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Partial Deletion Justification for the Land/Soil Portion of the Wauconda Sand and Gravel Superfund Site from the National Priorities List Wauconda, Illinois

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List of Acronyms

AOC	- Administrative Order on Consent
As	- Arsenic
Cl	- Chloride
CERCLA	- Comprehensive Environmental Response, Compensation and Liability Act
EC	- Environmental Covenant
EPA	- U.S. Environmental Protection Agency
FR	- Federal Register
FS	- Feasibility Study
FYR	- Five Year Review
HRS	- Hazard Ranking System
IC	- Institutional Control
ICIAP	- Institutional Controls Implementation and Assurance Plan
Illinois EPA	- Illinois Environmental Protection Agency
LCHD	- Lake County Health Department
LTS	- Long-Term Stewardship
MCL	- Maximum Contaminant Level
µg/l	- micrograms per liter (parts per billion)
NCP	- National Oil and Hazardous Substances Pollution Contingency Plan
NOIPD	- Notice of Intent for Partial Deletion
NPL	- National Priorities List
O&M	- Operation and Maintenance
OSWER	- Office of Solid Waste and Emergency Response
OU	- Operable Unit
PCBs	- Polychlorinated Biphenyls
PIN	- Property Identification Number
QAPP	- Quality Assurance Project Plan
QA/QC	- Quality Assurance/Quality Control
RA	- Remedial Action
RAOs	- Remedial Action Objectives
RD	- Remedial Design
RD/RA	- Remedial Design/Remedial Action
RI	- Remedial Investigation
RI/FS	- Remedial Investigation/Feasibility Study
ROD	- Record of Decision
SAMP	- Sampling Analysis and Management Plan
SCADA	- Supervisory Control and Data Acquisition
TDS	- Total Dissolved Solids
SMCL	- Secondary Maximum Contaminant Level
UAO	- Unilateral Administrative Order
UECA	- Uniform Environmental Covenants Act
UU/UE	- Unlimited Use/Unrestricted Exposure
VC	- Vinyl Chloride

VOCs - Volatile Organic Compound
WTG - Wauconda Task Group
WWTP - Wastewater Treatment Plant

Partial Deletion Justification for the Land/Soil Portion of the Wauconda Sand and Gravel Superfund Site from the National Priorities List, Wauconda, Illinois

1.0 Purpose

The U.S. Environmental Protection Agency (EPA) Region 5 is proposing to delete the land/soil portion of the Wauconda Sand and Gravel Superfund Site (Wauconda Site or Site) located in Wauconda, Lake County, Illinois from the National Priorities List (NPL) (see Figure 1). EPA is proposing to delete the land/soil portion of the Site from the NPL because all cleanup actions have been implemented and no further response action is necessary for the land/soil media other than continued operation and maintenance (O&M), monitoring, long-term stewardship (LTS) of institutional controls (ICs), and five-year reviews (FYRs).

The groundwater portion of the Site will remain on the NPL and is not being considered for deletion as part of this action. EPA and the Illinois Environmental Protection Agency (Illinois EPA) will continue to evaluate whether the groundwater portion of the Site meets EPA's criteria for NPL deletion as additional groundwater data is collected and evaluated.

This partial deletion pertains to the land/soil portion of the tax property identification numbers (PINs) listed below:

- 0924102006 (58.26 acres containing north landfill area)
- 0924102009 (9.52 acres containing south landfill area)
- 0924102007 (1.25 acres) and 0924102008 (6.83 acres) – unfilled property located southwest of the landfill areas that EPA determined was not part of the Site in the 1989 Record of Decision (ROD).

The landfilled areas of the Site are shown in Figure 2. A copy of a tax map showing the parcel information is provided in Figure 3.

This document provides information about the Wauconda Site and explains how the land/soil portion of the Site meets EPA's partial deletion criteria. EPA plans to publish a Notice of Intent for Partial Deletion (NOIPD) of the Site from the NPL in the Federal Register (the proposed rulemaking) and will open a 30-day public comment period on this proposed action. The documents that provide support for this report and the partial deletion are available for review in the Wauconda NPL Partial Deletion Docket (see Appendix A). This docket will be available online at https://www.regulations.gov, Docket ID EPA-HQ-OLEM-2022-0319 and at EPA's webpages for the Site under "Site Documents & Data" at https://www.epa.gov/superfund/wauconda-sand-gravel.

The deletion or a partial deletion of a site from the NPL does not create, alter, or revoke any individual's rights or obligations. The deletion or a partial deletion of a site from the NPL

does not in any way alter the EPA's right to take enforcement actions, as appropriate. The NPL is designed primarily for informational purposes and to assist EPA management. Section 300.425(e)(3) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.425(e)(3), states that a deletion or partial deletion of a site from the NPL does not preclude eligibility for future response actions, should future conditions warrant such actions. As the land/soil that EPA is proposing to delete from the NPL is or was considered to be part of the Wauconda Site, Section 300.425(e)(3) is applicable to this proposed action.

2.0 Agency Concurrence

EPA requested the Illinois EPA's concurrence with proposing the land/soil portion of the Wauconda Site for NPL deletion on April 20, 2022. Illinois EPA issued a letter concurring with EPA's proposed partial deletion on May 17, 2022. A copy of Illinois EPA's concurrence letter is in Appendix B.

EPA Headquarters reviewed this Partial Deletion Justification report on May 16, 2022 and did not have any comments on the report. EPA Region 5 expects EPA Headquarters to propose the Site for partial deletion in the Federal Register in EPA's August 2022 NPL Deletions Update.

3.0 Community Notification and Opportunity for Review and Comment

EPA and Illinois EPA conducted public participation activities throughout all response actions for the Site, satisfying the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Sections 113(k) and 117, 42 U.S.C. §§ 9613(k) and 9617, and the NCP, 40 C.F.R. §§ 300.415(n), 300.430(f), 300.815, and 300.820 (see Section 12.0, Community Involvement of this report for additional details).

EPA will publish a notice advertising the availability of the NOIPD and the 30-day public comment period in a local newspaper, the Wauconda Daily Herald, concurrent with the publication of the NOIPD in the Federal Register in order to satisfy public participation procedures required by Section 300.425(e)(4) of the NCP. EPA will also issue a press release announcing the proposed partial deletion and the public comment period. EPA expects to complete these activities in August 2022.

The documents that EPA relied on for this report and to support the deletion of the land/soil portion of the Site from the NPL are available for public review in the partial deletion docket (see NPL Partial Deletion Docket Reports in Appendix A). This report and copies of the reports in the docket are available to the public online at https://www.regulations.gov, Docket ID EPA-HQ-OLEM-2022-0319 and at EPA's webpage for the Site at https://www.epa.gov/superfund/wauconda-sand-gravel under "Site Documents & Data".

4.0 Site Background and History

4.1 Site Location and Background

The Wauconda Site is a 53-acre landfill consisting of two waste disposal units located on approximately 68 acres of land located northwest of the intersection of Bonner and Garland Roads in Wauconda, Lake County, Illinois (see Figures 1 and 2). The landfill property was re-subdivided in 2014 so that all the waste and landfill cap is located on Lots 2 and 3. The Site is currently comprised of two parcels of land, PIN 0924102006 consisting of 58.26 acres and PIN 0924102009 consisting of 9.52 acres (see Figure 3)[1].

Two adjacent parcels of land located southwest of the landfill, PIN 0924102007 (1.25 acres) and PIN 0924102008 (6.83 acres), were initially considered to be part of the Site. EPA later determined that these parcels were not used for landfilling and concluded that the property did not require any remedial action and was not part of the Site in the 1989 ROD.

The Site is a former sand and gravel quarry that operated as a landfill from the mid-1950s until 1978. The north landfill covers approximately 47 acres and predates the landfill permitting process. The south landfill is approximately seven acres and was a State-permitted solid waste landfill. The waste in the permitted landfill overlies a five feet thick clay liner, however, the liner does not extend up the sidewalls of the waste disposal unit.

Approximately 3.2 million cubic yards of waste was reportedly placed in the landfill. The refuse deposited at the Site consisted of residential garbage, construction debris, some industrial sludges, and drums with undetermined contents. Based on available disposal records, it is estimated that more than 99 percent of the waste was residential waste with less than 1 percent of industrial waste.

The landfill operator covered the waste with approximately two to four feet of soil after the landfill closed. Extensive leachate seeps from the landfill developed several years after closure. Settlement, erosion, and ponding problems occurred and there were several localized areas where the cap thickness was less than two feet. After the landfill closed, the Site was used for recreational activities including model airplane flying, rifle practice, and snowmobiling.

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[1] Based on the "Acres" listed in the property tax records on the County's website which may be slightly different than the "GIS Acres" (see Document ID No. 2004399 in Appendix A). The landfill portion of the Site was comprised of portions of 3 parcels (60 + 7 + 9 acres) which consisted of approximately 76 acres. However, the property where the landfill is located was re-subdivided to only 2 parcels: Lot 2 owned by Washington Land Management, Inc. is 9.52 acres and Lot 3 owned by First Land Group, Inc. is 58.26 acres. Lot 1 is an undeveloped parcel owned by Berger Construction, which contains no waste material nor any portion of the landfill cap, is 6.83 acres. In addition, Berger Construction has dedicated approximately 1.25 acres to Village of Wauconda for roadways and utilities. The total area of the land remains approximately 76 acres.

4.2 Land Use

The Site is located within the Village of Wauconda approximately two miles north of the city center. The Site is bordered on the north by Mutton Creek, on the east by Garland Road, on the south by Bonner Road, and on the west by commercial and industrial businesses. Current land use in the surrounding area is residential, light industrial, and agricultural. Land use to the north of the Site is agricultural with some pasture. Land use east of the Site is residential with commercial land use near the intersection of Garland and Bonner roads. Residential land use is south of the Site, and industrial and commercial land uses are west of the Site. It is anticipated that a mix of land uses similar to that described above will continue near the Site in the future. EPA considered the existing residential development near the Site when establishing the cleanup requirements.

The landfill is fenced, and the contamination remains contained within the fenced area under a soil cap. Land and groundwater use at the Site is restricted by environmental covenants (ECs) recorded with the Lake County Recorder of Deeds on March 9, 2016 (County File Nos. 7274396 and 7274397). Site features including the locations of the monitoring wells, gas vents, drainage structures, settlement monuments, and the leachate collection system are shown in Figure 4.

Approximately 50 feet of the landfill property outside the limits of the waste disposal area and fence-line is used for equipment storage by an excavation company adjacent to the southeast corner of the Site. The remaining Site areas are vacant.

4.3 Surface Water Drainage

The surface water drainage system at the Site consists of eight drainage swales at various locations and a culvert pipe that drains the central portion of the landfill. The majority of the surface water drainage is directed to Mutton Creek, which flows to the west along the northern boundary of the landfill. Mutton Creek drains into Island Lake, which is approximately 3.5 miles west of the Site.

A minor component of surface water drainage from the landfill flows to a small off-Site collection basin located on the adjacent property southwest of the landfill. The collection basin is located in an area that was never used for waste disposal and has no surface water drainage outlet. The collection basin is currently being reconfigured under state and local permits while the property is being redeveloped, including the placement of additional fill material on top of a 10-feet thick clay wall constructed over the western slope of the landfill to provide a grading transition area and swale for directing stormwater away from the landfill.

4.4 Groundwater Use

The hydrogeology at the Site is complex. Groundwater in the upper, water table aquifer unit at the Site is expected to be in contact with the bottom of the waste material and flows to the north-northeast. This is consistent with regional groundwater flow which is influenced by Bangs Lake that recharges the aquifer. Groundwater in the lower aquifer/bedrock unit at the Site flows to the south-southwest. The upper and lower aquifers are separated by an approximately 30-foot-thick clay aquitard that extends below and to about 1,000 feet to the north, east, and northeast of the Site. Where the aquitard is absent, some of the groundwater from the upper aquifer likely impacts groundwater in the lower aquifer.

Area groundwater was used to supply potable water to private and municipal water supplies prior to 2019. In 2019, the Village of Wauconda began receiving water from Lake Michigan and no longer uses its water supply wells. The majority of the residential areas surrounding the Site have been connected to the municipal water supply since 2007 and the residential wells at these locations were sealed.

Thirty-three active residential wells are located within 0.25 mile of the landfill in areas where municipal water is not available. Each year EPA selects five of the residential wells to sample during the annual groundwater monitoring event. No volatile organic compounds (VOCs) were detected in any of the residential wells above Maximum Contaminant Levels (MCLs) during the last five years of sampling (2017 to 2021). One residential well contained a VOC (methylene chloride) at concentrations below the MCL in 2018 but the VOC was not detected when the well was resampled. In 2017 and 2018 two other residential wells contained low levels of two different VOCs (bromomethane and 2,2-dichloropropane) at concentrations less than 0.3 micrograms per liter or µg/l for which MCLs are not available. In 2019, arsenic (As) was detected in a residential well (BR981) at a concentration of 6.8 µg/l which is greater than one-half the 10 MCL µg/l for As. However, As was not detected when the well was resampled.

The public water supply system is shown in Figure 5. The water monitoring well network for the Site, including existing groundwater monitoring wells, abandoned monitoring wells, and residential wells is shown in Figure 6.

4.5 Initial Investigations

Site activities were monitored by the Illinois EPA since the mid-1970s. Problems with leachate discharge to Mutton Creek and groundwater contamination were recorded in a 1974 report by Testing Engineers, Inc. The 1974 report and sampling conducted by the Illinois EPA in 1975 indicated that the landfill was having a substantial effect on the water quality of Mutton Creek. In 1976, the landfill operator implemented leachate control measures at the Site under a Compliance Agreement with the Illinois EPA.

In 1980, Illinois EPA inspectors observed leachate seeping from the landfill into Mutton Creek and detected inorganic, organic, and polychlorinated biphenyl (PCB) contaminants in a private well located near the eastern boundary of the landfill. As a result, the well owner drilled a deeper well into an uncontaminated aquifer. Also, in 1981, EPA received an anonymous report that 600,000 gallons of PCBs had been disposed of at the Site.

Illinois EPA and the Lake County Health Department collected samples from other water supply wells in the area, groundwater monitoring wells installed around the perimeter of the landfill, and Mutton Creek. The investigation concluded that PCBs, metals, and organics were contaminating the groundwater and Mutton Creek.

EPA completed Site Inspection and Preliminary Assessment reports for the Site in 1982 and developed a Hazard Ranking System (HRS) score for the Site. The HRS score was predominantly based on the detection of PCBs in two surface water samples collected at the Site and in groundwater samples collected from three groundwater monitoring wells and one residential well near the Site. However, PCBs were not detected in any of the approximately 210 samples of leachate, surface water, sediment, soil, or groundwater subsequently collected by EPA and other parties during later investigations.

4. 6 NPL Listing

EPA proposed the Wauconda Sand and Gravel Site to the NPL on December 30, 1982 (47 FR 58476). EPA finalized the Site listing on the NPL on September 8, 1983 (48 FR 40658).

5.0 Remedial Investigation/Feasibility Study (RI/FS)

The RI/FS was conducted from 1983 to 1989 in several phases by EPA and a group of potentially responsible parties (including the Village of Wauconda), called the Wauconda Task Group (WTG). The RI included groundwater, residential well water, air, leachate, surface water, and sediment sampling.

EPA conducted the initial RI/FS from 1983 to 1985. EPA did not detect any PCBs during the investigation but found metals and some organic compounds at levels of concern. WTG disputed some of the RI/FS findings during the 1985 public comment period. EPA addressed WTG's comments by issuing an Operable Unit 1 (OU1) ROD that required the implementation of interim remedial measures at the Site, including the construction of a leachate control system, and an additional RI/FS to further evaluate the extent of Site-related groundwater contamination and recommend an appropriate final remedy.

WTG entered into a 1986 Administrative Order by Consent (AOC) with EPA and Illinois EPA to implement the 1985 ROD and conduct the RI/FS. WTG submitted draft and final RI/FS reports in 1987. EPA reviewed WTG's reports and issued an amendment to the final RI/FS report in 1988.

In 1988, EPA and Illinois EPA ordered WTG to conduct additional sampling in Mutton Creek due to leachate discharges from equipment failures during the construction of the leachate control system. EPA also conducted additional air sampling at the Site in May and October of 1988 and issued the final RI/FS report for the Site in 1989.

During the RI, the thickness of the landfill cover was measured at 47 locations and laboratory permeability tests were run on 13 samples collected from the existing soil cover. The cap thickness was found to be 3.5 to 5 feet over most of the Site and was composed of clay or silty clay with a thin vegetative layer on top. The measured permeability of the cap material was from 6×10^{-8} to 3×10^{-7} centimeters/second.

Using the measured permeability, it was estimated that the infiltration through the Site cover could be as low as one inch per year averaged over the entire cover. However, the actual infiltration through the cover was determined to be considerably greater than this due to cracks in the cover. Soil borings performed in 1988 also showed numerous isolated areas of the landfill cover had clay thicknesses of less than 3.5 feet, less than 2 feet and some less than one foot. Gas emissions were observed in these areas and the infiltration of water at these locations was contributing to leachate production and, due to the sandy material below a large portion of the waste, a continuing release of hazardous substances to groundwater.

The RI/FS found that the groundwater contamination was limited to groundwater in the upper aquifer below the Site and that prevailing contaminant levels downgradient of the Site were well below the MCL acceptable drinking water levels. Also, there was no currently complete human exposure pathway to groundwater contaminants because the residential wells in the area were screened in the deeper, lower sand aquifer or bedrock aquifer. The U.S. Agency for Toxic Substances and Disease Registry reviewed the residential well sampling data and confirmed that the data did not indicate any human health concerns.

EPA's air quality survey identified elevated levels of methane and some hazardous substances near gas vents and cracks in the soil cover on the Site, which indicated that additional gas vents should be installed. The monitored substances were found to dissipate to non-detectable levels before leaving the Site. EPA conducted air quality modeling and a risk evaluation and determined that the landfill gas did not pose any unacceptable risks to local residents. However, monitoring would be required to determine whether a gas control system was needed to prevent explosive levels of landfill gas from migrating off-Site to nearby structures if the existing landfill cap was upgraded.

The RI/FS is documented in the following Site reports:

- Remedial Investigation Data Report (EPA, 1984)
- Remedial Investigation Analysis Development of Alternatives Report (EPA, 1984)
- Remedial Investigation Data Assessment Study Phase II Report (EPA, 1985)

- Remedial Investigation Supplement (EPA, 1985)
- Public Comment Draft Feasibility Study (EPA, 1985)
- Supplemental Remedial Investigation/Feasibility Study Report (WTG, 1987)
- Amendment to Supplemental Remedial Investigation/Feasibility Study Report (EPA, 1988)
- Report on Additional Investigations and Remediation Alternatives (EPA, 1989).

6.0 Remedy Selection

EPA issued an interim action ROD for the Site in 1985 (OU1) and a final ROD in 1989 (OU2).

6.1 OU1 ROD

The remedial action objectives (RAOs) of the OU1 ROD were to address:

- The release of leachate to Mutton Creek.
- Direct contact threats from on-Site exposure to leachate and air emissions.
- Erosion and infiltration through the site cover.
- Data gaps to evaluate the extent of Site-related groundwater contamination and recommend an appropriate final remedy for the Site.

To address the RAOs, the OU1 ROD required:

- Installing leachate collection drains (i.e.: ground blanket and/or buried, perforated pipe drains) in seep areas to stop surface leachate discharge into Mutton Creek.
- Providing for proper disposal of leachate, either at the Wauconda Sewage Treatment Plant or a hazardous waste treatment facility in accordance with Agency policy.
- Regrading settled, depressed, and eroded areas on the existing landfill soil cover with sufficient slope to promote rain runoff. This will eliminate ponding and reduce infiltration.
- Revegetating bare and eroded areas to prevent erosion of soils into Mutton Creek.
- Constructing a fence around the site to prevent human contact with gas vents and the leachate collection system.
- An additional investigation to better define water quality in the upper aquifer and to better quantify current and potential endangerment to any receptor. Based on the additional data, reevaluate the final remedial action alternatives and develop additional alternatives if necessary.

6.2 OU2 ROD

EPA issued the final, OU2 ROD for the Site in 1989 following EPA's and WTG's additional investigations. Based on the additional investigations and the limited effectiveness of the clay cap repairs implemented by WTG after the OU1 ROD, the OU2 ROD required the

following remedial actions and recognized that the ROD could be amended if new data showed it was necessary:

- Long-term monitoring of groundwater, air emissions, and Mutton Creek (when leachate discharge to the creek is observed) with action levels to reopen the ROD for additional investigation and evaluation of additional remedial alternatives, including an active landfill gas control system. The long-term monitoring will continue for 30 years or until shown to be unnecessary. Action levels are:

    - ***Groundwater*****:** MCLs or a Site-related calculated cumulative cancer risk level (excluding As and vinyl chloride (VC)) in an off-Site downgradient well greater than 10^{-5}. The 10^{-6} level will not be used because of the difficulty in obtaining reliable measurements for a number of carcinogenic compounds at the 10^{-6} level. For example, the 10^{-6} risk level for benzene (0.7 µg/l), tetrachloroethene (0.7 µg/l) and 1,2-dichloroethane (0.4 µg/l) are near the limits of analytical detectability of these compounds.
    - ***Air Emissions***: Calculated maximum cancer risk to nearby residents greater than 10^{-6}.
    - ***Mutton Creek***: MCLs and EPA Ambient Water Quality Criteria for protection of fresh-water aquatic life.

- Additional upgrades to the Site cap to control erosion and reduce infiltration. These measures include constructing riprap channels along drainage routes, constructing riprap to prevent the toe of the landfill from eroding into Mutton Creek, removing trees, and other erosion control measures. The upgrades will protect the cap from eroding to less than what is provided by two feet of suitable compacted material at any time and any location due to 10-year flood event. Suitable material shall contain less than 50 percent (by weight) sand or coarser material and more than five percent (by weight) clay.

- Improved landfill gas venting including the installation of additional landfill gas vents. Upgraded vents or active treatment systems for controlling the landfill gas emissions will be installed if necessary based on monitoring.

- Continued O&M of the leachate collection system, gas vents (and the active venting system and flares, if employed), Site cap, fence, and monitoring system. The O&M program will be designed and implemented to:

    - Prevent or minimize erosion of the Site cap.
    - Repair Site cap as needed to prevent erosion damage, cracking, exposure of refuse, ponding, to promote drainage, and to minimize air emissions.
    - Restrict access to the Site.
    - Assure representative samples can be collected from the ground water monitoring network.

- Prevent the discharge of leachate to Mutton Creek.
- Assure that leachate is collected efficiently and disposed of in accordance with State, Federal and Local regulations.
- Assure that the overall effectiveness of the site cover is at least equivalent to that of a well-maintained sanitary landfill in the State of Illinois at the time of closure (i.e., two feet of compacted suitable material, with a vegetative cover. Suitable material shall contain less than 50 percent (by weight) sand or coarser material and more than five percent (by weight) clay.

- Operation of the leachate collection system can be discontinued if one of the following conditions occurs:

  - Contaminant concentrations in leachate are below MCLs and EPA Ambient Water Quality Criteria for protection of fresh-water aquatic life.
  - For a period of one year, no leachate is collected in the leachate collection system under average climate conditions for the area.
  - It is otherwise demonstrated that if the operation is discontinued, a leachate release to Mutton Creek will not occur.

- Restrictions on the usage of on-Site ground water. The ROD stated that the Site was considered to be the property on which the landfill is located.

7.0 Remedy Implementation

WTG implemented the OU1 remedy for the Site in accordance with the 1986 AOC in 1987. WTG implemented the OU2 remedy in accordance with a 1989 Unilateral Administrative Order (UAO) from 1991 to 1994. In 2004, EPA issued a second UAO that required WTG to conduct additional residential well sampling and to connect impacted residents to the municipal water supply. In 2007, EPA and the WTG entered into a Consent Decree (finalized by the court in 2009) for the remaining Remedial Action (RA) work and cost recovery.

WTG submitted a Remedial Design/Remedial Action (RD/RA) Work Plan and an updated Quality Assurance Project Plan (QAPP) for the OU2 remedy in 1991. EPA approved WTG's work plan, QAPP, and Final RD in 1991. The Final RD package included a detailed design report, engineering drawings, construction specifications and a schedule for implementing the OU2 remedy.

WTG initiated the OU2 construction in 1992. WTG submitted a Final Remedial Construction Cap Upgrade Report to EPA in December 1992 and a letter report stating that the construction of the landfill gas venting system was complete in 1994. EPA conducted a pre-final inspection of the Site on September 27, 1994 and issued a Preliminary Close Out Report on August 22, 1996. WTG certified that the RA was complete in an RA Report dated April 7, 1997.

Subsequent to the OU2 RA, WTG implemented several upgrades to the remedy based on the results of post-construction monitoring (see Section 7.1). These included:

- Capping approximately three acres of waste material discovered between the landfill and Garland Road and expanding the fence around the additional capped area in 1998 and 1999;
- Providing bottled water and connecting 373 residences in nearby subdivisions to municipal water and abandoning the private wells from 2005 to 2007;
- Adding additional vents to the landfill gas control system and installing gas detection alarms in two residences near the Site in 2009;
- Constructing an additional leachate collection system in the southwest corner of the landfill adjacent to the southwest drainage basin in 2014.

In 2007, WTG submitted an updated RA Work Plan that described the remaining remedial actions associated with the RA/Cost Recovery CD and the procedures and schedule for implementing them. WTG issued additional Construction Completion Reports for the municipal water connection in 2009, for the landfill gas vent expansion in 2010, and for the construction of the south leachate control system in 2010.

Information about the major components of the OU1 and OU2 RA and the post-RA upgrades is provided in the following sections. A map of the current remedy components and other Site features is provided in Figure 4.

7.1 OU1 and OU2 Landfill Cap Repairs

WTG implemented the initial, OU1 cap repairs in 1987. The repairs consisted of regrading the existing Site cover to promote runoff and eliminate ponding resulting from differential settlement of the cap. The 1989 OU2 ROD determined that the 1987 measures were inadequate and required that additional cap repairs and upgrades be implemented. WTG conducted the additional cap repairs in 1992. These included:

- Removing trees and repairing the landfill cap where needed to maintain a cover of no less than two feet in thickness with six inches of a vegetated soil cover;
- Utilization of cover material containing less than 50 percent (dry weight) sand or coarser material and more than 5 percent (dry weight) of clay;
- Eliminating remaining ponding areas and providing erosion protection within the drainage swales to ensure the landfill cap is capable of withstanding a 10-year rain event and without erosion causing surface water to intercept the leachate collection system; and
- Installing eight permanent settlement monuments across the landfill to detect settlement and possible lateral movement of the cap, with the on-Site datum located at a permanent benchmark in the northeast corner of the Site. Surveyed settlement monitoring was discontinued in 1998 since no appreciable movement of the survey monuments was detected during the five years of monitoring.

EPA and WTG inspected the OU2 landfill cap repairs on October 6, 1992, and WTG submitted a Final Remedial Construction Cap Upgrade Report in December 1992. In 1993, WTG implemented additional cap repairs to correct areas of erosion, surface water ponding, lack of vegetation, and leachate seeps found along the west slope of the landfill during the post-construction Site inspections. In 1996, WTG installed a 40-mil thick, linear low density polyethylene liner on the north slope of the landfill in an attempt to further reduce infiltration and subsequent leachate. The area was regraded and reseeded after the upgrade.

7.1.1 Landfill Cap Expansion

In 1998 and 1999, WTG expanded the landfill cap over approximately three acres of additional waste material discovered between the original capped area of the Site and Gardner Road during the installation of gas vents in 1994. The waste was found in the landfill gate area and under an auto salvage business and a former recycling center. Sixty-three test pits showed that the waste was covered with material that ranged from 0.5 feet to more than 5.0 feet in thickness and consisted of sand and gravel, silts, and clay.

The auto salvage and former recycling operations were permanently vacated and the buildings and fences were demolished and disposed of off-Site. The existing cover material was regraded with imported fill to attain a minimum thickness of two feet and to promote positive drainage. The cover was graded by a bulldozer and compacted in lifts not exceeding 12 inches in depth. The building slabs were left in place and graded over with the cover material.

The imported cover material contained less than 50 percent sand (dry weight) and greater than 5 percent clay (dry weight), in accordance with the UAO specifications. Part of a berm that was located in the area was leveled and was also used as grading material. The majority of the work addressed surface water drainage issues rather than increasing the cap thickness.

The Site fence was reconfigured and expanded to enclose the extended cap area; however, due to a property line dispute, the fence could not be completely constructed until 2000. Completion of the landfill cap and fence expansion is documented in the November 1999 Annual Monitoring Report #11 and the January 10, 2001 Quarterly Progress Report.

7.1.2 Post-RA Landfill Cap Upgrades

The FYRs continued to note extensive leachate seeps at the landfill. As is noted below, the leachate collection system was upgraded and continued to lower the leachate level over a multi-year process and the southwest slope of landfill received major upgrades through installation of a 10-foot-thick clay wall. These following major upgrades have been made to the landfill cap over the more recent years.

- 2008: Additional clay cover material was placed over the south, seven-acre landfill cap to further reduce infiltration and promote stormwater drainage.
- 2009: An additional 2 feet of clay was installed in the northwestern portion of the landfill.
- 2010: A high density polyethylene liner and an additional 1 foot of clay was placed in the northwestern area of the landfill.
- 2012: A clay wall was installed along the north slope of the landfill to address a leachate seep to Mutton Creek.
- 2013: A 10-feet thick clay wall was installed along the western slope of the south, seven-acre landfill unit as part of the proposed development plan for the adjacent off-Site property and to eliminate two seeps on the west slope of the landfill.

Starting in 2007, the RA Work Plan requires that all cap repairs be made using 24 inches of silt/clay (containing a minimum of 30 percent clay and no more than 25 percent sand and gravel) and 6 inches of vegetated topsoil. The landfill cap is inspected quarterly with full inspections conducted annually. Additional information about cap inspections, repairs, and upgrades is also available in the Quarterly Monitoring Reports and Annual Monitoring Reports.

7.2 Leachate Control System

WTG installed a leachate collection system along the northern boundary of the Site in 1987 to intercept subsurface leachate seeps and prevent the landfill contaminants from reaching Mutton Creek. The system consists of approximately 1,000 feet of six-inch perforated PVC pipe that drains the leachate into two sumps. The leachate was pumped into a 10,000-gallon on-Site collection tank that was emptied on a periodic basis and trucked to an off-Site facility for disposal, including the Waste Management CID landfill in Chicago.

In 1992, WTG upgraded the leachate collection system to convey the collected leachate to the Wauconda wastewater treatment plant (WWTP) through the sanitary sewer system. The sumps discharge the leachate to a force main, which connects to the Bonner Road sanitary sewer through piping that runs along the west side of the landfill then conveys the leachate directly to the WWTP. The leachate storage tank is used on a contingency basis only, generally when the force main is temporarily shut down for maintenance or during severe rain events when the permit levels would be exceeded or the WWTP goes into bypass mode and the leachate discharge is temporarily halted. In 2017, WTG installed an additional, 21,000-gallon storage tank adjacent to the existing storage tank as a backup.

In 2014, WTG constructed a second leachate collection system in the southwest corner of the landfill to address the continued seepage of leachate in the vicinity of the south drainage basin. The leachate collection system consists of three solar-powered extraction pumping locations, piping, a sampling manhole, and a force main that conveys the leachate to the Bonner Road sanitary sewer and the Wauconda WWTP. Although this system only

operates during the summer months, Site inspections confirm that it has been effective in preventing leachate seeps in the area.

The north and south leachate collection systems are monitored by WTG and the Village of Wauconda and operate under Illinois EPA and Village permits. A supervisory control and data acquisition (SCADA) system monitors the leachate levels, provides remote daily monitoring of the leachate flows, and alerts the Village of high-water conditions. The current allowable maximum seven day rolling average leachate discharge limit is 15,200 gallons per day. When severe or extended rain events indicate the discharge limit may be exceeded, the leachate is diverted to the on-Site storage tank until it can be gradually pumped back into the discharge system.

Leachate levels in the landfill are monitored quarterly at leachate wells LW501, LW502, LW503, LW504, Permitted Manhole, piezometers PZ-1, PZ-2, and gas vents GV-19 and GV-24. Leachate samples are collected quarterly for laboratory analysis in accordance with the discharge permit requirements. Additional information about the leachate control system is available in the 2007 RA Work Plan, the 2013 Operation and Maintenance Plan (O&M Plan), the 2014 Construction Completion Report, South Leachate Control System, and the Annual Monitoring Reports.

7.3 Landfill Gas Venting System

The Site landfill gas vent system consists of 27 vertical passive gas vents that serve as either the central or perimeter gas vent systems. Each vent is equipped with a shut-off valve and a sampling port. The locations of the gas vents are shown in Figure 4.

WTG installed 10 centrally located gas vents (GV1 through GV10) in 1992 as part of the OU2 landfill cap upgrade construction. The vents were installed through the entire waste thickness (approximately 40 feet). In 1994, WTG installed eight additional passive gas vents (GV11 through GV18) at three locations at the perimeter of the landfill due to the identification of subsurface landfill gas outside of the landfill fence and abandoned five of the original gas vents. The perimeter vents are installed approximately 10 feet into the waste.

In 1994, WTG installed two off-Site nested gas monitoring probes (GP1A/B and GP2A/B) south of Bonner Road in areas with previously identified subsurface landfill gas. The probes were located between the landfill and two residences located on Garland Road and on Bonner Road. WTG also installed combustible gas monitor alarms at the residences in 1995. WTG installed a third off-Site gas probe east of the landfill (GP5A/B); however, the probe was abandoned during the 1998-1999 landfill cap expansion. The businesses located on Garland Road adjacent to the Site were also offered gas alarms but declined.

WTG collected landfill gas samples for laboratory VOC analysis from interior gas vents GP1 to GP10 in March and June 1993 and from all gas vents (GP1 to GP18) in June 1996. The

VOC data confirmed that air emissions at the Site boundary were below the 10^{-6} cancer risk level required by the OU2 ROD and that an active landfill gas system was not warranted because the passive venting system was effectively controlling the landfill gas emissions. The calculated cancer risk for a hypothetical resident living at the Site boundary was 5.5×10^{-7}.

In February 2010, WTG installed nine additional interior gas vents within the south, seven-acre landfill unit (GV19 through GV27) to further mitigate off-Site subsurface gas migration. These vents were installed though the waste to a depth of approximately 5 feet above the base of the permitted landfill.

WTG monitors methane concentrations at the off-Site probes on a monthly basis to confirm that the landfill gas is not migrating off-Site and monitors methane concentrations in gas vents GV10 to GV16 and GV19 to GV27, Leachate Manhole (also referred to as Sampling Manhole), and piezometers PZ1 and PZ2 on a quarterly basis. WTG also inspected and maintained the residential gas alarms quarterly. In 2015, the alarm at one of the residences was replaced with upgraded equipment. In 2022, EPA approved that the residential gas monitors were no longer required since methane has not been detected in the off-Site monitoring probes since 2014 and the residential gas alarms have never detected any combustible gas.

Additional information about the landfill gas venting system is available in the 1992 Final Remedial Construction Cap Upgrade Report, the 1993 Landfill Gas Emissions Assessment, the 1996 Landfill Gas Emissions Addendum, the 2007 RA Report, the 2010 Passive Vent Installation Permitted Landfill Area Report, the 2013 O&M Plan, the 2020 Off-Site Methane Gas Monitoring Data Evaluation, the Quarterly Monitoring Reports (for current landfill gas vent data), and the Annual Monitoring Reports.

7.4 Municipal Water Supply Connection

In 2003, as part of a routine landfill monitoring program, the Lake County Health Department (LCHD) sampled residential wells in the Hillcrest Subdivision east of the Site. The sampling detected VC in a residential well above the 1.0 µg/l action level for the Site established in the 1997 RA Report (one-half of the MCL). Subsequent sampling by the LCHD detected VC in three residential wells ranging from 2.2 to 3.6 µg/l. The MCL for VC is 2 µg/l.

WTG conducted additional sampling in the Hillcrest and North Shore subdivisions in 2004 to delineate the extent of the contamination. Additional testing detected VC in residential wells located east and southeast of the landfill. One hundred and twenty five out of 138 possible residential wells were sampled. The sampling found that 81 of the 125 wells contained VC at concentrations ranging from 0.1 to 1.9 µg/l.

Based on these results, WTG expanded the sampling to the Lakeview Villa, Elmcrest, Spencer Highlands, and Wellsmere subdivisions. A total of 16 residential wells out of a

possible 249 wells were sampled during this event. VC was detected in three of the wells ranging from 0.91 to 1.3 µg/l. The remaining 13 wells sampled showed no detections of VC. As an interim action, WTG supplied bottled water to residents in the Hillcrest, North Shore, Lakeview Villa, Elmcrest, Spencer Highlands, and Wellsmere subdivisions, as well as residents along North Garland Road.

In September 2004, EPA issued a second UAO to WTG to conduct additional groundwater and residential well investigations at the Site as a time-critical removal action. Instead, WTG proposed to connect residences to the Wauconda municipal water supply system. WTG also agreed to develop a supplemental RA Work Plan and requested that a new CD be negotiated for the work. EPA agreed and the 2004 UAO was suspended.

WTG began the RD for the municipal water connection in 2005. By 2007, WTG constructed new water mains and connected 373 residents to the Wauconda municipal water system (see Figure 7). The water mains and residential hook-ups were funded by a loan from Illinois EPA to the Village of Wauconda, which also included funding to upgrade the existing WWTP. Four of the residential wells were converted to monitoring wells after the homes were connected to the municipal water supply. All of the other residential wells were sealed.

Eleven residences and one commercial well located on North Garland Road, north of Bonner Road, were not connected to the municipal water system because the water mains were not extended along North Garland Road. These locations continued to receive bottled water from the WTG to eliminate any potential threat associated with the ingestion of contaminated groundwater water.

Except for the commercial well (GD207 located adjacent to the southeast corner of the Site), subsequent sampling of the residential wells along North Garland Road in 2005, 2006, and 2007 showed no detections of VC at or above the 1 µg/l Site action level or the 2 µg/l MCL. WTG continued to supply bottled water to all of these locations until 2010 when it was clear that the wells were not contaminated. In 2014, GD207 ceased being used as a water supply well and was converted to a lower/bedrock aquifer monitoring well.[2]

The 2007 CD and RA Work Plan also required WTG to conduct additional work, including:

- Creation of a perimeter groundwater monitoring network, including the installation of new monitoring wells;

[2] GD207 is former residential well G224 that serviced a home located at a landscaping business. In 2000 the well ceased being used as a residential water supply and was redesignated as GD207. In 2013, the property was acquired by the adjacent excavating business and the well was disconnected and converted to a groundwater monitoring well. The excavating business had already been connected to the municipal water supply in 1996 and the well on that property (GD207) had been abandoned.

- A new study of the area's groundwater and its movement in the soil and rock to characterize the nature and extent of contamination and to evaluate any possible future threats to drinking water; and
- Use the Johnson-Ettinger model to assess potential indoor vapor concentrations for structures in the Hillcrest, Wellsmere, Spencer Highlands, North Shore, Lakeview Villa, Elmcrest, South Garland, and North Garland (including the businesses on Garland Road and Bonner Road) areas.

WTG completed these additional activities and provided the results in a 2009 Hydrogeologic Assessment Report. The report included WTG's vapor intrusion evaluation, which indicated that the concentrations of the VOCs in the groundwater do not pose a risk to residents and commercial/industrial workers through the indoor air pathway. The calculated cancer risks were less than 1×10^{-6} and noncancer risks were below a noncancer hazard index of 1.

WTG continued to conduct groundwater and residential well sampling on a quarterly basis until 2011, then semiannually until 2015. Since 2015, the groundwater and residential well sampling has been conducted annually. The water monitoring well network for the Site, including existing groundwater monitoring wells, abandoned monitoring wells, and residential wells is shown in Figure 6. The wells are sampled at various frequencies in accordance with the sampling schedule in the 2013 O&M Plan or based on the recommendations in the Annual Monitoring Reports. Five of the residential monitoring wells in the monitoring network are sampled each year and are selected by EPA.

Additional information about the municipal water supply connection, the vapor intrusion evaluation, and the groundwater and residential well monitoring is available in the 2009 Construction Completion Report Water System, the 2009 Hydrogeologic Assessment Report, the 2013 O&M Plan, and the Annual Monitoring Reports.

8.0 Operation and Maintenance (O&M)

WTG conducts O&M weekly, monthly, quarterly, and annually in accordance with the 2013 O&M Plan and updated recommendations in the Annual Monitoring Reports. Sampling and analysis activities are conducted in accordance with a 2018 Sampling and Analysis Management Plan (SAMP) and a 2018 QAPP.

The Village of Wauconda is responsible for the operation of the North Leachate Collection system and conducts weekly inspections of the:

- Electrical control panel
- Pumping chamber
- Review pump runtimes (includes switching pump operational sequence)
- Meter chamber
- Force-main cleanout chamber

- Flow meter readings
- SCADA system operation.

The other O&M activities at the Site are conducted by WTG and currently consists of the following:

- Monthly inspection of the north and south leachate collection systems.
- Monthly Leachate building and tank inspection.
- Monthly general inspections of the landfill cap, drainage system, access road, and fence to ensure that the landfill cover system is intact, free of debris, nuisance plants/animals, and erosion/settlement, and otherwise functioning properly.
- Quarterly detailed cap inspections (walk north slope).
- Quarterly leachate monitoring of LW501, LW502, LW503, LW504, Permitted Manhole, PZ1, PZ2, GV19 and GV24.
- Quarterly monitoring of the residential soil gas probes for pressure and % methane (GP1-A/B and GP2-A/B).
- Quarterly gas vent monitoring at GV10 to GV16, GV19 to GV27, Leachate Manhole, and piezometers PZ1 and PZ2.
- Collection of quarterly leachate samples.
- Annual detailed Site inspections.
- Annual sampling at seven upper aquifer groundwater monitoring wells (G305B, OW403, OW404, OW405, OW413, OW414, and OW416) and five residential wells selected by EPA.
- Biennial sampling at six upper aquifer groundwater monitoring wells and 11 lower aquifer/bedrock monitoring wells.
- Fence repairs as needed.
- Cap, swale, and seep repairs as needed.
- Removal of woody vegetation from the fence and drainage ditches.
- Removal of vegetation from the perimeter gravel road.
- Trapping nuisance animals and filling burrows.
- Completion of regular status calls.
- Completion and submittal of Quarterly Status Reports.
- Completion and submittal of an Annual Monitoring Report.

Maps of the on-Site and off-Site sampling locations are shown in Figures 4 and 6. Additional information about specific O&M activities, including Site inspection and maintenance reports and sampling data, is available in the 2013 O&M Plan, 2018 SAMP, 2018 QAPP, the Quarterly Status Reports, Annual Monitoring Reports, and EPA's FYRs. EPA also prepares independent Annual Inspection Oversight Summary reports after each annual inspection.

Year-to-year changes in O&M are reported in Section 6 of the Annual Monitoring Reports, and a list of Site activities and O&M modifications that have been implemented since the 2007 RA Work Plan is provided in Table 7.1 of the Annual Monitoring Reports.

9.0 Institutional Controls (ICs)

EPA's selected remedy includes ICs to control land and groundwater use at the Site. The 1989 ROD clearly calls for ICs in the form of use restrictions for the shallow aquifer below the Site property as it is defined in the remedy declaration. The ROD also states that installation of wells into the deep aquifer at the Site should be restricted. Also, while the ROD does not directly require ICs for groundwater downgradient from the landfill, it states that use restrictions will be put in place via an ordinance. The ROD notes that Lake County will regulate installation of wells near the Site to ensure protectiveness.

Besides proprietary controls in the form of Environmental Covenants (ECs) restricting groundwater and land use for the landfill, the groundwater of the area surrounding the Site is regulated by governmental controls in the form of several ordinances and an Intergovernmental Agreement which regulate groundwater uses in the area. (see Figure 5).

9.1 Environmental Covenants

Land and groundwater use at the Site is restricted by ECs filed with the Lake County Recorder of Deeds on March 9, 2016, for the two tax parcels that comprise the Site property. The EC for Lot 3 was recorded in the land records (Lake County File No. 7274397) for the 58.26-acre north landfill area property (PIN 0924102006)[3], and the EC for Lot 2 was recorded in the land records (Lake County File No. 7274396)[4] for the 9.52-acre south landfill area property (PIN 0924102009). (See Document ID Nos. 507616 and 507617 in Appendix A). Both of the ECs were recorded on March 9, 2016, at the at Lake County Property Recorder's Office[5]. The ECs conform to the Illinois Uniform Environmental Covenants Act (UECA)[6] and:

- Prohibit all land uses of the Property except those necessary for the implementation, operation, and maintenance of the remedy. Examples of land uses that are prohibited include: residential uses; occupancy on a 24-hour basis; recreational uses; and uses to house, educate, or provide care for children, the elderly, the infirm, or other sensitive subpopulations. However, otherwise-prohibited uses can be approved by EPA and Illinois EPA.

[3] First Land Group, Inc. is the owner, grantor, and one of the Holders of the tax parcel property.
[4] Washington Land Management Group Inc., is the owner, grantor, and one of the Holders of the tax parcel property.
[5] PropertyRecordIllinois.com - Public Property Records.
[6] An Environmental Covenant (EC) is authorized by the Illinois Uniform Environmental Covenants Act (UECA) which was enacted in 2009. The Illinois UECA provides numerous statutory benefits, including a standard process for creating, modifying, transferring, and recording the EC and allowing the EPA and Illinois EPA to enforce it. Under the UECA, the covenants run with the land and are binding on future owners. Also, compliance reporting is required and the Site appears on the State's Registry.

- Prohibit the construction of groundwater wells and activities that extract, consume, or otherwise use any groundwater on the Property except as required as part of an EPA or Illinois EPA approved response activity.

- Prohibit the following activities on the Property except as provided in a plan approved in writing by EPA: 1) any excavation or other intrusive activity that could affect the integrity of the hazardous waste cap (minimum two feet of silt/clay covered by six inches of vegetated topsoil) and/or other remedial components; 2) any disturbance of the waste underneath the cap; and/or 3) any interference with or covering of the permanent markers placed at the boundaries of the hazardous waste cap.

- Grants officers, employees, contractors, and authorized representatives of EPA and Illinois EPA with access at reasonable times to the Property for the following purposes: 1) implementing, operating and maintaining the environmental response project; 2) monitoring and conducting periodic reviews of the environmental response project, including, without limitation, sampling of air, water, groundwater, sediments and soils; 3) verifying any data or information submitted to EPA or Illinois EPA; and 4) verifying that no action is being taken on the Property in violation of the terms of the Environmental Covenant, the environmental response project, or any federal or state environmental laws or regulations.

The property restrictions are enforceable by EPA and Illinois EPA, run with the land, and are binding on future owners and their respective successors, assigns and transferees. These ECs also appear on the Illinois EPA's registry per the Illinois UECA. The Illinois EPA maintains a registry of ECs filed according to the Illinois UECA. See Registry - Uniform Environmental Covenants Act (illinois.gov). In addition, the Illinois EPA monitors the Site to ensure the annual compliance report is submitted as is required per the ECs as allowed by the Illinois UECA.

9.2 Governmental Controls

Governmental controls in the form of several ordinances regulate groundwater use in the Site area depending on whether municipal water supply lines are available (see Figure 5). Village of Wauconda Ordinance Section 51.13 requires connection to the municipal water supply for property abutting the public waterworks and sewerage system. Also, Section 52.07 prohibits the permitting of new wells where a standard water main is now installed or may be installed in any street, alley, public way, or easement.

In unincorporated areas, Section 4.07 of a March 15, 2005 Intergovernmental Agreement between the Village of Wauconda and the County of Lake, Illinois Relative to Providing Water to Certain Unincorporated Territory provides that no private wells will be permitted if there is an available water main located within 300 feet of the property proposed to be served by the private well.

In areas where municipal water is not available (incorporated and unincorporated), the installation of new wells is regulated by the Lake County Health Department and requires a permit. According to the County, when the well permit department considers an application for new well construction within a half mile of the Wauconda Site, the County policy is to not issue a permit unless the new well is drilled into the Lower or Bedrock Aquifers (i.e., not in the Upper Aquifer). However, this policy has not been enacted by the County Board, and the County does not maintain a GIS database of this special well construction area.

9.3 IC Monitoring

Monthly, quarterly, and annual inspections confirm that the land and groundwater use at the Site is consistent with the Environmental Covenants. Also, each year as part of the Annual Monitoring Report, WTG consults with the LCHD to determine whether any new water supply wells have been installed within one-quarter mile of the landfill. The results of the consultation are included in the Annual Monitoring Reports. WTG and EPA are in the process of revising and finalizing WTG's 2020 draft Institutional Controls Implementation and Assurance Plan (ICIAP) to formalize these and other LTS procedures for the Site. Both EPA and Illinois EPA inspect the Site periodically to ensure that no inappropriate uses are found and that the ICs are complied with.

Additionally, the Site appears on the Illinois Registry, and the Illinois EPA monitors that the Site complies with the annual notification requirement per the Illinois UECA.

10.0 Five Year Reviews (FYRs)

EPA conducts FYRs at sites to determine whether a cleanup remains protective of human health and the environment over the long-term or whether additional investigations or cleanup actions may be warranted. The review methods, findings, and conclusions are documented in FYR reports. EPA identifies any site issues found during the review in the FYR report with recommendations to address the issues.

EPA and Illinois EPA have conducted five FYRs of the remedial actions implemented at the Wauconda Site. These reviews are statutory reviews and are required because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use/unrestricted exposure (UU/UE). EPA completed the most recent, fifth FYR for the Site on August 18, 2017.

The 2017 FYR concluded that the remedy currently protects human health and the environment because immediate threats have been addressed and the remedy is functioning as contemplated by the ROD. The FYR confirms that regular O&M activities are consistently occurring to ensure that the remedy remains protective of human health and the environment. However, a LTS Plan needs to be finalized and implemented in order for the remedy to be protective in the long-term. WTG submitted a draft ICIAP in 2020 and is

working with EPA to finalize the document to incorporate the already established LTS procedures for the land/soil portion of the Site included in this partial deletion along with establishing additional procedures to ensure that no inappropriate off-site groundwater use occurs, and the groundwater ordinances are complied with.

The 2017 FYR listed several cap repairs and maintenance issues that were recommended to ensure that the remedy continues to be protective, continues to function as intended, and to improve the management of O&M. These, and other repairs and maintenance issues that have been identified during the regular, ongoing inspections over the past five years have been implemented and are documented in the Annual Monitoring Reports. EPA also prepares its own independent Annual Inspection Oversight Summary reports each year to document current Site conditions, verify repairs, and recommend additional maintenance issues.

The next FYR is due in August 2022 and the annual/FYR Site inspection was conducted on October 26, 2021. Based on the annual inspections, Annual Monitoring Reports, Site data and other Site activities conducted since the last FYR, EPA expects the remedy to remain protective. The findings so far indicate no major issues for the landfill or groundwater.

11.0 Monitoring Results and Attainment of Cleanup Criteria

The OU1 and OU2 RODs required repairs and upgrades to the existing containment system at the Site with long-term monitoring of groundwater, landfill gas, and Mutton Creek (when leachate discharge to the creek is observed) and action levels to initiate the reopening of the ROD for additional investigation and the evaluation of additional remedial alternatives. Consistent with the RODs, Site inspections and monitoring results over the past 30 years have led to several additional remedy upgrades at the Site to ensure that the remedy remains protective (see Section 7.0, Remedy Implementation).

WTG's Annual Monitoring Reports, EPA's Site inspections, and the most recent FYR confirm that the immediate threats have been addressed at the Site and that the remedy remains protective of human health and the environment and is functioning as intended.

Although wide-spread low-level Site-related VC had been detected in groundwater downgradient of the Site in the past, no distinct plume has been identified. This is likely due to the complicated hydrogeology. Groundwater monitoring data collected since 2017 indicates that only one contaminant, As, remains in groundwater above the MCL[7] at only one monitoring well, OW413, which is located in the upper aquifer approximately 350 feet east of the Site. This well is not used as a water supply. Residential well sampling conducted since 2017 also confirms that only two contaminants, methylene chloride and arsenic, were detected in two different residential wells at concentrations below the MCLs (one in 2018 and one in 2019). However, when the wells were resampled, the

[7] In January 2006, EPA lowered the Federal MCL for arsenic from 50 µg/l to 10 µg/l.

contaminants were not detected. Two other contaminants (bromomethane and 2,2-dichloropropane) were detected at low concentrations (less than 0.3 µg/l) in two other residential wells in 2017 and 2018, but MCLs are not available for these chemicals.

EPA and Illinois EPA will continue to evaluate the groundwater and residential well monitoring data to determine when the groundwater portion of the Site can be proposed for NPL deletion.

WTG's 1993 and 1996 Landfill Gas Emissions Assessments indicate that the calculated excess lifetime cancer risk to hypothetical residents living at the Site boundary from outdoor air is 5.5×10^{-7}, which is below the 10^{-6} risk level required by the OU2 ROD. The 1993 assessment evaluated VOC data collected from the interior gas vents, while the 1996 assessment also included VOC data collected from all perimeter vents (GV11 to GV18) that are still in use. These evaluations confirm that the passive landfill gas venting system is effective and that an active landfill gas control system is not warranted. Monthly monitoring at off-Site gas probes GP1-A/B and GP2-AB also confirms that the additional interior gas vents installed in the south landfill area in 2010 have stopped landfill gas from migrating off-Site (methane concentrations in all probes have been zero percent since 2014), and the combustible gas alarms installed at the two residences have never gone off since they were installed in 1995.

The north and south leachate control systems collect and discharge between approximately 4,500 to over 9,000 gallons per day of leachate to the Wauconda WWTP based on 365-day rolling averages and prevent leachate impacts to Mutton Creek. Regular Site inspections identify any leachate outbreaks, which are repaired as soon as possible.

12.0 Demonstration of Cleanup Quality Assurance/Quality Control (QA/QC)

The cleanup activities at the Site are consistent with the enforcement agreements, the RODs, the 1986 QAPP, 1991 Final RD, 1991 O&M Plan, 1991 QAPP, 1996 O&M Plan, 2007 RA Work Plan, 2013 QAPP and SAMP, 2013 O&M Plan, 2018 QAPP and SAMP, and all other EPA-approved work plans. A construction QAPP was not required. An EPA contractor provided on-Site oversight of WTG's sampling and construction activities. Operation of the Wauconda Landfill leachate sewer connection and force main for discharge of leachate to the Village of Wauconda sanitary sewer is performed under Illinois EPA Permit No. 2019 EO 64311 and Village of Wauconda Wastewater Discharge Permit No. 004. The current Illinois EPA permit expires on May 31, 2024, and the current Village permit expires on April 16, 2024.

13.0 Community Involvement

EPA and Illinois EPA conducted public participation activities throughout all response actions for the Wauconda Site, satisfying the provisions of CERCLA Sections 113(k) and

117, 42 U.S.C. §§ 9613(k) and 9617, and the NCP, 40 C.F.R. §§ 300.415(n), 300.430(f), 300.815, and 300.820.

EPA proposed the Site to the NPL in 1982 and developed a Community Relations Plan for the Site in 1983 at the start of the RI/FS. In 2005, EPA issued a Revised Community Involvement Plan to address the community involvement activities to be conducted after approximately 100 residential wells near the Site were found to be contaminated with VC, leading to 373 homes being connected to municipal water. The Community Relations Plans provided background information about the Site, a history of community involvement, a summary of key issues and community concerns, developed objectives and activities for engaging with the community, and outlined the timing of community involvement at points throughout the investigation and cleanup.

EPA established a local information repository for the Site where reports and other documents could be viewed at the Wauconda Area Library located at 801 N. Main Street, in Wauconda, IL 60084. Site documents are also available online on EPA's webpages for the Site at http://www.epa.gov/superfund/wauconda-sand-gravel, under "Site Documents & Data".

13.1 1985 OU1 ROD

EPA held a public meeting for the Site on September 27, 1984, after the first phase of field investigations. During the meeting, the 12 residents living near the Site expressed their concern about their well water because groundwater contaminants were detected in three of their residential wells. Due to the residents' concerns, EPA resampled all of the homes again. No contaminants were found, and EPA notified the residents.

EPA released the initial FS Report to the public on August 12, 1985 and held a public meeting to present the proposed cleanup plan to the community on August 14, 1985. Approximately 25 people attended the meeting. Although the attendees had several questions, comments were not submitted at the meeting. EPA accepted comments on its proposed plan from August 12 to August 30, 1985. EPA responded to the written comments that were received during the public comment period in a Responsiveness Summary that is attached to the OU1 ROD.

In June 1986, EPA issued a press release announcing the availability of the consent agreement with WTG to implement the OU1 ROD and to conduct the additional RI/FS investigations.

13.2 1989 OU2 ROD

EPA issued a press release and a fact sheet in April/May 1988 to announce the availability of EPA's and WTG's supplemental RI/FS reports and EPA's proposed cleanup plan for OU2. EPA also published advertisements in the Waukegan News-Sun and the Wauconda Leader.

The announcements included information about the information repository, the 30-day public comment period, and the public meeting. The public meeting was held on May 11, 1988 and was transcribed by a court reporter.

EPA accepted public comments on the proposed OU2 cleanup plan from April 25, 1988, to May 25, 1988. Based on the community's concerns, EPA delayed issuing the OU2 ROD until additional air testing could be conducted. In November 1988, EPA mailed out a fact sheet responding to the issues that the community raised at the May meeting. In December 1988, EPA mailed out a letter to a resident outlining the findings of the air monitoring study and held small group meetings in residents' homes to discuss their concerns. On December 14, 1988, EPA held a second public meeting to discuss the additional sampling and respond to residents' concerns. WTG submitted additional comments in response to the December 1988 public meeting and the proposed Statement of Work that EPA released on December 22, 1989. EPA responded to all of the comments in the Responsiveness Summary issued with the OU2 ROD in April 1989.

In 1992, EPA mailed out a fact sheet to residents and officials on the Site mailing list to announce that the Site cleanup was beginning.

13.3 Municipal Water Extension

EPA received numerous calls and letters from citizens in the Wauconda area after VC was discovered in approximately 100 residential wells in the area. Residents were concerned about the effectiveness of the Site cleanup and the impact of the Site on their health and well-being.

On August 10, 11, and 12, 2004, EPA met one-on-one with 53 Wauconda Township residents and officials, village of Wauconda residents and officials, and Fremont Township residents to discuss the community concerns regarding the VC contamination and the Site cleanup. On September 1 and 2, 2004, EPA also conducted telephone interviews with five concerned residents who preferred a phone interview or were not available during the in-person community interviews. Most of those interviewed stated that they were very concerned about the Site. By 2007, over four miles of water mains were constructed, and 373 residents were connected to the municipal water supply. Some residents, however, were dismayed that their homes were not included in the water extension project.

13.4 FYR Notices

EPA notified the media about the 2002 FYR and participated in interviews with local newspapers that published articles about the Site and the FYR on March 14, 2002 in the Wauconda Daily Herald and on April 11, 2002 in the Chicago Tribune. EPA also conducted telephone conferences with residents of the Wauconda community during the 2002 FYR to discuss the Site as it related to the proposed development of 1,000 homes in the Wauconda community.

EPA's activities to involve the community in the 2007, 2012, 2017 and 2022 FYRs for the Site were initiated with public notices in the Wauconda Journal and the Lake County Market Journal on January 19, 2007, and the Wauconda Daily Herald on March 30, 2012, February 15, 2017, and January 28, 2022. The notices announced EPA's initiation of the FYRs and invited the public to contact EPA for additional information or with any questions or concerns about the Site. EPA was not contacted during these FYRs.

Copies of the FYRs are available to the public at the Wauconda Area Library, Reference Desk, located at 801 North Main Street, in Wauconda, Illinois. Copies of the FYRs can also be obtained from the EPA Region 5 Records Center, 7th Floor, 77 West Jackson Boulevard, Chicago, Illinois, or online at EPA's webpages for the Site at https://www.epa.gov/superfund/wauconda-sand-gravel under "Site Documents & Data".

14.0 Determination that Site Meets Criteria for Partial Deletion

The land/soil portion of the Wauconda Site meets all of the site completion requirements specified in the Office of Solid Waste and Emergency Response (OSWER) Directive 9320.2-22, Close Out Procedures for National Priorities List Sites. All cleanup actions and RAOs for the land/soil portion of the Site set forth, respectively, in the 1985 and 1989 OU1 and OU2 RODs have been implemented for all pathways of exposure for the land/soil portion of the Site. Currently, there is still evidence of deteriorated water quality caused by the influence of landfill near the Site such as exceedances of the Federal secondary MCLs (SMCLs) for total dissolved solids (TDS) and chlorides (Cl) which are elevated compared to the background. Federal SMCLs are guidelines for taste, odor, and appearance. The SMCL for TDS is 500 mg/L and for Cl is 250 mg/L. Levels of these constituents can be found at 2-3 times the guideline. Also, there are sporadic exceedances of other constituents in monitoring wells. Groundwater is still above the MCL for arsenic at one location and will remain on the NPL. However, no pattern exists such that a distinct plume can be identified.

This partial deletion pertains to the land/soil portion of PINs (see Figures 2 and 3):

- 0924102006 (58.26 acres containing north landfill area)
- 0924102009 (9.52 acres containing south landfill area)
- 0924102007 (1.25 acres) and 0924102008 (6.83 acres) – unfilled property located southwest of the landfill areas that EPA determined was not part of the Site in the 1989 ROD.

The RAOs, selected remedial actions, and cleanup levels for the land/soil portion of the Site on these properties are consistent with EPA policy and guidance. EPA's 2017 FYR and annual Site inspections, and WTG's Quarterly Progress Reports and Annual Monitoring Reports from 2017 to 2021 confirm that the immediate threats have been addressed at the Site and that the remedy remains protective of human health and the environment and is functioning as intended.

WTG's 1993 and 1996 Landfill Gas Emissions Assessments indicate that the landfill gas emissions do not pose an unacceptable cancer risk to residents at the Site boundary and monthly monitoring at the off-Site landfill gas probes and the residential combustible gas alarms confirm that the landfill gas is not migrating off-Site. Approximately 4,500 to over 9,000 gallons per day of leachate is collected from the leachate control system and discharged to the Wauconda WWTP in accordance with Illinois EPA and local permits.

Regular inspections and O&M activities are consistently occurring to ensure that the remedy remains protective of human health and the environment. Land and groundwater use at the Site is controlled and monitored through LTS of enforceable Environmental Covenants and off-Site groundwater use in the surrounding area is regulated through local ordinances and monitoring.

Section 300.425(e) of the NCP, 40 C.F.R. § 300.425(e), states that a Superfund site or a portion of a site may be deleted from the NPL when no further response action is appropriate. EPA, in consultation with the State of Illinois, has determined that all required response actions have been implemented for the land/soil portion of the Wauconda Site, and that no further response action other than O&M, monitoring, LTS of ICs, and FYRs is appropriate for this portion of the Site. Illinois EPA sent EPA a letter concurring with EPA's proposed deletion of the land/soil portion of the Site on May 17, 2022.

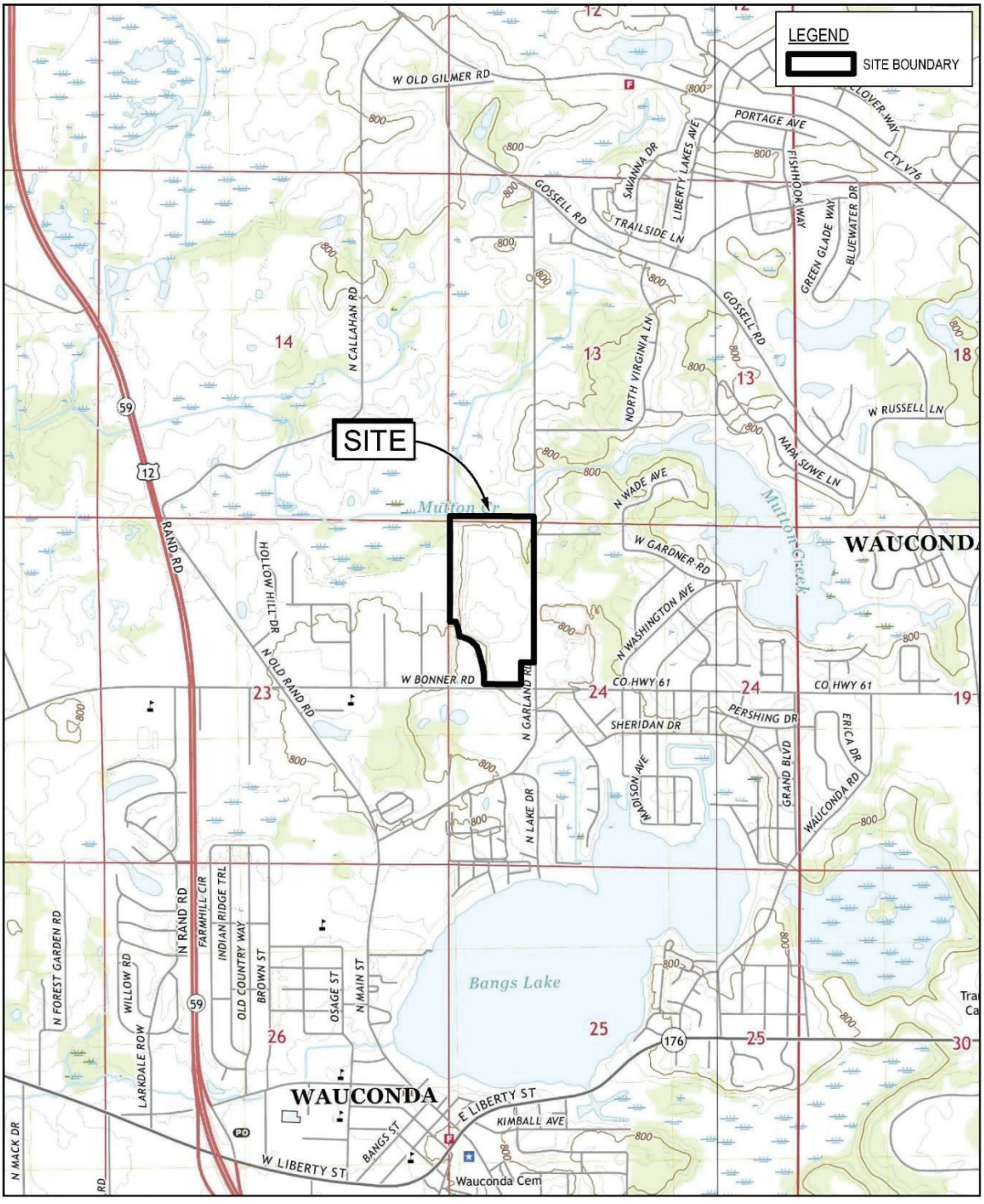
15.0 Approval

Approved by:

DOUGLAS BALLOTTI
Digitally signed by DOUGLAS BALLOTTI
Date: 2022.07.08 11:49:57 -05'00'

Douglas Ballotti, Director
Superfund & Emergency Management Division
U.S. EPA, Region 5

Figure 1: Wauconda Sand and Gravel Site



Paper Size ANSI A

0 500 1,000 1,500 2,000

Feet

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Illinois East FIPS 1201 Feet

N

GHD

WAUCONDA LANDFILL SITE
WAUCONDA, ILLINOIS

SITE LOCATION

Project No. 11228790-43
Revision No. -
Date 10/22/2021

FIGURE 1.1

Q:\GIS\PROJECTS\11228000s\11228790\Maps\Deliverables\RPT\RPT001\11228790-43(RPT001)GIS-SP001.mxd
Print date: 22 Oct 2021 - 10:57

Data source: USGS 7.5 Minute USTopos - Wauconda, Grayslake. Created by: rjcoy

Figure 2: Landfilled Areas

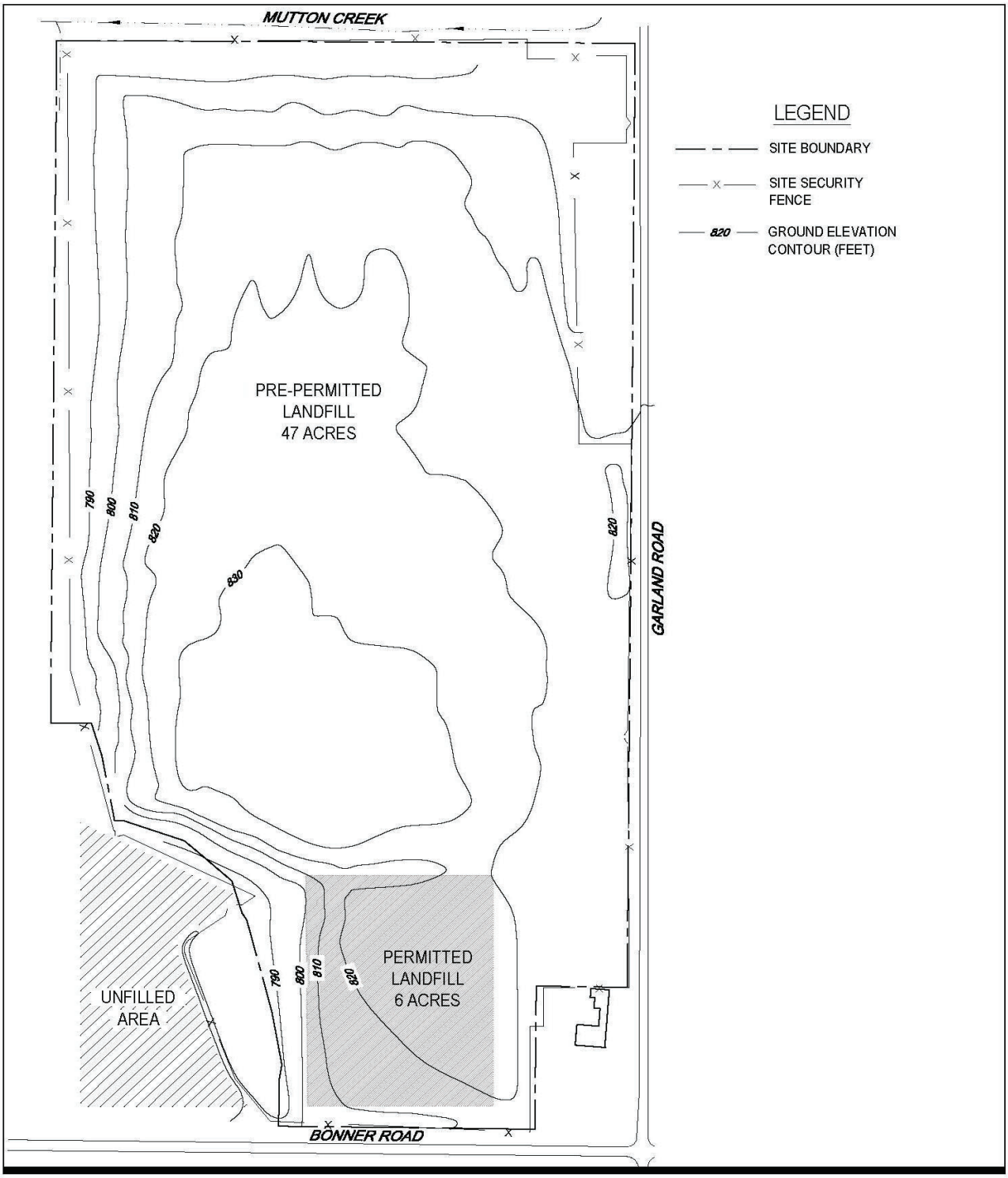
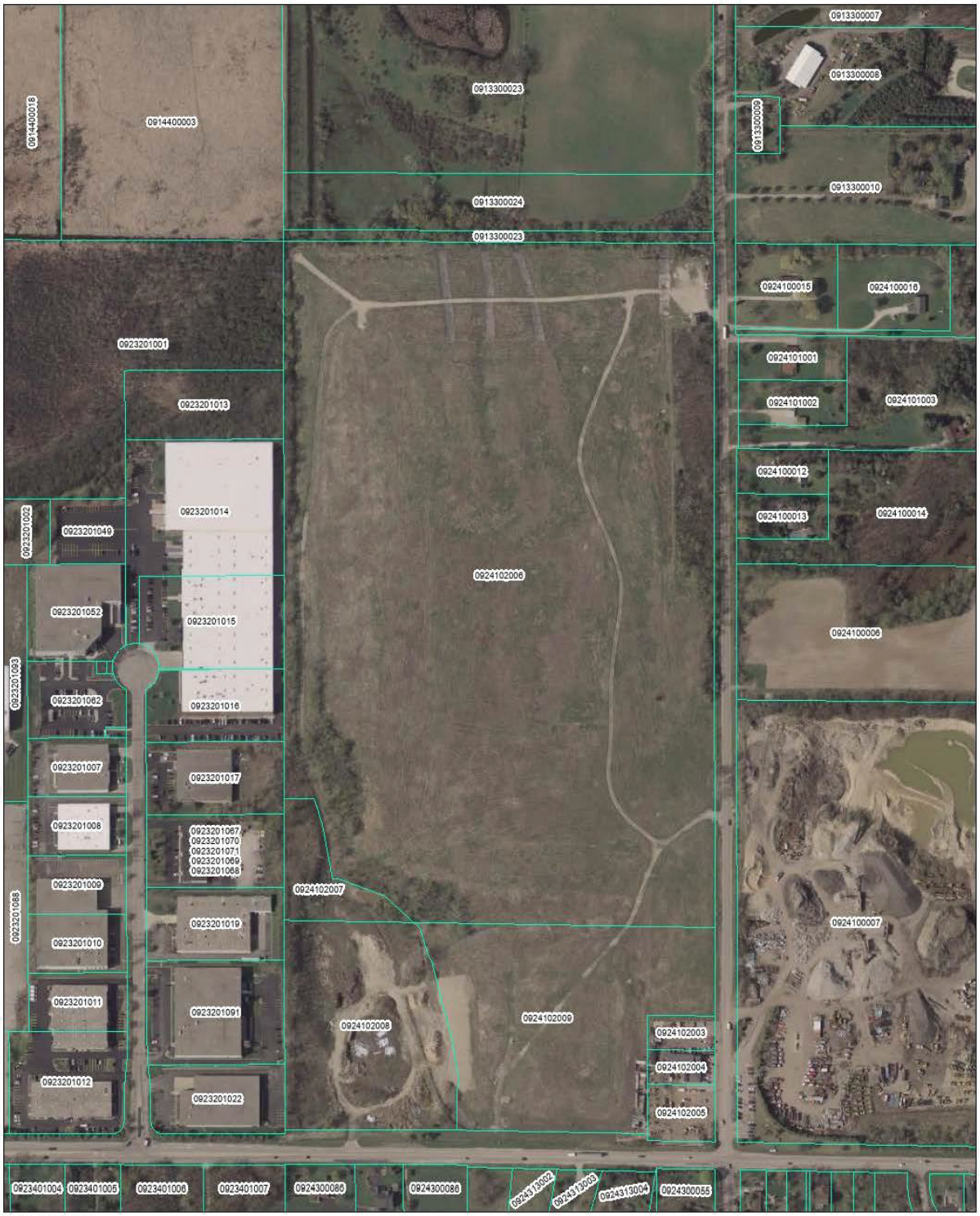


Figure 3: Tax Map



April 19, 2022

Tax Parcel Lines

PIN Labels

Partial deletion includes:

- PIN 0924102006 (58.26 acres containing north landfill area)
- PIN 0924102009 (9.52 acres containing south landfill area)
- PINs 0924102007 (1.25 acres) and 0924102008 (6.83 acres) – unfilled property located southwest of the landfill areas that EPA determined was not part of the Site in the 1989 ROD.

1:4,311

0 0.04 0.07 0.14 mi

0 0.05 0.1 0.2 km

Lake County GIS Division, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, Lake County, Illinois GIS Division

Lake IL Assessment and Tax office

Figure 4: Site Features

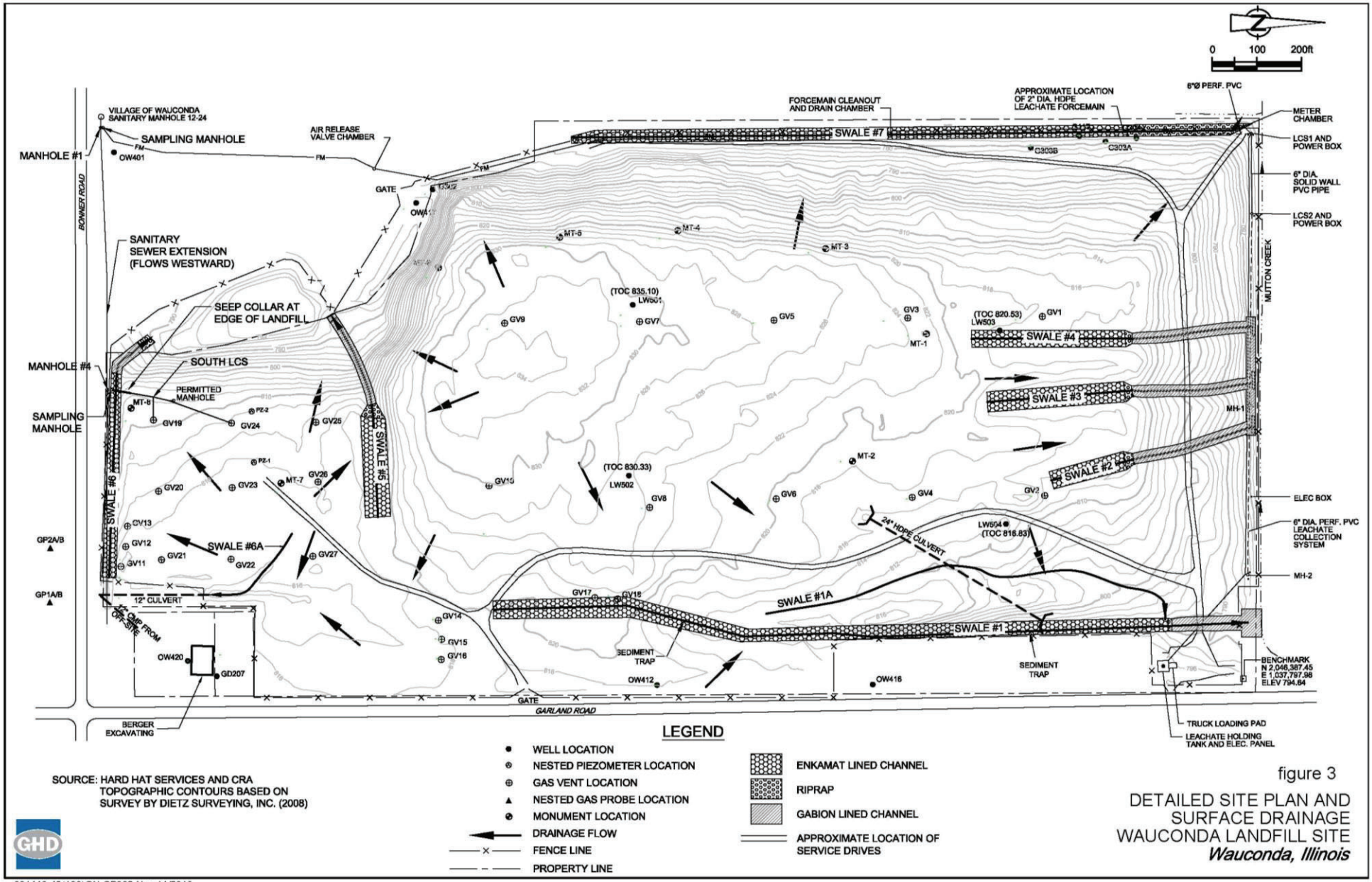


Figure 5: Municipal Water Supply and Institutional Controls

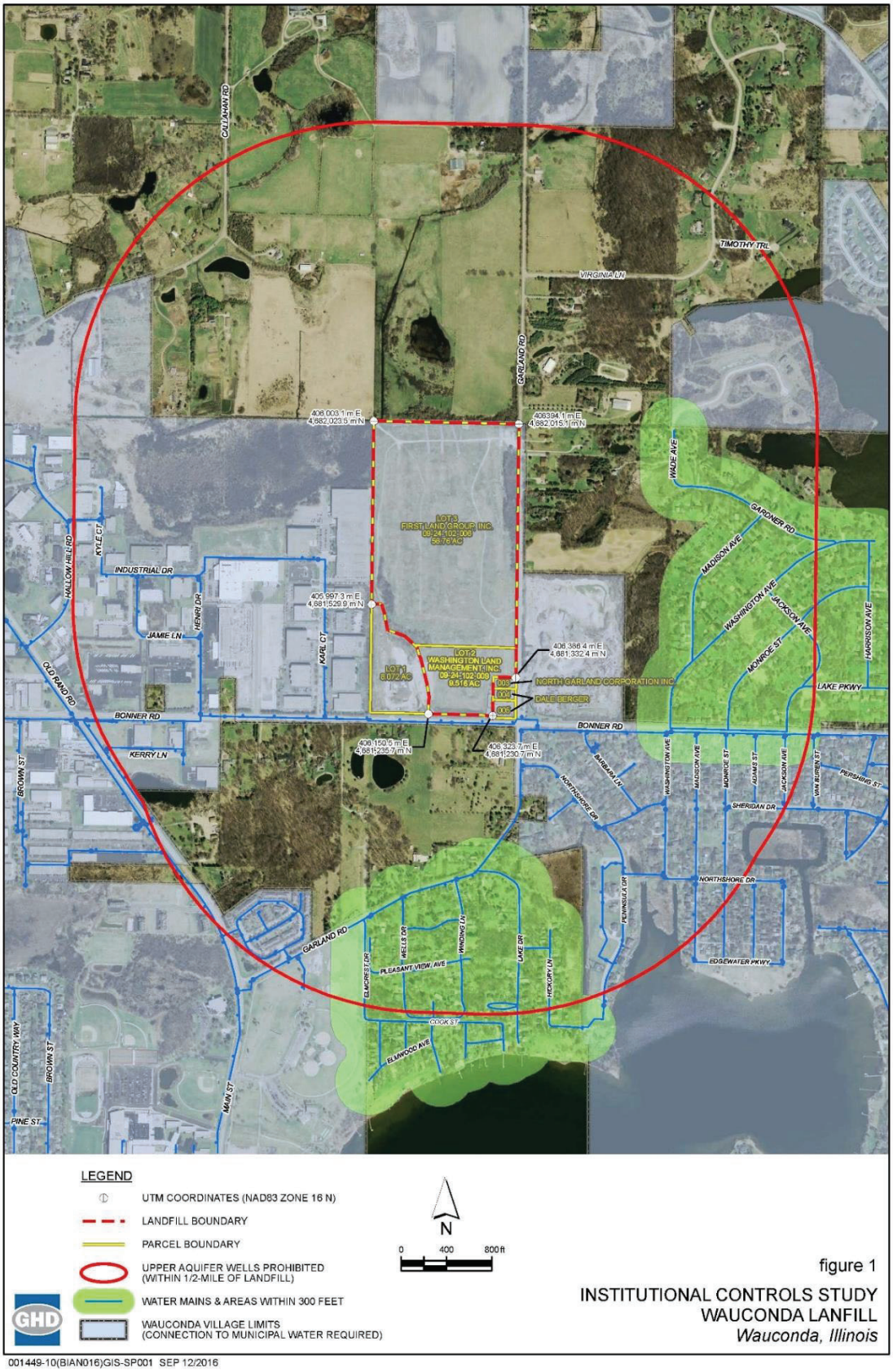


Figure 6: Monitoring Well Network

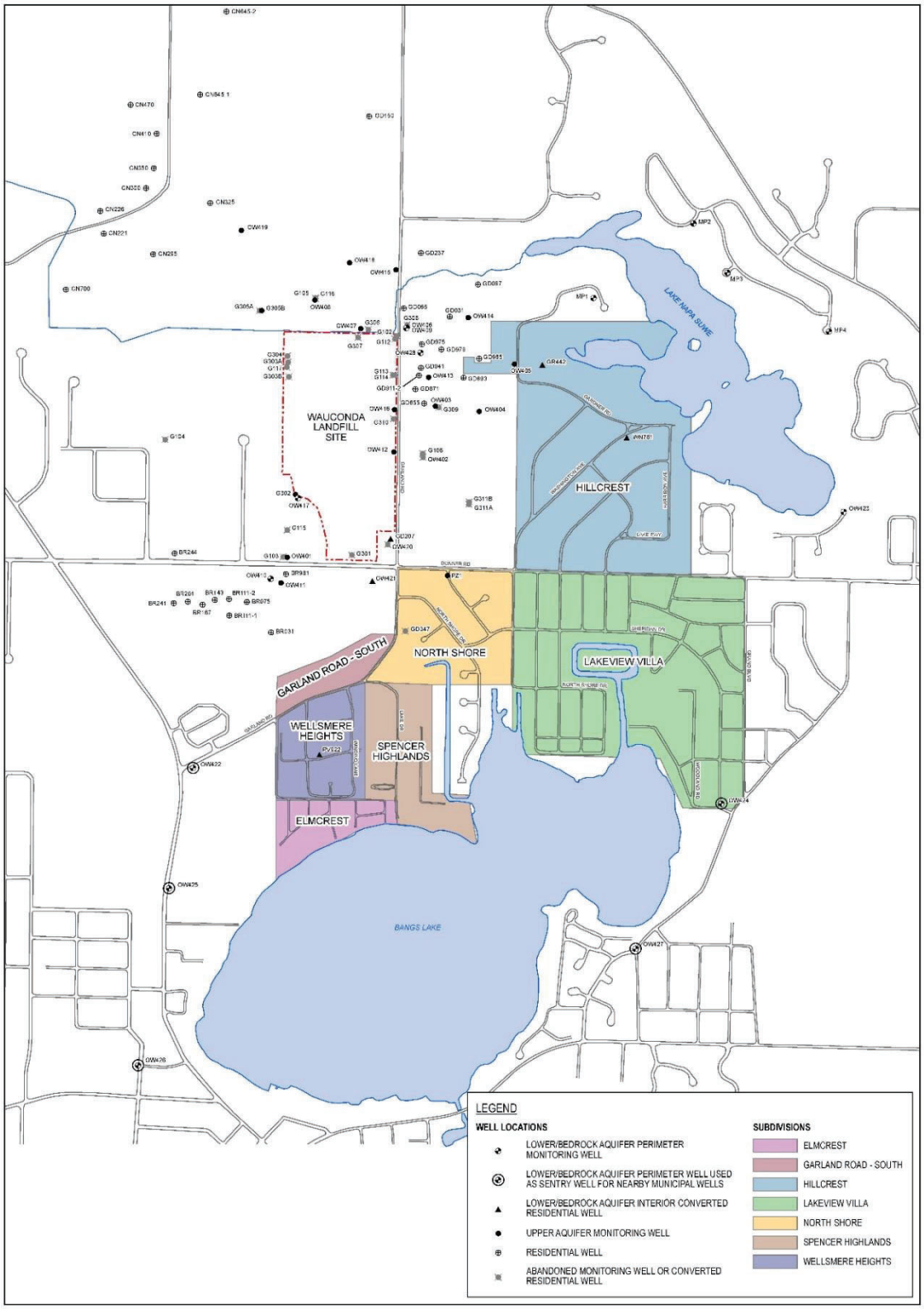
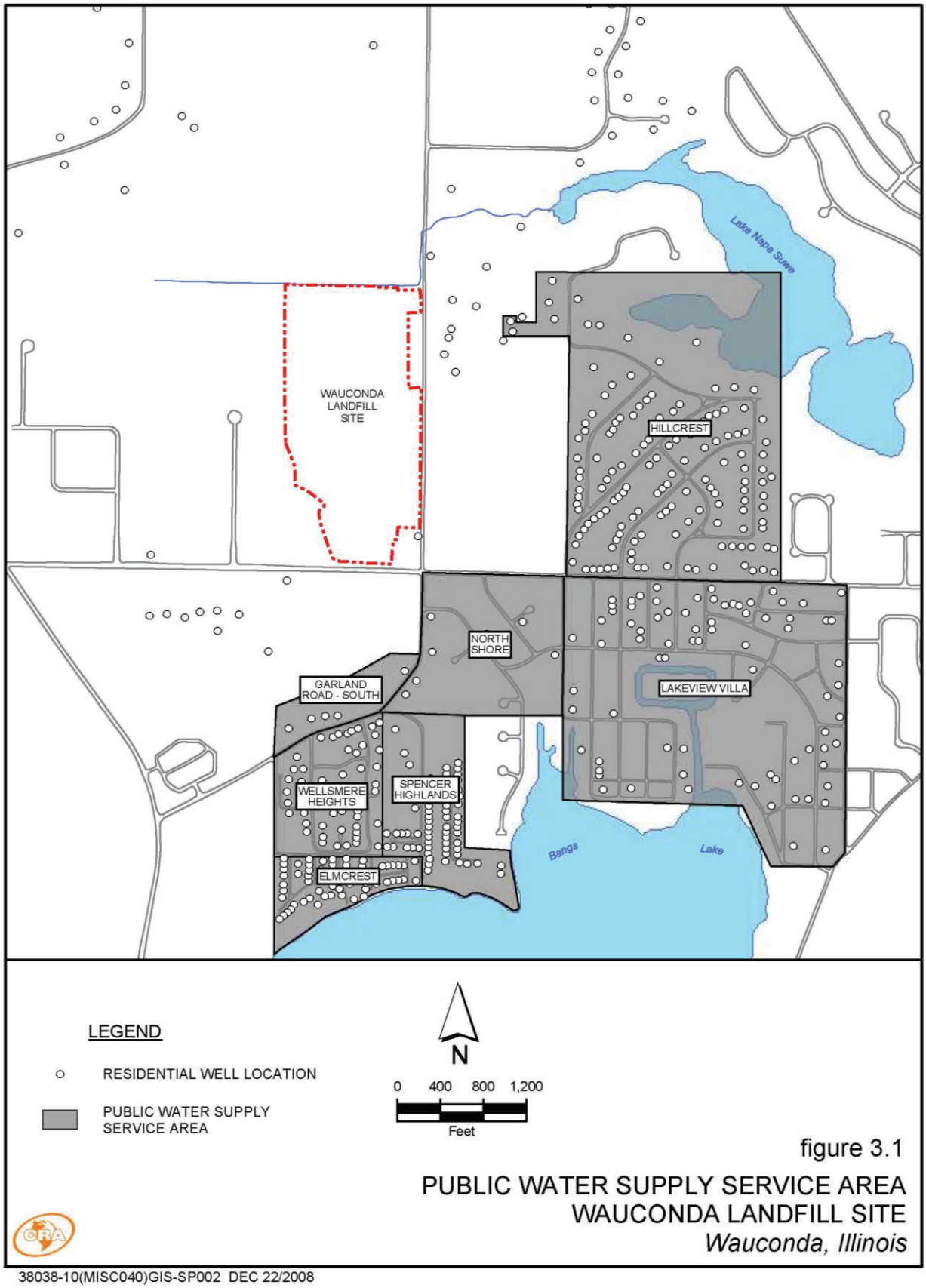


Figure 7: Municipal Water Supply Extension



APPENDIX A: NPL PARTIAL DELETION DOCKET REPORTS FOR LAND/SOIL PORTION OF WAUCONDA SAND AND GRAVEL SUPERFUND SITE

NPL Deletion Docket Reports Index: Initial - 07/05/2022
Wauconda Sand and Gravel Superfund Site, Illinois
EPA-HQ-OLEM-2022-0319
EPA SEMS Collection ID No. 05-41211

EPA Document Region	Document ID	Document Date	Document Title	Pages	SEMS-Public Document URL
05	976279	05/17/2022	IL EPA LETTER RE: NATIONAL PRIORITIES LIST SITE PARTIAL DELETION	3	https://semspub.epa.gov/src/document/05/976279
05	976258	04/08/2022	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2022	23	https://semspub.epa.gov/src/document/05/976258
05	2004399	03/21/2022	COUNTY TAX RECORD INFORMATION	6	https://semspub.epa.gov/src/document/05/2004399
05	976277	03/08/2022	GHD LETTER RE: WAUCONDA LANDFILL DELISTING SUPPORT	38	https://semspub.epa.gov/src/document/05/976277
05	2004398	01/28/2022	FYR NEWSPAPER AD	2	https://semspub.epa.gov/src/document/05/2004398
05	976078	01/07/2022	GHD - QUARTERLY PROGRESS REPORT 4TH QUARTER 2021	21	https://semspub.epa.gov/src/document/05/976078
05	976119	11/30/2021	[REDACTED] GHD - ANNUAL MONITORING REPORT (NOV 1 2020 TO OCT 31 2021)	539	https://semspub.epa.gov/src/document/05/976119
05	976282	11/19/2021	HELIOTECH - 5-YEAR REVIEW AND ANNUAL INSPECTION OVERSIGHT SUMMARY FOR OCTOBER 26, 2021	41	https://semspub.epa.gov/src/document/05/976282
05	976266	10/08/2021	GHD - QUARTERLY PROGRESS REPORT 3RD QUARTER 2021	24	https://semspub.epa.gov/src/document/05/976266
05	976262	07/08/2021	GHD - QUARTERLY PROGRESS REPORT 2ND QUARTER 2021	25	https://semspub.epa.gov/src/document/05/976262
05	976257	04/09/2021	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2021	21	https://semspub.epa.gov/src/document/05/976257
05	976269	01/07/2021	GHD - QUARTERLY PROGRESS REPORT 4TH QUARTER 2020	21	https://semspub.epa.gov/src/document/05/976269

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EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	976333	11/30/2020	[REDACTED] GHD - 2020 ANNUAL MONITORING REPORT (NOV 1, 2019 TO OCT 31, 2020)	621	https://semspub.epa.gov/src/document/05/976333
05	976265	10/08/2020	GHD - QUARTERLY PROGRESS REPORT 3RD QUARTER 2020	21	https://semspub.epa.gov/src/document/05/976265
05	976276	10/05/2020	GHD - INSTITUTIONAL CONTROLS IMPLEMENTATION AND ASSURANCE PLAN INCLUDING LONG-TERM STEWARDSHIP	379	https://semspub.epa.gov/src/document/05/976276
05	976261	07/10/2020	GHD - QUARTERLY PROGRESS REPORT 2ND QUARTER 2020	21	https://semspub.epa.gov/src/document/05/976261
05	976256	04/07/2020	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2020	20	https://semspub.epa.gov/src/document/05/976256
05	976268	01/10/2020	GHD - QUARTERLY PROGRESS REPORT 4TH QUARTER 2019	21	https://semspub.epa.gov/src/document/05/976268
05	976334	11/27/2019	[REDACTED] GHD - 2019 ANNUAL MONITORING REPORT (NOV 1, 2018 TO OCT 31, 2019)	711	https://semspub.epa.gov/src/document/05/976334
05	976264	10/08/2019	GHD - QUARTERLY PROGRESS REPORT 3RD QUARTER 2019	22	https://semspub.epa.gov/src/document/05/976264
05	976260	07/10/2019	GHD - QUARTERLY PROGRESS REPORT 2ND QUARTER 2019	22	https://semspub.epa.gov/src/document/05/976260
05	976255	04/09/2019	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2019	22	https://semspub.epa.gov/src/document/05/976255
05	976117	01/25/2019	[REDACTED] GHD - ANNUAL MONITORING REPORT (NOV 1 2016 TO OCT 31 2017) REV 1	1098	https://semspub.epa.gov/src/document/05/976117

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EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	976267	01/10/2019	GHD - QUARTERLY PROGRESS REPORT 4TH QUARTER 2018	19	https://semspub.epa.gov/src/document/05/976267
05	976118	11/29/2018	[REDACTED] GHD - ANNUAL MONITORING REPORT (NOV 1 2017 TO OCT 31 2018)	849	https://semspub.epa.gov/src/document/05/976118
05	976263	10/10/2018	GHD - QUARTERLY PROGRESS REPORT 3RD QUARTER 2018	20	https://semspub.epa.gov/src/document/05/976263
05	976120	9/17/2018	[REDACTED] GHD - REVISED SAMPLING, ANALYSIS, AND MONITORING PLAN (SAMP)	54	https://semspub.epa.gov/src/document/05/976120
05	976274	09/17/2018	GHD - REVISED QUALITY ASSURANCE PROJECT PLAN	1080	https://semspub.epa.gov/src/document/05/976274
05	976259	07/02/2018	GHD - QUARTERLY PROGRESS REPORT 2ND QUARTER 2018	21	https://semspub.epa.gov/src/document/05/976259
05	976251	04/01/2018	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2018	24	https://semspub.epa.gov/src/document/05/976251
05	976254	01/02/2018	GHD - QUARTERLY PROGRESS REPORT 4TH QUARTER 2017	21	https://semspub.epa.gov/src/document/05/976254
05	976253	10/02/2017	GHD - QUARTERLY PROGRESS REPORT 3RD QUARTER 2017	24	https://semspub.epa.gov/src/document/05/976253
05	936390	08/18/2017	FIFTH FIVE-YEAR REVIEW REPORT (SIGNED) - WAUCONDA SAND & GRAVEL - 2017	234	https://semspub.epa.gov/src/document/05/936390
05	976252	06/30/2017	GHD - QUARTERLY PROGRESS REPORT 2ND QUARTER 2017	28	https://semspub.epa.gov/src/document/05/976252
05	976250	04/04/2017	GHD - QUARTERLY PROGRESS REPORT 1ST QUARTER 2017	22	https://semspub.epa.gov/src/document/05/976250

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05	976116	11/30/2016	[REDACTED] GHD - ANNUAL MONITORING REPORT (NOV 1 2015 TO OCT 31 2016)	990	https://semspub.epa.gov/src/document/05/976116
05	507616	03/09/2016	ENVIRONMENTAL COVENANT - WASHINGTON LAND MANAGEMENT INC & HOLDERS/GRANTEES	24	https://semspub.epa.gov/src/document/05/507616
05	507617	03/09/2016	ENVIRONMENTAL COVENANT - FIRST LAND GROUP INC & HOLDERS/GRANTEES	23	https://semspub.epa.gov/src/document/05/507617
05	976322	11/25/2015	[REDACTED] GHD - ANNUAL MONITORING REPORT (NOV 1, 2014 TO OCT 31, 2015)	1018	https://semspub.epa.gov/src/document/05/976322
05	530415	11/07/2014	CRA CONSTRUCTION COMPLETION REPORT	68	https://semspub.epa.gov/src/document/05/530415
05	976332	11/01/2013	[REDACTED] CRA - ANNUAL MONITORING REPORT (NOV 1, 2012 TO OCT 31, 2013)	1798	https://semspub.epa.gov/src/document/05/976332
05	530408	08/01/2013	CRA - OPERATION AND MAINTENANCE PLAN	207	https://semspub.epa.gov/src/document/05/530408
05	976320	11/20/2012	[REDACTED] CRA - ANNUAL MONITORING REPORT (NOV 1 2011 TO OCT 31, 2012)	339	https://semspub.epa.gov/src/document/05/976320
05	441962	08/21/2012	FOURTH FIVE YEAR REVIEW REPORT (SIGNED) - WAUCONDA SAND & GRAVEL - 2012	137	https://semspub.epa.gov/src/document/05/441962

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EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	976331	04/01/2011	[REDACTED] CRA - ANNUAL MONITORING REPORT (NOV 1 2009 TO OCT 31 2010) REVISED APRIL 2001	1718	https://semspub.epa.gov/src/document/05/976331
05	933166	07/01/2010	CRA - PASSIVE VENT INSTALLATION PERMITTED LANDFILL AREA	65	https://semspub.epa.gov/src/document/05/933166
05	976323	11/01/2009	[REDACTED] CRA - ANNUAL MONITORING REPORT #21 - 11/01/08 - 10/31/09	1323	https://semspub.epa.gov/src/document/05/976323
05	352602	08/01/2009	CRA - 2009 HYDROGEOLOGIC ASSESSMENT REPORT	1113	https://semspub.epa.gov/src/document/05/352602
05	920247	02/05/2009	US DISTRICT COURT - ORDER ON PLAINTIFF'S MOTION TO ENTER CONSENT DECREE	1	https://semspub.epa.gov/src/document/05/920247
05	976321	02/05/2009	[REDACTED] CONSENT DECREE (CD) (SIGNED) - REMEDIAL ACTION/COST RECOVERY - CIVIL ACTION NO 07 C 4499 (WITH APPENDIX A & B)	135	https://semspub.epa.gov/src/document/05/976321
05	320127	01/07/2009	EPA - DRAFT INSTITUTIONAL CONTROL PLAN	154	https://semspub.epa.gov/src/document/05/320127
05	933143	01/01/2009	CRA - CONSTRUCTION COMPLETION REPORT - WATER SYSTEM - PHASE I	17	https://semspub.epa.gov/src/document/05/933143
05	976300	11/01/2008	[REDACTED] CRA - ANNUAL MONITORING REPORT #20 - 11/01/07 - 10/31/08	135	https://semspub.epa.gov/src/document/05/976300

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EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	352649	04/28/2008	CRA LETTER RE: REVISED WORK PLAN FOR LEACHATE SEEP INVESTIGATION, SOUTHWEST SLOPE AREA	6	https://semspub.epa.gov/src/document/05/352649
05	976299	11/01/2007	[REDACTED] CRA - ANNUAL MONITORING REPORT #19 - 11/01/06 - 10/31/07	147	https://semspub.epa.gov/src/document/05/976299
05	278031	08/21/2007	THIRD FIVE YEAR REVIEW REPORT (SIGNED) - WAUCONDA SAND & GRAVEL LANDFILL - 2007	115	https://semspub.epa.gov/src/document/05/278031
05	298359	07/02/2007	CRA LTD LETER RE: INSTITUTIONAL CONTROL STUDY - PHASE II (SECOND PART OF IC STUDY PURSUANT TO EPA LETTERS 04/02/07 & 05/21/07	11	https://semspub.epa.gov/src/document/05/298359
05	298358	06/08/2007	CRA LTD LETTER RE: INSTITUTIONAL CONTROL STUDY (FIRST PART OF IC STUDY PURSUANT TO EPA LETTERS 04/02/07 & 05/21/07	50	https://semspub.epa.gov/src/document/05/298358
05	271624	03/29/2007	CONSENT DECREE (CD) (SIGNED) - REMEDIAL ACTION/COST RECOVERY	95	https://semspub.epa.gov/src/document/05/271624
05	976298	11/01/2006	[REDACTED] CRA - ANNUAL MONITORING REPORT #18 - 11/01/05 - 10/31/06	142	https://semspub.epa.gov/src/document/05/976298

NPL Deletion Docket Reports Index: Initial - 07/05/2022 Wauconda Sand and Gravel Superfund Site, Illinois EPA-HQ-OLEM-2022-0319 EPA SEMS Collection ID No. 05-41211					
EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	976297	11/01/2005	[REDACTED] ANNUAL MONITORING REPORT #17 (NOVEMBER 1, 2004 - OCTOBER 31, 2005)	149	https://semspub.epa.gov/src/document/05/976297
05	929552	03/15/2005	INTERGOVERNMENTAL AGREEMENT BETWEEN THE VILLAGE OF WAUCONDA & THE COUNTY OF LAKE, ILLINOIS RELATIVE TO PROVIDING WATEER TO CERTAIN UNINCORPORATED TERRITORY	11	https://semspub.epa.gov/src/document/05/929552
05	976296	11/01/2004	[REDACTED] ANNUAL MONITORING REPORT #16 (FEBRUARY 1, 2004 - OCTOBER 31, 2004)	149	https://semspub.epa.gov/src/document/05/976296
05	286388	09/27/2004	UNILATERAL ADMINISTRATIVE ORDER (UAO) (SIGNED) W/COVER LETTER	43	https://semspub.epa.gov/src/document/05/286388
05	976305	09/01/2004	[REDACTED] CRA - DATA REPORT, PHASE II POTENTIAL SOURCE INVESTIGATIONS	235	https://semspub.epa.gov/src/document/05/976305
05	976295	05/01/2004	[REDACTED] ANNUAL MONITORING REPORT #15 (NOVEMBER 1, 2002 - JANUARY 31, 2004)	151	https://semspub.epa.gov/src/document/05/976295

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EPA Document Region	**Document ID**	**Document Date**	**Document Title**	**Pages**	**SEMS-Public Document URL**
05	352646	09/29/2003	CRA LETTER RE: REQUESTED CHANGES TO O & M & GROUNDWATER MONITORING PROGRAM	2	https://semspub.epa.gov/src/document/05/352646
05	976294	11/01/2002	[REDACTED] ANNUAL MONITORING REPORT #14 (NOVEMBER 1, 2001 - OCTOBER 31, 2002)	139	https://semspub.epa.gov/src/document/05/976294
05	166649	08/23/2002	SECOND FIVE YEAR REVIEW REPORT (SIGNED) - WAUCONDA SAND & GRAVEL LANDFILL - 2002	24	https://semspub.epa.gov/src/document/05/166649
05	976290	11/01/2001	[REDACTED] CRA - ANNUAL MONITORING REPORT #13 - 11/01/00 - 10/31/01	147	https://semspub.epa.gov/src/document/05/976290
05	976293	11/01/2001	[REDACTED] ANNUAL MONITORING REPORT #13 (NOVEMBER 1, 2000 - OCTOBER 31, 2001)	147	https://semspub.epa.gov/src/document/05/976293
05	976292	11/01/2000	[REDACTED] ANNUAL MONITORING REPORT #12 (NOVEMBER 1, 1999 - OCTOBER 31, 2000)	140	https://semspub.epa.gov/src/document/05/976292
05	976304	11/01/1999	[REDACTED] CRA - ANNUAL MONITORING REPORT #11 - 11/01/98 - 10/31/99	160	https://semspub.epa.gov/src/document/05/976304
05	976303	11/01/1998	[REDACTED] CRA - ANNUAL MONITORING REPORT #10 - 11/01/97 - 10/31/98	155	https://semspub.epa.gov/src/document/05/976303

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05	976301	11/01/1997	[REDACTED] CRA - ANNUAL MONITORING REPORT #9 - 11/01/96 - 10/31/97	152	https://semspub.epa.gov/src/document/05/976301
05	159327	05/30/1997	FIVE YEAR REVIEW REPORT (SIGNED) - WAUCONDA SAND & GRAVEL LANDFILL - 1997	6	https://semspub.epa.gov/src/document/05/159327
05	933154	11/29/1996	CRA - ANNUAL MONITORING REPORT #8 11/1/1995 TO 10/31/1996	196	https://semspub.epa.gov/src/document/05/933154
11	132442	08/22/1996	CC 369, Superfund Preliminary Site Close Out Report	9	https://semspub.epa.gov/src/document/11/132442
05	976281	08/13/1996	CRA - ADDENDUM TO LANDFILL GAS EMISSIONS ASSESSMENT REPORT AND RESPONSE TO E&E COMMENTS	66	https://semspub.epa.gov/src/document/05/976281
05	155713	08/01/1996	CRA LTD - REVISED OPERATION AND MAINTENANCE (O & M) MANUAL	234	https://semspub.epa.gov/src/document/05/155713
05	976330	11/30/1995	[REDACTED] CRA - ANNUAL MONITORING REPORT #7 11/1/1994 TO 10/31/1995	229	https://semspub.epa.gov/src/document/05/976330
05	976329	11/30/1994	[REDACTED] CRA - ANNUAL MONITORING REPORT #6 11/1/1993 TO 10/31/1994	213	https://semspub.epa.gov/src/document/05/976329
05	239878	04/20/1994	CONSENT DECREE (CD) (SIGNED) - 93 C 7637	34	https://semspub.epa.gov/src/document/05/239878

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05	976328	12/09/1993	[REDACTED] CRA - ANNUAL MONITORING REPORT #5 - 12/1/1992 to 10/31/1993	257	https://semspub.epa.gov/src/document/05/976328
05	976280	12/07/1993	CRA - LANDFILL GAS EMISSIONS ASSESSMENT - WAUCONDA LANDFILL REMEDIATION	140	https://semspub.epa.gov/src/document/05/976280
05	976327	12/05/1992	[REDACTED] CRA - ANNUAL MONITORING REPORT #4 - 1/1/1992 TO 11/30/1992	230	https://semspub.epa.gov/src/document/05/976327
05	155710	03/01/1992	CRA LTD - REVISED OPERATION AND MAINTENANCE (O & M) MANUAL	210	https://semspub.epa.gov/src/document/05/155710
05	976325	01/01/1992	[REDACTED] CRA - ANNUAL MONITORING REPORT #3.5 - 5/1/1991 TO 12/31/1991	304	https://semspub.epa.gov/src/document/05/976325
05	976326	05/14/1991	[REDACTED] CRA - ANNUAL MONITORING REPORT #3 - MAY 1991	149	https://semspub.epa.gov/src/document/05/976326
05	155711	04/01/1991	CRA LTD - OPERATION AND MAINTENANCE (O & M) MANUAL	47	https://semspub.epa.gov/src/document/05/155711
05	976324	05/01/1990	[REDACTED] CRA - ANNUAL MONITORING REPORT #2 - WAUCONDA LANDFILL REMEDIATION	208	https://semspub.epa.gov/src/document/05/976324
05	239879	12/19/1989	UNILATERAL ADMINISTRATIVE ORDER (UAO) (SIGNED) (COVER MEMO REQUESTING FOR SIGNATURE OF AO ATTACHED)	333	https://semspub.epa.gov/src/document/05/239879

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05	141548	05/10/1989	ADMINISTRATIVE RECORD SITE INDEX - WAUCONDA SAND & GRAVEL - REMEDIAL ACTION - UPDATE #3	2	https://semspub.epa.gov/src/document/05/141548
05	217062	03/31/1989	RECORD OF DECISION (ROD) FOR REMEDIAL ALTERNATIVE SELECTION	108	https://semspub.epa.gov/src/document/05/217062
05	217061	03/03/1989	REPORT: COMMENTS FOR ADMINISTRATIVE RECORD (VOLUMES 1-2) W/ COVER LETTER	338	https://semspub.epa.gov/src/document/05/217061
05	976291	01/16/1989	[REDACTED] MONITORING REPORT OCTOBER/NOVEMBER 1988: INTERIM REMEDIAL MEASURES MAINTENANCE & MONITORING PROGRAM	192	https://semspub.epa.gov/src/document/05/976291
05	960217	12/14/1988	[REDACTED] TRANSCRIPT: 12/14/88 PUBLIC INFORMATIONAL MEETING	142	https://semspub.epa.gov/src/document/05/960217
05	141546	06/22/1988	ADMINISTRATIVE RECORD SITE INDEX - WAUCONDA SAND & GRAVEL - REMEDIAL ACTION - UPDATE #1 #2	2	https://semspub.epa.gov/src/document/05/141546
05	217019	06/22/1988	ADMINISTRATIVE RECORD INDEX - UPDATE #1 - GUIDANCE DOCUMENTS	2	https://semspub.epa.gov/src/document/05/217019

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05	155712	06/01/1988	CRA LTD - INTERIM REMEDIAL MEASURES OPERATION AND MAINTENANCE (O & M) MANUAL	42	https://semspub.epa.gov/src/document/05/155712
05	960216	05/11/1988	[REDACTED] TRANSCRIPT: 5/11/88 PUBLIC INFORMATIONAL MEETING	124	https://semspub.epa.gov/src/document/05/960216
05	141545	04/21/1988	ADMINISTRATIVE RECORD SITE INDEX - WAUCONDA SAND & GRAVEL - REMEDIAL ACTION - ORIGINAL	17	https://semspub.epa.gov/src/document/05/141545
05	217023	04/15/1988	MEMORANDUM RE: CONCEPTUAL DESIGN FOR SITE REMEDIATION	23	https://semspub.epa.gov/src/document/05/217023
05	534545	01/28/1988	EPA MEMORANDUM RE: RISK ASSESSMENT OF AMBIENT AIR CONCENTRATIONS AT WAUCONDA LANDFILL (W/ ATTACHMENT)	5	https://semspub.epa.gov/src/document/05/534545
05	933158	11/10/1987	SUPPLEMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY VOLUME III: DATA BASE	573	https://semspub.epa.gov/src/document/05/933158
05	933159	11/10/1987	SUPPLEMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY VOLUME III: REMEDIAL INVESTIGATION	584	https://semspub.epa.gov/src/document/05/933159

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05	155446	11/01/1987	CRA LTD - SUPPLEMENTAL RI/FS - VOL II: FEASIBILITY STUDY (FS) REPORT - PART 1 OF 2 [TEXT] (12/8/87 ERRATA SHEET ATTACHED)	229	https://semspub.epa.gov/src/document/05/155446
05	155447	11/01/1987	CRA LTD - SUPPLEMENTAL RI/FS - VOL II: FEASIBILITY STUDY (FS) REPORT - PART 2 OF 2 [APPENDICES]	208	https://semspub.epa.gov/src/document/05/155447
05	155450	11/01/1987	CRA LTD - SUPPLEMENTAL RI/FS - VOL I: REMEDIAL INVESTIGATION (RI) REPORT - PART 1 OF 2 [TEXT]	193	https://semspub.epa.gov/src/document/05/155450
05	155451	11/01/1987	CRA LTD - SUPPLEMENTAL RI/FS - VOL I: REMEDIAL INVESTIGATION (RI) REPORT - PART 2 OF 2 [APPENDICES]	512	https://semspub.epa.gov/src/document/05/155451
05	933157	11/05/1986	REMEDIAL INVESTIGATION DATA ASSESSMENT STUDY - PHASE I REPORT	57	https://semspub.epa.gov/src/document/05/933157
05	976288	09/30/1985	[REDACTED] RECORD OF DECISION (ROD) (SIGNED) - WAUCONDA SAND & GRAVEL	302	https://semspub.epa.gov/src/document/05/976288
05	155422	07/01/1985	CH2M HILL INC - REM/FIT - REMEDIAL INVESTIGATION (RI) SUPPLEMENT - WAUCONDA SAND & GRAVEL	314	https://semspub.epa.gov/src/document/05/155422

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05	155421	06/01/1985	CH2M HILL INC - PHASE II REMEDIAL INVESTIGATION (RI) REPORT/DATA ASSESSMENT STUDY REPORT - WAUCONDA SAND & GRAVEL	124	https://semspub.epa.gov/src/document/05/155421
05	155418	11/01/1984	CH2M HILL INC - REM/FIT - REMEDIAL INVESTIGATION (RI) ANALYSIS/DEVELOPMENT OF ALTERNATIVES REPORT - WAUCONDA SAND & GRAVEL	153	https://semspub.epa.gov/src/document/05/155418
05	976289	08/29/1984	[REDACTED] CH2M HILL INC - REM/FIT - REMEDIAL INVESTIGATION (RI) DATA REPORT - WAUCONDA SAND & GRAVEL	379	https://semspub.epa.gov/src/document/05/976289
05	960226	08/24/1983	[REDACTED] FINAL COMMUNITY RELATIONS PLAN	17	https://semspub.epa.gov/src/document/05/960226
11	189619	12/30/1982	NPL FEDERAL REGISTER NOTICE	24	https://semspub.epa.gov/src/document/11/189619
05	960225	12/21/1982	[REDACTED] PRELIMINARY ASSESSMENT	5	https://semspub.epa.gov/src/document/05/960225
05	976283	12/20/1982	FEDERAL REGISTER NOTICE / VOL 47 NO 251 / THURSDAY DECEMBER 20, 1982 / PROPOSED RULES	24	https://semspub.epa.gov/src/document/05/976283
05	976278	Undated	CHAPTER 170: WELL AND WATER REGULATIONS	11	https://semspub.epa.gov/src/document/05/976278

APPENDIX B: ILLINOIS EPA STATE LETTER OF CONCURRENCE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR **JOHN J. KIM,** DIRECTOR

(217) 782-3397

May 17, 2022

Ms. Debora Shore
Regional Administrator, Region 5
United States Environmental Protection Agency
77 West Jackson Boulevard
Mail Code: SR-6J
Chicago, Illinois 60604-3590

Re: 0971850001 – Lake County
Wauconda Sand and Gravel Landfill Superfund Site
National Priorities List Site Partial Deletion
Superfund/Technical

Dear Ms. Debora Shore:

The purpose of this letter is to transmit Illinois Environmental Protection Agency's (Illinois EPA or Agency) formal concurrence with the partial site delisting of the land/soil portion of the Wauconda Sand and Gravel Landfill National Priorities List (NPL) Site in Wauconda, Illinois.

The Illinois EPA is in receipt of the United States Environmental Protection Agency's Draft Partial Deletion Justification of the Wauconda Sand and Gravel Landfill Site from the NPL which was submitted via electronic mail on April 20, 2022.

After reviewing the submitted document, the Administrative Record for this site, and 40 CFR 300.425(e), the Illinois EPA concurs with the determination that all cleanup actions have been implemented and no further response action is necessary for the land/soil media other than continued operation and maintenance (O&M), monitoring, long-term stewardship (LTS) of institutional controls (ICs), and five-year reviews (FYRs).

This determination is being made in accordance with implementing regulations of the Comprehensive Environmental Response, Compensation and Liabilities Act of 1980, as amended (CERCLA or Superfund) found at 40 Code of Federal Regulations 300.425(e) regarding State concurrence on the deletion of sites from the National Priorities List.

If you have any questions regarding anything in this letter or require any additional information, please contact Brian Conrath, the Agency-assigned Project Manager for this site, at (217) 557-8155 or via electronic mail at brian.conrath@illinois.gov.

Sincerely,

John J. Kim
Director
Illinois Environmental Protection Agency

BAC:cah:ptl:P\:\Wauconda S & G\WaucondaS&GPartialDelistingConcltr.docx

cc: Karen Cibulskis, U.S. EPA
Sheri Bianchin, U.S. EPA