Made land

Map Unit Setting

National map unit symbol: 6bkf
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Made land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

NaB—Nappanee silt loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 6bkp
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Nappanee and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nappanee

Setting

Landform: Drainageways on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey till

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 29 inches: clay
H3 - 29 to 60 inches: clay

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Hoytville

Percent of map unit: 4 percent
Landform: Depressions on till-floored lake plains

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Selfridge

Percent of map unit: 3 percent
Landform: Drainageways on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

St. clair

Percent of map unit: 3 percent
Landform: Flats on till plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Pe—Pewamo loam

Map Unit Setting

National map unit symbol: 6bkv
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pewamo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting

Landform: Depressions on till-floored lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 36 inches: silty clay loam
H3 - 36 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Blount

Percent of map unit: 4 percent
Landform: Flats on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Metamora

Percent of map unit: 3 percent
Landform: Drainageways on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Corunna

Percent of map unit: 3 percent
Landform: Depressions on till-floored lake plains, depressions on lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

SeA—Selfridge loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 6bkw
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Selfridge and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Selfridge

Setting

Landform: Drainageways on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits over loamy till

Typical profile

H1 - 0 to 9 inches: loamy sand
H2 - 9 to 24 inches: loamy sand
H3 - 24 to 29 inches: sandy loam
H4 - 29 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Blount

Percent of map unit: 6 percent
Landform: Flats on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Corunna

Percent of map unit: 6 percent
Landform: Depressions on till-floored lake plains, depressions on lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Hydric soil rating: Yes

Metea

Percent of map unit: 3 percent
Landform: Flats on till-floored lake plains, knolls on till-floored lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 6bl8
Elevation: 570 to 720 feet
Mean annual precipitation: 28 to 34 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 160 days
Farmland classification: Not prime farmland

Minor Components

Water

Percent of map unit: 100 percent
Hydric soil rating: Unranked

ZfsabA—Ziegenfuss clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2lp5v
Elevation: 570 to 800 feet
Mean annual precipitation: 31 to 34 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 143 to 182 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Ziegenfuss and similar soils: 89 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ziegenfuss

Setting

Landform: Glacial drainage channels, till-floored lake plains, water-lain moraines, drainageways on wave-worked till plains, flats on wave-worked till plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wave worked clayey till over dense till

Typical profile

Ap - 0 to 9 inches: clay
Bg - 9 to 27 inches: clay
C - 27 to 51 inches: clay
2Cd - 51 to 80 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 36 to 60 inches to densic material
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 35 percent
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Nappanee

Percent of map unit: 10 percent
Landform: Water-lain moraines, drainageways on wave-worked till plains, knolls on wave-worked till plains, till-floored lake plains, glacial drainage channels
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Rimer

Percent of map unit: 1 percent
Landform: Water-lain moraines, knolls on wave-worked till plains, till-floored lake plains, glacial drainage channels
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

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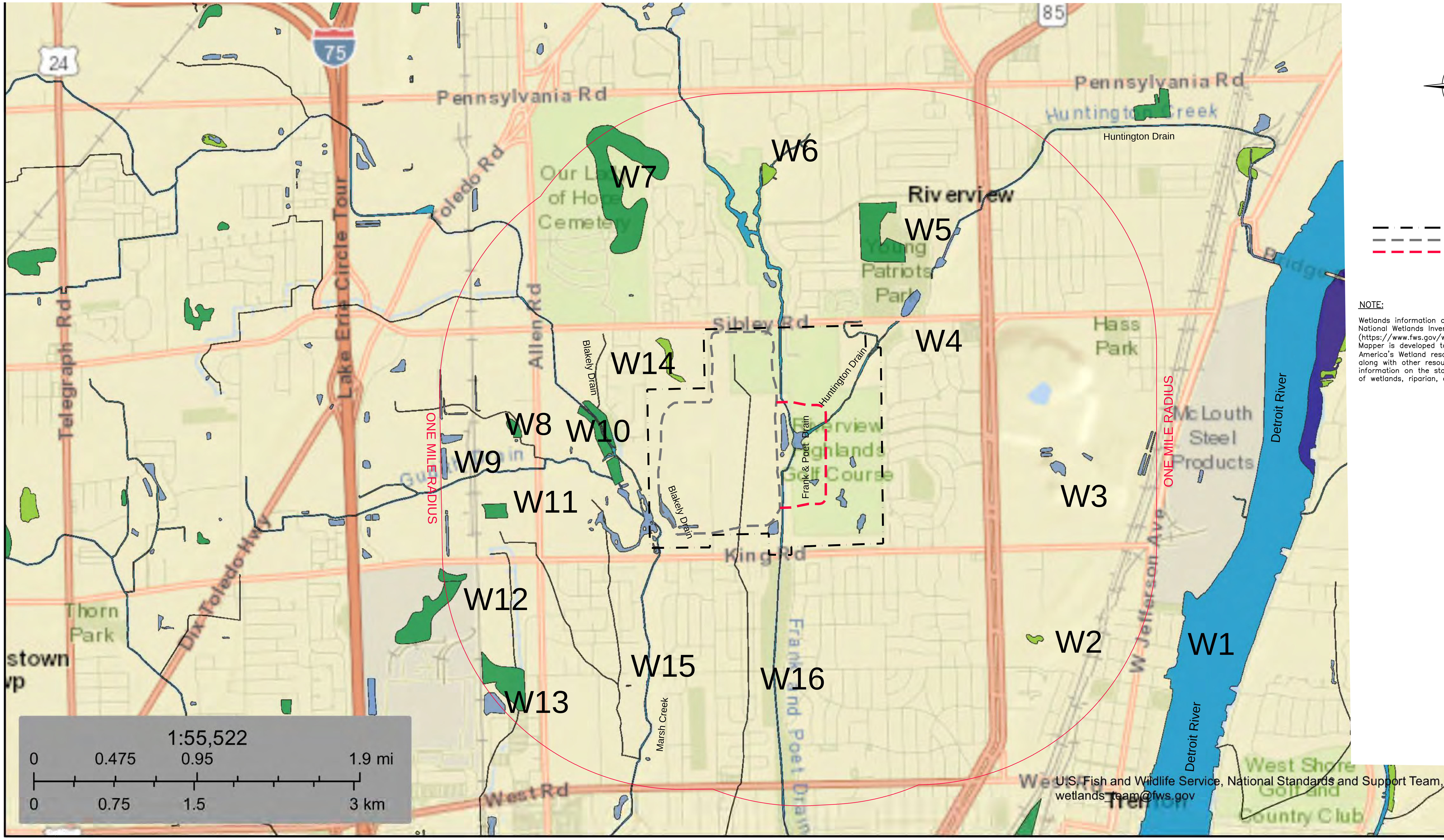
APPENDIX E

OFFSITE WETLANDS AND WATER BODIES



LEGEND

PROPERTY BOUNDARY
EXISTING SOLID WASTE BOUNDARY
EXPANSION AREA BOUNDARY

NOTE:

Wetlands information obtained from U.S. Fish & Wildlife Service National Wetlands Inventory Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html). The Wetlands Mapper is developed to deliver easy-to-use, map like views of America's Wetland resources. It integrates digital map data along with other resource information to produce current information on the status, extent, characteristics and functions of wetlands, riparian, and deepwater habitats.

January 4, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21 DRAWN BY JH DESIGNED BY JH CHECKED BY JEB APPROVED BY DH

TETRA TECH

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CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
OFFSITE WETLANDS AND WATERBODIES

SHEET NO. **E1**
PROJECT NO. 209-4201587

RIVERVIEW LAND PRESERVE
ONE-MILE RADIUS WETLANDS MAPPING
FACILITY INCLUSION REQUEST - APPENDIX E

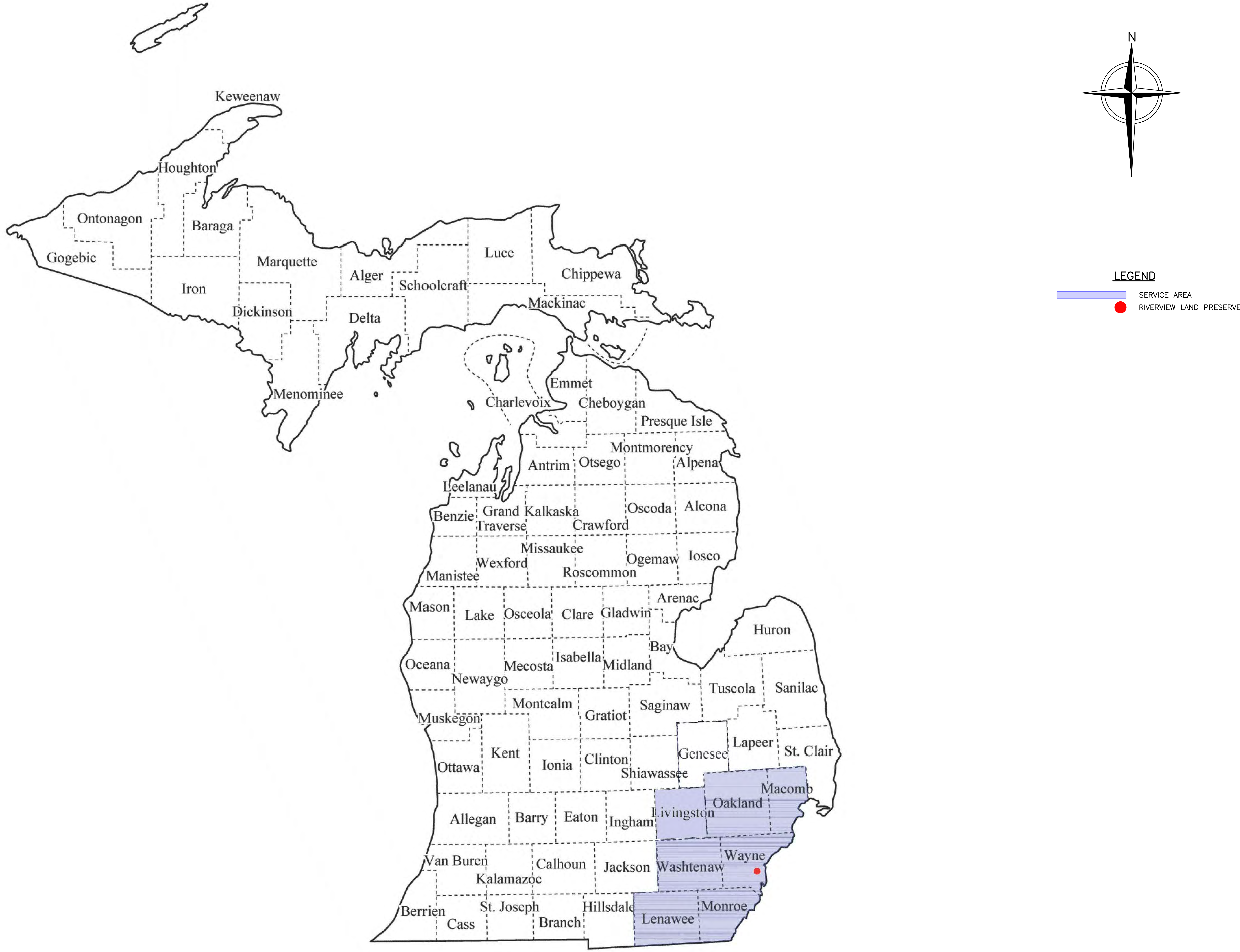
MAP ID	WETLAND TYPE	DISTANCE TO SITE (MI)
W1	Riverine	1.33
W2	Freshwater Emergent Wetland	0.76
W3	Freshwater Pond	0.73
W4	Freshwater Pond	0.15
W5	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.27
W6	Freshwater Emergent Wetland/Riverine	0.59
W7	Freshwater Forested/Shrub Wetland	0.45
W8	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.56
W9	Freshwater Pond/Riverine	0.82
W10	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.13
W11	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.63
W12	Freshwater Forested/Shrub Wetland/Riverine	0.83
W13	Freshwater Forested/Shrub Wetland/Freshwater Pond/Riverine	0.80
W14	Freshwater Emergent Wetland	<0.1
W15	Freshwater Pond/Riverine	0.42
W16	Riverine	0.42

*All distances measured from the edge of the properties' boundary to the centroid of the wetland area.

APPENDIX F

WASTE ACCEPTANCE DATA

F.1 WASTE ACCEPTANCE AREA MAPS



N
LEGEND
SERVICE AREA
RIVERVIEW LAND PRESERVE
Keweenaw
Houghton
Ontonagon
Baraga
Gogebic
Marquette
Iron
Alger
Schoolcraft
Luce
Chippewa
Dickinson
Delta
Mackinac
Menominee
Emmet
Charlevoix
Cheboygan
Presque Isle
Montmorency
Antrim
Otsego
Alpena
Leelanau
Benzie
Grand Traverse
Kalkaska
Crawford
Oscoda
Alcona
Missaukee
Wexford
Manistee
Roscommon
Ogemaw
Iosco
Arenac
Mason
Lake
Osceola
Clare
Gladwin
Huron
Bay
Oceana
Newaygo
Mecosta
Isabella
Midland
Tuscola
Sanilac
Muskegon
Montcalm
Gratiot
Saginaw
Genesee
Lapeer
St. Clair
Ottawa
Kent
Ionia
Clinton
Shiawassee
Macomb
Oakland
Livingston
Allegan
Barry
Eaton
Ingham
Wayne
Van Buren
Calhoun
Jackson
Washtenaw
Kalamazoo
Berrien
Cass
St. Joseph
Branch
Hillsdale
Lenawee
Monroe

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21
DRAWN BY JH
DESIGNED BY JH
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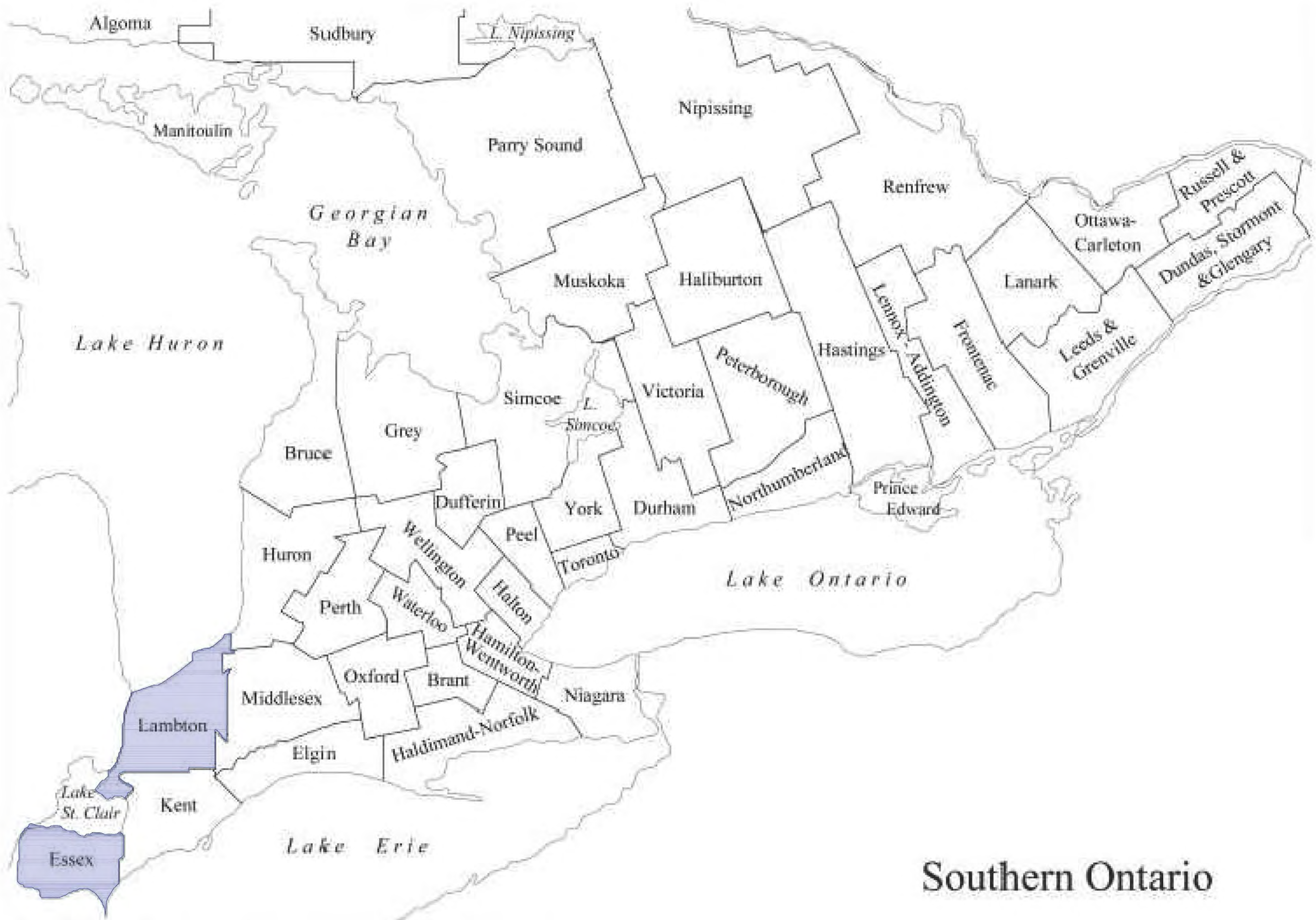
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
MICHIGAN SERVICE AREAS

SHEET NO.
F1A
PROJECT NO.
209-4201587


Algoma
Sudbury
L. Nipissing
Manitoulin
Nipissing
Parry Sound
Renfrew
Georgian Bay
Russell & Prescott
Ottawa-Carleton
Dundas, Stormont &Glengary
Muskoka
Haliburton
Lanark
Lake Huron
Lennox Addington
Frontenac
Leeds & Grenville
Hastings
Peterborough
Victoria
Simcoe
L. Simcoe
Grey
Bruce
Northumberland
Prince Edward
Dufferin
York
Durham
Huron
Wellington
Peel
Toronto
Lake Ontario
Perth
Waterloo
Halton
Hamilton-Wentworth
Lambton
Middlesex
Oxford
Brant
Niagara
Haldimand-Norfolk
Elgin
Lake St. Clair
Kent
Essex
Lake Erie
Southern Ontario

N

LEGEND

SERVICE AREA

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 01/04/21
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DESIGNED BY JH
CHECKED BY JEB
APPROVED BY DH

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CITY OF RIVERVIEW
RIVERVIEW LAND PRESERVE
WAYNE COUNTY, MICHIGAN

FACILITY INCLUSION REQUEST
ONTARIO SERVICE AREAS

SHEET NO. **F1B**

PROJECT NO. 209–4201587

F.2 WASTE VOLUMES BY AREA

RIVERVIEW LAND PRESERVE

PERCENTAGE OF WASTE PER SERVICE AREA
FACILITY INCLUSION REQUEST - APPENDIX F.2

SERVICE AREA	2017 CY (gate)	2017 % of Total	2018 CY (gate)	2018 % of Total	2019 CY (gate)	2019 % of Total	2020 CY (gate)	2020 % of Total
Michigan Counties								
Hillsdale	0	0%	27	0%	0	0%	0	0%
Lenawee	56	0%	3,966	0%	4,206	0%	3731	0%
Livingston	111	0%	111	0%	0	0%	0	0%
Macomb	247,744	12%	74,241	4%	50,824	3%	21,538	1%
Monroe	338,149	16%	328,089	17%	300,262	15%	304,446	14%
Oakland	31,602	2%	59,637	3%	17,534	1%	18,231	1%
Washtenaw	579	0%	6,150	0%	1,804	0%	356	0%
Wayne	**1,025,189**	**50%**	**1,245,459**	**64%**	**1,333,977**	**69%**	**1,620,773**	**75%**
Hillsdale	0	0%	27	0%	0	0%	0	0%
Lenawee	56	0%	3,966	0%	4,206	0%	3,731	0%
Livingston	111	0%	111	0%	0	0%	0	0%
Ohio	0	0%	0	0%	0	0%	528	0%
Canada	420,899	20%	232,502	12%	231,472	12%	201,764	9%
Total Waste (CY)	2,064,329	100%	1,950,182	100%	1,940,131	100%	2,171,367	100%

F.3 ANNUAL SOLID WASTE DISPOSAL REPORTS – 2019 AND 2020

Michigan Department of Environmental Quality
Waste Management and Radiological Protection Division

COMBINED SOLID WASTE LANDFILL WASTE RECEIPT REPORT

As required by Section 11507a of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
Failure to submit this form may result in enforcement actions pursuant to Sections 11546 or 11549 of Part 115.

PART I - Facility Information

LEGAL NAME OF FACILITY		WASTE DATA SYSTEM NUMBER	REPORTING YEAR
Riverview Land Preserve		399054	**2018-2019**
SITE ADDRESS		TOWNSHIP	COUNTY
20863 Grange Road		N/A	Wayne
SITE CITY / TOWNSHIP	STATE	ZIP CODE	TELEPHONE
Riverview	MI	48193	734-281-4263

FACILITY OWNER	TYPE II	TYPE III	TYPE III Segregated	CAPTIVE	NONCAPTIVE
City of Riverview	☑	☐	☐	☐	☑

WASTE RECEIPT AT GATE: DOES THIS FACILITY REPORT IN TONS? ☑ **YES, FACILITY REPORTS IN TONS**

Report Capacity data in 4th Qtr ONLY	Cubic Yards		Est. Years
Total Permitted Capacity:	40,522,240	yds.	
Est. Capacity at start of state fiscal year (October 1):	9,527,488	yds.	12.9
Est. Capacity at end of state fiscal year (September 30):	8,780,680	yds.	11.8
Est. Capacity used during this reporting year:	746,809	yds.	

NOTE: The "Cubic Yards" reported here are "air space" and will, therefore, not be the same as the yards reported on the attached sheet which are in "gate yards."

SEE INSTRUCTION SHEET FOR COMPLETING FORM

TABLE 1: *Automatically calculated from the data recorded in PART II - Waste Report Information.*

Quarterly Reporting Period:	Amount of Waste Received		Surcharge Due	PCF Deposit Estimate
	Tons	Cubic Yards		
Q1: October 1 - December 31	167,638.1 tons	502,914.3 yds.	$ 60,349.72	$ 125,728.58
Q2: January 1 - March 31	131,305.5 tons	393,916.4 yds.	$ 47,269.96	$ 98,479.09
Q3: April 1 - June 30	185,421.0 tons	556,262.9 yds.	$ 66,751.54	$ 139,065.71
Q4: July 1 - September 30	162,344.8 tons	487,034.5 yds.	$ 58,444.14	$ 121,758.62
Total	**646,709.3** tons	**1,940,128.0 yds.**	**$ 232,815.36**	**$ 485,032.00**

TABLE 2: *Information directly inserted by facility.*

If any corrections were made for a "quarter" after the original submittal, please state so in the line adjacent to the relative quarter.	Record the amount(s) actually submitted for each quarter:		
	Quarterly Reporting Period:	Surcharge Paid	PCF Deposit Paid
	Q1: October 1 - December 31	$ 60,349.72	$ -
	Q2: January 1 - March 31	$ 47,269.96	$ -
	Q3: April 1 - June 30	$ 66,751.54	$ -
	Q4: July 1 - September 30	$ 58,444.14	$ -
	Total	**$ 232,815.36**	**$ -**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that I am fully authorized by the owner and/or operator of the landfill to submit this report. Should the signatory find at any time after submittal of the requested information that any portion of the submittal certified as true is false or misleading, the signatory shall immediately notify the DEQ providing any corrections, explanations, or additional information necessary.

OPERATOR'S/OWNER'S SIGNATURE:	TITLE:	DATE:
	ACM/Land Preserve Director	***10/29/2019***
	EMAIL ADDRESS:	CONTACT TELEPHONE:
NAME TYPED or PRINTED: **Jeffrey E. Dobek**	***jdobek@cityofriverview.com***	734-281-4263

Return completed Part I and worksheet(s) and the appropriate fee to the Cashiers Office each quarter.
E-MAIL AN ELECTRONIC COPY OF THE ENTIRE SPREADSHEET AFTER THE 4TH QUARTER TO:
DEQ-solid-waste-forms@michigan.gov

Make check or money order payable to: **STATE OF MICHIGAN**

REMIT TO: **DEPARTMENT OF ENVIRONMENTAL QUALITY**
CASHIER'S OFFICE
P.O. BOX 30657
LANSING MI 48909-8157

FOR DEPT. CASHIER'S OFFICE ONLY

PART II - Waste Report Information

LEGAL NAME OF FACILITY	SITE CITY/ TOWNSHIP	REPORTING YEAR
Riverview Land Preserve	Riverview	**2018-2019**

CURRENT QUARTER: 4th QTR | Is this a 'CAF NO

Conversion factor: based on the "Type of Solid Waste" received.
- MCW - three ± cubic yards per ton as the conversion factor.
- Ashes - one ± cubic yard per ton as the conversion factor.
- Industrial Waste - one ± cubic yard per ton as the conversion factor.
- Other wastes: use conversion factors suitable for the waste received.

Captives do not need to make quarterly payments; captives need to submit only the fourth quarter report with annual payment.

FACILITY REPORTS IN TONS			3rd QTR	2nd QTR	1st QTR	TOTAL	Type of Solid Waste			Origin of Waste	
TONS	**Factor**	**Yards**	Yds.	Yds.	Yds.	Yds.	**Waste Category**	**Waste Type**	Segregated Waste?	**Waste Origin Category**	**Waste Origin**
73,145	3.00	219,434	233,974	157,816	197,271	808,495	Municipal_and_Commercial	MCW		Michigan_County	Wayne
51,667	3.00	155,002	141,319	85,351	124,907	506,579	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Wayne
682	3.00	2,046	8,620	1,479	6,472	18,617	Industrial	IW_Other		Michigan_County	Wayne
0	3.00	0	210	75		286	Industrial	Foundry_Sand		Michigan_County	Wayne
2	3.00	5	35	415	430	884	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Washtenaw
15	3.00	44	42	1		88	Municipal_and_Commercial	MCW		Michigan_County	Washtenaw
277	3.00	832				832	Industrial	IW_Other		Michigan_County	Washtenaw
0	3.00	0	2,094	5,363	5,342	12,799	Municipal_and_Commercial	MCW		Michigan_County	Oakland
192	3.00	576	603	734	1,349	3,261	Industrial	Foundry_Sand		Michigan_County	Oakland
0	3.00	0	364	1,098		1,462	Industrial	IW_Other		Michigan_County	Oakland
0	3.00	0	12			12	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Oakland
18,474	3.00	55,421	80,706	76,791	83,067	295,986	Municipal_and_Commercial	MCW		Michigan_County	Monroe
161	3.00	482	588	1,133	1,176	3,378	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Monroe
0	3.00	0			299	299	Industrial	Wastewater_Sludges		Michigan_County	Monroe
147	3.00	442	82	44	30	599	Industrial	IW_Other		Michigan_County	Monroe
2,604	3.00	7,811	5,745	7,421	9,970	30,948	Municipal_and_Commercial	MCW		Michigan_County	Macomb
0	3.00	0	859	2,562	2,001	5,422	Industrial	Foundry_Sand		Michigan_County	Macomb
39	3.00	118	106	126	162	513	Industrial	IW_Other		Michigan_County	Macomb
0	3.00	0	13,936	5		13,941	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Macomb
394	3.00	1,182	1,145	409	1,471	4,206	Municipal_and_Commercial	MCW		Michigan_County	Lenawee
0	3.00	0			52	52	Industrial	IW_Other		Michigan_County	Kalamazoo
14,368	3.00	43,104	65,199	53,095	68,643	230,042	Municipal_and_Commercial	MCW		Out_of_Country	Canada
179	3.00	536	622		273	1,430	Construction_and_Demolition	Construction_or_Demolition		Out_of_Country	Canada
162,345		487,034	556,263	393,916	502,914	1,940,128					

Surcharge Amount Due = 487,034 cubic yards **x $ 0.12** / cubic yard = **$58,444.14**

Michigan Department of Environment, Great Lakes, and Energy
Materials Management Division

COMBINED SOLID WASTE LANDFILL WASTE RECEIPT REPORT

As required by Section 11507a of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
Failure to submit this form may result in enforcement actions pursuant to Sections 11546 or 11549 of Part 115.

PART I - Facility Information

LEGAL NAME OF FACILITY		WASTE DATA SYSTEM NUMBER	REPORTING YEAR
Riverview Land Preserve		399054	**2019-2020**
SITE ADDRESS		TOWNSHIP	COUNTY
20863 Grange road		N/A	Wayne
SITE CITY / TOWNSHIP	STATE	ZIP CODE	TELEPHONE
Riverview	MI	48193	734-281-4263

FACILITY OWNER	TYPE II	TYPE III	TYPE III Segregated	CAPTIVE	NONCAPTIVE
City of Riverview	☑	☐	☐	☐	☑

WASTE RECEIPT AT GATE: DOES THIS FACILITY REPORT IN TONS? ☑ **YES, FACILITY REPORTS IN TONS**

Report Capacity data in 4th Qtr ONLY	Cubic Yards		Est. Years
Total Permitted Capacity:	40,522,240	yds.	
Est. Capacity at start of state fiscal year (October 1):	8,780,680	yds.	12
Est. Capacity at end of state fiscal year (September 30):	8,046,900	yds.	11
Est. Capacity used during this reporting year:	733,780	yds.	

NOTE: The "Cubic Yards" reported here are "air space" and will, therefore, not be the same as the yards reported on the attached sheet which are in "gate yards."

SEE INSTRUCTION SHEET FOR COMPLETING FORM

TABLE 1: *Automatically calculated from the data recorded in PART II - Waste Report Information.*

Quarterly Reporting Period:	Amount of Waste Received		Surcharge Due	PCF Deposit Estimate
	Tons	Cubic Yards		
Q1: October 1 - December 31	161,480.4 tons	484,441.1 yds.	$ 58,132.94	$ 121,110.29
Q2: January 1 - March 31	140,128.8 tons	420,386.5 yds.	$ 50,446.38	$ 105,096.62
Q3: April 1 - June 30	176,496.9 tons	529,490.8 yds.	$ 63,538.90	$ 132,372.71
Q4: July 1 - September 30	245,682.5 tons	737,047.5 yds.	$ 88,445.70	$ 184,261.88
Total	**723,788.6** tons	**2,171,365.9 yds.**	**$ 260,563.91**	**$ 542,841.48**

TABLE 2: *Information directly inserted by facility.*

If any corrections were made for a "quarter" after the original submittal, please state so in the line adjacent to the relative quarter.	Record the amount(s) actually submitted for each quarter:		
	Quarterly Reporting Period:	Surcharge Paid	PCF Deposit Paid
	Q1: October 1 - December 31	$ 58,132.94	
	Q2: January 1 - March 31	$ 50,446.38	
	Q3: April 1 - June 30	$ 63,538.90	
	Q4: July 1 - September 30	$ 88,445.70	
	Total	**$ 260,563.92**	**$ -**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that I am fully authorized by the owner and/or operator of the landfill to submit this report. Should the signatory find at any time after submittal of the requested information that any portion of the submittal certified as true is false or misleading, the signatory shall immediately notify EGLE providing any corrections, explanations, or additional information necessary.

OPERATOR'S/OWNER'S SIGNATURE:	TITLE:	DATE:
	ACM/Land Preserve Director	*10/26/2020*
	EMAIL ADDRESS:	CONTACT TELEPHONE:
NAME TYPED or PRINTED: Jeffrey E. Dobek	*jdobek@cityofriverview.com*	734-281-4263

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CASHIER'S OFFICE
P.O. BOX 30657
LANSING MI 48909-8157

FOR DEPT. CASHIER'S OFFICE ONLY

PART II - Waste Report Information

LEGAL NAME OF FACILITY	SITE CITY/ TOWNSHIP	REPORTING YEAR
Riverview Land Preserve	**Riverview**	**2019-2020**

CURRENT QUARTER: 4th QTR | Is this a '*CAPTIVE*' facility?: NO

Conversion factor: based on the "Type of Solid Waste" received.
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- Industrial Waste - one ± cubic yard per ton as the conversion factor.
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FACILITY REPORTS IN TONS			3rd QTR	2nd QTR	1st QTR	TOTAL	Type of Solid Waste		Segregated Waste?	Origin of Waste	
TONS	Factor	Yards	Yds.	Yds.	Yds.	Yds.	Waste Category	Waste Type		Waste Origin Category	Waste Origin
64,099	3.00	192,297	169,520	169,717	228,535	**760,068**	Municipal_and_Commercial	MCW		Michigan_County	Wayne
51,055	3.00	153,164	115,387	108,133	144,829	**521,513**	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Wayne
81,295	3.00	243,885	92,401	775	2,083	**339,144**	Industrial	IW_Other		Michigan_County	Wayne
16	3.00	48				**48**	Industrial	Foundry_Sand		Michigan_County	Wayne
					8	**29**	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Washtenaw
3	3.00	8	38			**46**	Municipal_and_Commercial	MCW		Michigan_County	Washtenaw
94	3.00	281				**281**	Industrial	IW_Other		Michigan_County	Washtenaw
2,879	3.00	8,638	5,611	2,334	92	**16,675**	Municipal_and_Commercial	MCW		Michigan_County	Oakland
					2	**2**	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Oakland
					32	**32**	Industrial	IW_Other		Michigan_County	Oakland
220	3.00	660	196	341	325	**1,522**	Industrial	Foundry_Sand		Michigan_County	Oakland
23,465	3.00	70,394	85,524	83,106	60,191	**299,215**	Municipal_and_Commercial	MCW		Michigan_County	Monroe
470	3.00	1,409	1,406	706	583	**4,105**	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Monroe
134	3.00	401	567	92	65	**1,126**	Industrial	IW_Other		Michigan_County	Monroe
461	3.00	1,384	3,581	2,661	9,045	**16,672**	Municipal_and_Commercial	MCW		Michigan_County	Macomb
					2	**2**	Construction_and_Demolition	Construction_or_Demolition		Michigan_County	Macomb
229	3.00	688	74	4,020	82	**4,864**	Industrial	IW_Other		Michigan_County	Macomb
299	3.00	897	888	824	1,121	**3,731**	Municipal_and_Commercial	MCW		Michigan_County	Lenawee
96	3.00	289	101	63		**453**	Industrial	IW_Other		Out_of_State	Ohio
20,704	3.00	62,113	53,836	47,615	37,091	**200,655**	Municipal_and_Commercial	MCW		Out_of_Country	Canada
163	3.00	490	339		281	**1,109**	Construction_and_Demolition	Construction_or_Demolition		Out_of_Country	Canada
245,683		737,048	529,491	420,386	484,366	**2,171,291**					

Surcharge Amount Due = 737,048 cubic yards x $ 0.12 / cubic vard = $88,445.70